

EVOLUTION AND ANALYSIS OF BUILDING AND DESIGN METHODS FOR MULTI-FAMILY AFFORDABLE HOUSING IN MIAMI, FLORIDA

By

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To my mother

ACKNOWLEDGMENTS

To my entire family, who have been supportive of me throughout this endeavor and to all my professors who have made this thesis possible. I would like to especially thank Dr. Williamson for her continued support throughout this process.

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Abstract of Thesis Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Master of Science in Building Construction

EVOLUTION AND ANALYSIS OF BUILDING AND DESIGN METHODS FOR MULTI-FAMILY AFFORDABLE HOUSING IN MIAMI, FLORIDA

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Housing affordability has been a significant problem for the State of Florida over the past sixty years. The literature addressing this problem as well as the ongoing evolution and changes has been incomplete, as no studies have focused on the particular development of construction techniques of affordable housing within the State of Florida. To determine the evolution and the change that was occurring in the construction techniques of affordable housing, this thesis was designed around a case study of affordable housing in the Miami, Florida area. The case study method that was used considered five older generation affordable housing complexes and five newer affordable housing; it further examined the construction methods used, the amenities included in each of the complexes, and the interaction between the complexes and the built environment where it was located. A detailed photographic record was recorded from these site visits.

One significant implication of this case study was that it drew attention to a definitive shift in how the newer generations of affordable housing have become more functional (largely due to the higher quality construction methods used) and how affordable housing has taken the pre-existing environment into which it is built into greater account than. One of the main findings of this thesis is the higher density of the newer units being built and the construction methods

needed to achieve this. In particular, this case study has uncovered one notable pattern with respect to the evolution of affordable housing multifamily housing – namely, that newer and more modern methods of construction have resulted in a higher quality product being delivered.

CHAPTER 1

INTRODUCTION

Background

An explosion in population in the State of Florida over the last sixty years has led to an ever increasing demand for affordable housing for its citizens. Figure-1 shows the consistent growth in the population within Florida over the past century. However, the solutions in

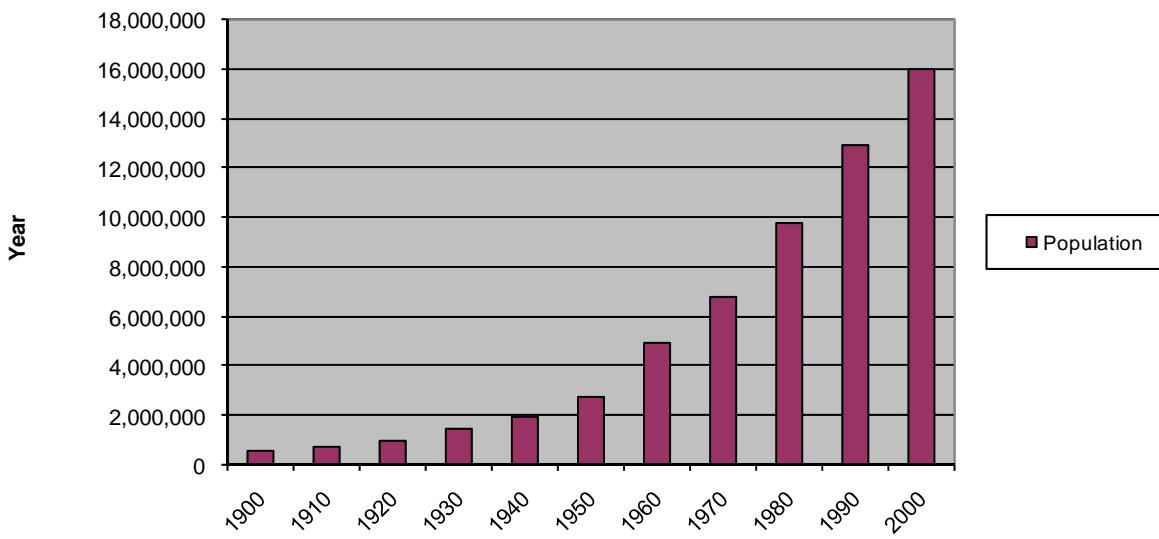


Figure 1-1. Population in the State of Florida (Census)

affordable housing solutions have come in many shapes and sizes throughout the years. As our society continues to expand, the problem of providing enough affordable housing in the state will only become more pressing. An analysis of the advantages and the drawbacks of projects from earlier decades (and from more recent years) will help us to determine the best means of confronting the ever-growing problem of housing our state's most economically challenged citizens. Looking at various affordable housing complexes built over several generations enables us to understand not only the evolution but also the future of affordable housing in Florida.

Statement of Problem

To comprehend the future of affordable housing in Miami, Florida, we must first answer the following questions: first, how has affordable housing changed over the past six decades, and second, what factors and/or trends have driven those changes. The best way to obtain an understanding of how affordable housing has evolved in Miami, Florida is to identify affordable housing projects from different points in time and then compare and contrast them. The answers derived from this will quantify how affordable housing has changed over the years, but we will need to consider the history and policies behind these changes in order to uncover the reasons behind them.

Purpose of the Study

The goal of this case study is to gain insight into current developments in the affordable housing market and to understand how historic factors and evolving construction techniques have contributed to these developments.

Organization of the Study

The second chapter of this study will review the policies of the Federal Government over the last sixty years and explore the origins of these policies. The third chapter is a description of the methodology used in the case study that is the backbone of this thesis. The fourth chapter presents the results of the case study of the ten affordable housing projects over several generations in the greater Miami area. Five of the complexes that were completed under affordable housing programs that are now no longer funding new complexes; the remaining five were constructed as part of the recent and still ongoing Low Income Housing Tax Credit (LIHTC) Program. Finally, this paper will conclude by addressing the results of the case study and providing answers to the questions posed earlier in this chapter.

Significance of the Study

As previously mentioned, no large study on the evolution of affordable housing construction techniques in Miami, Florida has been undertaken to date. The primary benefit of this study is that it is the first to consider the development of construction techniques of affordable housing within Miami, Florida; as such, it will be helpful both to those in academia and those currently working in the construction industry. Additionally, understanding the evolution of construction techniques of affordable housing allows us to make informed decisions about the future of affordable housing in Miami, Florida.

CHAPTER 2

LITERATURE REVIEW

Introduction

This literature review presents a framework in which the policies and action of affordable housing construction in the State of Florida are brought into context. There is no definitive affordable housing history treatise with respect to the State of Florida and, as a result, this review is forced to focus on the broader spectrum of national policies in some aspects. This does not degrade the literature review, however, as affordable housing policies within the State of Florida have generally been born out of policies that were created at the federal level. Because this paper is looking at the evolution of multifamily residential construction, this review does not focus on affordable housing policies that have affected the single family homeowner.

This chapter is divided into two sections. The first section will look at the definitions of affordable housing and the determining levels on what makes housing affordable or not. The second section of this literature review is a historical review of affordable housing within the State of Florida; it examines the policies and programs that have shaped affordable housing since its inception in 1930s to the present day.

Affordable Housing Defined

Somewhat contrary to popular belief, the meaning of “affordable housing” is not limited to a description of housing that has been put in place through the government’s actions; instead, it is a concept that is much broader in scope. In general terms, housing is described as affordable for a household when the family that occupies the residence is spending no more than 30% of its income on housing (HUD). It is important here to note the difference between renters and owners, as tenants generally only pay rent and utilities whereas homeowners are responsible for paying mortgages, taxes, and insurance (Florida Housing Finance Corporation). In theory, the

definition of affordability has no limits. As an example, if a family whose household income was \$100,000/year was paying in excess of \$30,000/year for all of their housing related costs, such family's housing would be deemed unaffordable, even though its household income is significantly above the poverty line. Practically speaking, however, housing affordability is something that almost exclusively affects families with lower incomes and thus the government bases its affordable housing programs on median income levels. As might be expected, the government is not overly concerned about the millionaire who is spending more than 30% of his household income to make the mortgage payments on his waterfront luxury estate.

As stated in the previous paragraph, median household income provides the basis for administering both federal and state affordable housing programs within the State of Florida. The guidelines that determine these income levels for the state are established annually by the United States Department of Housing and Urban Development (HUD). In the State of Florida, the 2007 median income for a household of four was \$53,300; this amount is adjusted accordingly depending on the household size.

In 2005, 14.6% of homeowners in the State of Florida spent between 30-50% of their income on housing, while 9.8% of homeowners expended 50% or more of their annual income on housing. Renters fared worse: 20.3 % spent between 30-50% of their income on housing and 18.9% devoted over 50% of their income to housing (Shimberg). When a household pays over 30% of their income on housing, it is described as cost-burdened; when over 50% of a household's income is spent on housing, that household is termed severely cost-burdened. The foregoing statistics clearly demonstrate the need for affordable housing programs in the State of Florida

Evolution of Affordable Housing within Florida

Affordable housing programs in America (and, more specifically, in Florida) were a product of the twentieth century, and they gained particular traction during the 1930s. Prior to that time, Federal and State Governments had generally stayed out of the realm of providing housing solutions for its citizens, except for such small and short programs such as housing for war workers during World War I (Wright). The first affordable housing programs in Florida were a product of federal programs created in Washington. Over the years these programs varied greatly, and they reflected the Federal Government's ever-changing ideas on how best to approach the problem with affordable housing at the federal level.

The earliest affordable housing programs in the State of Florida were created by the Federal Government in response to the troubled economic times and were an attempt to prevent housing construction from falling into further ruin. The first two pieces of housing legislation initiated by the Federal Government were the Federal Home Loan Bank Act of 1932 and the Home Owner's Loan Act of 1933. Together, these programs brought the government into the affordable housing discussion for the first time. In addition, the National Housing Act of 1934 led to the creation of the Federal Housing Administration, which still exists today under the Department of Housing and Urban Development (HUD).

The main piece of legislation to emerge from the 1930s was the landmark Housing Act of 1937 in which the Federal Government provided money to localities to be used for the construction of new public housing facilities. This program was a direct response by the government to fund short-term rental programs for the poorest citizens. As demonstrated by Table 1, Florida's population at that time was small in comparison to the country as a whole, and the population centers of the states were much smaller; as a result, the funding from this program that was actually funneled to Florida was much smaller than what the state received in later

years. Although thousands of units were constructed in Florida through the Housing Act of 1937, they were considered to be only a short term solution. Surprisingly, there are over 38,000 units surviving from this Depression era program throughout the state (Florida Housing Finance Corporation). While World War II would eventually shift the country's priorities away from affordable housing, wartime programs such as the Belmont Heights Estates in Tampa began during the war and continued for some time afterwards (Tampa Housing Authority).

As America emerged from the wartime economy brought on by World War II, it was a country full of prosperity and one that had big dreams for the future of all its citizens. This new hope for the future was evidenced by Congress' pronouncement in 1949 that the goal of the country was "a decent home and a suitable living environment for every American family" (Bratt, Stone, & Hartman). The articulation of this new goal was a watershed moment for the country and was reflected in the Housing Act of 1949, which was a marked shift for the government in that it no longer wanted to provide simple shelter for its citizens but instead proper housing (Orelbeke). Despite Congress' lofty ambitions, the Housing Act of 1949 may have ultimately been a bit too ambitious, as "ten years after the 6-year, 810,000-unit total had been set, less than a quarter of the units were in place" (Orelbeke). Much like the rest of the country, the dreams of affordable housing on a large scale were never realized in Florida.

After years in which grandiose plans collided with the reality of minimal affordable housing construction within the state of Florida and the country as a whole, Congress took more proactive steps and "created a series of housing programs administered by U.S. HUD and the U.S. Department of Agriculture's Office of Rural Development." (Florida Housing Finance Corporation). Programs such as these marked the start of a new era of affordable housing, which began in the end of the 1950s and continued into the 1960s, during which public and

private forces worked together to build affordable housing units, of which approximately 72,000 still exist in Florida today (Florida Housing Finance Corporation).

In 1974, the Federal Government changed its approach to affordable housing programs. Until that time, the programs had been largely driven by the government's plan for the construction of new affordable housing units. After 1974, the government adopted a rental based approach which utilized both new and existing units (GAO). This new approach was known as "Section 8," a reference to the section that was an addendum to the Housing Act of 1937, which was still in place in 1974 (and remains in place today). In essence, the government turned its attention from the construction industry and began a rental voucher program in which the government approved and gave citizens vouchers to pick and choose where they wanted to live so long as the housing unit met the standards of the government's program. This was a marked shift in policy for the government. In Florida, the Federal Government still provides "approximately 75,000 'Section 8' or 'Housing Choice' vouchers in Florida each year" (Florida Housing Finance Corporation). Today, however, these programs are not administered by the Federal Government today but rather by local or other agencies.

One other program also created in 1974 was the Community Development Block Grant, in which grants were made to local agencies for the purpose of preventing "slum and blight." While these were not strictly affordable housing programs, these programs did impact the affordable housing stocks in Florida by providing money to communities to improve their poorest areas.

The final chapter to affordable housing programs to date occurred in 1986 when the LIHTC was put into practice for the first time; although the program was originally intended to be temporary, it was made permanent in 1993. Through the LIHTC program, companies or

individuals that invest in affordable housing can use a dollar-for-dollar tax credit that is identical to the amount of the investment. Certain conditions must be satisfied before an investor can utilize the LIHTC. For example, renters of the qualified investment properties must be comprised of at least 20% of people who earn less than 50% of the median area income; alternatively, 40% of the renters must earn 60% or less than the area median income. In addition, the renters cannot be charged more than 30% of their household income, and all of these guidelines must be met for 15 years (Orelbeke). Money is administered to states on a *per capita* basis; it began at \$1.25 but was subsequently raised to \$1.75 in 2002 and has been pegged to inflation since 2003. This program has been the foundation for nearly all new affordable housing construction in the United States and it appears that it will stay this way for the foreseeable future.

CHAPTER 3

METHODOLOGY

Introduction

The purpose of this paper is to set forth and discuss a precise picture of the evolution of multi-family affordable housing. Upon reflection, it was determined that the best methodology through which to achieve this purpose is the case study. The case study methodology is a means of conducting social science research when the researcher would like to find out the “how” and “why” behind a pattern in which behavioral events cannot be controlled and a focus on contemporary events is necessary (Yin). Employment of the case study enables us to review developments and trends in affordable housing and to explore “how” and “why” it arrived at its current status and is thus the most desirable methodology for the purposes of this thesis.

Designing a Case Study

The case study method is separated into three distinct areas: (i) define and design the case study; (ii) prepare, collect and analyze the data; and (iii) analyze and draw conclusions from the data. The first step of the case study is to define and design theory on what one is studying. Next, the researcher must select cases and also design the data collection protocol. The researcher is then ready to conduct the numerous case studies that they have selected to do. Finally, these data can be used to draw cross-case conclusions, and modify the theory. The case study data will be used to develop new theories and be able to show any cross case correlations and show them.

Case Study

This case study began by carefully selecting several properties within the city of Miami. The next steps in the process involved the creation of a matrix to quantifiably grade and gauge the selected properties. Some of the data that were obtained for the matrix was public record,

while most of the data were a result of field studies in Miami, Florida. Although not all data were available, sufficient information was gathered such that the credibility of the matrix became very clear. After these properties were selected, several days of site visits were made in an attempt to gather the appropriate information and also to take photographs that could qualitatively measure the selected properties. All data were then synthesized to draw conclusions and to answer the research questions that are the subject of this thesis.

Conclusion

The case study method is a method that can be used to study something such as the quality of affordable housing, which is not something that could be done in a survey. This is due to the fact that a survey could not obtain the field results such as photographs, which enhance the validity of the case study. It is also to be noted that some information that was originally planned to be collected was unavailable and outside the scope of this paper. All in all, with a research topic such as this the methodology used, while not perfect in all senses was the correct and right methodology to be employed on a project such as this thesis.

CHAPTER 4 RESULTS

List of Case Study Sites with Addresses

1. Amber Garden
1301 NW 23rd Street Miami, FL 33142
2. Santa Clara
2000 NW 12th Avenue Miami, FL 33142
3. Santa Clara Apartments II
1250 NW 21st St Miami, FL 33142
4. West Brickell
955 SW Second Avenue Miami, FL 33130
5. Congress Building
111 NE 2nd Avenue Miami, FL 33132
6. Hadley Gardens
3031 NW 19th Ave Miami, FL 33142
7. Town Park Village I
1680 NW 4th Ave Miami, FL 33136
8. Casa Isabel
300 SW 4th Ave Miami, FL 33130
9. Holy Comforter Senior Housing Apartments
190 SW 13th Ave Miami, FL 33135
10. Town Park Plaza South
1798 NW 5th Ave Miami, FL 33136

Map of Locations

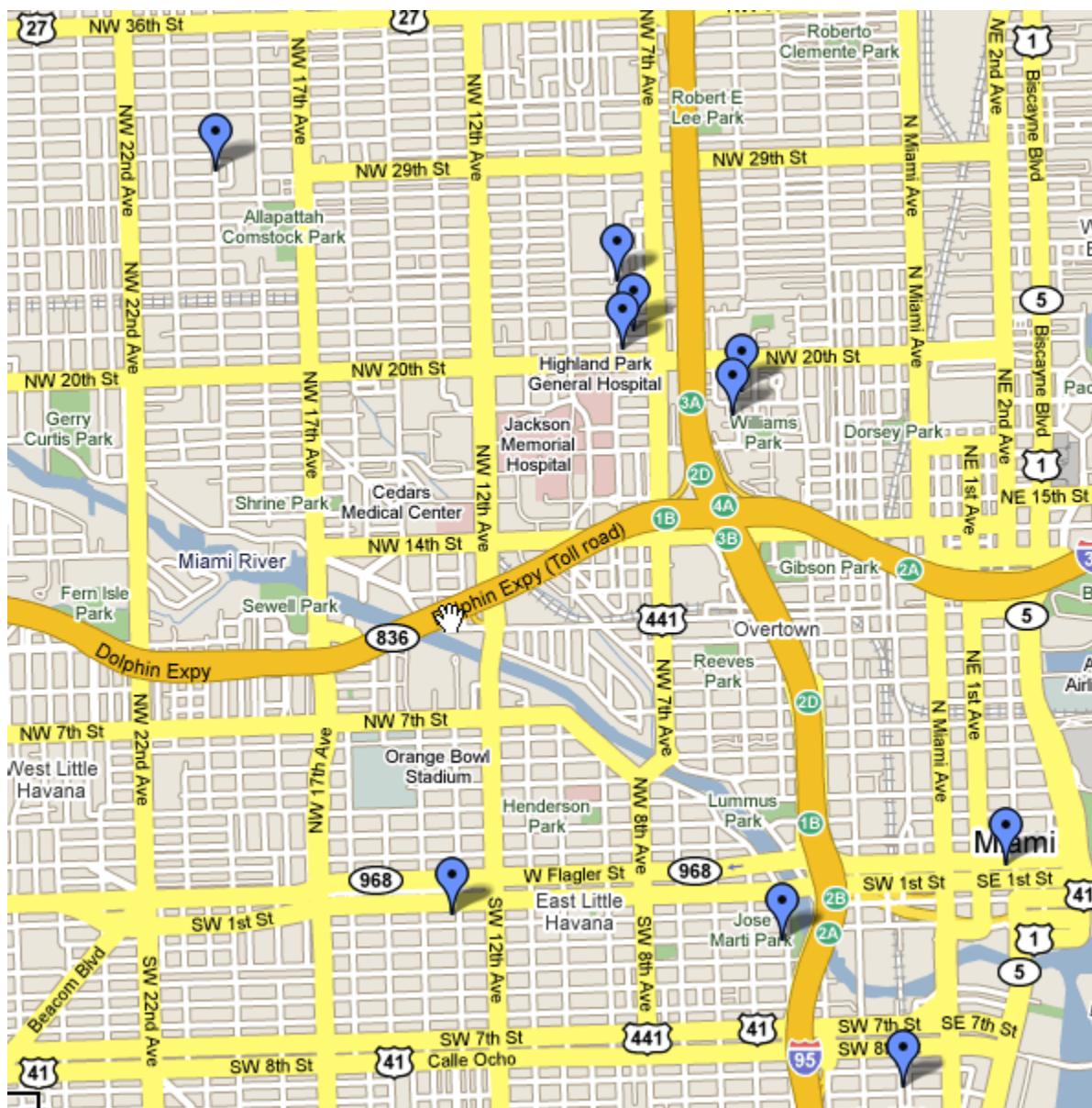


Figure 4-1- Map of Locations

Photographs and Description of Each Site

Amber Garden

Finished in 2008 this 10-story residential structure is located in the Allapattah section of the city of Miami. Containing 110 units it is designed for elderly housing only. Features include a two story parking garage and several common areas for its residents. It is also located two blocks from the Metrorail. It is located on .5 acres and has a density of 220 units per acre.



Figure-4-2. Looking at entrance from NW 24th St



Figure 4-3. Looking at back of building from NW 23rd St



Figure 4-4. Looking at SW corner of building

Santa Clara

Built in 2001 this 9-story residential structure also located in the Allapattah section of the city of Miami. Containing 208 units it is the first building in a two building complex. It is located right next to the Santa Clara Metrorail station where it gets its name from. However, one feature that is striking is its placement next to the City of Miami waste transfer center, however there was no detectable odor during all visits. It is located on 2 acres and has a density of 104 units per acre.



Figure 4-5. Looking East from 13th Ave



Figure 4-6. Entrance showing keycard security system



Figure 4-7. Solid Waste Department Transfer Station directly across Street

Santa Clara II

Located approximately fifty yards to the North of Santa Clara this building was built in 2005. A very unique project as the lower five floors are parking garage floors dedicated to Metrorail riders. The building is a total of 17 floors including the parking garage and has 204 units. It is very similar to Santa Clara in construction techniques, yet was built by a different developer. It is located on .5 acres and has a density of 102 units per acre.



Figure 4-8. Looking SE from NW 13 Ave



Figure 4-9. Metrorail station that is located directly next to complex



Figure 4-10. Playground that was built in conjunction with project

West Brickell

One of the first LIHTC buildings in Miami, this building was constructed in 1995. It contains 130 units on 14 floors. Located just south of downtown in the Brickell area of Miami, it is dwarfed by the large condominiums that now surround it. It is located on 1 acres and has a density of 130 units per acre.



Figure 4-11. Looking SE from SW 2nd Ave



Figure 4-12. Looking at the south side of building



Figure 4-13. Back of building

Congress Building

One of the most interesting affordable housing projects in all of Florida this building was originally constructed in two parts. The first part was a five story building built in 1923 with an additional sixteen stories constructed on top of it in 1926. The building is a neo-classical skyscraper that was rehabbed and turned into affordable housing in 1997. It is located in the heart of downtown Miami. It is located on .22 acres and has a density of 586 units per acre.



Figure 4-14. Looking NE from NE 2nd Ave



Figure 4-15. Entrance way located on NE 2nd Ave



Figure 4-16. Lobby of Congress Building

Hadley Gardens

An affordable housing complex for elderly residents built in 1986 with 150 out of the 151 units receiving assistance. This complex is isolated from the surrounding community and is not readily accessible to anything other than single family housing. It is 5 stories in height. It is located on 2 acres and has a density of 75 units per acre.



Figure 4-17. Sign and entrance to lobby



Figure 4-18. Rearview of building facing west



Figure 4-19. Unused security feature

Town Park Village I

A sprawling residential complex built in 1986 consisting of two story apartments located in the Overtown area of Miami. This was the only case study complex that was not primarily dedicated to affordable housing. However, was adjacent an in similar condition to affordable housing complexes in the vicinity of it. It is located on 7 acres and has a density of 21.5 units per acre.



Figure 4-20. Looking at south at part of complex from NW 17th St



Figure 4-21. Typical exterior of units



Figure 4-22. Units being rehabbed

Casa Isabel

Located near the Miami River in the Little Havana area of Miami. This three story complex was built in 1980. This three story complex has single floor units on the ground floor and two-story units on the second. There are several on site parking spots for residents on the side and in the front of the building, as well as having parking on the street. It is located on .34 acres and has a density of 44.1 units per acre.



Figure 4-23. Casa Isabel from E on South River Drive



Figure 4-24. Rear view of building from SW



Figure 4-25. Rear stairwell

Holy Comforter Senior Housing

This three story complex was built in 1971 and is located in the Little Havana area of Miami. It has forty-two units and is located a block of the main street of Flagler. It is located on 1.5 acres and has a density of 28 units per acre.



Figure 4-26. Side view of building looking SW



Figure 4-27. Rearview of complex from sidewalk on SW 2nd Ave



Figure 4-28. Looking West on SW 13th Ave into parking lot

Town Park Plaza South

This complex was built in 1972 and consists of 2 story apartments spread out over a large lot. Located in the Miami area of Overtown this complex contains 116 units. There is plenty of parking in front of all residences. It is located on 6 acres and has a density of 19.3 units per acre.



Figure 4-29. Looking W into the south end of the complex



Figure 4-30. Looking N into middle of complex from south parking lot



Figure 4-31. Typical front of buildings

Table 4-1. Matrix of findings

Complex	Amber Garden	Santa Clara	Santa Clara II	West Brickell	Congress Building
Year Built	2008	2001	2003	1995	1923
Rehab	No	No	No	No	1997
Number of Units	110	208	204	130	129
Stories	10	9	17	14	21
Balcony	Yes	No	No	No	No
Tub/Shower					
Window Material	Double Pane High Impact	Double Pane High Impact	Double Pane High Impact	NA	Single Pane
Flooring in Common Area	Tile	VCT	VCT	NA	Marble Tile
Exterior/Interior Entrances	Inside	Inside	Inside	Inside	Inside
Exterior Paint	Multicolored	Multicolored	Multicolored	Multicolored	Stone/Terra Cotta
Exterior Construction Material	CBS	CBS	CBS	CBS	Concrete Block/Terra Cotta
Elevator	Yes	Yes	Yes	Yes	Yes
Hallway/Interior Construction	Drywall	Drywall	Drywall	Drywall	Stone/Drywall
Roof Material	Rubber Roofing System	NA	NA	NA	NA
Type of HVAC	Rooftop Single Unit	Rooftop Single Unit	Rooftop Single Unit	Wall Mounted Units	Central Building Air
Washer/Dryer In Units	Yes are Available	No	No	NA	No
Washer/Dryer In Complex	Yes	Yes	Yes	NA	No
Parking	Parking Garage	Parking Garage	Parking Garage	Parking Garage/Limited	No
Exterior Lighting	Yes	Yes	Yes	Yes	Yes
Proximity to Public Transportation	2 Blocks from Metrorail	Connected to Metrorail	Connected to Metrorail	1 Block from Metrorail	Same Block as Metromover
Phone	Yes	Yes	Yes	Yes	Yes
Internet	Yes	NA	NA	NA	NA
Cable	Yes	Yes	Yes	Yes	Yes
Security Features	Cameras/Key Cards	Cameras/Key Cards	Cameras/Key Cards	Cameras/Key Cards	Cameras

Complex	Hadley Gardens	Town Park Village I	Casa Isabela	Holy Comforter Senior Housing	Town Park Plaza South
Year Built	1986	1986	1980	1971	1972
Rehab	No	No	No	No	No
Number of Units	151	151	14	42	116
Stories	5	2 In Multiple Units	3	3	2 In Multiple Units
Balcony	No	No	No	No	No
Window Material	Single Pane	Single Pane with Bars	Single Pane with Bars	Single Pane	Single Pane
Flooring in Common Area	VCT	No Common Area	No Common Area	Tile	No Common Area
Exterior/Interior Entrances	Interior	Exterior	Exterior	Interior	Exterior
Exterior Paint	Stucco Beige/Wood White	Mono chromatic	Mono chromatic	Two Toned	Single Pane
Exterior Construction Material	Wood and CBS	CBS	CBS	CBS	CBS
Elevator	Yes	No	No	NA	No
Hallway/Interior Construction	Drywall	No Hallways	No Hallways	NA	No Hallways
Roof Material	Flat	Shingles	Shingles	NA	NA
Type of HVAC	Single Unit Wall	Mixed	Wall Units	Wall Units	Mixed
Washer/Dryer In Units	No	NA	NA	NA	NA
Washer/Dryer In Complex	Yes	No	No	NA	NA
Parking	Yes	Yes	Yes	Yes	Yes
Exterior Lighting	Yes	Yes	Yes	Yes	Yes
Proximity to Public Transportation	Nearest Bus Stop 4 Block	Bus Stop Adjacent	Nearest Bus Stop 4 Blocks	Nearest Bus Stop 2 Blocks	Bus Stop Adjacent
Phone	Yes	Yes	Yes	Yes	Yes
Internet	NA	NA	NA	NA	NA
Cable	Yes	Yes	Yes	Yes	Yes
Security Features	Gate	Gate	None	Gate	Gate

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

The results in the previous chapter demonstrate the patterns that have emerged throughout the history of affordable housing construction within Miami, Florida. The following sets forth the conclusions that have been derived from the results of the case study as well as recommendations for further follow-up studies.

Conclusions

As discussed in the methodology section of this paper, the purpose of a case study is to address the questions of “why” and “how” the elements that are the subject of the study have changed. The first section of this conclusion focuses on the answers that this case study has provided with respect to “how” construction techniques have evolved, while the second part of discusses “why” such techniques have changed. Finally, the conclusion to this paper will close with a brief analysis of potential future directions for affordable housing in Miami, Florida.

This case study has provided three answers to the question of how affordable housing construction techniques have changed. The first is that the density of the affordable housing complexes that were studied in the case study has increased enormously over the years. All of the newer generation affordable housing complexes are of a significantly higher density than the older generation complexes that were the subject of this case study. Taking note of this shift is important to an understanding of how construction techniques in affordable housing have changed because higher density buildings (i.e., taller and more complex structures as opposed to complexes with several two story structures) spread out over large areas. The second conclusion that can be derived from the case study with respect to the evolution of construction techniques is that, in more recent developments, builders of affordable housing have employed similar construction materials and techniques as those that are used in non-affordable housing buildings

in neighboring areas. The West Brickell building is a prime example of this trend: from an aesthetics perspective, it fits in with the surrounding neighborhood perfectly and does not resemble what one might traditionally expect an affordable housing building to look like. In contrast, the appearance of Town Park Plaza South is in stark contrast to its environs; a person not familiar with construction terminology would most likely describe the building as a “project.” This modernization of the construction techniques used in affordable housing has helped residents to feel that there are fewer stigmas attached to living in an affordable housing complex and also created a higher quality of life for those residents. This modernization of construction techniques can be attributed to higher density and the need for firms with higher technical capabilities to be involved in the construction of these larger buildings. These higher densities can be attributed to the fact LIHTC does not give credit for land acquisition and also the fact that large parcels of land are prohibitively expensive in the Miami, Florida area. Finally, the integration of mass transit with affordable housing in recent years (as can be seen in Santa Clara II, with the transit parking garage) shows a synergy between construction and planning as an innovative means of mixing both parking and housing that has only been made possible by the evolution of new construction techniques.

The case study was also designed to find out “why” affordable housing construction techniques have changed within the Miami, Florida, and the answers are provided by both the literature review and the case study data. One explanation is there has been a major overhaul of the system pursuant to which affordable housing is being constructed. The creation of a system in which rental vouchers are not the primary means of delivering affordable housing has resulted in a competitive structure in which the government has more oversight. Stated another way, builders of affordable housing cannot develop a project for which the government will supply

rental vouchers anymore. While this method was efficient for producing large numbers of housing units available for governmental assistance, it created an environment that facilitated the colloquial “cutting of corners” on the construction of those units. Unfortunately, many builders settled for quantity over quality, in the absence of any economic incentives to do otherwise. The LIHTC system, by striking a balance between government-funded housing and total private enterprise, has ensured that a greater emphasis is placed on using proper and modern construction techniques. A competitive system is successful only if there is regulation in place to let it function properly.

This thesis and, in particular, this case study have shown that affordable housing in Miami, Florida has evolved significantly over the past 75 years. This evolution, however, may be slowing. The LIHTC program has proven itself capable of providing innovative affordable housing that suits the needs of the citizens of this state, and a proper balance between government and private enterprise has been struck. Yet this is not to say that affordable housing construction techniques will not continue to evolve unless building companies are careful to monitor that affordable housing construction techniques keep pace with developments and improvements in private construction.

Further Studies

Although this thesis has answered a number of questions with respect to the evolution of construction techniques in affordable housing within Miami, Florida, just as many questions are raised – and remain unanswered. Further research on the subject of this paper could be undertaken (e.g., to determine whether similar developments in affordable housing construction techniques in Miami detailed herein can be seen in other parts of the state). Another area that could be looked at further is a study of energy efficiency within different generations of affordable housing. A case study focusing on the work of a single affordable housing

construction company or developer that has been working in this field for several decades would also shed more light on the evolution of construction techniques. Such a study would, however, require detailed access to blueprints, shop drawings, and other documents that are not available to the public at large. A similar case study could also be conducted to study the evolution of construction techniques used in private housing and then compare those results to the ones achieved by this study.

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BIOGRAPHICAL SKETCH

Benjamin Ward Bolz was born in Miami, Florida on September 5, 1981. He was the youngest of three children of Henry and Wendy Bolz. He graduated from Ransom Everglades High School in Miami in 2000. After spending two years of school at the University of Vermont, he transferred to the University of Florida. He graduated *magna cum laude* with a B.A. in geography in 2004. After working as a city planner for several years, he returned to receive his master's in building construction at the University of Florida.