I, Thor Erickson, hereby submit this original work as part of the requirements for the degree of:
Master of Community Planning
in Community Planning
It is entitled:
The Process of Design for Affordable Housing in the Non-Profit Sector

Student Signature: Thor Erickson

This work and its defense approved by:
Committee Chair: Johanna Looye, PhD
Johanna Looye, PhD
The Process of Design for Affordable Housing
in the Non-Profit Sector

A Thesis
Presented to the Faculty of the Graduate School
of the University of Cincinnati
In Partial Fulfillment of the Requirements for the Degree of
Master of Community Planning

by
Thor Erickson
B.A. Environmental Design
University of Colorado
June 10, 2010

Committee Chair
Johanna W. Looye, Ph.D.
Committee Member
Francis Russell, M.Arch.
ABSTRACT

This thesis examines the design process for affordable housing as it relates to non-profit builders. It identifies key design elements discovered through a literature review and through semi-structured interviews with non-profit builders in the US, Thailand and The Philippines.

In order to provide the widest possible range of thought associated with design of affordable housing in the non-profit world, I reviewed literature that presents key ideas and work done in the field. There are references on design, affordable housing, and non-profits, although few sources address all three. This thesis brings all of them together.

The literature reviewed shows that current conditions of affordable housing fall between adequate and very good. There are ways to make all housing efforts fall on the “excellent” end of the spectrum. The way to do this is by empowering the community to be part of the design process and by understanding the history of affordable housing and new environmental movements within the housing industry.

The main principle underlying “good” design of affordable housing is that it is something non-profit builders should aspire to because they are in the market to serve the underserved communities that are in need of affordable housing. Good design is less a specific, identifiable outcome than it is a result of a guided process. Interviews with Habitat for Humanity affiliates as well as The Center for Great Neighborhoods show that both use different design processes along with a development team that weight costs with design features and housing amenities. There are many layers involved in the design process; in this thesis suggestions are provided to get the best process possible through conversations amongst a non-profit’s development team, design experts, city planners, architects, residents, historic preservationists and others. If such
development groups do not exist, it is recommended they be formed in order to make this process as strong as possible. Each of these groups of people brings a unique perspective to the table and, through an assets-based participatory approach, their knowledge can be utilized to create good design for affordable housing.

What design actually means differs from person to person so, in the same way, “good” design also changes from person to person. What this research concludes is that looking at the design process can create the definition of “good” design as it applies locally. The use of narrative analysis in this thesis describes the interviews conducted to examine the design process within specific non-profit organizations.

This thesis also presents a set of tables that represent an actual “tool” that any non-profit can use to help a development team understand design, what design means, and how to address this seemingly unmanageable topic. Eight tables were created to take a non-expert in housing through a basic home design process. Breaking design into small, easily understood elements of design helps simplify the process and can aid a non-profit in incorporating design into its work in affordable housing.
BIOGRAPHICAL SKETCH

An early adventure and childhood dream was to be an architect. I studied at the University of Colorado, where I earned a BA in environmental design, thus fulfilling my dream. This was not enough, though. I realized shortly before graduation that architecture was fine but I wanted to work in a small community and give back to the world. I joined the US Peace Corps in 2003 and served in the Philippines, where my future was uncertain and life was exciting and rich. This adventure led me into my current situation.

I have had many dreams in life and multiple paths that I have taken to get where I am now. My latest journey has been to earn a Master of Community Planning (MCP) degree, with a focus in environmental planning and international development. Before coming to Cincinnati I lived and worked abroad, where my energy was put into environmental education and understanding a different culture.

Architecture and planning have been a big part of my life for 12 years, and I have seen firsthand the need for “good” design in both planning and architectural projects. Most recently my interest has been in studying affordable housing projects and what makes a house beautiful.

I am uncertain of what is ahead, but I am not scared. I rely on my talents, education, and the spirit of life to take me where I am needed. This thesis is one small step to be completed and it has taught me very valuable lessons about patience and perseverance. I look forward to my next journey, whatever that shall be.
I dedicate this work to the people who are in need of housing, who struggle every day to survive, and to those willing to sacrifice and make this world equal for all.
ACKNOWLEDGMENTS

I would like to acknowledge Majo Gallardo; without her support I would have struggled to balance my academic and personal life. My heart goes to her.

Two professors deserve acknowledgments: my chair Dr. Looye and my committee member Professor Russell. Without their suggestions, ideas, feedback and support. I would not have been able to complete this project or develop my ideas to their full potential.

I would like to thank everyone at the Center for Great Neighborhoods for helping me grow professionally the past two years. A special thank you goes to Rachel Hastings, Dan Petronio, and Ben Savage, who granted me their time and gave me their knowledge.

I thank the Habitat for Humanity affiliates that I have worked with and those who I was able to interview for this project.

During my data collection I had the pleasure of interacting with numerous people who gave me advice and their time during interviews. I have thanked them personally and would like to say that no matter what we do in life, we need other people to make our dreams come true, so I thank everyone who has helped me on this path. Below is the most memorable thing an informant said to me.

“We have a need . . . to help people who are homeless [or in need of affordable housing], it doesn’t matter if you are in the cold in North Dakota, or on Hawaii; when you are homeless you are still homeless. It is such a blessing to have a home, and there is such a need here as there is all over the world. Some people only see us as living in a garden paradise island. If you are here and have a home it is paradise, but when you don’t, it is not all that pleasurable.”
Table of Contents

ABSTRACT ......................................................................................................................................... ii

BIOGRAPHICAL SKETCH ............................................................................................................. iii

ACKNOWLEDGMENTS ................................................................................................................... V

LIST OF TABLES .......................................................................................................................... VIII

CHAPTER 1: AN INTRODUCTION TO AFFORDABLE HOUSING DESIGN .............................. 1

  THEORY OF HUMAN MOTIVATION ........................................................................................... 3
  PARTICIPATORY ACTION RESEARCH ...................................................................................] 4
  DESIGN THEORY ......................................................................................................................... 5

CHAPTER 2: THE LITERATURE ON AFFORDABLE HOUSING DESIGN, KEY ACTORS, AND ENVIRONMENTAL CONCERNS ................................................................................................................... 7

  INTRODUCTION ........................................................................................................................ 7
  WHAT DESIGN MEANS ............................................................................................................... 7
  ELEMENTS OF DESIGN ............................................................................................................. 11
  COMMUNITY PARTICIPATION IN DESIGN ............................................................................ 14
  COSTS ........................................................................................................................................ 18
  HISTORY (NON-PROFIT, AFFORDABLE HOUSING AND THE ENVIRONMENTAL MOVEMENT IN THE US) ................................................................................................................................. 20
  NON-PROFITS AND COMMUNITY DEVELOPMENT ........................................................... 30
  SUMMARY .................................................................................................................................. 34

CHAPTER 3: METHODOLOGY FOR SEMI-STRUCTURED INTERVIEWS ............................ 37

  INTRODUCTION ........................................................................................................................ 37
  PURPOSE ................................................................................................................................... 39
  PARTICIPANTS ............................................................................................................................ 41

CHAPTER 4: INTERVIEW FINDINGS .................................................................................... 42

  HABITAT FOR HUMANITY ........................................................................................................ 42
  THE CENTER FOR GREAT NEIGHBORHOODS OF COVINGTON ........................................... 43
  THE INTERVIEWS ....................................................................................................................... 44
  Kauai, Hawaii ............................................................................................................................. 44
  Denver, Colorado ....................................................................................................................... 47
  Bangkok, Thailand ...................................................................................................................... 51
  Manila, Philippines ..................................................................................................................... 54
  Covington, Kentucky .................................................................................................................. 55
  SUMMARY .................................................................................................................................. 63
# CHAPTER 5: CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

**Conclusions**

**Implications**

**Recommendations**

1. **Table Logic**
2. **Zoning and Land-Use Regulations**
3. **Lot Design**
4. **Context**
5. **Compatibility with Surrounding Uses**
6. **House Design**
7. **Natural Environmental Constraints**
8. **Suitability for Prospective Residents**
9. **Special Consideration**

**Recommendations for Future Research**

**Bibliography**
List of Tables

Table 1. Elements of Design, Questions................................................................. 13
Table 2. Strategies and Programs for non-profits ........................................ 36
Table 3. Interviewee Information* ................................................................. 64
Table 4. Design Questions and Answers* .................................................... 66
Table 5. Use Questions and Answers .............................................................. 68
Table 6. Zoning and Land-Use Regulation .................................................... 78
Table 7. Lot Design ....................................................................................... 79
Table 8. Context* ......................................................................................... 82
Table 9. Compatibility with Surrounding Uses ............................................. 84
Table 10. House Design ............................................................................... 86
Table 11. Natural Environmental Constraints ............................................ 88
Table 12. Suitability for Prospective Residents ........................................... 89
Table 13. Special Considerations or Constraints ......................................... 92
Chapter 1: An Introduction to Affordable Housing Design

Housing is a hot issue around the world. Everyone needs a place to live. Some people can afford whatever they want while others struggle with simple day-to-day needs so that adequate housing becomes second priority. This thesis aims to look at the process of design of affordable housing with non-profits to see whether doing so is a tool that is used or should be used so that the resulting housing can positively affect people’s health, their sense of community and the sustainability of housing itself.

Looking at non-profits’ approaches to this issue can help identify whether or not design plays an important role. I conducted Interviews in four different geographic locations: Kauai, Hawaii; Denver, Colorado; Bangkok, Thailand; Manila, Philippines; and Covington, Kentucky. I asked questions to three different non-profits about their approaches to the issue of design and affordable housing. More information on this will be provided later in the data methodology chapter. The three non-profits are Habitat for Humanity, Gawad Kalinga and The Center for Great Neighborhoods of Covington. Each organization has different internal structures and missions although each is in the business of providing affordable housing for its respective community.

In the data methodology chapter I provide background of Habitat for Humanity and the Center for Great Neighborhoods of Covington. This is done in order to understand why they were chosen for the interview process and to relate the interviews under the findings section with the literature review.

The initial three theories in this introduction provide a framework for how I came about this idea
of the design process and how the theories of this process can help us understand design issues and development in housing. Chapter 2 focuses on a review of the literature relating to the design of affordable housing and the history of affordable housing in the United States. The data methodology chapter highlights the Institutional Review Board (IRB) approval received and describes the theory of process employed for conducting my interviews. The data analysis chapter uses narrative analysis to describe the settings and context of interviews. The findings chapter wraps up this thesis by marrying the literature review and data analysis to show what I have found.

To begin, two key definitions are in order: affordable housing and sustainability.

The generally accepted definition of affordability is for a household to pay no more than 30 percent of its annual income on housing. Families who pay more than 30 percent of their income for housing are considered cost burdened and may have difficulty affording necessities such as food, clothing, transportation and medical care (hud.gov accessed 10-18-09). Although different communities in this thesis have varying degrees of hardship and need of housing, this definition will suffice in what we are looking at as affordable. I do not focus on the actual costs of the house; I focus more on the process of how the house is designed. Cost is of course a real concept in affordable housing and this definition is provided so the reader knows which houses in the market we are referencing when I say affordable housing.

The most popular definition of sustainability can be traced to a 1987 UN conference. It defined sustainable developments as those that “meet present needs without compromising the ability of future generations to meet their needs” (Brundtland 1987). This directly applies to the housing challenges we face today. We have problems with supply of affordable houses; we tend to build fast and cheap with little concern for long-term effects. The theory of sustainability would
have us meet the needs of housing today but also design in a way that the next generation will
still be able to use it, or can adapt a quick rehab. By looking at methods of construction to get
this done we can achieve the goal of sustainability.

Other definitions have come out of the interview process and I will present them later. They are
used to set a philosophy of the design process for each non-profit as each organization has its
own methods for this.

There are three theories provide a background for understanding what design is and what the
process of design is. They are the theory of human motivation, participatory action research,
and design theory. They are described below.

**Theory of Human Motivation**

Clearly, how people use their homes differs from culture to culture. Thus, when we design, we
can be designing for how people currently use their homes, for future uses or not be addressing
this point at all.

In 1943, Abraham Maslow introduced a theory on the hierarchy of needs, in a paper called “A
Theory of Human Motivation” (Nordhaus 2007). His hierarchy is a pyramid with the bottom level
being the basic needs: food, shelter, and security. Above these are esteem, belonging and
status, and above these are “being” needs such as purpose, self-creation and fulfillment
(Nordhaus 2007). Nordhaus applies Maslow’s theory to changing politics and structure of
people in need. He points out how these universal human needs express themselves as
strikingly different social values. Nordhaus argues that by understanding the true needs and
values of people at different levels of development we can impart change early on in the
process of development. By applying this thought to the process of design we can take what we
know about design and apply it early on in the design process to achieve results that are
culturally specific. Understanding that as people move up in status their corresponding needs and values change, we can anticipate what these may be and design houses for this anticipated change.

In the Gawad Kainga project, health improvements occurred by installing a proper sewer system and by educating the people on proper sanitation with their new bathrooms. The old house had a bathroom with a hole in the ground and septic tank that might be too full, with open gutters and trash on the streets. The new project has sewer lines and closed gutters and water sealed toilets. The forethought and knowledge that better hygiene leads to improved health provided the insight to design this into the housing community and help the people better their lives and start on the process of moving up in status. The design of the house allows this move to take place. This transition shows how as basic needs of shelter improve, the values associated with this design element improve, and what was once perceived as adequate is now seen as outdated and unhealthy.

**Participatory Action Research**

The basic idea of Participatory Action Research (PAR) is that oppressed people will progressively transform their own environment by their own praxis. Incorporated into this approach is the idea that there is a group with knowledge that is trying to help, but will not dominate the situation. Much as we see with the non-profits interviewed, each helps people reach their goals by working with them rather than for them. The idea of human motivation and inserting knowledge into the beginning of the design process works with this theory, by allowing those with design knowledge to empower those without such knowledge by conducting small group projects. These projects will have the residents show what is important in terms of housing design. Residents with knowledge will show why certain design elements will help the community improve public health and provide for long-term effects of the neighborhood. Small
group projects using this theory will get at the needed design elements of the community. These design elements can then be used to design the affordable home. With PAR, people must develop their own awareness. In this case, it is their own understanding of design and why it is important. If they are involved in the entire process, there is more “ownership” and this may lead to a better sense of community. As the idea and elements of design unfold in this thesis, the idea that good design is linked to a better community will be found. With PAR, there is the possibility of a class confrontation, where the people who are engaged in the process may not feel adequate or may not feel up to the challenge of the design task. This is where those with design knowledge will be needed to help guide the group that is focusing on the design tasks at hand (Fals-Borda 1991). This theory of PAR is one-tool non-profits can use to achieve designing affordable housing.

**Design Theory**

With the human motivation and participatory action theories, there is a focus on the people being affected. With the design theory, there is more a look at the outcome of the two previous theories and how they directly relate to housing.

Design theory addresses the actual elements of design, where one looks at whether or not a checklist can be made or whether there are certain contextual elements one can look for. This is not to suggest that a catalog can be made, where one can select a house and say, “I’ll take this one.” It should not be a catalog, but it should be a checklist of sorts that encourages design in the neighborhoods character, all the while working to increase the sense of space and bringing the community together, while improving health and sustainability. Thinking of contextual elements that bring a neighborhood together can be one component; how people develop and the culture that exists can be another. This checklist could be built based on principles of
design theory that are universal and may be applied to affordable housing design. Below is an excerpt from Routio that will be used to help understand this theory.

Design theory is a collective denomination for all the permanent knowledge that is intended to assist the design of various new products. This information has mostly been gathered by a great number of research projects. Corresponding to the usual approaches of research, the information is essentially of two types:

1. Nomothetic knowledge, i.e. general rules that have been gathered from several different products. To this group belong:
   - governmental regulations,
   - standards for characteristics and qualities of products,
   - patents,
   - tools to assist design, like algorithms, advice and rules of thumb.

2. Idiographic knowledge, which actually concerns only individual products but is nevertheless suitable to be generalized to other products as well:
   - exemplars, i.e. descriptions of existing meritorious artifacts or their details,
   - standards for complete products,
   - the prefabricated components that are available for some products (e.g. buildings and computers) are often based on research and they thus can be said to “contain” theoretical knowledge (Routio 2005).

With these three theories as a backdrop, the literature review will define changes in human history as needs have changed with affordable housing, the emergence of non-profits to use PAR and design elements that can be grouped as mentioned in the design theory.

Understanding the affordable housing progression throughout history will show us changes and policies that will be used to support the design elements. The understanding that there is not one solution for the problem but a series of steps to address a problem is necessary to see that a design process can target the issue and be one tool a non-profit can use to better the community.
Chapter 2:
The Literature on Affordable Housing Design, Key Actors, and Environmental Concerns

Introduction
In order to provide the widest range possible of thought associated with design of affordable housing in the non-profit world, I reviewed literature that presents key ideas and work done in the field. There are references on design, affordable housing and non-profits, although few sources address all three, thus the justification for this thesis. This review begins with the literature on design, starting with what design means, elements of design in housing, and community participation in design. A quick examination of costs associated with housing follows, although this section is not as in depth, as the primary focus here is on the design of the homes and the non-profits who build them. The review continues with a lengthy section on the history of public housing, which has long been synonymous with affordable housing, and is intertwined with the history of non-profits, which are generally community-based organizations or community development corporations in the United States. The two histories are brought together to demonstrate how they developed and built upon each other. The short but important environmental movement is also mentioned in the history section. The literature review concludes with non-profits and the tools they use.

What Design Means
Design is an ambiguous term that invokes many different thoughts depending on the context of use. As research on design and how it relates to affordable housing progressed, the term design became less vague and began to describe the process undertaken to fulfill the needs of current and future users. Good design has the potential to benefit many more people than it
currently does; it can address social needs while empowering communities and individuals to improve their own lives (Bell 2008). In this document the term design will focus on housing design and eventually on the process of design.

When adding “good” to design, a case can be made to distinguish between good and bad design. Determining who gets to proclaim that a design is good, the literature suggests that the community should decide the verdict and that the community should be part of the design process to ensure the design ends up in the good category.

As communities shift and the demographics change, what makes a design sustainable? As one case study performed in China suggests, involving residents throughout the design process as well as into development and post development is necessary for success (Lee 1997). The resident involvement will capture people who are active in the beginning stages and into the future of housing developments. Lee goes on to examine changes in architecture of future housing like room size, flow, and private verses public space. He used direct input from the residents as they highlighted what worked and what needed improvement (Lee 1997).

Currently, a common theme is sustainability and the necessity of incorporating this principle concept to have good design. Sustainable design is changing every human endeavor, and as it evolves it invokes environmental images of harmony and durability in housing. The literature suggests there is a strong relationship between the term design and sustainability. As we look toward the future we see there is a need to change the way we build and design everything from books, to office space and into housing. “Sustainable development requires meeting the basic needs of all and extending to all the opportunity to fulfill their aspirations for a better life. A world in which poverty is endemic will always be prone to ecological and other catastrophes” (Hosey 2008, 35; citing Our Common Future 54).
The first goal of the UN Millennium Declaration proclaims to eradicate poverty while the seventh goal looks to ensure environmental sustainability. Two of the goals specifically call out the need to change and provide aid where it is needed to improve living conditions. Part of this can be done through housing and through the process of good design. If a house is designed to grow with a family as the family grows, the house can be used longer than it would be if the family outgrew the house. In order to understand what is needed, we must bring in the community into the design process. As the theories in the introduction ground us in the design process, we can see there are many of layers necessary to achieve the goals stated by the UN.

A mantra that emerges throughout the literature on design and affordable housing is that “design can make a difference, designers make a difference” (Hosey 2008, 38). Hosey outlines five principles toward a humane environment that embody many other authors’ insights into the issue. They are:

1. People come first
2. Now comes before later
3. More for more
4. The triple bottom line is bottom up (it is always about the cost)
5. Nature knows no borders (we need to design with nature not against it) (Hosey 2008, 39)

This list is important for more than just the exercise of categorizing, but because it speaks to the needs of the people, the natural environment, and the costs involved. These three issues are recurrent themes in the literature. This is especially true when reviewing the literature on non-profits and how important the bottom line is to stay competitive in the housing market.

There are multiple ways to describe good design and it is up to the viewer to determine whether the design is good. Aesthetics are important but not the only way to determine excellence. One must look at the proportion, sense of identity, size, rhythm of opening, circulation, access to light and air, sense of place, and creation of spaces that are safe and easy to maintain (Dorgan and
Evans 2008, 149). How a house looks, how well it works and who lives in it is of paramount importance. Quasi-permanent housing is a reproach to anyone who has ever allowed poorly designed, cheaply built housing to be constructed with the excuse that it will have a “useful life” of 10, 20 or 30 years (Mallach 2009, 53). In the US three of five houses standing in 1950 were still in use in 2005 (Mallach 2009, 53 citing The Annual Housing Survey 2005). Malloch goes on to say that houses were built better back then and still compete with new homes and that it is critical to think of the building and the site as one. There is a need for a housing unit to be designed from site level up (Mallach 2009). This idea that the site and house are one and that together they serve the homeowner or home occupant is a common theme and addresses the ideas that affordable housing needs to be designed differently for the future. It serves as a call to planners to look at policy to see what is going on now that requires change.

In the US the Department of Housing and Urban Development has regulations that restrict what funds can be used for. For example, luxury items such as dishwashers and washers and dryers are excluded from public financing. As Dorgan points out, if the above-mentioned design elements are not addressed you cannot hide behind finishes and appliances (Dorgan and Evans 2008). The root behind good design is more than the finishes of the house; it is the underlying elements of design of the house explained in Table 1. This concept is foreign to many people, and as this process starts to showcase; design is essential to producing an environment that anyone would be proud of. As housing developers understand this point we have seen housing floor plans change and evolve to what the people want. This is not always true, however, for the affordable housing market. Design is often overlooked for that bottom-line that Hosey emphasizes.

“If we want to make a lasting impact on society and culture at large, we must begin to transform the mediocre built environment. To accomplish this, architects and building designers must act
as business people, civic leaders and activists. Our obligation is simple: our built environment must be improved, and we must lead the way” (Borden 2008, 245).

There are many design lessons to be learned from our failures and it is our failures that helped to further the stigma associated with affordable housing. Three decades after Pruitt Igoe and other large public housing facilities have been torn down and even with thousands of successful projects, affordable housing units still have to prove they will not be Pruitt. Responses to design issues are not only architectural, but also what the community prefers (Mallach 2009, 53). One size housing does not fit all, and designers need to know the user of the housing being designed (Mallach 2009, 58). Key factors affecting design are: demographics (e.g., age, number of children, single, married, income, assets) cultural and religious affiliation for use of indoor and outdoor spaces (Mallach 2009, 59).

**Elements of Design**

Poverty and hardship are not that easy to overcome and living in bad places is not enough of a carrot. As Davis argues, “if we want affordable housing that fits comfortably into the community, that bestows pride and a sense of self-sufficiency on its occupants and helps them assimilate into that community then we cannot continue to build the stripped-down subsidized project that we have come to accept as low-income housing” (Davis 1995, 9).

Houses should fit into the context and there has been research showing that having affordable houses on the street does not diminish a neighborhood, but a poorly designed house can stand out (Mallach 2009, 82). Houses should fit in and not dominate the street by either being over-or-under-designed. Compatibility between old and new houses can be achieved through design guidelines, consistent setbacks, or variation in setbacks, ratio of between-building volumes, space between houses, height, and replicating features. The goal is not to recreate older
houses but to bring new ideas into an old setting (Mallach 2009). Table 1, by Malloch outlines some of the key elements in design and the questions that should be asked. His work into design elements is essential to the design of affordable homes. He creates a framework from which an understanding of design ideas can be understood.

Architects and designers need to understand the needs and desires of those who intend to use the home and can create a set of principles that determine the actual characteristics. Davis points out that the majority of Americans live in single-family houses and this creates design limitations. He goes on to say that the single-family house is a second rate form that has been shown to not be the best model for affordability or environmental sustainability (Davis 1995).

The most common form for affordability is high-rise or apartment spaces, which may be out of character with what the people want, so design has to come into play to achieve this. Designers can treat multi-family spaces as an agglomeration of single-family spaces (Davis 1995). Succumbing to the notion that the single-family space is the only way to achieve our values is naïve and needs to be rethought, each space can have its own identity (Davis 1995). To get there, however, the community needs to be brought in and a collaboration of ideas and architecture can be achieved.
<table>
<thead>
<tr>
<th>Category</th>
<th>Elements</th>
<th>Key Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size and configuration</td>
<td>• Size</td>
<td>• Is the size and shape of the site adequate to accommodate the proposed use?</td>
</tr>
<tr>
<td></td>
<td>• Depth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Regularity or eccentricity</td>
<td></td>
</tr>
<tr>
<td>Zoning and land-use regulation</td>
<td>• Use</td>
<td>• Is proposed development consistent with land-use regulations?</td>
</tr>
<tr>
<td></td>
<td>• Height, floor area, coverage, setback</td>
<td>• IF NOT, is there a sound argument for seeking variances or exceptions, and are such potentially available?</td>
</tr>
<tr>
<td></td>
<td>• Parking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Open space</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Special permits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Design review</td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>• Sewer treatment</td>
<td>• Is infrastructure available at the site?</td>
</tr>
<tr>
<td></td>
<td>• Water supply</td>
<td>• IF NOT, can facilities be brought to the site?</td>
</tr>
<tr>
<td></td>
<td>• Vehicular access</td>
<td>• IF NOT, can facilities be provided on-site?</td>
</tr>
<tr>
<td>Environmental constraints</td>
<td>• Wetlands</td>
<td>• Is all or part of this site affected by environmental constraints?</td>
</tr>
<tr>
<td></td>
<td>• Flood plains</td>
<td>• IF YES, is the nature and extent of the constraints such that they can reasonably be mitigated?</td>
</tr>
<tr>
<td></td>
<td>• Steep slopes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Natural resource preservation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Environmental contamination</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Other</td>
<td></td>
</tr>
<tr>
<td>Suitability for prospective</td>
<td>• Access to public transportation</td>
<td>• Is site accessibility adequate to meet prospective resident needs?</td>
</tr>
<tr>
<td>Residents</td>
<td>• Access to jobs and services</td>
<td>• IF NOT, can access be improved or services provided on-site?</td>
</tr>
<tr>
<td></td>
<td>• Access to supportive services, such as child care</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to open space and recreation</td>
<td></td>
</tr>
<tr>
<td>Compatibility with surrounding</td>
<td>• Proximity of uses that are incompatible with housing</td>
<td>• Is site adjacent or proximate to potentially incompatible uses?</td>
</tr>
<tr>
<td>uses</td>
<td>• Proximity to areas that would perceive affordable housing as incompatible</td>
<td>• IF YES, can effects of proximity to incompatible uses be mitigated through design or other strategies?</td>
</tr>
<tr>
<td>Special consideration or</td>
<td>• Historic districts</td>
<td>• Is site or proposed use subject to any special considerations or constraints?</td>
</tr>
<tr>
<td>constraints</td>
<td>• Farmland preservation</td>
<td>• IF YES, can they be addressed in ways that do not impair the feasibility of the proposed development?</td>
</tr>
<tr>
<td></td>
<td>• Easement or right of way</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Regional planning conditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Specific affordable housing funding program criteria</td>
<td></td>
</tr>
</tbody>
</table>

Source: Table 4-1 (Mallach 2009, 81).
Community Participation in Design

In order to get from the concept of good design to practice we must use the tools that have been experimented with throughout the years. In current literature the theme is participatory design processes, where a body of different professionals and community groups interact to create and design together. This is not unique to housing and transcends into all form of development programs. There is a shift away from doing this for people to doing this with people. This last line is part of Habitat for Humanity’s mission statement. This is an organization that will be discussed later on for their philosophy in development.

Gamez suggests that to support an architecture of change, a foundational theory based on action is needed. The current situation calls for a theory that asks citizens to participate, architects to reinvent, academic administrations to rethink, and politicians to be accountable (Gamez and Rogers 2008). Gamez states this would be a complete restructuring of the current system and outlines three ways to get where he thinks we need to be.

1. The architect needs to understand why design is important in the market and how collaborative design with communities is the way to achieve growth and challenge current market systems.
2. Rethink the utopian form, from a practice into a process that redefines social and political power.
3. Design should be a liberated expression that seeks to have aesthetic and spatial concepts through civic expression and diverse public realms. Striving for unity and equality in communities (Gamez and Rogers 2008).

Design is changing existing situations into preferred ones. Wilson tells us only a small percentage of the population benefits from architectural services. With the community lacking a voice, we lose the character, diversity, affordability, and integrity that make communities thrive (Wilson 2008).

Social architecture can help change this. Social, Economic, and Environmental Design (SEED) from Tulane tries to make it so every person has the right to SEED, which is a more holistic
ethic for building. It is a concept that architects and designers are looking at and working with in development settings. This is similar to the ways many non-profits approach housing but SEED is comprehensive and targets the people who are in need of affordable housing. This is one way in which design is being used to work with the community and housing together. The concepts of SEED are:

1. Every person has the right to live in a socially, economically, and environmentally healthy community.
2. Advocate with those who have a limited voice in public life.
3. Build structures for inclusion that engage stakeholders and allow communities to make decisions.
4. Promote social equity through discourse that reflects a range of values and social identities.
5. Generate ideas that grow from a place to build local capacity
6. Community design should help conserve resources and minimize wastes (Wilson 2008, 28-29).

Community-based design brings practitioners, artists, neighbors, students, teachers, and social and ecological activists together to address urgent needs of the community. The attention to the local knowledge is seen as a valuable element. By having participants you get to incorporate local culture and can begin to understand the local needs and move forward with design from this knowledge.

Design is an expression of human intent in the material world. “Active citizenship begins with the recognition that the public realm is a political and physical terrain of struggle that is produced contextually, relationally, and through dialogue; that is incrementally negotiated over time through democratic participation; and that is manifested in material form” (Aeschbacher and Rios 2008, 85). Based on the community design, the designed house or public areas should encompass spaces of recognition, engagement and materiality (Aeschbacher and Rios 2008). Through recognition, designers will redefine themselves as citizen-designers by being both members and enablers of the community; they will redefine the power of designers in this
method and this education will then empower the residents (Aeschbacher and Rios 2008). To encourage a sense of place and community there are design focuses that may be used. New urbanists address these concepts through:

1. Social benefits
2. Community benefits
3. Financial benefits
4. Environmental benefits
5. Preservation benefits
6. Aesthetic benefits
7. Democratic benefits (Rees 2003, 97).

New urbanists believe there needs to be a connection to physical design for creation of community and that this is done through a walkable neighborhood with a center hub that is public with mixed uses appropriate for a wide spectrum of ages and income (Rees 2003, 97). Given this range of uses, it is important that the community in engaged to use these spaces. Engagement of the community is important because the residents have a common set of values; their concerns and visions can then motivate them to strive to change it for the better (Aeschbacher and Rios 2008).

By understanding this theory of community participation and actively engaging residents better spaces can be achieved. Participation is the fundamental hallmark of a democratic society according to Berry, Portney and Thomson, this redemptive aspect manifests itself in three distinct ways: Participation nourishes democracy by educating individuals how to become good citizens, second it contributes to community building by linking the individual to the state, and thirdly it forces institutions to be more responsive thereby enhancing the overall democratic nature of the government (Ferman and Kaylor 2000, 98, citing Berry, Portney and Thomson 1993).
Neighborhood organizations can play a critical role in encouraging participation, but will depend on a mix of organizations, internal structures, and other externalities (Ferman and Kaylor 2000, 99). The Center for Great Neighborhoods is one such organization that uses this theory and an examination of their structure will be presented later on.

Students can be used to help with the design collaboration since, in the real world, little happens without collaboration. Design-build projects are a great vehicle to teach a team-based approach. Teaching design-build is a challenge and requires pre-planning and effort from professors, it has shown signs to enhance the learning experience (Badanes 2008). Schachter argues that the use of co-op students, where they work one quarter and then have one quarter in classes, allows for the students to grow as professionals while serving the communities where they work. Schachter suggests that an experimental master’s degree could be developed that features community collaboration and activism as core values for design education where designers need to work with many different people in order to get the design done. Understanding the greater need for good design helps drive the design process (Schachter 2008). In short, student action with communities can have transformative power; for both the student and the citizens they reach (Palleroni 2008).

As Palleroni points out, the act of building has a greater impact on the earth than anything else we do and when we design without the poor in mind the poor they are marginalized to the point that they are non-citizens and non-members of the economic community. They are excluded from the design process that directly affects their lives. By using students who work with these people, they show mutual appreciation and respect. Giving them a voice improves their lives (Palleroni 2008).
The idea of community can be an abstract one but the literature suggests that the idea of community can be possible. There have been a number of surveys conducted on where people prefer to live, with choices of a city, suburb, small town, or rural setting. Small town is most popular (Ferman and Kaylor 2000, 93), which has a lot to do with how affordable houses would be designed. Of course, each organization must understand its individual situation, which leads into the community discussion. As a neighborhood has to perform critical functions and neighborhood institutions can maintain ingredients such as sense of belonging, an identity, positive ways to interact with others, shared events, and activities and common values and loyalty, community building tries to capture these themes to build community (Ferman and Kaylor 2000, 94). The definition of community rests on a dynamic conception that includes at least the following components: a sense of attachment and belonging, sense of identity, the existence or regular social interactions, shared activities, values, events, norms and a formal and informal network (Ferman and Kaylor 2000, 98, citing Hillary 1955 and Lyon 1987).

**Costs**

Non-profits can work with the community for the sake of better design. Davis points out that the builders need to spend as much on affordable housing as market rate to insure proper fit and context into any given neighborhood. Non-profits have tools that help them find ways around HUD’s limitations and items of the home they find frivolous. This is often a surreptitious manipulation of the budget for the benefit of good design (Davis 1995).

Appearance and maintenance affect only a portion of cost and as noted earlier are not the only factors in assuring good design. The people the affordable housing is intended for can add costs, for instance, if more rooms are needed or the layout needs to be changed for religious or cultural needs, the costs may rise. These changes can affect the bottom line, unless an
understanding of the target market is achieved or brought into the design process early on (Davis 1995).

Generally speaking, affordable housing costs the same as market rate housing. This may seem illogical but is generally true, unless building style and design is approached from different angles. The literature helps develop this idea and will unfold as we progress. A common question emerges: why spend so much on poor people?

The costs involved in building a house along with the deep subsidies provided are not the key focus in this thesis but should be discussed briefly and in relation to sustainable development. Along with the participation of the community in the design process, cost savings can come from the building materials, through premade materials, modular panels, larger spanning elements, structural concerns, volunteer labor, and other elements. non-profits use these methods and others to complete projects at lower costs (Davis 1995).

In the broadest sense, sustainable development includes the costs associated with the house as well as considerations of how a development will acknowledge its social impact on both residents and the surrounding community (Stephen del Percio 2009). Many new projects are unsuccessful due to limited operating budgets that struggle to meet energy costs which are typically 25% of a project’s budget, even though greening a home can save 20% of electric use and 10-20% in water use (Stephen del Percio 2009, 206). The limited operating budget can affect the community that is part of the design process.

Being aware of the costs is an important step. Building material choice can help users spend less on utility bills thanks to greening ideas like low volatile organic compound (voc) paint and sealants. Reducing overhead in this way leads to smaller subsidies needed through proper design of the home. The literature mentions that a better life can be achieved for the
homeowners or tenants because utility bills are more manageable (Stephen del Percio 2009).

With a focus on better finish details a better design can be incorporated, leading to a nicer home. Nevertheless, many developers fail to meet the bottom line, so they cut costs and often construction is not as good as it could be. So poor product choices can lead to repertory hazards (Stephen del Percio 2009). When the community is involved in the process they benefit from the holistic experience of the design, which may feature elements of a green home, with external design features such as walkable neighborhoods, transit, access to jobs and schools and other amenities which, can then lead to be a more established sense of community and proved health (Stephen del Percio 2009).

Stephen del Persio conducted a study of 16 green housing projects in the US. The focus of the study was to see if green elements would raise the cost of building. Whether or not green elements will cost more depended on the project, an increase of 9% to decreases of 18% were found (Stephen del Percio 2009, 210). The costs will have to incorporate project design, location, size and scope, access to grants, tax credits, and creative financing. The Green Communities Initiative educates non-profits in how to develop green homes based on mainstream ideas. This standard is to affordable homes what Leadership in Energy and Environmental Design (LEED) is to commercial properties (Stephen del Percio 2009). LEED will be discussed in the history section.

**History (non-profit, affordable housing and the environmental movement in the US)**

The development of the non-profit sector in housing development is deeply rooted in the history of public housing in the United States. Although there are many types of non-profit organizations, the literature reviewed focuses on those that are involved in housing whether that involvement is in design, financing, new or rehabilitated construction or the community-building
component. There are common themes that emerge as the history of both affordable housing and the non-profit sector evolves.

**Late 1800s**

Affordable housing, was first achieved through public housing and, starts with the tenements of the late 1800’s. The affordability of the home was not as important as ill health and social issues. As the homes became better, the poor health issues also improved. The idea of subsidies for housing for wage earning families was unthinkable and the problems with high rent were linked to landlords’ profiteering visions. In reality, though, affordability was an issue, and was addressed with doubling up and living in small spaces (Mallach 2009, 31).

**1900s to 1920s**

Conditions hardly improved into the early 1900’s, affordability and sanitary and housing conditions were not seen as a government issues. It was up to the people to demand more, but they did not have the capacity at this time (Mallach 2009, 21).

**1920s**

The 1920’s brought the housing reform movement, mostly a grassroots effort, while government showed no interest in housing issues (Mallach 2009).

**1930s**

In 1931 the Carl Mackley Houses in Philadelphia were designed and built with the people who would use them in mind. They had great amenities such as a nursery, library and swimming pools (Mallach 2009). This experience reveals that, as houses improved, so did lives and health.
The government, through pressure from housing reformers, began its involvement in housing issues. In 1933 the New Deal was established, which, mixed with a band of housing advocates rooted in the environmental determinism movement believed the slums could be improved with the aid of government. The vision was that public housing would aid the poor as well as two-thirds of the American public (Mallach 2009, 34, citing Von Hoffman 1996). This was not the reality. As architect Sam Davis notes, “Affordable housing became mean spirited, the dwellings spartan” (Davis 1995, 13). Housing was about the numbers and not about the design. Throughout the New Deal housing era 140,000 housing units were produced. In the 1930’s the government built 51 projects including 21,800 housing units (Mallach 2009, 34, citing Von Hoffman 1996). In 1937 the Wagner Act provided funding for public housing in the amount of $300,000 in New York (Mallach 2009, 35).

1930s to 1950s

By the 1940’s public housing was cheap and austere. For instance there were no closet doors, parents’ bedrooms were small to limit infants sharing space and had the rooms had limited storage space (Malloch 2009, 55, citing Wright 229). Housing reform stayed on the path outlined in the 1930’s until the 1950’s, when misguided policies mixed with working class households experienced postwar prosperity, thus they moved out of public housing while poorer less work-oriented people moved in (Mallach 2009, 35). At this same time, policies were created that made public housing accessible for displaced residents due to highway and urban renewal projects (Mallach 2009, 35).

non-profit organizations called Community Based Organizations (CBOs) were starting to come alive at this time in response to what residents considered misguided government policies. In their infancy they were in opposition to the government policies on housing. Up until the 1970’s
they worked against the government to provide housing at the community level while working to avoid urban renewal and highway building projects (Mallach 2009, 71).

1950s

The population at this time served by public housing became poorer and poorer while new public housing faced cost containment, lacked amenities and was void of resources, all while the high-rise architecture did not allow for much individual space. During the 1950’s high-rise buildings or towers in the park were built, creating higher densities, which allowed for cost savings (Mallach 2009, 54). From 1954 to 1956 Pruitt-Igoe was built in Saint Louis. This was the largest public housing facility of the era. It consisted of 33, 11-story identical buildings designed by Minoru Yamasaki. Amenities were sparse and the buildings had elevators that only stopped at floors 1, 4, 7, and 10 (Mallach 2009, 55). This cause circulation and isolation problems for the residents, floors without elevator access turned to unsafe locations in the building.

1960s

Only in the 1960’s did the government realize it would need to provide large subsidies to prevent public housing from going into the red (Mallach 2009, 36). Change in how government approached affordable housing came in 1960 with section 221(d)3, which worked with non-profits by offering low-interest mortgages to build homes for moderate income families (Mallach 2009, 37).

In the 1960’s, the first policy directed at non-profits emerged thus marrying housing issues with non-profit housing organizations. Later on in the 1960’s, many more policies were developed to assist non-profits in housing reform. They are listed below.
1964 Economic Opportunity Act – This act created the community action program aimed at helping at the community level (Mallach 2009, 71).

1966 Model Cities Program – This program, along with the Economic Opportunity Act, showed that community organizing was valid and the government supported it. During this time the government also aided non-profit housing and community development organizations (Malloch 2009, 71, citing Lemann 1991).

1968 Housing and Urban Development Act – This act set a goal to provide 6-million housing units over 10-years (Mallach 2009, 38).

1968 Section 235 – This section outlines provisions for affordable home ownership subsidies for those making 95% of an area’s median income. This would bring the interest rate down to 1%. While the homebuyer would still pay the full price of a house, the low interest rate on the mortgage would reduce the monthly payments (Mallach 2009, 38).

1968 Section 236 – This section outlines low interest rates available for developers of affordable rental housing. It essentially works the same way as section 235, but it was limited to developers of affordable rental housing (Mallach 2009, 39).

1969 Brooke amendment – This amendment set the rents and utility cost cap at 25% of tenant income (Mallach 2009, 39).

1970s

From 1970-1975, sections 235 and 236 were phased out. While 400,000 units were produced under the programs, the political climate of this generation saw a different direction for housing (Mallach 2009, 39). Nearly 250,000 units produced during these times, although fewer than the
6-million outlined by the Housing and Urban Development Act of 1968, was still substantial and, as noted, the policy was questionable and perhaps unrealistic (Mallach 2009, 39-40).

During the 1970’s the Green movement started. Its history traces back to the 1970’s oil crisis when government started to provide tax credits for investment in solar and funded innovations in renewable energy sources.

The first building in the Pruitt-Igoe complex took place in 1972. This was a huge step forward in how public housing would be designed from then on. Seeing the superblocks as unrealistic and bad for people, new designs emerged on how to handle affordability issues.

Section 8 was created in 1974. This section provided housing vouchers, which are a flexible tenant-based housing subsidy that allows tenants to select their location of residence (Mallach 2009, 42). By the end of 1978, funds were committed to build more than 500,000 units of new Section 8 housing (Mallach 2009, 42).

The 1977 Community Reinvestment Act helped private institutions provide funds to non-profits, further legitimizing their efforts in affordable housing (Mallach 2009, 71). The Act is a United States federal law designed to encourage commercial banks and savings associations to meet the needs of borrowers in all segments of their communities, including low- and moderate-income neighborhoods. This act, passed by Congress in 1977, aims to reduce discriminatory credit practices against low-income neighborhoods, a practice known as redlining (Schwartz 2006). Since this act was put in place, affordable housing has been spread into many different communities. The problem is getting an adequate mixture of market-rate to affordable housing in a given community. Other problems relate to defining what, exactly, is a good proportion of market-rate to affordable housing.
1980s

From the 1970’s into the 1980’s, new planning methods like inclusionary zoning, employer-assisted housing, and community land trusts emerged from local non-profits (Mallach 2009, 49). The 1980’s saw the emergence of Community Development Corporations (CDC) and locally based non-profits, representing a shift in community ownership through the help of intermediaries like Local Initiatives Support Corporation (LISC) and the Enterprise Foundation, making them not only housing developers but community developers as well (Mallach 2009, 49).

The 1980’s brought a new shift in housing policy. In 1982 the Reagan administration asserted that production of affordable housing was too expensive, long-term subsidy commitments were costly and restricted the federal governments’ flexibility to deal with changing housing needs, and production programs are not the most direct way of meeting the major housing problems of lower income persons (Malloch 2009, 43, citing the Report of The President’s Commission on Housing 1985, 17). The Reagan administration also made significant cuts to non-profits during this time and, as a result, Malloch suggests that community-based non-profits are on the defensive and under funded. Malloch notes that more funding cannot solve the issues of non-profit housing, because there is a deeper problem. He argues that problem is the legitimacy of non-profit builders: they are truly different than private market developers and are constantly under attack by government funders (Mallach 2009, 85).

In 1985, through the Environmental Defense Fund, the first houses and buildings were built using green ideas such as natural materials, natural light and air to help cure the “sick building syndrome,” a term used to describe a house with poor air quality, poor circulation and one generally falling into disrepair (Kibert 2009).
Aside from the non-profit approach during this time, government policies enacted reduced production on new housing. From 1985 to the present, production has never exceeded 50,000 units a year (Mallach 2009, 43). In 1986, as a by-product of the Tax Reform Act, the Low Income Housing Tax Credit (LIHTC) was created, which gives investors credit for making an equity investment in a low-income rental development (Mallach 2009, 45). From 1987 to the present, the LIHTC has become the largest vehicle for producing affordable housing in the United States. Through 2005, 1.5 million units and 24,000 housing projects have been built (Mallach 2009, 45).

From the 1980’s through the 1990’s renewed interested in conservation and the beginning of awareness of global changes in climate, ozone depletion, and overuse of natural resources became apparent (Kibert 2009).

The 1987 United Nations Commission on Economic Development produced the Brundtland Commission Report, which defined the term sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their needs” (Kibert 2009).

1990s

In 1990 the HOME program was created. States, counties and municipalities that met certain size and need criteria were eligible to receive annual block grants, which could be used for a wide variety of housing needs. Nearly 800,000 families or dwelling units have been served by HOME grants since its inception (Mallach 2009, 46).

In 1993, a joint meeting between the International Union of Architects (UIA) and the American Institute of Architects (AIA) was convened. They worked to develop a code of principles to facilitate sustainable development. The “greening” of the White House, a project dedicated to
green design and energy cost savings, was also introduced in 1993, resulting in about a $300,000 savings per year for utility costs at the White House (Kibert 2009). Also in 1993 the United States Green Building Council (USGBC) developed the Leadership in Energy and Environmental Design (LEED) standards which continue in use to this day (USGBC 2010).

In 1998 the Section 8 program was renamed “Housing Choice Vouchers.” By 2004, two million housing choice vouchers had been administered since its inception (Mallach 2009, 43).

2000s

Congress created the Millennial Housing Commission in 2000, along with a set of guidelines for affordable housing. These guidelines were ignored by both the Clinton and Bush administrations (Mallach 2009, 48).

The Affordable Housing Program (AHP) of 1989 has federal home loan banks dedicate 10% of their annual net income to the program. From 1990 to 2003, $1.7 billion was used to build 358,800 housing units (Schwartz 2006). To further strengthen the AHP, the federal government imposed several “affordable housing goals.” In 2006 these were:

- Low-and moderate-income goals: At least 53% of the housing units financed by mortgages acquired by the Government Sponsored Enterprise (GSE’s) must be for families with incomes no greater the area median.
- Special affordable goal: At least 23% of the housing units financed by each GSE’s mortgage purchases must be for very low-income families (with income below 0% of the area median) or for low-income families (with incomes below 80%).
- Special affordable multifamily sub goal: Each year HUD establishes minimum dollar amounts of mortgage acquisitions involving affordable rental housing. The total sub goal in 2006 was $9.4 billion.
- Geographically targeted goal (for underserved areas): At least 38% of the housing units financed by each GSE’s mortgage purchases must be for units in central cities, rural areas, and other underserved areas, based on income and minority concentration (HUD 2004a)

Housing opportunities Made Equal (HOME) of 1972 is authorized under Title II of the Cranston-Gonzalez National Affordable Housing Act, as amended. Program regulations are at 24 CFR
Part 92(HUD, www.hud.gov 2009). It is listed here, because it is a strong program that many non-profits use.

HOME provides grants to States and localities that communities often use in partnership with local non-profit groups to fund a wide range of activities that build, buy, and/or rehabilitate affordable housing for rent or homeownership or provide direct rental assistance to low-income people (HUD 2009).

HOME is the largest Federal block grant to State and local governments designed exclusively to create affordable housing for low-income households. Each year it allocates approximately $2 billion among the States and hundreds of localities nationwide. The program was designed to reinforce several important values and principles of community development:

- HOME’s flexibility empowers people and communities to design and implement strategies tailored to their own needs and priorities.
- HOME’s emphasis on consolidated planning expands and strengthens partnerships among all levels of government and the private sector in the development of affordable housing.
- HOME’s technical assistance activities and set-aside for qualified community-based non-profit housing groups builds the capacity of these partners.
- HOME’s requirement that participating jurisdictions (PJs) match 25 cents of every dollar in program funds mobilizes community resources in support of affordable housing.

Families must have incomes that are no more than 60 percent of the HUD-adjusted median family income for the area. The incomes of households receiving HUD assistance must not exceed 80 percent of the area median (HUD 2009).

In 2007, the HOPE VI Green Building and Technical Assistance Act was passed and required homes to meet Green Communities Criteria for residential buildings and the U.S. Green Building Council’s LEED for New Construction standards for commercial buildings. The standards are not as stringent for the residential buildings. This is key due the fact that energy efficiency standards have not yet been incorporated into HUD’s selection criteria but are part of the HOPE
VI policy. The rational for this amendment is that nearly 17% of a low-income family’s earnings are consumed by energy costs, green technology helps reduce utility costs and increases a home’s efficiency (HousingResearch.org 2010).

Non-Profits and Community Development
Where there currently seems to be no affordable housing direction by the government, non-profits have picked up the slack. There are some programs like HOPE VI, which looks to redevelop housing sites with new design theories, but mostly the government’s goal seems to preserve what exists today (Mallach 2009, 48). The literature on non-profits reveals focuses on the individually communities. As the history above outlined, there was the trend from the government doing nothing for housing to a limited role to large-scale projects all along assisted by community developers. Government policies are now more directed at helping non-profits succeed and provide LIHTC, look to new technology and help with the countries housing burdens.

non-profits use of architects on a pro-bono basis helps reduce costs and provides needed design elements. Peterson introduces a concept of the 1%, meaning if architects were to donate 1% of a work week, or 20 hours of work per year, this would equate to a 2500 person staff working 40-hours week (Peterson 2008). Peterson goes on to observe that getting clients may be difficult but that architectural firms can do some things to recruit clients:

1. Create a competition of staff
2. Use insight of design of affordable houses to start dialogue about issues
3. Partner with other firms
4. Adopt a non-profit to work with
5. Seek recognition for your cause (Peterson 2008, 103)

This is at least one tool non-profits may choose to utilize if architects in the area are willing to participate in the community design process. This is being used in Philadelphia with the
Community Design Collaborative, where non-profits work with this organization to better serve the community. It helps clients build neighborhoods and, together, the collaborative and its clients have become successful neighborhood developers (Rastorfer 2008). In essence the architects are then working as neighborhoods assets.

To assist the community through an asset-based approach, the designer, planner, or architect works as instigator who conceives of a project that helps the community. Through this, the professionals empower communities that are not cash rich but may possess many other resources (Hendler-Voss and Hendler-Voss 2008). A community may need to inventory capacities instead of listing needs to stay on the positive side and not work backwards. The designers must enter a community with the energy to ask questions, listen, and learn, thereby becoming part of the community and engaging in community events (Hendler-Voss and Hendler-Voss 2008).

As the literature unfolds, it is important to note the role non-profits play. They have the flexibility, local knowledge, voluntary initiative, and grassroots legitimacy that is missing from government programs with CBO’s that are usually small and have few layers of bureaucracy. What sets non-profits apart is their concentration in well defined geographic areas and their ability to partner with governments (Swanstrom and Koschinsky 2000, 66). CBO’s leverage their partnership abilities with volunteer labor, philanthropic contributions, and sweat equity to stretch funding even further; they can help jump-start markets in low-income areas and work with banks and other private investors to obtain support. In addition, they are an aid to the community because they bring these resources to the table to enhance both government and private markets (Swanstrom and Koschinsky 2000, 67-68).
A common concern of planners working in affordable housing is the concentration of poverty and the site of large projects. These issues affect how to design, what standards are designed and the understanding that affordable housing has at times led to further decline of areas because of density (Mallach 2009, 178). The deconcentration of existing sites is of particular concern in the design of affordable housing. The Harvard School of Public Health studied 46 metropolitan areas, 20 of them in the poorest census tracks of the country with 40% of the population living in poverty (Mallach 2009, 179). LIHTC’s favored locations of poverty as a way to serve the population but also keeps the concentration the same, while HOPE VI lessens density while deconcentrating poverty (Mallach 2009, 183). The idea of deconcentration is a new approach in affordable housing. HOPE VI projects have started using LIHTC only to layer funding but also to show a shifting norm of location-location-location to a mixed use and income concept. This, paired with non-profit based tools, and the use of inclusionary zoning, helps to spread affordable housing throughout the city (Mallach 2009, 185).

Non-profits exist because people want more of certain public goods and turn to non-profits when government fails, even though funding comes from the government sector. Although it is the government’s responsible for provisions and regulations it is up to non-profits, to carry out the production, which is usually done through partnerships (Swanstrom and Koschnsky 2000, 69). CDC non-profits involved with housing are generally also involved with many other aspects of the community including economic development, social services, greening, community organizing, and building efforts. The Local Initiatives Support Corporation (LISC) defines its mission statement as “resident-led, community-based development organizations that transform distressed communities and neighborhoods into healthy ones, good places to live, do business, work, and raise families” (LISC 2010). The growth of intermediaries like LISC is helping non-profits see that neighbors need to be part of the solution.
“Community of choice” is a new buzz word, as Malloch points out, users are not sure where it came from but is widely used and, simply put, if consumers, home buyers, renters and other investors chose to move into a neighborhood and stay, a community will thrive. This community of choice will help stabilize the housing market in that area (Mallach 2009, 191).

It is great to have buzz words and talk about getting a community involved, but it is another to have strategies that help accomplish the objective. Malloch has outlined strategies that focus on achievement of affordable housing:

1. Increase desirability of housing stock, either through physical improvements, financial incentives or marketing strategies.
2. Increase the stability of the neighborhood by reducing abandonment, fighting crime and drug activity, or improving schools.
3. Increase amenities, such as visual appearance, open space, shopping, transportation or schools (Mallach 2009, 192).

As Malloch argues, “affordable housing can play an important role in any neighborhood strategy, whatever the current economic or market conditions of the neighborhood. In a deeply distressed neighborhood, a well-designed affordable housing development, particularly if it is sited and designed in a way that removes or restores blighted problem properties and provides the block with a strong visual anchor, can contribute to the neighborhood’s revitalization” (Mallach 2009, 195).

Owens states, “A commitment to the development and rehabilitation of affordable housing on the part of a municipal government is not enough to manage this collective problem. Lacking monopoly control over societal resources, cities must rely on nongovernmental, for-profit and non-profit actors to assist them in the coordination of resources and management of the affordable housing problem” (Owens 2000, 177). This concept where organizations must work together with the community shows the need for partnerships. Owens continues with “it is
hardly surprising that another key correlate of regime membership is a demonstrated capacity to
design and implement affordable housing programs” (Owens 2000, 179).

Malloch lists strategies and the programs to preserve and expand affordable housing in
appreciating areas. Table 2 speaks clearly about the themes in the non-profit organizations.
Table 2 combines ideas of design in affordable housing and good design, which may be
achieved through community participation. This as stated before was one theme that recurred in
this literature review. From following the historical progression through the literature on design,
this seems like a logical step to take. There are authors writing about a design process, green
principles, deep subsidies, and the tools of non-profits that utilize many of these ideas.

Summary
The idea of design in housing, whether or not market rate or affordable, is not a new concept. A
Decent Home; Planning, Building, and Preserving Affordable Housing and the book Expanding
Architecture, Design as Activism speak volumes about this. What is a new thought is that design
should be at the forefront of affordable housing and that government programs once believed
this but have strayed from it. Most sources I reviewed on affordable housing mentioned the
design of them in one capacity or another. Design is highlighted many times as its own
element, while many sources justify design by balancing it with cost or community participation,
it should be looked at as a process that encompass all of this as one.

The theory of community participation and the benefits associated with it are outlined and
enhance the ideas that community is the backbone of design of affordable housing. Democracy
and the power of speech and participation are linked to better neighborhoods and once
residents are empowered the neighborhood grows.
non-profits and the tools they use help designers understand there is more than one option when building affordable housing. As the rest of the literature suggests, more community participation would be needed to improve the quality of the housing stock and to build better homes in the future. Understanding the tools to get the job done, and the job itself are the keys to the design of affordable houses in the non-profit world.

The idea that there is more to the house than just the house brings up many questions on how to achieve the good design we hope for. Creating charts for needed design features and bringing in the community to the design table is the one method of a holistic process approach. Many builders just build without thinking of the larger community or impact the house may have. Looking at this method of community development through community participation, designers believe better design can happen that is more in tune with the externalities of the house.

This literature review covered design and what design means, elements of design in housing, and community participation in design. A look at costs associated with affordable housing was covered albeit not in depth. The history section covered public housing, intertwined with the history of non-profits, and the beginnings of the environmental movement. The literature review concludes with non-profits and the tools they use to build affordable housing. This sets the stage for the chapters that follow.
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Programs</th>
</tr>
</thead>
</table>
| Preserve existing subsidized or affordability-controlled housing        | • Upgrade the quality and appearance of existing subsidized housing stock through high-level maintenance and repair programs  
• Facilitate retention of subsidized projects subject to expiring use restrictions as permanent or long-term affordable housing                                                                                                                                                                                      |
| Convert private market housing into dedicated affordable housing         | • Enact ordinance giving tenants right of first refusal, and create financing program to enable tenants to purchase properties and maintain as affordable housing  
• Provide incentives such as rehab grants/loans or tax abatements to landlords in return for their maintaining affordability  
• Acquire and rehabilitate privately-owned properties to be maintained as affordable housing                                                                                                                                                                                        |
| Create new dedicated affordable housing                                  | • Create a land bank of vacant publicly-owned land to be held in reserve for future construction of affordable housing  
• Enact inclusionary zoning ordinance requiring that a percentage of units in future market-rate developments be affordable housing units and ensuring that units created remain affordable on a long-term basis  
• Enact an affordable housing replacement ordinance, requiring replacement of affordable units lost through demolition, condominium conversion, or conversion to non-residential use or housing trust fund contributions in lieu of providing replacement units  
• Use vacant property receivership to restore properties held vacant for speculative purposes                                                                                                                                                                                                 |

Source: Table 8-5 (Mallach 2009, 200)
Chapter 3:
Methodology for Semi-Structured Interviews

Introduction
The use of narrative analysis is used to describe the interviews I conducted. I will describe the situation for each interview, how I got the interview and some of my feelings that occurred during the interview. I will proceed through each interview in order of how they were conducted. First comes Kauai, then Denver, Bangkok, Manila, and finally my last interview in Covington.

Interviews were all semi-structured and related to the IRB approval I received in June 2009. Semi-structured interviews were used to put the participants at ease and allow for free flowing thought to come through. Some interviews were conducted in groups and others were one-on-one. This varies because of time constraints and access to particular participants at a given time. Below is a list of the questions that were approved and used to guide the semi-structured interview process.

These questions were developed to understand how a house is designed. There are three sections of questions. The first section deals with introductions. This is to establish that the person I am interviewing has the credentials to answer design related questions and show how long they have been working in this capacity.

The next section is on design. The goal of these questions is to determine whether or not a home was designed for a particular area or if some stock floor plan was used. I also set out to see if areas were planned or not. If there were planned I have questions directed at this and the same is true for unplanned areas.
The third section is on use of the home. The idea here was to see if the home was being used as it was designed or if the use was even thought about when designing it.

Questions

Introduction

1. What is your name?
2. What organization do you work for?
3. What is your title?
4. How long have you been in this position?

Design

1. What style of architecture do you use in this community?
2. Was it planned?
3. Was there a new model brought in the neighborhood?
4. Was the character of existing buildings used in determining the existing style of new construction?
5. Do you feel design is important in the community?
6. Do you feel that design helps people stay in the home longer?
7. Do you feel design is related to sense of community?

Use

1. What is the home used for?
2. Was the use thought about before the design was decided?
3. Do you feel the use of the home is related to design?

Preference (unplanned, sense of community WAS NOT thought about)

1. Do you feel that if this area were designed differently it could encourage longer homeownership?
2. If sense of community had been thought about, do you feel people would have a better community?

Preference (planned, sense of community WAS thought about)

1. Do you feel there is a good sense of community?
2. Do you feel the people will stay a long time?
3. If yes, do you have proof?
4. What leads you to think so?

I focused my interviews mainly on two non-profits: Habitat for Humanity (Habitat) and the Center for Great Neighborhoods of Covington (the Center). Below, I talk briefly about their histories and why I chose them. Limiting myself to two non-profits is within the scope of this thesis and
was a manageable task. The use of Habitat at different locations around the world helps shape the thesis by giving different perspectives of design process. The use of the Center shows a non-profit that was founded out of the non-profit movement described about in the History section. There will be no comparing of non-profits; they are used solely to look at how the process of designing affordable homes is done or not done and to examine some theories behind the reasoning.

Interviews were performed at construction sites, a beach and office settings. Due to the variability of the location, I will draw on field notes about demeanor of participants and general sense of whether if I was getting lip service or genuine answers. This is, of course, speculative. To address this, I will describe the settings and cultural context in my data limitations.

In order to analyze my interviews, I recorded every interview in digital format. While the interview was taking place, I took notes. After the interview I reflected on the interview for cultural variations and context of said interview.

Purpose
The purpose of this research was to collect data that show the need for the process of design in housing as it relates to different organizations and needs of different cultures. With this information collected, I can then show:

- there are different uses of houses,
- there should be different architectural elements that support these uses
- planning policies and guidelines can then be created to guide the process of designing for affordable housing
- non-profits can then use this to help in the process of determining what they can design

I interviewed people who work for non-profits associated with building affordable homes. Many affordable homes are perceived by individuals, are not aesthetically pleasing or that they many are built quickly and cheaply with no thought about community interest or sustainability. The
thought behind interviewing people was to gain an understanding of why these aforementioned ideas happen and to see if any current designs were intentional.

I created a semi-structured that was submitted to the Internal Review Board (IRB) and approved in June 2009. It is valid until June 2010. The time frame for conducting interviews is June 12, 2009, until the end of March 2010.

The travel costs were covered through my volunteering with Habitat for Humanity, by leading Global Village trips to Hawaii and Thailand. The trip to the Philippines was financed personally. Access to Denver and Covington come from personal relationships with each city. There were four habitat affiliates interviewed, and there was no personal favor offered to Habitat for Humanity in the interview process. Global Village did provide the vehicle for travel but this thesis and my volunteer work were kept separate and are viewed as two different projects. I was able to separate volunteer work from interview work. When I was not officially part of the trip, I conducted my interviews. I did this to avoid a conflict of interest of why I was leading the trip. During the time I led trips, my energy was focused on the group. I planned extra days both before and after trips for research purposes.

I chose the semi-structured research design because I had access to different builders of affordable homes in the summer of 2009. Through a semi-structured interview process, I was able to facilitate a conversation that focused on design and implementation of affordable housing in multiple cities, namely: Kauai, Denver, Chong Buri, Manila and Covington.

The purpose of using different non-profits in different cities was to show the challenges that each non-profit faces and to see if there were overlapping issues or if the homes were designed in a way that focused on more than the house. The interviews were designed to extract ideas associated with each non-profit to see if there is a need for certain type of architecture to
support cultural needs. The initial hope was to show a connection that needs must be met in order for people to have a sense of belonging in their homes and thereby a sense of community. This thought will be further explored in the findings section.

Participants

The goal was to interview at least 30 people with two in each city. I set the number of participants to 30 because I thought I could interview that many during this research process, I was unsuccessful at reaching 30, as will be explained below. The thinking was that I could gain insight into how the people in certain areas view their projects and whether they see need for improvement.

My main concern when choosing participants was not access to people, but whether they were the correct people to interview. To be eligible for study, a participant must speak English (only due to time constraints for translation), live or work in the area in which the interview is being conducted, and be knowledgeable about affordable housing and sense of community. This was established in the pre-interview while explaining my project by asking questions.

As outlined in IRB ethics, once the interview was agreed upon, I notified each participant of the need for a signed consent form. This form stated the purpose of the research, the understanding that it is voluntary and that any or all questions need not be answered, and it explained that it is needed for me to use what they say. This was done privately as the interviews were conducted privately.

All interviews were digitally recorded. At the beginning of each interview the interviewee stated his/her name, organization and credentials. The recordings were stored on an external hard drive in my possession.
Chapter 4:
Interview Findings

Habitat for Humanity

Habitat for Humanity is an international builder that builds homes with a belief it is a mission from God. They currently build in 90 countries and have built over 300,000 homes worldwide since the late 70s. Although Habitat is a Christian organization, they work with people from all faiths. While they are not preachers, they do not hide their religious views either. Habitat uses a sweat equity model to get houses built. This means that the future homeowner buys into the process of development by contributing physical hours building their own home and others in the area. This sweat equity is believed to add to the sense of community, which is one of the points this thesis aims to address. A closer look at the Habitat model will allow us to see if this process achieves this goal.

Habitat is an affiliate-based program, where a community invites Habitat to come in and work with the local people to provide affordable housing. The local Habitat affiliate holds the mortgage and provides it interest-free to the homebuyer. The mortgage payments are then put into a revolving account providing constant funds for other homes. The homebuyers then pay their mortgage payments to the local Habitat affiliate each month. Each affiliate is responsible for its own funding and board of directors. Each affiliate has its own politics and this can be seen by just looking at different areas of the country and world to see how houses are built.

Habitat’s mission is to build adequate and durable homes with those in need of shelter, based on carrying out the belief that safe and affordable housing is a basic human right and a fundamental component of dignity and long-term well-being for every person on earth (habitat.org accessed 5-27-09). Habitat builds many houses around the world, and each house
generally reflects the housing in the area. Although this is not always the case, Habitat tries to blend in the homes built so the family does not feel out of place in a new community. The mission calls for adequate standards, and on many occasions, Habitat has been criticized that “adequate” is not enough. As the interviews will show, some affiliates look at design features while others use a prefab approach to housing in the area. This may affect the issues mentioned earlier: health, community and sustainability. Perhaps the idea that “as long as basic shelter is provided, then a home has been built,” needs elaboration and updating to include innovative and environmentally friendly design.

**The Center for Great Neighborhoods of Covington**

“The Center” was formed in 1976 when two churches in Covington, Kentucky, both which were doing community development projects, approached the United Way for funding. The United Way suggested they merge since they were doing basically the same thing in the same area. Thus the Covington Community Center was born(CGN 2010). The Center changed its name to the Center for Great Neighborhoods of Covington (the Center) in 2005. For almost 30 years, the Center has been a catalyst for positive change in this community by bringing people together to resolve some of Covington’s’ toughest issues. The mission statement of the Center tries to help people discover and develop their capacities, gain access to resources and engage in civic activity that advance the well-being of the entire community (CGN 2010).

The Center engages residents in developing results-oriented, long-term solutions to community problems. Their comprehensive approach to community development incorporates the following principles:

- Promoting community participation ensures broad civic involvement and a sense of ownership by residents.
- Developing citizen leadership increases residents’ ability to both initiate and sustain community improvement.
• Establishing partnerships creates healthy networks of diverse stakeholders in community development efforts and ensures the efficient use of resources.
• Stimulating volunteerism allows Covington to benefit from the skills and talents of the many gifted individuals in our community (CGN 2010).

The Center works on community development through a variety of methods, including housing, youth, art and educational programs. The housing program is of particular interest to this thesis. Attention to the character of community has led the Center to work in both rehabilitation of houses and construction of new houses. When new houses are built the Center tries and mimic as much as possible the style and quality of the existing neighborhood. How the Center does this will be exposed in an interview below. The Center builds both market-rate and affordable houses, by working with tax credits, and subsidies, which allows certain homes to be affordable.

The Interviews

Kauai, Hawaii

I interviewed Bob Macanara at the Hanipepe beach on Kauai, Hawaii, after a two-week Global Village trip. Bob has worked for the Habitat for Humanity affiliate on Kauai for 10 years. Bob and I were able to form a working relationship and thus I was able to ask him questions that are related to the IRB questions. I feel his responses were valid because he spoke openly about his personal vision for the future of the organization that targets single women and men who need housing and not just low-income people with families. Sharing this shows an investment in the process of design as it relates to the non-profit he works with.

Bob is the construction manager for the Kauai affiliate. He actually orders the materials, he is part of the process of to decide which materials to order and, “Materials are based on packages, [and] because of space, pre-made packages of lumber due to floor plans are set to
standard sizes.” The standard sizes he references are construction standards and limit waste if walls are designed to these sizes.

This affiliate builds a Habitat standard house but “since we are in Hawaii and we have a different climate, we don’t have any freezing or some other necessities that go along with mainland houses, the one thing that our houses try to do is keep them elevated for coolness and moisture and cost of building.” In essence there is no need for massive slab foundation or basements, reducing the costs dramatically.

Bob went on to say that the family is first priority and they are there to adhere to their needs: room sizes, stairs, ADA accessibility and general wellbeing. Since “Hawaiians are bigger so all doors are 3’ and halls are 4’ wide, which exceeds code for comfort.” This affiliate also builds excess storage space to keep items dry and larger bedrooms at 12x12 instead of Habitat 8x8 recommendations.

Another way this non-profit focuses on affordability is to build on Hawaiian Homeland. To own a house on Hawaiian Homelands you must have 50% Hawaiian residents. There is a significant cultural component here as Hawaiians do not believe you can own the land thus they lease the land for $1 for 99 years.

I asked Bob about the aesthetics of the Habitat home and whether or not they are designed. “They fit into current subdivisions, we don’t make them all crackerjack boxes, all in a row, we try and get variances, and we make a neighborhood instead of a housing tract I guess you might say.”
I went on to ask about how they make a neighborhood. “Homeowners work with neighbors through sweat equity and they get to know their neighbors, we have gatherings, Mahalo parties so everyone meets after volunteer builds.”

When we talked further about community and context, Bob said, “The habitat homes are built much stronger than other builders on the islands. The Habitat homes with their hand-driven nails hold together much better; they are better quality.”

Bob brought up the progressive ideas that the affiliate is doing in terms of green technology. They install solar-powered water heaters in all their homes. This happened two years before the mandatory law in 2010. Although cost plays an important role, they orient towards being as green as possible. The superintendent suggests new projects, which the executive director will decide on, and if needed, the board of directors will vote on. This process of cost-benefit plays a significant role in the affiliate and helps shape their design process.

Although cost is not a main aspect of this interview or study, it is interesting to note that an “average 4-bedroom home on Hawaiian homelands cost about $70,000 and the market rate equivalent is about $500,000.”

The Habitat homes built on public land cost from $120,000 for two bedrooms to $175,000 for a four bedroom. The market price is $500,000 and up. Bob went into one of the tools this affiliate uses to finance the homes on public land. They needed to secure two mortgages per home due to the needed costs of land banking and Habitat’s cost of installing infrastructure in their new 100-home subdivision, with land at roughly approximately $80,000 per lot.

When I asked Bob about the notion of affordable housing being unattractive or not involving the community, he replied, “Habitat Hawaii mimics other aspects of neighborhoods…and this was
done to about 2000 miles distance from the mainland.” Bob’s attitude toward the cultural aspects of Hawaii with how they approach housing is one of the lessons learned from this interview. The idea that the cultural aspects of Kauai’s Habitat Affiliate are a large contributing factor to the design process is noteworthy.

Bob wrapped up the interview with the following observation. “We have a need on the island to help people who are homeless, it doesn’t matter if you are in the cold in North Dakota, or on Hawaii; when you are homeless you are still homeless. It is such a blessing to have a home, and there is such a need here as there is all over the world. Some people only see us as living in a garden paradise island. If you are here and have a home it is paradise, but when you don’t, it is not all that pleasurable.”

Denver, Colorado

While in Denver I met with the Denver Habitat for Humanity Affiliate. This was a group interview at their office in lower downtown Denver, Colorado. I had no previous working relationship with them and was asked if a group interview would be okay due to busy work schedules. I agreed, since missing the opportunity to interview this affiliate would be a mistake.

I interviewed Jennifer Schafrer, who has worked for Habitat for two years. She holds a master’s degree in architectural design and a master’s in city planning. She is their community planner.

I also interviewed Andy Blackman, who has worked from Habitat for seven years; he is the land development manager and is in charge of land acquisition.

The third person was Lynn Brown; she has fifteen years at the affiliate and is director of community development.
I asked what style of homes this affiliate builds. Lynn spoke about the single-family home with generally 3 or 4 bedrooms, a few duplexes, and their expansion into townhouses for higher density. “We try to plan for the future to adapt homes for ADA requirements if needed.”

Andy talked about the fact that “single story houses have more comfort for volunteer builders.” Safety of those who build the homes plays a role in how they are designed.

Lynn shared information on a new Transit Oriented Development (TOD) project, which will have 24 units at 1000 to 1300 square feet, with an EnergyStar™ rating. “We have been doing energy efficient homes for 12 years.” This affiliate worked with the national renewable energy lab to kick off a project in 1997. This first step has allowed this affiliate to be a leader in the Denver-Metro area in terms of green architecture. They have built one LEED GOLD home which certified in 2009.

Andy went on to tell me about a completed 11-unit development in Aurora, Colorado, that “was all solar, a demonstration project which gave 2.5 to 4 kilowatts of energy depending on house orientation.”

I asked if planned unit developments fit into context, to which Jennifer replied that, “they fit in, we work with the same architects that design houses in that area.”

Andy talked about the stigma associated with many Habitat affiliates and their affiliates “intent is to blend in architecturally so families do not stand out.” The site is very important, as private areas for families, with the need for common space, can be a challenge. With the site selection they look for parks, schools, and other community services near by.

Lynn observed “we like to make sure services are available for all of our homeowners like grocery shopping, schools, and transit. I’d say we are paying more attention to transit now, we
are thinking of it more in terms of light rail and enhanced bus corridors.” In Denver there is, “a push in transit corridors, [and] affordable housing is needed at new stations, we try and identify sites near light rail as houses tend to be more expensive there.”

I asked if there were any problems with concentration of low-income families. Andy said, “not really, we help to set up HOA’s [Home Owners Associations] properly and adjust homeowners into neighborhood regulations through education. “We discuss this internally more than the community says anything; generally communities are pleased with our housing quality.”

I asked about what elements of design sets their homes apart, to which Jennifer replied, “we are a little different, we build in five counties, we work with many planning departments with different design guidelines. … We really want to make sure our homeowners do not stand out in any particular neighborhood….we do try to have the design fit into the neighborhoods.”

Andy chimed in with “We invest in good materials, we got rid of vinyl siding, cement board is used, hardyplank™, concrete porch columns, updating paint palettes, understanding current colors, proper landscaping, we must keep cost in line, but understand we will knock ourselves out of a neighborhood market if we do not pay attention to design; this has helped us to help establish our reputation.”

I asked whether, as a team do they design each home? Andy responded that, “we use stock templates that meet the needs of the families, then look at modifications for each area. Since we use volunteers, we have to keep this in mind.”

I asked if LEED certification would continue. Jennifer said, “We discuss it internally and will determine if the marketing capabilities are there.”
Andy added, “Indoor air packages and radon mitigation are what we care about more than the actual LEED certifications; these things [green products] we carry on to all of our homes. We most likely will focus on Enterprise Green Communities since this focuses on affordable housing and the families more than LEED does.”

Andy continued, “As our process has evolved, we have gone more green with only an additional 5% being needed for the LEED certification. That is roughly true for all our houses. The certification was a goal but due to the cost, we may not strive for it on each home. We can spend that extra money on the house and family. If we were not already building a great project, we would have a high cost to achieve LEED but we win awards for our houses year after year.” So LEED was not as important of a goal as it was to build quality, while LEED set a standard they try and follow it as close as possible without the added cost of certification.

We spoke briefly during the interview about how different cultures use the home and whether or not they design for it. This deviated from the pre-planned questions but fits into the overall study. Since they try and pair a home with a homeowner before ground is broken, they can adjust the floor plan slightly but not altogether. They have made accommodations for Muslim families not wanting an open floor plan, so more walls were built. They did this due to the cultural preference to not have an open floor plan. They had meetings with their Muslim homeowners and this topic came up in those conversations.

The most interesting part of this conversation was that they are getting ready to perform a survey with all their homeowners to see how they use the home. The have built under assumptions that everyone uses a home in the same manner. Due to the diverse staff, though, they realize this is not true and they hope to complete the survey to allow them to better address the needs of their future homeowners.
Bangkok, Thailand

I was able to interview Susan, the chief executive officer of Habitat Thailand, in Bangkok. She has held this position for the last four years. I led a Global Village trip to Thailand and worked with Habitat Thailand, thus a working relationship was formed and Susan was willing to meet with me.

During the course of the interview, I felt as if I was being told “stock” Habitat answers, or I was being told what she thought I wanted to hear. I did not have the feeling I was getting honest answers. I felt this way because the close working relationship established was through our trip guide. She did not want to be interviewed on the record, but we talked informally for fourteen days while on the build site. We spoke about Thai culture, architecture, the Habitat homes in the country and poverty in general.

The two different conversations, one during the build, and the other in the interview with Susan, lead me to believe more that my guide was honest and the executive director was honest but only if it made the affiliate look good. I understand this as a cultural difference and one of a person in her position to make her affiliate look good in all circumstances.

Below is what took place. I was able to scratch at the surface of what Habitat Thailand does but I was not able to get on the record to the heart of their process.

I asked what style of architecture they build. Susan talked about having three styles: concrete, interlocking brick, and stilt that are “all simple and decent” and 36-square meters.

I asked how they determine which style to put on at each site. It is up to the homeowner to pick which style if it is an infill house. If the build has more than three homes, it is up to the
community to pick a consistent style. They have a community development team that works with this new community of people and decide this as a team.

I then switched topics and asked whether design is important in the community. The response I got was, “I think that everything is important. Especially when we work for a NGO like this, everything is important, the need to manage and make everything happen at once, or we wait for funds, volunteers, homeowners etc. So all this happens at once on many collaborations.” Here is when I started to feel I was not going to get to the heart of what I wanted. The question was answered but not directly. This could be either from a language barrier or from lack of knowledge on the subject due to a variety of reasons.

I asked about whether they have a design team at the affiliate. Susan replied, “so each home is slightly different, we consider ourselves as a teenager, our first year 100 house built, by our fourth year, 1000 houses a year in the scaling up process, in 2009 we have 1005 homes planned.” Again I had the feeling that this interview was slipping, but I was still getting valuable information, so I continued.

I asked about architecture that focuses on environmental sustainability. Susan told me about Habitat’s principles and they are asked to think “environmentally friendly”, to consider drainage and not have the home affect the environment in any harsh way.

I tried again to talk about the design of their homes and whether or not design affects the homeowners. Susan spoke about the community and how they are growing and they have better quality of life now. She did not relate it to the design of the home but to the fact they have a better home now.
When asked if the design concept reinforces community, Susan responded, “sure it helps them belong there and in the home, we also train in saving habits so they become better residents.”

I asked about over-crowding and the use of the home. Susan told me about Thai culture and how all family members live together with “14 to 15 people in one house. This leads to sickness when one gets sick the others get sick.”

I followed-up with a question about whether the design of a Habitat house, meets the needs of the homeowners. Susan replied, “Sure because at Habitat we try to enforce only one family inside, and homeowners are encouraged to build onto the house. The size is small to take care of, they say call it a home not a house.”

The idea that the homes could be added onto was intriguing so I asked how this could be done. Susan told me about future plans to build condos or multifamily homes, but there is a needed partnership with the university since they did not have the skills to do this.

I jumped back to try and get answers about community. I asked why homeowners got to choose their design. “So they feel it is their home. So everyone is as happy as possible they have to commit and take care of it. If we want them to do good deeds, we have to listen to their needs to help them.”

So I asked if anyone has not liked the design? She laughed and said, “Never seen one!” She thought it was a strange question, I could tell this by her body language and she reinforced this statement by saying “no one has complained about the house.”

To conclude the interview I asked if she would like to add anything. Susan said, “We would like to scale up, because we still have many needy people, but this is a challenge to our staff to make this scale-up happen. We want more than just donor money, we want their sweat equity
as well, and we want their support on many levels to create a sustainable project. Once we try
our best to do a good planning, the project can last a long time.”

I was able to get a good foundation of how this affiliate operates, but I was not able to
understand their processes of design or engagement with homeowners. From my interview with
Susan it seems they follow the typical Habitat model and do not try and deviate from it like
others. They build a simple and decent home as stated in the mission statement and leave it at
that, although with building over 4000 homes in four years, this is quite an accomplishment.

**Manila, Philippines**

While in Manila I had the opportunity to meet with a non-profit called Gawad Kalinga. They are
an unusual non-profit in that they work exclusively with informal squatter settlements. They
work with government and private landowners to buy the land. The land is then legally sub-
divided and sold back to the squatters who engage in a Gawad Kalinga housing project. The
project has many parts for all members of the family. Livelihood training, art programs, financial
literacy, health, homeowner education and adult learning education are some of the main
components. This interview focused on how they were able to get a housing project built. I met
with four women who asked that I not use their names but who were willing to be recorded for
this project. This interview took place at one of the Gawad Kalinga housing projects in one of the
interviewees new home. She was a former squatter turned homeowner and was vey eager to
talk about it.

Gawad Kalinda built at this site from 2006 to 2008. There was a partnership between Couples
for Christ and a private land owner to make this project happen.

The style of architecture is from a structural engineer who designed a facade pattern from
architecture of the north from Ilocos Sur in Kabigan. I asked whether this design worked for the
people. “Yes it does, because the tapiz (mother of pearl shell) is the main livelihood, so incorporating it into the décor is a showcase for the people, to highlight their skills.” The tapiz was used as ornament to distinguish the homes from one another. All the people in this new development were trained in how to work with tapiz and they used it to decorate their homes.

I asked about the new community and was told “community here is helping each other, the bainihan (teamwork) spirit.” They went on to tell me that skilled workers in the community led the project and that using the people who live there to build the home made the community closer.

I asked about the design of the home and if it is right for Filipinos. The response I got was, “It’s not that big, but compared to what we had, it’s perfect. We are homeowners!”

The interview was short as the people I interviewed were not part of the actual process of the project nevertheless they gave me insight into how it was completed. Most of my questions went unanswered. When I asked if they had anything else to add, they asked me for money to meet my friends to see if they can support building.

**Covington, Kentucky**

I work in Kentucky at the Center for Great Neighborhoods (see above) and I had direct access to staff and knowledge of how the Center operates before the interview began. I asked the same series of question as I did of other participants so I feel the interview stayed on course.

I had two interviews at the Center. The first was with Rachel Hastings, the Director of Housing and Community Initiatives and Ben Savage, a Community Development Specialist. The second interview was with Dan Petronio, the Associate Director for the Center. The three were not able
to meet in one interview. They are part of a development team that is mentioned below in the interview notes and the reason why I interviewed Rachel and Ben together.

Ben Savage is a Community Development Specialist and has been in this role for six years. He works in the housing component of the Center and with Rachel Hastings, the Director of Neighborhood Initiatives for the last fourteen years.

I asked about the style of architecture they use in their planned new construction areas, and what their style was. Rachel said “we definitely try and have the housing fit into the neighborhood through the general massing and size while the interiors are pretty modern.”

Ben added to the conversation by mentioning ideas like “trying to balance the massing and the style with what is currently there…. Our experience has shown people want a nod to the old but prefer new… They don’t want the fake old homes…. So we want the homes to fit into the old but be new.” The conversation continued about the context of the neighborhood and how their row house is a nod to the Italianate homes in the area. An interesting marketing idea came up and that was; through the use of design to nod to the past a home could be designed to fit into a suburban development, it may give folks who might be thinking of a suburban option a place to choose in an urban area.

I asked how they determined the style you would use. Rachel talked about the fact that the lots’ sizes of 20’ wide by 100’ deep with given setbacks gave them a narrow footprint to use. They also talked to residents in Austinburg about what they would like to see and they told them that the homes should look like the others in the neighborhood, that they should have front porches, that they should have off-street parking off the alley in the rear, and that they should have basements.
Rachel went on to talk about the lot limits, the neighborhood input, the Italianate houses in the area, which works in context, all of which led to choosing the design.

I asked if the idea of using the Italianate house was brought up somewhere?

Rachel said, “the idea to build new version of Italianate was our idea, but through community meetings it was reinforced. If you drive around Austinburg you will see one-story cottages, but if we were to build that, you would have a 600 square foot house and that is not very marketable. The width of the house dictated the design.”

Since the community was keen to have a particular style, I asked if the team felt the design of the home was important to the community. In a lighthearted moment Rachel said, “no!” She laughed a bit and followed up with, “I think it is extremely important, I think it is really important to folks who live in Covington and the preservationists. I think it is also important on another level that folks don’t think about and that is that the design of a home really affects the environment and how folks view their home and their community. Valuing design and historic architecture helps people have more pride in their neighborhood.”

I asked her to talk more about sense of community. She said, “if you design a plaza or park, you want it defensible with public spaces that encourage folks to interact and build social capital. Like how the neighborhood association told us the front porches were so important so they could sit on the porch and talk to each other. They didn’t want the typical suburban idea that you drive into a garage and walk into home and never see anyone.” Instead of giving me a definition of what sense of community is, she gave me an example of how this design relates to sense of community.
I asked if they think design helps people stay in the home longer. Rachel said they talk about this a lot and want the home to grow with the family. They do this by adding basements that are easy to finish with 8’ to 9’ basements walls. A unique take on design Rachel said, “whether you need more bedrooms or a man-cave you have the space to do it.”

They talked about some elements of design like having a well-thought-out space that flows well, with an open floor plan but having extra spaces that can be designated in the future as an important concept.

Rachel went on to say that they talked about criteria from the neighborhood e.g. (front porches, off street parking), and then principles of good design (like flexible spaces). Rachel remarked, “If your house can not grow with you, you may quickly outgrow it and the family moves on. We want people to stay longer in the home, so we designed around this.”

Ben spoke up and talked about the people at the table and that having an architect/engineer that advised these choices was helpful. The Center was the developer, and they didn’t simply say “We want a house that is easiest to sell. We were thinking of long term.” Ben continued, “This is an unusual criterion that many builders and developers do not have. With the mix of the pragmatic view of the architect/engineer and our concept of sustainability for a community, this is not always in the forefront of a builder’s mind.”

I asked what elements were discussed and Ben said ideas like having first floor baths. Even though there were added costs, this is useful for aging people in the future, flex spaces with basements and the use of the third floor for an added bedroom, along with EnergyStar™ and LEED certifications, which should make the homes more marketable. The elements were important to the Center but Rachel said, “In this economy we have found this (marketability) not
to be true. But it is still the right thing to do and we would do it again. We want the home to be energy efficient to save on utility bills.”

Rachel talked about the Habitat houses in Covington and how they are not very aesthetically pleasing and how at first they may look all shiny and new but that this fades fast. The Center tries to build a house that will look good into the future, past the first set of homeowners. The want to avoid building a home that turns to blight. Rather, they want to give themselves a reputation as building a quality home.

I asked about costs with these homes. Rachel talked about the first floor baths that cost more, the full basements that cost more, the LEED certification that cost more, but that there is a balance between short- and long-term planning in housing, and that the Center focuses on the long term. Putting money in now is an investment.

Ben also talked about these items and then mentioned that there are some features they wanted but could not afford, such as brick and hardyplank™. He said, “these materials are hardier but we couldn’t swing it on these houses. We had to weigh the options and decide what was more important like to put low-e windows or brick. We chose the windows; they have a larger effect on how you use the home than the brick.”

I asked how that choice was made. Ben replied, “We have a development team and hash it out. We don’t always agree and that is okay. We sit around the table and talk it out.” Rachel talked about how they did research for five years before breaking ground.

This development team is internal but uses outside resources to determine features. Community input is used, architects are used and the city staff was used.
I asked if they had homeowners in the meetings. Bens response was, “We have had their input with our rehabs more than new construction, but they typically just pick finishes and color palettes. We no longer allow for exterior colors to be picked because the colors chosen were not appropriate. And although colors are only a minor point in design, they play a big role.”

Here we switched gears a bit and talked about how the Center rehabilitates homes. Ben talked about how their rehab is done through the design viewpoint. The houses are typically in historic areas and there is an expectation that a historic renovation is done on the exterior and they are not required to rebuild parts, but should make it look historic while interiors are done with modern finishes since people live differently then they did in the 1800’s.

I asked if they think the architecture will hold up for the next 20 years? Ben quickly said, “it probably won’t, why would it? But there are elements that will not go away, like the openness, the flow, while the finishes and appliances can be upgraded easily.”

Rachel wanted to clarify that they modernize the interior, but in a contemporary style, it is not like a dwell (leading magazine on interior design) finish. It is nice but not over the top. She doesn’t think they build a modern interior in the modernism style.

I asked if they talk about this at the design meetings. Rachel said that they do, but that the focus is more on the bones of the house - the mechanical, the windows - ensuring that the home works and that the finishes, if needed, can be changed.

I ask what sustainable meant to the center. Ben replied, “a renewable source… harvestable in sustainable fashion… that is it durable… and where the net gain will hold up over time with durability and the general impact of it.”
I asked how they determine the amenities put in the home. Ben talked about the philosophy of the Center and how the homeowner is not the end goal. To the Center, the homeowner is a byproduct, not the goal, they are not an affordable housing-driven organization, and they are a community revitalization-driven organization. Their client is everyone, the folks living a block away, from the home to the people living in them. There is not always a goal of pushing the market in affordable housing, but that is always the Center’s goal. That dictates that they want to be the nicest house on the block to enhance that area. We think past the first homeowner. Although this did not really answer my question, it showed that the Center has a larger mission at hand than housing low-income people. They want to change blocks and residents and the neighborhoods.

Ben ended with saying, “design is important, I am not a design fanatic, and to me design is a means to an end, not an end itself. We want to ensure design leverages impact, we want to design a building where that building gives them a sense of pride, we want to design buildings that increase social capital, but we don’t get totally stuck on design.”

My next interview at the Center was with Dan Petronio, the Associate Director. He has been working with the Center for over 32 years.

He talked about the history of the Center and how in 2005 they became the Center for Great Neighborhoods of Covington, when they got rid of a name that did not fit, got a name that represented who they are. He went on to say that the Centers mission has evolved into issue based organizing.

I asked about the philosophy behind housing and he talked about how it started with a desire to provide affordable housing to those who needed it. They focus on scale of housing, how to change the block by eliminating the worst home on the block to creating a home where the sale
price helps boost the value of other houses on the block. They balance the value of the house with the effect of the house. They like to say they are building the house not for the first owner but for the second or third owner. They want the value to stay in the community. They want the community to have no clue that this was “affordable,” based on the quality and amenities we put in the home.

I asked further about the design and if a team is used. Dan said, “we have a development team, we talk about the design, and design elements, we have used architects as part of that the residents and the historic preservation officer in the city.”

I asked him how important the design is to the community. Dan said, “I feel the design is critical and that is something I had to grow and understand, as long as it was functional I was okay. But now seeing that the efficiency and living affordability is key and of course anything that helps us sell the home is okay.”

I asked Dan what was his definition of sustainability. Dan replied, “my definition of sustainable focuses on the energy elements at this point, the LEED we did used materials that go beyond the structure of the building, into the community, and another part of sustainability is durability and all that goes with that.”

I asked whether he thinks design helps people stay in the houses longer. He said, “I can’t quantify the portion that design plays here, but if it is efficient and durable that will help, this is outside of the economy. We have learned the fact that we have to make these as efficient as we can, we learned this through other buildings we did that did not take this into account.”
Dan ended the interview by talking about stigma and they place an emphasis on that “we do not want people to tell that the home was affordable by looking, we want to be known for building quality.”

**Summary**

As I review the data, I can see that a more developed literature review may be useful to further guide my purpose laid out. Since I was the person carrying out the interviews, I still have access to those I interviewed, and, if needed, I can always ask more questions related to the topic of approval. The data is limited to where I have personally traveled and many externalities may affect the quality of the data. With that said, the data are still accurate and will be backed up by others who have performed similar studies.

Each affiliate is required to have bilingual staff with one of those languages being English. I can therefore interview the people who work for Habitat about the types of housing they build, and why they choose the style they do, and how it plays into community support.

I have stayed as true to the interviews as possible, from describing noticeable components of the interviews and quoting people were they have said something of importance for this thesis. The interview notes are much longer than this; I have pulled the key parts of the interview out in order to enhance the narrative analysis that describes the process of the interview.

By reading through these interviews one can start to see a trend emerge from how you go about designing an affordable home. It is apparent that the homeowner plays a key role, the non-profit itself with the scale they are able to achieve, and the design or development teams that are formed to tackle the process of this design.

No matter what your end goal is for your non-profit it is clear a well-defined path for design can be laid out. In the findings sections I will re-use some of these quotes and parts from the
literature review section to marry the idea of literature and practice to show the design process in affordable housing with non-profits is a useful tool.

I have summarized the narrative analysis in Tables 3, 4 and 5. Table 3 has the interviewee information and shows the number of years the person being interviewed has been in that role. Those interviewed at Gawad Kalinga were not part of the design process and were willing to talk about the project, but not on a professional basis; thus they requested that their responses be kept confidential.

This shows that, even though I feel there were varying degrees of truthfulness during some interviews, those in a position of responsibility were willing to share their name and stand behind the product they design. This could be because of the working relationships established or one of pride or a combination of these and many other factors, but this finding is substantial in understand working relationships as they pertain to the design process.

**Table 3. Interviewee Information***

<table>
<thead>
<tr>
<th>Interviewee</th>
<th>Habitat Hawaii</th>
<th>Habitat Denver</th>
<th>Habitat Thailand</th>
<th>Center for Great Neighborhoods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob Macanara</td>
<td>Construction Manager (10)</td>
<td>Jennifer Schafer</td>
<td>Susan</td>
<td>Rachel Hastings</td>
</tr>
<tr>
<td>Andy BlackMan</td>
<td>Land Acquisition (7)</td>
<td>Ben Savage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lynn Brown</td>
<td>Director of Community Development (15)</td>
<td>Dan Petronio</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: * (number represents years in a position)
Source: Interviews
Table 4 is related to those questions about design. NDA on the table means that the question was not answered. These questions were used as a guideline and were not asked word for word. These are the themes that would drive a conversation through the semi-structured interview process. In no case did I ask a question and have someone not answer. In some cases other answers were posed, perhaps due to lack of definition of design or because the question did not make sense. During the course of the interviews I did not define the word design. It was up to the interviewee to define it and use it in relation to the question asked. This is important to understand why some questions were left unanswered.

From this table you can see that all the non-profits interviewed used a planned community or planned project, while some experimented with different types of architecture all feel the design of the home is important to the community.
Table 4. Design Questions and Answers*

<table>
<thead>
<tr>
<th>Design</th>
<th>Habitat Hawaii</th>
<th>Habitat Denver</th>
<th>Habitat Thailand</th>
<th>Gawad Kalinga</th>
<th>Center for Great Neighborhoods</th>
</tr>
</thead>
<tbody>
<tr>
<td>What style of architecture do you use in this community?</td>
<td>Mimic subdivision design</td>
<td>Mimic subdivision design</td>
<td>3 types: concrete, brick and stilt</td>
<td>One from Illocos</td>
<td>Italianate</td>
</tr>
<tr>
<td>Was it planned?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Was there a new model brought into the neighborhood?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Was the character of existing buildings used in determining the existing style of new construction?</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel design is important in the community?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel that design helps people stay in the home longer?</td>
<td>Yes</td>
<td>Yes</td>
<td>NDA</td>
<td>NDA</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel design is related to sense of community?</td>
<td>Yes</td>
<td>Yes</td>
<td>NDA</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: * NDA = not directly addressed in the response.
Source: Interviews

Table 5 has three parts. Again, a NDA shows that the question was not directly answered. The first section shows questions related to the use of the project. The second and third sections are related to design and use and are split between whether the non-profit used a planned community or not. Only the Center had both a planned an unplanned as they are involved in rehabbing of homes, and the houses are where they are. When asking this question there was an assumption that planned area meant no houses existed before and that unplanned meant a house could be there as in the rehab case at the Center.

The use section shows that two of the five non-profits understand that the home may be used for different activities and one non-profit is conducting a survey on use of the home to better design the homes for how people actually use them. When asked about the relationship...
between use and design, only two responded to the question but both show that they feel there is a linkage between the way a house is used and the design of that house, and one non-profit felt that this then leads into building community.

When asked about the community or sense of community all non-profits responded that their housing work is leading to a good sense of community or leading to a good sense of community. When asked if this will lead to homeownership, some responses highlighted the need for community resources nearby to keep homeowners in their homes.

The trends in this table are difficult to analyze because of the semi-structured process and varying methods of how and when the questions were posed during the interview. This said, though, these tables do show that design is important to affordable housing and within the interviews themselves this theory of a design process started to emerge that was multi-layered. As this conclusion continues some of these layers will be exposed and it will lead into the recommendation section where they are applied.
Table 5. Use Questions and Answers

<table>
<thead>
<tr>
<th>Use</th>
<th>Habitat Hawaii</th>
<th>Habitat Denver</th>
<th>Habitat Thailand</th>
<th>Gawad Kalinga</th>
<th>Center for Great Neighborhoods</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the home used for?</td>
<td>NDA</td>
<td>New survey to address this</td>
<td>Everything</td>
<td>NDA</td>
<td>Living</td>
</tr>
<tr>
<td>Was the use thought about before the design was decided?</td>
<td>NDA</td>
<td>Yes</td>
<td>No</td>
<td>NDA</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel the use of the home is related to design?</td>
<td>NDA</td>
<td>Yes</td>
<td>NDA</td>
<td>NDA</td>
<td>Yes</td>
</tr>
<tr>
<td>Preference (unplanned, sense of community WAS NOT thought about)</td>
<td>NDA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Yes</td>
</tr>
<tr>
<td>Do you feel that if this area were designed differently it could encourage longer homeownership?</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Yes</td>
</tr>
<tr>
<td>If sense of community had been thought about, do you feel people would have a better community?</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>Yes</td>
</tr>
<tr>
<td>Preference (planned, sense of community WAS thought about)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you feel there is a good sense of community?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No yet/It depends</td>
</tr>
<tr>
<td>Do you feel the people will stay a long time?</td>
<td>Yes</td>
<td>Yes</td>
<td>NDA</td>
<td>Yes</td>
<td>NDA</td>
</tr>
<tr>
<td>If yes, do you have proof?</td>
<td>NDA</td>
<td>Yes</td>
<td>NDA</td>
<td>NDA</td>
<td>NDA</td>
</tr>
<tr>
<td>What leads you to think so?</td>
<td>NDA</td>
<td>Look at community resources for families</td>
<td>NDA</td>
<td>They are now homeowners</td>
<td>Build for the future not just current homeowner</td>
</tr>
</tbody>
</table>

Note: * NDA = not directly addressed in the response.
** NA = Not asked, because prior information indicated that the question was unnecessary.
Source: Interviews (y= not answered)
Chapter 5: Conclusions, Implications, and Recommendations

Conclusions

I set out on a path to see why some affordable houses won awards and what was considered “good” design at the same time to see why some added to the blight of a block. My initial question on how a house was designed turned into this thesis, which focuses on identifying the elements of “good” design. A common thread links all of these elements: they are all part of a process. To narrow my scope I looked at non-profit builders of affordable housing to see how they design a home and whether or not these non-profits have any shared process they follow.

The three original theories presented in the introduction: theory of human motivation, participatory action research and design theory have all held up while research was confirmed. Interviewees concluded that people did need help in design and to be shown the way as in Gawad Kalinga, which relates to human motivation. Interviews at Habitat for Humanity showed that people are empowered when working on a house and they take more ownership in the process. If the people who are to live in the home were part of the design process not only the construction, the empowerment opportunities addressed in the literature from the participatory action research can come to fruition. Design theory, incorporates two types of knowledge: nomothetic knowledge and idiographic knowledge. Nomothetic shows the overall policies and guidelines that a city may have, as in zoning or environmental guidelines. Idiographic knowledge directs us to the specific elements like circulation or building materials. Each of these types of knowledge relates to the other through mutual support and interdependence. One cannot exist without the other. This led into the literature review, which showcased these in practice and led to the conclusion that affordable houses are designed, although the degree is debatable.
The literature review presented material that argued that the design process is essential to any housing project and that a project should have a development team of knowledgeable people who work on each component or design element. The literature also showed how affordable housing has a history in the development of housing for people living in poverty and that at times we have tried to use design as a way to solve social problems, concentrations of poverty, and architecture of the homes. Sometimes reliance on design has failed, as in the case of Pruitt Igoe in St. Louis, and other times it has succeeded as in the project outlined by Lee in Beijing, China. The difference is the involvement of people in designing the houses.

Based on the interviews, the non-profits studied believe that the design of the home is related to community. From the literature review there is a movement towards community interaction with the design process and the Center actually uses this process. They feel this is important because it gives the local community a voice in the community, and when a tangible object like a house is the result of meeting, they feel there is true ownership in the area.

Community participation in the design stage is not only an empowerment technique, but it is a way to gain real insight into what people need, how people use, and how a house should look. In drawing ideas from the literature and from the interviews conducted it is apparent that affordable houses have been designed, but whether good design was achieved is debatable. The interviews show that non-profits do examine many of the elements of design. In most cases they do not address all of the design elements all, but they are there. Many of these design elements are outlined in Table 1. In the recommendations section, I outline eight design categories, which I break down into design elements and a strategic approach to them.

The term “design” was never defined in the interviews, however, all of the participants understood what this meant to them. 4 of the 5 non-profits studied thought about the design of
the home and how is relates to use. This trend shows a linkage that goes beyond the external features, which is most commonly thought of as the means to decide if the home was designed. This shows that the users of the home should be included in the process as the literature also suggests. This should happen because without that input you cannot have an accurate idea of home use.

Depending on a variety of external elements, the level of design will determine how much focus is given to any given design element. For example, Habitat always deals with the bottom line; they do not use federal subsidies to cover the mortgage, and so they look for ways to address design. The main criticism of Habitat is they build generic homes. Habitat’s mission is not to solve social problems outside of housing, but rather to house low-income people with safe and decent housing. At many affiliates the design aesthetic is low on the priority list. Juxtapose this against the Center’s mission to build community where they use federal subsidies to cover cost and architectural design plays an integral role where aesthetics take more priority than in a Habitat home.

The literature had sections that focused on non-profit’s missions from community based organizations to community development corporations. During the interviews trends emerged that identified non-profits into missions as well. The Habitat non-profits highlight need of the home and that is the primary focus where Gawad Kalinga and the Center both see the house as one of many ways to build the community. This finding shows that although all three non-profits are in the business of housing there is still division on how to approach the design process and to what level you should plan. The literature supports that ideas of community building and this has weighted the analysis of the interview findings to suggest that the non-profit should focus on more than just the home.
Ideas like which design elements play a more critical role is considered on a case-by-case basis. One element that appeared in most interviews was the issue of sustainability. It is not included in the recommendations section as sustainability but it is included in many different elements as there is more than one way to address it.

Cost was discussed in the literature but did not come up much in the interviews. The study focused more on the process of design, although costs are a real part of that process, the issues involved is a thesis on their own. No trends were established in the interview findings that lead into the conclusion or recommendations.

A trend that does emerge in both the literature and the interviews is the environmental movement. A substantial effort has been made to “green” a home. Although not a primary question, every non-profit brought up their work on the environmental front. Sustainability was defined very differently by each organization, but there are trends that show it in different ways, from circulation to dealing with natural landscapes. The key component, however, is that non-profits see that looking at environmental aspects of the home is necessary to ensure healthy living spaces for the people, the environment, and to make the home last longer. Each interviewee talked about what they are doing to address this element and some of these are included below.

**Implications**

It is clear that there can be harsh implications from not paying attention to design elements. People can be directly impacted in terms of health or lack of access to community resources, the neighborhood can be affected by the community not taking ownership in the housing and not caring about the community and the community at large can be affected by these events as one wrong turn leads to another. By looking at the design elements mentioned many social problems
can be addressed and housing can meet the needs of the people it is meant for. Affordable housing takes a stance that many planners see as advocating for a cause. Following design guidelines in a systematic way can push for more equitable ground in housing.

Tying in a comment from the literature review, from Maloch, ha stated just because people are poor does not mean they do not need elevator stops at every floor, or HUD-deemed luxury items like dishwashers. There are ways to improve lives of those in need of affordable housing like; New EnergyStar™-rated dishwashers, which, have been shown to reduce water consumption versus typical hand washing methods. Some non-profits fail to look at how the house functions on an environmental level and would miss designing for these elements.

If community members are left out of the discussions on affordable housing in the area, this adds to the negative stigma associated with such projects. If residents are included, though, they can voice their concerns to help design the houses. This input will add to the community as well as to the shelter of the house.

During the interview process I had conversations with key informants off the record about the process they described. I would bring the word “design” into the conversations and there were noticeably positive reactions when I would talk about how design is a process, and how once the development team recognizes this they can design more efficiently. I reinforce this statement here with the idea that the process should not be standardized from non-profit to non-profit, but that is can follow the guide I have created below in recommendations, which is a hybrid between published tables, the literature review, and my own thoughts on the design process.
**Recommendations**

This data collected show that non-profits use a process when designing homes at the affordable level. That process may change from non-profit to non-profit or from non-profit to market-rate builder, but it is present. I will argue in this section that a non-profit should pay close attention to this, in order to design the best home it can. These recommendations are viewed in terms of scale and ability. This thesis has potential directly to affect a non-profit's planning process in thinking about design in its planning for affordable housing.

The main design elements from the literature on housing design are proportion, sense of identity, size, rhythm of opening, circulation, access to light and air, sense of place, and creation of spaces that are safe and easy to maintain (Dorgan and Evans 2008, 149). Adding categories, to classify these elements, such as zoning and city regulations, historic preservation factors, special districts, politics of the area, planning in the region, and costs of the home expands this list. These design elements are the essential components that make up what design is and what should be addressed when designing an affordable home.

Tables 6 through 13 outline these design elements in categories based on common characteristics. For instance, under Zoning and Land Use Regulation there is: use, height, floor area ratio, parking, open space, and depth. Next to each element is a column for key question(s), strategy, and people involved. Each cell was filled out using Table 1, different sources of information including literature review findings, interviews, and personal knowledge on housing and design.

This information can aid non-profits in understanding the gap between planning and architecture, where the non-profits focus on assets of the community to achieve good design. There are a few cells that draw attention to the need for an architect. This is when the actual
house is being designed and for needed input from the community. This is one tool that can help non-profits work collectively with the communities they serve. There are many non-profits employing this process, but they do so without calling it their design process. Members at the Center for Great Neighborhoods, mentioned meetings, development teams, community meetings, and people who are involved in these. The people I interviewed never said they follow an exact process to get the job done, nor do the findings specify such a process. Rather, the findings in the tables outline the key elements necessary to establish a non-profit’s design process.

The guide below is a list of factors that should be addressed in a development team meeting. It is not a one-person job, as the literature review and data analysis have shown. There are teams of people who work to achieve the design they feel best represents them as a non-profit. In the interview with Rachel Hastings from the Center, she emphasizes that the Center builds a product they can be proud of as a team, one that represents them.

**Table Logic**

Tables 6 through 13 all use Table 1 as their base. They should be read from left to right as each column builds on the previous column. The name of the table tells the grouping category, of which there are eight: zoning and land-use regulations, lot design, context, compatibility with surrounding uses, house design, natural environmental constraints, suitability for prospective residents, and special considerations or constraints. Each of these is presented below.

The first column is Elements; using Table 1 as a base, the design element proposed in that table is expanded to group design elements in their corresponding tables.

The second column identifies key questions to ask in order to address the design element. Table 1 has the same format, so this order is maintained to stay within the scope of the thesis.
Each design element could easily turn into its own study. The purpose of the question is to start the process of design of an affordable home. Each entry is explored further under the sections below to show how they relate to one another.

The third column outlines a strategy to answer the question. This column extrapolates ideas from the literature review, the interviews, and my own knowledge of housing and planning. It works well with the fourth column of people involved. Strategies highlighted are from Table 1, as well as strategies I have observed in practice and that have been mentioned in the interviews I conducted.

The last column is the people involved, where I outline who should be involved. This column does not exist in the original table and takes the largest step in bringing the process together. I have based the people involved from the literature review, and interview process, as well as my own experience in working in housing development. The development team is an idea extracted primarily from interviews with the Center for Great Neighborhoods; it involves the people working in the non-profit who focus on housing development. The Center partners with outside sources to make their process work and this process has been used as a model for this table. It should be noted that each development team may have different knowledge and this is what makes the team work. Bringing different ideas and bodies of knowledge gets the conversation started and when reliance on experts is needed the team bring special experts in. The other interviews conducted never mentioned getting to this level of progress in their design process. Some, such as the Denver Habitat affiliate, have a group of people that works on housing, but they did not identify it as a team. They were presented as people who work on individual projects who come together. I feel the Center’s model works best for the findings in showing what was found.
Zoning and Land-Use Regulations

Table 6 also originates from Table 1 and was expanded through the findings process. It is key in the process of design as it outlines specific elements that should be addressed while designing a home. It should be noted that there are many more elements that could be added but this is not a study on how a non-profit works with zoning and land-use regulations. Rather it is a study of the design process of affordable housing, and working from the research, these areas are highlighted as important elements in this process.

The elements of use, height, floor area, coverage, setback, parking and open space all deal with current city codes and require a non-profit to work with a city to make sure the design is up to code. If zoning code changes are required, it is up to the non-profit to follow the regulations outlined in the code.

The last element, design review, is frequently an optional part of the zoning and land-use process, as many localities do not require this. However, as the highlighted by the book Design as Activism, it is essential in community acceptance of the affordable housing units. This element should have an expanded “people” section to include the development team, community residents, architects, planners, historic preservationists, city housing departments, and anyone else who is involved in housing development.
Table 6. Zoning and Land-Use Regulation

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>What is the current land-use?</td>
<td>Have the non-profit and the city review local codes to make sure it is a conforming use.</td>
<td>City planning and non-profit.</td>
</tr>
<tr>
<td>Height, floor area,</td>
<td>What are the city requirements of floor area ratio?</td>
<td>Check city code.</td>
<td>City planning and non-profit.</td>
</tr>
<tr>
<td>coverage, setback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>What requirements does the city have? What do other homes have? Is there</td>
<td>Check city code.</td>
<td>City planning and non-profit.</td>
</tr>
<tr>
<td></td>
<td>parking off-street, a garage, or on-street?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open space</td>
<td>Is there a requirement in larger housing programs that require open space</td>
<td>Check city code.</td>
<td>City planning and non-profit.</td>
</tr>
<tr>
<td></td>
<td>or lots to be used at retention areas?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design review</td>
<td>Does the style of architecture fit in?</td>
<td>With or without a mandatory design review, have all the partners discuss and make suggestions with regard to this.</td>
<td>Development team, community residents, architect, planners, historic preservationist, city housing dept, others.</td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.

Lot Design

The lot design section works from the zoning and land-use sections, as these elements are key to following local codes. The elements highlighted here are size and depth. Both elements require the development team to partner with the community, architects, planners and the housing department. The questions posed here address the appropriate sized lot for the
proposed house. As the development progresses, the size of home to lot is both a code item and a community item. The context comes into play here because if the non-profit has large lots in an area with predominantly small lots, or vice-versa, the new home will be out of character. This is a broad statement, however a non-profit may see that a housing area’s context is failing or needs something new, and they may propose a new design to the neighborhood. The lot design discussion will bring the issues of large vs. small lot design into conversation to be addressed by the development team.

As Dan Petronio pointed out for the Center’s Senaca Place development, they had to sub-divide their parcel into 12 lots to mimic the lot sizes of the adjacent homes. To build one or two homes as zoned would have been neither cost-effective nor contextually appropriate.

The Center team came to this conclusion from meetings on the development team alone and conversations with the residents and the city. This process that the Center uses aided in formulating the format of the question, strategy, and people involved in addressing the lot design.

Table 7. Lot Design

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Is the size and shape of the site adequate to accommodate the proposed use?</td>
<td>Have the design team look at density requirements for the proposed site.</td>
<td>Development team, community residents, architects, planners, historic preservationist, city housing dept., others.</td>
</tr>
<tr>
<td>Depth</td>
<td>Are the lots deep enough to mimic other lots in the area?</td>
<td>Analyze neighboring sites to see what the averages are.</td>
<td>Development team, community residents, architects, planners, historic preservationist, city housing dept., others.</td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.
Context

Although lot design has some contextual elements in it, it does not get to the depth the context conversation requires. To do so requires more general elements of regularity or eccentricity, sense of place, and creation of space. A point not listed in the table, but noteworthy nonetheless, is the scale of context, whether it is one block, two blocks, a neighborhood, or the city as a whole. This is undetermined until a specific project is under consideration so the focus for the purpose of Table 8 is the street level, which is the most localized contextual strategy.

The regularity or eccentricity of the façade of the neighboring homes is of utmost concern and there are two schools of thought on this. One is to mimic the neighboring homes to keep historic elements alive, but to modernize the interior of the home. The other is to design something altogether new and to create a new culture of housing. Both approaches have pros and cons and should be addressed when looking at this question. The strategy for this is to create a list of local architecture within a walkable distance and to use what is seen in the area. The Center for Great Neighborhoods did this in their Senaca Place development. They decided to use the local influence of the Italianate style. In contrast, the Thailand affiliate took the other approach, building a home that was out of context with the neighboring homes, while providing a livable space and a new culture of homeownership. Both decisions were made from asking a variation of the central question, Is the façade compatible with neighboring homes? To blend a home’s façade to mimic neighboring homes, first assume those homes are in good standing and second, that the façade is relevant to the use of the home and will provide good design as aimed for.

The sense of place is a larger concept to grasp and to start the design process, the team should ask questions such as: What is it about the area that provides a sense of place? What can be
done to enhance this area? The best strategy for this is through community forums, which should be lead by a non-profits development team and other partners in the area.

Creation of space, which addresses how to construct what was learned in the community forums, is the last element in this section. The best strategy uncovered was the asset-based approach, where the community unveils the skills they possess to get the design job done. Involving the local community to help build what was discussed brings the community together. This can be done through the use of participatory involvement or Habitat’s sweat-equity models. Both have the common theme of working with people to build a better community and thus a better space.
<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regularity or eccentricity</td>
<td>Is the facade consistent with neighboring homes, or is it out of architectural character?</td>
<td>Create a list of architecture within a walkable distance, to see what styles the area can mimic.</td>
<td>Development team, community residents, architects, planners, historic preservationist, city housing dept., others.</td>
</tr>
<tr>
<td>Sense of place</td>
<td>What is it about this area that provides a sense of place? What can be done to enhance this area?</td>
<td>Have community discussions and development team discussions to extract thoughts on sense of place.</td>
<td>Development team, community residents, architects, planners, historic preservationist, city housing dept., others.</td>
</tr>
<tr>
<td>Creation of space</td>
<td>How can we create what was learned in community forums? What assets can we use from the community?</td>
<td>Use community forums to find and list assets about space, create a plan to of what space is needed, this may be removal or construction of a new home.</td>
<td>Development team, community residents, architects, planners, historic preservationist, city housing dept., others.</td>
</tr>
</tbody>
</table>

**NOTE:** * Scale is assumed to be street level. See text for discussion. Source: Table 1 and findings from present research.

### Compatibility with Surrounding Uses

This section considers the underlying political power of the area. Zoning usually plays a role here, and it may be necessary to re-zone an area or apply for variances. The compatibility with surrounding uses deals with the proximity to incompatible uses of having housing, or of areas that would have affordable housing as incompatible uses. The specifics of each case are numerous but can be achieved by strong political will and progressive zoning practices like inclusionary zoning or the relative ease for re-zoning or subdividing large lots. These are
emerging practices to help get more affordable housing in an area. Inclusionary zoning is where a city determines that any new housing project needs to have a set percentage of those homes for the affordable market. Denver, Colorado, for example, requires 10% of the homes to be affordable in any new development. The re-zoning process would require applications to the city to show that an affordable housing project can fit into an area that currently does not accept either housing, or affordable housing.

The key question is whether the site is adjacent to an incompatible use and, if so, whether it can be mitigated through design or other strategies. Two of these are identified above. The Center for Great Neighborhoods had incompatible uses next to its project and was able to work with the local residents and the city to relocate the business that had a non-conforming use to make the neighborhood about living and not about competing with light industrial business.

The strategy the Center used is the same one outlined in Table 6. This issue is how re-zoning can be mitigated through design or other method. In this case, design was not used, but the issue came up when talking about the design of the home in relation to compatibility of uses. Have the development team address the question and if their mission goes beyond just the house, then they should form a partnership(s) to mitigate the situation. In the case of the Center, its mission goes into community building and that is achieved by multiple practices, not just building housing. The people or groups involved in such a project may vary, but a partnership with the development team and the city may be a good place to start.
Table 9. Compatibility with Surrounding Uses

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity of uses that are incompatible with housing.</td>
<td>Is site adjacent or proximate to potentially incompatible uses?</td>
<td>Check with local zoning and view the area larger than site. (neighborhood)</td>
<td>City planning and non-profit.</td>
</tr>
<tr>
<td></td>
<td>If Yes, can effects of proximity to incompatible uses be mitigated through design or other strategies?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proximity to areas that would perceive affordable housing as incompatible.</td>
<td>Is site adjacent or proximate to potentially incompatible uses?</td>
<td>Use development team to address this question. If mission of the non-profit goes beyond housing then discuss how the design could be used to work with compatibility.</td>
<td>Development team, community residents, architects, planners, historic preservationist, city housing dept, others.</td>
</tr>
<tr>
<td></td>
<td>If Yes, can effects of proximity to incompatible uses be mitigated through design or other strategies?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.

**House Design**

The actual design of the house is most likely going to be completed by an architect but from the literature review and interviews conducted, there is evidence that this assumption can and should be challenged. The community should be involved in aiding the architect with what is in the neighborhood and what they want. Each Habitat affiliate has the challenge of building in very diverse locations. The Hawaii affiliate that I interviewed builds infill housing. They mimic the context so their houses will not stand out in a given area. In contrast, Habitat builders in other areas have been known to build a “standard Habitat home” lacking the same finishing detail as the neighboring homes and they have been criticized for this. This is not to say they did not
follow a process such as the one presented here, but they chose to weight other aspects of the process more heavily, most likely because of the cost of the finish details.

The aesthetics, in other words, are very important to the house design because they give the perception that the house was designed well and help shape how the surrounding community may judge the house. There are, of course, numerous other design elements that need to be addressed, including: proportion, sense of identity, size, rhythm of opening, circulation, and access to light and air. These elements may or may not be addressed by a community forum, but each architect should be familiar with them, and this is why architects are needed in the process. The key questions to ask relevant to each design element are vague and meant as a question to ask while reviewing plans with an architect. It is hard to ask the question, for instance, if the house has good circulation without seeing a plan or an actual home. There are processes to address these design elements. One way is through the Leadership in Energy and Environmental Design (LEED) standards. LEED standards are beneficial to having a healthy house and healthy people as they not only guide the design in ways to mitigate unhealthy homes but give advice on materials to use to do so. The elements that deal with air, light, and circulation are just three very important points that must be focused on in order to achieve any certification level of LEED.
# Table 10. House Design

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion</td>
<td>How big is the lot? What are the technical zoning requirements? What is the Floor Area Ratio (FAR)?</td>
<td>Use development team to address technical limits of the site vs. footprint of the home.</td>
<td>Development team.</td>
</tr>
<tr>
<td>Sense of Identity</td>
<td>Will this house have a unique facade or will it use contextual styles to blend in?</td>
<td>Have development team talk with community about what the identity of the neighborhood is.</td>
<td>Development team, community residents.</td>
</tr>
<tr>
<td>Size</td>
<td>How big is the family that will live in the home? Design for this family? or Design for future families?</td>
<td>Either build for the family that will purchase the home or build a home with flex space.</td>
<td>Development team.</td>
</tr>
<tr>
<td>Rhythm of opening</td>
<td>Is the floor plan open or does it feel closed?</td>
<td>With architect address need for openness to allow for an open feeling to not feel closed-in.</td>
<td>Development team.</td>
</tr>
<tr>
<td>Circulation</td>
<td>Does the home have good circulation?</td>
<td>Use LEED standards for air flow.</td>
<td>Development team, architect.</td>
</tr>
<tr>
<td>Access to light and air</td>
<td>Is the home dark or are there enough windows for light and air (works with circulation)?</td>
<td>Place the windows for natural light.</td>
<td>Development team, architect.</td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.
Natural Environmental Constraints

The natural environmental constraints are carried over from Table 1 with the incorporation of the people involved and some strategies from my work experience and classroom experience in environmental design. Key elements in Table 8 are: wetlands, flood plains, steep slopes, natural resource preservation, and environmental contamination. More than likely, most sites will not deal with all of these elements, but they should be noted because of growing environmental awareness and the move towards “green” architecture.

The design elements are addressed through questions that focus on natural features and the clean-up of contaminated areas in partnership with the Environmental Protection Agency (EPA) in the US. The costs involved in dealing with any of these may be too high for many affordable housing projects, although there are grants for brownfield clean-ups and this may be a funding tool for US non-profits to utilize.

The development team should take the lead on the site and see if it has any of these issues and, if it does, the non-profit should do a cost-benefit analysis to determine if the project is viable. They may partner with environmental consultants, the EPA, or local partners who may have knowledge in the issue.
### Table 11. Natural Environmental Constraints

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wetlands</td>
<td>Is the site in a wetland or close to a wetland?</td>
<td>Determine if this can be an asset or if it has to be worked with/around.</td>
<td>Development team, environmental consultants.</td>
</tr>
<tr>
<td>Flood plains</td>
<td>If you are in a flood plain, what is the height of the first floor?</td>
<td>Find the needed height of first floor.</td>
<td>Development team, environmental consultants.</td>
</tr>
<tr>
<td>Steep slopes</td>
<td>Are the slopes too steep for effective use of the lot? Are the slopes going to have significant erosion due to new construction?</td>
<td>Determine slope and see what building codes and soil conditions suggest.</td>
<td>Development team, environmental consultants.</td>
</tr>
<tr>
<td>Natural resource preservation</td>
<td>Are there local resources to be preserved? Has an investigation been done into the proposed lot for development?</td>
<td>Based on the findings from the investigation, if preservation needs to be done, have consultant research best solution.</td>
<td>Development team, environmental consultants.</td>
</tr>
<tr>
<td>Environmental contamination</td>
<td>Is the contamination costly to mitigate? Does the contamination require EPA clean-up?</td>
<td>Apply for EPA grants for mitigation.</td>
<td>Development team, environmental consultants, EPA.</td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.

**Suitability for Prospective Residents**

The suitability for prospective residents has to do with the concerns of the users of the home. This is an issue that, in order to get LEED certified, must be addressed. Key questions about transit, access to jobs and services, access to child care, and access to parks and open space are paramount. The access should be walkable from within half a mile from the home.
Strategies to accomplish this range from site identification to working with local business, mixed use developments, transit relocation or adding additional transit trips.

**Table 12. Suitability for Prospective Residents**

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to public transportation</td>
<td>Is the site within a half-mile from transit?</td>
<td>Look for sites that are close to transit, or work with local transit for greater access to the area. Part of LEED.</td>
<td>Development team, community residents, local transit authority.</td>
</tr>
<tr>
<td>Access to jobs and services</td>
<td>Are there jobs nearby? Or is commuting required?</td>
<td>Design mixed-use within the context of the area, or improve transit to get residents to jobs.</td>
<td>Development team, community residents, local transit authority.</td>
</tr>
<tr>
<td>Access to supportive services, such as child care</td>
<td>Are there local services within walking distance from home?</td>
<td>Identify local services and provide it to homeowners. Part of LEED.</td>
<td>Development team, community residents, local transit authority.</td>
</tr>
<tr>
<td>Access to open space and recreation</td>
<td>Are there open space or parks within walking distance from the home?</td>
<td>Locate parks and look for sites around them, or if large enough, build park into project design.</td>
<td>Development team, community residents, local transit authority.</td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.

**Special Consideration**

The special consideration section overlaps with many of the other areas mentioned, but it deserves its own category due to the specific nature of each design element. The elements are
historic districts, farmland preservation, easements or right of ways, regional planning conditions, and specific affordable-housing-funded program criteria.

Under the historic district section it is important for the non-profit to work with the local historic preservation while addressing the question of whether or not the site is within a historic district. If it is, the team must generally come to terms with the exterior requirements to meet local standards.

Farmland preservation is key to those developing housing tracts away from urban environments and should be addressed along with the natural environmental constraints section in order to have minimal environmental degradation on the surrounding landscape.

This is a common practice in Thailand, as I discovered during my interview with the local Habitat CEO. Their main concern is the runoff water and septic tanks. They work with an engineer to design the grade so that runoff does not create large rivulets in the dirt, since the road leading up to the homes will not be paved. The best strategy for this is to work with local farmers to find out their concerns and to come to an agreement on how development will unfold.

The regional planning conditions will vary from region to region and is important to understand the politics of planning practices in each area. Finding out which types of affordable housing projects have been done in the area will help gauge the scope and scale of work expected to be completed. Ask questions internally as a non-profit to determine if your mission fits in with the regional planning initiatives and your best plan of action for working with or against the grain.

The last design element is finding the specific funding programs for affordable housing. Although this thesis does not focus on the cost side of the affordable housing, it is an essential component of the process. Nothing can be built without funds. There is hope, though, that costs
can be lowered by using a variety of different methods mentioned in the literature review from volunteer labor, sweat equity, local products, smaller houses, land banking, re-used material, among others.

It is important to understand how other projects were funded and if funds still exist to fund future projects. This is a task for the development team and the funding sources. This will also help establish the scale at which your non-profit will work. Knowing what your limitations are will help keep the scope of the work within reach.
### Table 13. Special Considerations or Constraints

<table>
<thead>
<tr>
<th>Elements</th>
<th>Key Questions</th>
<th>Strategy</th>
<th>People Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic districts</td>
<td>Is the site within a historic district?</td>
<td>Working with local historic preservationist, determine requirements of façade.</td>
<td>Development team, community residents, architect, planners, historic preservationist, city housing dept, others.</td>
</tr>
<tr>
<td>Farmland preservation</td>
<td>Is there significant farmland in the area? If yes, how much needs to be preserved?</td>
<td>Working with local farmers, determine requirements of preservation.</td>
<td>Development team, community residents, architect, planners, city housing dept, others.</td>
</tr>
<tr>
<td>Easement or right of way</td>
<td>What is the city requirement for easements or right-of-way (ROW)?</td>
<td>Work with the city to determine the amount of space to devote.</td>
<td>Development team, City planning.</td>
</tr>
<tr>
<td>Regional planning conditions</td>
<td>What affordable housing projects have been built in the region? What are the trends, themes and common practices?</td>
<td>Determine if your mission fits into the regional approach.</td>
<td>Development team.</td>
</tr>
<tr>
<td>Specific affordable housing funding program criteria</td>
<td>How are projects funded in the area? Do you have the tools to get the project funded?</td>
<td>Determine internally if your non-profit can get funds to pay for the projects and obtain adequate subsidies.</td>
<td>Development team, funding agencies.</td>
</tr>
</tbody>
</table>

Source: Table 1 and findings from present research.

### Recommendations for Future Research

There are many design elements left to uncover; as the process expands, so do the questions.

In an ideal study there would be more time, money, and people interviewed to get a better understanding of these design elements. This research is but the beginning step.
When people view a home, they most often only look at the exterior to see if it looks good and they pass judgment based on this observation alone. In some ways it is up to the viewer to say whether they like it or not. The exterior aesthetics are something that go beyond the scope of this thesis but it is essential in determining if the house has good design. Therefore, the main limitation of this thesis is that there is no way to check to see if the finished house is aesthetically pleasing or if this design process or any other has been used. Each individual has his or her own sense of aesthetics, but following this process with help bring many people to the table to address this and create the best possible design.

This is one quick check to see if the house succeeds in blending in. As Dan Petronio points out, the Center does not want a home to be identified as affordable just by its outward appearance alone. There is reason to believe that the development or design team, along with residents and the other team members, can provide input into this, but ultimately it is up to home viewer/user to decide. Knowing that a well-designed house in all the other categories can still fail to be known as “good” based on the façade shows that this is an important quality for non-profits to focus on. The tables above are meant to get the design process underway so that all components may be equal, and not just selected arbitrarily.

As this thesis has unfolded there have been many ideas of the design process that have incorporated the use of community residents, planners, architects and a variety of other people that would create an outstanding home for the affordable housing market. This is a progressive movement where the actual practice is limited. It is my thought that this is the future of housing where communities must come together in order to take ownership in older areas and rethink what design means. Through the tool created, affordable housing can be designed in a way that will create better living environments and thus lead to many points community developers try
and reach, such as: sense of community, public health, the green movement, education, and empowerment of the people.


