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I, Michael D. Reinersman M.A., hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture.

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The Retrofit: Suburban Ideals Into City Grid

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The Retrofit: Suburban Ideals into City Grid

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Abstract

The American Dream provides an ideal that everyone should have equal opportunity to achieve success and prosperity through hard work, motivation and determination. The place one decides to live –home, has everything to do with how possible this ideal can be achieved. It is an important decision as it influences our career, bank accounts, where we send our kids to school and overall well-being.

Fulfilling this dream is often associated with the suburbs as road development and increasing opportunity to build on land at the outskirts of the city allow accessibility to what the city provides. Instead of urban sprawl, suburban sprawl has been magnified since mid-twentieth century causing the premise of the classic American Dream to evolve from an ideal of opportunity to an ideal of ownership where the program(s) of the home –the garden, room, privacy, and then, the freedom to personalize this space do not align with the purpose and advantages of living near or in the city.

There are American cities where city dwellers are acclimated to public transportation, smaller living space, no yard, and lack of privacy at times, but for a city such as Cincinnati, Ohio, there is a disconnection between the rate of suburban sprawl and sustainability at the city’s core. This city has drawn working people to its international business for decades but with stronger desires for more room, garden and individualism at home, working people are quickly drawn out of the city and to the suburbs. The features making the city are devalued as suburbanites consider it a place to drive to for work, park in a garage and moving directly into their offices by elevator –at any point, never adding to or gaining value the city’s fabric has to offer. This thesis explores the idea bringing all amenities found in building in the suburbs back to the city. This would salvage existing neighborhoods and create even more diversity within the already existing city.

The city’s population will grow and the need to accommodate growing populations is necessary –not in suburban America, but in America’s cities. Instead of replacing the redundancy of poured concrete driveways along a neighborhood street for another pattern of repeated hollow metal
doors along a fire-rated hallway, this thesis attempts to illuminate personalization that home owners and renters take pride in. Instead of wasting more land and exhausting more time and energy to get place to place, an enhanced quality of family life could be achieved if customized structures were designed and available to really accommodate the ideal of ownership and to accommodate the desires to create one’s own space with room to grow.

The thesis identifies and defines the components that which make living in the suburbs desirable. The Retrofit then applies the components of the suburbs to dense urban environment by creating a vertical structure that includes these needs. The horizontal commute and program is tipped, and imposed vertically within the city, coalescing the typologies of urban high-rise living and the social and physical ideals found in suburbia.
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Chapter 1 | Background

Introduction

From the earliest days in the formation of America, a plan was set in motion to quietly promote the values held by America’s political leaders by developing a “generalized idea of a model dwelling which would form a good American.”¹

“Growing up in the suburbs, I spent my childhood riding my bike up and down the winding neighborhood roads alongside the perfectly manicured front lawns of the seemingly never ending array single-family homes. Playing basketball in my driveway, building tree-houses in back yard, swimming in my neighbor’s pool, and of course watching the seasons change from my second-floor bedroom window hoping for a snow day to sled in the backyard. This was my typical “American Dream” upbringing. This upbringing is quite nice in theory but as I grew older I started to feel a lack of cultural identity or true authenticity and started to recognize the politically prescribed environment that I was living in was not the ideal creative environment that I desired to live in. It was until college when I was able to experience the differentiating factors of Urban and Suburban living. As I studied in Berlin and travelled through the continent of Europe I found the ideals of urban living and planning are more sensible than the portrayal of the ideals found in American suburbs. As a city dweller in the city of Cincinnati, I realize the huge gap in this region’s city to suburb living options.

As a designer, I have found pleasure in combining mediums that are not always combatable. Layering mediums to form a perspective with underlying meaning and where interstitial space is then created. The interstitial space may not be what a Client has asked for but what will be appreciated for its purpose, duality, function, and method once ultimately occupied and realized.”

This thesis investigates a design that mitigates contrasting typologies found in both suburban and urban contexts. The Retrofit magnifies the original basis of the American Dream which is the ideal of opportunity. The enhanced dream allows design freedom, accessibility, mobility and security to exist in one structure.

¹ Wright, Building the Dream, 23.
Why Retrofit?

Retrofit (n):
orig. U.S.

A modification made to a product or structure to incorporate changes and developments introduced since manufacture; the action or fact of modifying a product or structure in this manner.

Also fig. trans. To provide (something) with a component or feature not fitted during manufacture; to add (a component or feature) to something that did not have it when first constructed.

Also intr. trans. fig. To alter or adjust in order to reflect new developments or requirements; to endow with new characteristics or qualities

Retrofit would add a component or accessory to something that was unavailable at the time of construction. In this thesis, retrofitting extends beyond rehabilitation or adaptive re-use and encompasses potential partial or whole redevelopment of the built and natural environment in order to induce holistic, long-lasting, transformative change. Through the process of design development “The Retrofit” serves to take suburban ideals people desire and add these values into a vertical arrangement within the city grid.
Sense of Urban & Suburban Ideals

The suburban ideal, distilled to its essence, consists of the belief that the best form of shelter is the single-family detached house with a garden and ample open space located in a homogeneous, locally controlled community on the periphery of a city. A comprehensive definition and description of the suburban ideal must include not only ideas—those values and benefits to health, spirit, moral character, and social acquaintance thought to accompany suburban living—but also material culture— the characteristic forms of architecture and landscape that have expressed those ideas in the suburban built environment.\(^2\)

Driving

The automobile and accessibility to automobiles made the American suburb possible. Americans could uphold jobs within prominent cities and raise a family without the expense(s) of living downtown or relying on public transportation. The single-family homes of the suburbs had to be designed with the automobile in mind. The driveway became the entrance and exit ramp to domestic life, replacing the front porch or grandeur of a front door, both of a bygone age. The garage became an essential feature like the kitchen or living room—an extension of the street or a buffer zone insulating the suburban dweller from the outside world, rather than just a place to store a vehicle.

\(^2\) Karol Fabrycki, "History of Suburbs," pg.1
This notion highlights the idea held by several scholars that suburban living epitomized or overemphasized some would argue—the privatization of life.3

The daily journey, then, from suburb to work, is repetitive. Just like the repetition of driveways along the neighborhood street. The environment from home to work becomes a journey of banality that lasts until they arrive at the interior of their next destination. Confronted by repetitive subdivisions, treeless collector roads, and vast parking lots, the citizen finds few public spaces worth visiting. One’s role in this environment as a motorist is primarily competing for asphalt.4 The city, on the other hand offers access to amenities and density of amenities within walking distance. Along the journey from home to work within a city, one can encounter practically all living necessities (food, socialization, a gym and shopping as examples) within a matter of blocks compared to the distance and time needed to get to those needs in the suburbs. Unfortunately, the concept is often thought of as unsafe—for kids, in particular. Living within the city then does not seem so suitable for the unaffected and independent family life depicted in the “American Dream.”

Privacy

Private space is a superior product in America and can be easily achieved when the home is concealed by walls not shared with another home, with garage doors that shut and

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individually locked door separating outdoor from indoor versus the use of a fob key and the sound of the neighbors’ footsteps above. To fulfill privacy needs that are found in suburban environments, it seems that senses of separation could be key. This is not achieved in the high rise condominium and apartment buildings in cities now.

Personalization

Cities offer a dense amount of amenities within walking distance and sometimes, everything one needs in just a couple blocks. However, the city often lacks the sense of individualism and personality that is found in suburbia when one can choose the design and character of their particular dwelling. The ability to choose between a two car versus three car garage, or just how the open or cozy the home feels and appears can provide a sense of luxury and personalized pride that seems lost in city living structures. Housing with in the city are typically high-rise apartments and condos at a mid to high-rise scale. These buildings are not typically designed for the values that are associated with family-life and therefore come to seem bland and repetitive in comparison to the possibilities available with a suburban, single-family home. There is a family-friendly infrastructure that suffices a set of ideals in the suburbs there that simply does not exist downtown.
Chapter 2 | Practices of Suburban to Urban Retrofit

The motivation behind this assertion is to explore the advancement of another kind of private environment that joins both suburb and urban in another cross breed condition. This theory is about investigating the likelihood of making a rural/urban half and half, where the typological attributes and spatial characteristics of suburbia are united onto urban typology whereby the impediments of the suburbs are moderated by the variety of urbanity. The purpose of this research is to archive the multiplication of the rural and urban beliefs.

The suburb was triggered by the industrial revolution. The creation of the suburb was aided by the products of the industrial revolution such as wealth, poor urban conditions and new technology and materials. Leaving the city and the squalor conditions also meant leaving the intricacies of urban life, the multiplicity and the spontaneity of the city. The search for open green spaces, fresh air, sunlight, recreation and leisure has left the suburbs culturally, institutionally, and commercially inept. Moreover, it created an uncanny condition of pseudo-country and pseudo-city, an unnatural twilight between the two. By the turn of the century there were proposals to bring the suburban ideal to the city.\(^5\)

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\(^5\) John Kotsampouikidis, "Suburban/Urban Grafting" (Master's thesis, Ryerson University,, 2013), Research,
A.B. Walker’s Proposition

One of the earliest practices of combing the urban and suburban ideals was drawing by A.B. Walker, published in 1909 Life Magazine. The print was an advertisement for a high-rise building that stacked plots of land and cottages. The quote that accompanied the sketch read: “Buy a cozy cottage in our steel constructed choice lots, less than a mile above Broadway. Only ten minutes by elevator. All of the comforts of the country with none of its disadvantages (Celestial Real Estate Company.)”⁶ Rem Koolhaas wrote that it was a vision of the skyscraper as an ideal tool to create virgin sites or private zones characteristic of typical rustic cottages but located in the middle of a metropolis.⁷

The sketch in a significant degree expresses the luxury of owning your own lawn and home while being situated with the city and avoiding the wasted time commuting from the rural environment. From the image, we can digest view of greenspace with private homes, in which are not obligatory to relate to the other homes on the vertically stacked plots of land. This privatization and

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personalization of ownership continue the persistent and desired ideals of suburban living today.

Highrise of Homes

The High-rise of Homes developed by James Wines and SITE Architects was a collection of single-family dwellings placed vertically in a steel and concrete frame. SITE Architects cite A.B. Walker’s cartoon as an ‘antecedent’ for the High-rise of Homes, along with the fantasy project by another 1920 cartoon in Life Magazine, the proposal for a Cooperative Apartment Building. The High-rise of Homes was similar to the A.B. Walker’s cartoon in that it took the idea of the single-family dwelling and replicated it. These dwellings were literally organized and placed on ‘racks’. These ‘racks’ were intended for purchase as new real estate for tenants. The dwellings are arranged in a “vertical community of private homes” which were “clustered into distinct village-like compounds.” The premise of the High-rise of Homes was that “industrialization and standardization, while expediting multiple story housing construction, have eclipsed the personalization and variegation in preindustrial housing. With land use becoming more stringent, verticality has become an urgent requirement in many areas of the world, yet the

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need for individualized and visually diverse housing has not changed. SITE Architects recognize the need of providing high capacity apartments that serve the needs of people in a dense city, but lament the monotony and neutrality they
create, preferring the idealized detached single-family home for its individualizing capabilities.
The High-rise of Homes was a reaction of its time to the monotonous apartment towers being built quickly for profit. SITE Architects state that, “designers usually concentrated their attention on the development of expedient solution which could be reduced to some form of mass manufacture and modular construction” SITE Architects did not just want to re propose the stacked collection of units because that would just be another apartment. They saw the High-rise of Homes as more than developer mentality of profit and the architect’s subjectivity over the users’ desires and needs. They saw the High-rise of Homes as a building where people were involved in building their own homes. “The High-rise of Homes is based on the premise that people need the personal affirmation and territorial definition associated with the detached “house” even though living in the compressed environment of a multi-storied structure.

SITE Architects used the American suburban dwelling archetype as a point of departure. The American Dream is provided by the propagation of plots in the sky, which allow the freedom and personal affirmation that comes with owning land and a house. These are usually clichés of what a house should look like and how a house should perform. SITE Architects state that a house is different for every person because they put their personal touches on it. “Like all architecture the house is expressive of a larger cultural realm, yet there is a persistent and changing dialogue between the personal preferences and tastes of the different inhabitants and architectural convention.” For Site it is more important what the users want so they let them choose what their houses will look like. Like the pattern books of the past, SITE Architects set up a catalogue where the users could choose, “the composite conditions of variables in a dwelling –

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windows, doors, colors, additions – [to] compose a compelling collage of tastes and tradition, and tenacious transformation.”^{12} Basically houses are as different as their owners. In this proposition residents have a say on how their houses will look like from inside to out from color to trimming type. Allowing personalization of each unit, versus a high-rise apartment where the architect selects everything for them – so there is no more personality, no more individuality – things are usually chosen to be cost effective and easy to construct. This informs their idea of having

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a steel structure to then insert dwellings that are typical of the American house and actually physically resemble a house that would be found on the ground.

The urban and suburban hybrid is formed through the collection of houses crudely stacked on top of the other in a vertical format. What is interesting about this building is that it tries to make a real proposal for A.B. Walker’s sketch. The High-rise of homes is not just a collection of single-family detached dwellings, but an affirmation of the suburban plot and an excerpt of its physical location in suburbia, even though it was crudely achieved. Unfortunately, SITE Architects have not found the willing client to realize any such projects to this day due. Moreover, the use of the racks does not offer any advantages. The dwellings below do not see the sky but the underside of the ceiling above. In this regard it is an apartment building with no external walls.

SITE Architects describe the imperative to make each dwelling look different, however in the whole composition if the tower is rigid in plan section and elevation there is no variability. Why not use the form of the building to create specificity and individuality? Of course allow some spaces to be left to the user to be changed and adapted as they see necessary. Even in suburban development the same dwelling is copied to infinity, however there is still a persistent idea of individuality as a singular entity, which a group of people identifies as their home, even though millions of other people do the same. Perhaps then the color of one’s door, gate, and fence or the size and width of the pediment, column, moldings or light fixtures do not matter to the identity of a dwelling. Furthermore, these features from the third floor and higher are not seen from the street, diminishing the hype of individuality from the mass of the building. In the High-rise of Homes SITE Architects simulated a front door condition that would be found in a single-family dwelling in the suburbs. However, access to each dwelling is from a common public access point to the building, which diminishes the intent of having
a private entrance to the dwelling. In the end the access sequence is similar to other apartment buildings: public entrance to the building, followed by semi-private corridor which then leads to the private units.
“Virtually every socially concerned architect of this century has, at one time or another, addressed the problem of high-rise and/or stacked multiple housing. Because of the restrictions imposed by real estate economics, designers have usually concentrated their attention of the development of expedient solutions which could be reduced to some form of mass manufacture and modular construction.”

However well-intentioned the designers, the resulting buildings have existed more in the category of formal exercises to please professionals than as flexible and responsive habitat for urban dwellers.

One of the most perplexing problems faced by architects is the question of how to translate peoples instinctive desire for personalized housing. 

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(which has little to do with an interest in complex engineering and high art) into terms which accommodate this need and satisfy the designers elevated aesthetic sensibilities at the same time.

The “Retrofit” was started with the premise that there is a desire for living within the urban context but also desire the suburban ideals that promote individuality, ownership, and the pleasant open boundaries of the suburbs. This theory is also heavily based on the premise that architects have an obligation to provide the opportunity for individual choice of housing that portrays the sense of ownership and personalization within the high-rise context. By understanding the physical components of the suburban home

Situated in Cincinnati’s central business district, the design is a hybrid of Urban and Suburban housing components in a vertical reorganization. Housing, amenities, green space, and circulation networks are translated from the horizontal plane into a vertical model.
Design Propositions

The goal of the design experiment for midterm was to combine the single family home of the suburbs with the urban environment of high-rise building conditions into a physical construct that manifested the design research. The idea was to start with the building blocks of the single-family dwelling, stacking distributing the units in a way that gives each unit access to preferred views of the city. The intention was to provide a socialistic vertical community that would be connected by a vertical landscape. The scheme challenged the increased density, but also not to lose the home and garden feeling. This was done through the multiplication of landscape from street level to each of the units.

![Figure 10 Midterm Perspective Render](image)

After completing the experiment, there were a couple of issues came up. The first issue has to do with the understanding of the archetype suburban dwelling as a housing on a plot of land. One of the prominent assets of suburbia is the property / land that the dwelling sits on. Being a homeowner and property owner means that one can do what they wish on their property. It is a form of status and also of wealth, however, ownership and tenure types were not considered in this thesis scheme. The point of the home and land ownership becomes less relevant. The use
of the “property” thus becomes more important. Simulating the suburban ideas of leisure and recreation and that feeling of home rather than the condition of property ownership becomes more important.

The second issue that emerged was the fact that dwellings in the suburbs while sometime repetitive have the element of change over a period of time. The user can add and grow their house as the family grew and chose to change and upgrade the exterior finish of the dwelling or the color of the door.

The third issue was the result of the hybrid and whether it was successful. The intention was to graft the suburban ideals vertically typologies on the urban The components or ideals that make up suburbia are yard- unit – vehicular access and storage. My idea is how can I vertically create a suburbia with those ideals. I focused on the yard because the yard is a sense of semi-private and private space. It creates an interesting threshold of private and public and how to portray it vertically from the urban grid. The landscape and topography

The presented design does not identify the layers of suburban living that should be grafted into the vertical environment of the city. Relying on the landscape to be interwoven through the assembly of units and lack of ideals represented made the scheme look too much like typical urban high rise. The design of the units was too dense and too much of the same, graphically. I am
better off making them more vertical because identification of individual homes is expressed.

In my process of research and design, I looked to realize the private and public realm of the suburban home. How can these private and public thresholds work in a vertical way in the city? In the city we store our car while in suburbia we adore our car? What you have to maintain? Live without the land?

The American suburb was a product of the automobile revolution, and because of that the suburbs are designed with the automobile in mind, especially in terms of hierarchy and scale. In an urban setting such as Cincinnati, the car is still needed and is provided as an integral part of the design.

The goal of the vehicular design accommodations is to integrate the auto-transit culture of America into the vertical environment of the high-rise. The configurations of the homes in the design allows privatization and ownership of the home and yard that is interlaced with the home configurations and three-dimensional lifts that allow the personal vehicles to be elevated to each of the home transit entrances. The design evolves into a cohesive open-air high-rise that stems from the vertical transit systems, a symbolic identify that is parallel to the configuration and physical relationship of the suburban home, drive-way, and public street.

The design approach rethinks the typical straight street of the urban environment into an adaptive double helix that sprawls vertically into a spiral. In turn, allowing the vertical lifts of
the cars, pedestrian ramps and elevators to be conveyed to the single-family units as an open-air high-rise, providing a new type of urban environment.

Located between Court Street and Central Parkway in the high-rise is accessible to both cars and pedestrians from the urban streetscape. Vehicular access from the two streets is continued from the ground plane and becomes the connecting thread linking the entire tower. The structure is composed of a massive concrete structure that is blended into the urban grid and green space at street level. Homeowners and guests arrive to the destined home via the cantilevered parcels that are homogenous to the coiled structure of the core. The street reacts to sunlight, and views as it sometimes widens for pedestrian activity and greenspace, providing circulatory and visual freedom.
Conclusion

This thesis reconceived the high-rise developments of urban residential as a vertical neighborhood, a network of single-family homes in the sky. The inverted design process prioritizes the user by focusing on the social and physical build desires or ideals that are associated with the single-family suburban home and neighborhood. More specifically these ideals are the privacy, display of ownership and wealth, and the transit that made suburban life possible.

The design experimented with inserting programmatic ideals, often associated with the suburban home, into an urban grid. While living in suburbs versus in a city provide contrasting contexts for living, program and needs can be similar. Privacy, relationship to the street, community, the freedom of having a car and parking it, ownership of green space and strive for individualism are addressed to create a convincing scenario to which both desires and typologies could exist. The result tips the program on its side to create a vertical

Figure 15 The Retrofit - Approach, Street Level Perspective

The design experimented with inserting programmatic ideals, often associated with the suburban home, into an urban grid. While living in suburbs versus in a city provide contrasting contexts for living, program and needs can be similar. Privacy, relationship to the street, community, the freedom of having a car and parking it, ownership of green space and strive for individualism are addressed to create a convincing scenario to which both desires and typologies could exist. The result tips the program on its side to create a vertical
neighborhood --- the main drive being the freedom to drive one’s car right up to their own home!

The retrofit becomes a hybrid opposing environments, suburbia and urban city, providing a platform of exploration internal social and spatial living systems. The design succeeds at providing location, accessibility, room, private parking, garden, access to open air, personalization and the obvious opportunity to salvage land at the outskirts of cities. This design experiment also realizes there are and will be absolute spatial limits and freedoms found in each environment, therefore, creating limitations for building and creating home --- all influenced by a shift in the American Dream from opportunity to ownership.
Appendix A | Bibliography


