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A Single Family Home:
(Anticipating Tomorrows Needs)
Maters Degree in Architecture

A Single Family Home: (Anticipating Tomorrows Needs)

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Abstract:

Housing today has become in a sense a social requirement for architects, forcing them not to design but adhere to a conventional and traditional style home, which in turn ignores the changing needs and concerns of society. Considering that the "typical home in the United States produces more air pollution than a car," then the home can no longer afford not to change. While the traditional approach to our resources has provided us with a multitude of material goods, it is at the same time destroying the world's environmental support system. A lack of sustainability has become increasingly apparent in the methods by which we build, and the way we live our lives. At this point it is important to recognize what is really implied by the term "sustainable design." Since it can be defined several different ways, here it will be defined as a means of striving to live within the limits that the environment imposes on us, and preserve these resources for future generations. This means, for example, creating a more conscious design in relation to climatic conditions and existing landscape. Houses today take little advantage of passive solar techniques which can greatly impact the consumption of the earth's resources. The majority of houses are designed generally to fit on any plot of land in any orientation. This is not only bad on an ecological level but it also denies its relationship with the site on an aesthetic level. A home should be oriented in such a way that takes full advantage of passive solar techniques. Another concern facing traditional homes is the materials that are used. Many of them are harmful to the environment due to the fact that they are not able to be reused or recycled. Also
many common materials are not locally available, but are shipped a great distance. Thus more effort should be devoted to the selection of building materials that have less embodied energy. The home should also attempt to reduce the use of water and energies by the incorporation of technologies and practices consistent with sustainable goals. The question is, at what capacity does the traditional home need to adapt to be capable of responding to new ecological, social, and technological challenges. Perhaps society needs to rethink the traditional dwelling, in order to incorporate an ecologically responsible alternative to the current housing condition.

Circumstance:

The project fundamentally proposes to take on the single-family home as its subject matter. More specifically, allowing sustainability to be the main focus of the design of the home. The result is to uncover questions of housing patterns which can be improved, in a hope to reach a healthier domestic condition, using the home as the primary architectural vehicle.
Thesis:

Owning a home is in a sense the very essence of the "American Dream," and for this reason the question of housing is perhaps the most important topic in contemporary architecture and yet is it is not challenged. Though housing has great importance it is often overlooked by architects as a social obligation. It is often seen as a social obligation in part because people have preconceived notions of what they feel a home is and should be. However fully understanding the home and how we dwell in it can shed light on other building types, as Le Corbusier alludes to when he states, "My job is to house people, to provide a concrete container which will enable them to lead a more human life. How can I build a church for people whom I have not housed" (Onn pg. 71). Thus, housing has wide possibilities of becoming the framework through which all other buildings are explored. In many ways, it acts as a test laboratory for the modernist movement. There is, perhaps, no other building type which is freer to design without the influence and limitations of: developers, cost managers, client committees, and government bureaucrats. However architects have to face a cultural limitation, which is the prescription of a common form of housing as understood by the mass-market.

Most homeowners own homes which are located in the suburbs and for most the appearance is relatively predictable. Despite America's strong attraction to individuality, the true desire of most people, concerning homes, is conformity (Doubilet pg. 9). Some aspects of conformity make sense. The fact is that many people will move two or three times throughout their lifetimes and a home should be capable of meeting the different demands of different owners. The book American House Now, points out that, "Despite changes in family structure, leisure time, and household technology, the basic diagram of
the home remains unaltered in two hundred years of American history” (Doubilet pg.9). The reason for this is people are reluctant to break away from their preconceived notions of what they think a house is. In the book Lived in Architecture, a resident of the Pessac project, by Le Corbusier, points out that “Most men never consider what a house is... except they think they must have such a one as their neighbors have.” (Onn pg.3). This statement is buried deep in the mindset of society and, though many commonly express a desire for diversity it is only expressed in home styling and a plethora of furnishing and accessories. The result is that housing seems only capable of describing how well off an individual is. Americans are only expressing their identities through products; whether it is a concrete goose with a different outfit for the season, or a brand new Chevy Suburban parked in the drive way. With this type of mindset, society loses sight of the important aspects of a home. Thus many buildings built today engage us only on the level of commodity.

A home serves as a place to withdraw from the rest of the world. According to the book The Concept of Dwelling, the home can be characterized as, “a refuge where man gathers and expresses those memories which make up his personal world.” (Norberg pg. 13) However, with the explosion of popular culture, such as advertisement and T.V, it seems the home has drifted further away from being a “personal world” and has, in a sense, become just another product. This is in direct contradiction to what a home should represent. Carswell provides a clear explanation of what a home should encompass when he explains, “The product (home), must provide the resident with convincing authenticity, a settlement making ritual that responds to current societal definitions of territoriality in addition to fulfilling implied deeper patterns of human place making.
borne out of vestigial collective shelter needs.”(Carswell pg.37) Clearly the need for authenticity is only created by an illusion perpetuated by popular culture. Furthermore, what has happened as described in an essay from the book titled Extreme Houses, which states, “housing has become a blanket solution that treats everyone the same, it is homogeneous and often boring”(Smith pg.1). For this reason society continues to search for their identities through products and have fallen in the trap of a consumer-oriented society. In the essay, “The Culture of Housing in America,” a similar idea is conveyed. It notes that, “Consumers themselves have come to expect a supermarket form of housing choice”(Carswell pg.37). What results when choosing a home this way, is that as with advertising, the idea of the product is sold, rather then the actual product. This same essay then further concludes that housing has become market oriented rather then user oriented by stating,

“Housing as a consumer good has, like most producer consumer relationships in the late twentieth century, become detached from direct responsive feedback. Instead market intuitions, or nominally more sophisticated surveys, are used to refine the product.”(Carswell pg.37)

Is there a better way for homes to express a person’s individuality without the use of products, while at the same time, being based on commonly excepted principals?

The problem is that society’s expectations of a home are a conflicting force by its very nature. In many ways, the architect is responsible for providing a “highly serviced unit,” and at the same time, is expected to satisfy the “primal act of earth settlement” (Carswell 37). In order to resolve both issues, one is usually compromised and it is marketable housing which will often take precedence. How then does society fulfill its
primal urge for settlement? The author J. Williams provides one explanation and states, “Much of mass market housing is the basic box plus type with specific attachments such as the ‘cathedral ceiling,’ ‘the central fireplace’, the... The illusion of place making” (Williams 36). Though this “illusion of place making,” might seem to have satisfied society, it fails on a deeper level to the degree that there is a false richness or counterfeit quality to its very nature. With the current system of housing production, the architect is no longer meaningful. The architect is merely a service provider and architecture becomes a trade rather then a profession. Does architecture have the capacity to serve both needs? The answer is yes. Modernism has tackled the same issues. However it has failed in the aspects of appealing to the mass market of housing. Thus there has been little effect on the general landscape of housing.

What is the Modernist Movement and how has it impacted the American house? Confusion tends to spread when discussing the “modernist movement,” partly due to the fact that it cannot be given a single definition. On the one hand “Modern” stands for a period in architectural history, which occurred between 1920’s to the 1970’s, on the other “modern” represents the expression of the characteristics of the present (Doubilet pg.10). Confusion set in when the Modernist Movement inspired breaking away from tired traditions that no longer represented the current society. Instead, Modernist tried to set absolutes in architecture as a formula. Even the great pioneers of the Modernist Movement such as Frank Lloyd Wright and Le Corbusier both had completely different responses to the same idea.

In trying to understand today’s current housing conditions, it is important to look at what has come before. In the early twentieth century, new materials such as cast iron,
steel, and poured concrete, were being used to duplicate Classical and Gothic architecture. With the use of these different materials, it no longer made sense to use them to duplicate old forms, which opposed the true nature of the material. Though there may be nothing wrong with stretching the capabilities of a material, there is something dishonest about making a material appear to be something else. Thus architecture began to transform itself free from ornamentation, with the desire to express new materials in a new age.

Some of the basic elements that modernism wanted to impose on buildings were the horizontal strip window, the flat roof, and the free plan. What ultimately happened according to the author Susan Doubilet, “By the 1970’s Modernism in America had degenerated into the sterile, repetitive formula in the hands of some architects and excessively arcane object-making in others” (Doubilet pg.11). Modernism also paid very little attention to environmental aspects. Author Susan Doubilet also states, “The infamous glass and steel box, justified by the modernist mantra ‘form follows function,’ was generally acknowledged as environmentally inefficient and urbanistically inhumane.” (Doubilet Pg. 12) One complaint about modern homes from a resident of the Le Corbusier designed Pessac area, states “Modern buildings can’t afford to grow old, and when they do they have to be kept in an impeccable state of repair.” (Onn pg.104) This statement is correct in that modern buildings do have a dreadful quality when they have been neglected for a while, and part of this is due to material choice. Perhaps this inevitable condition could lead to a common exterior skin that can be taken off easily when a buildings lifespan has ended.
Another aspect modernism failed to contend with is the importance of merging individual expressions with collective cultural myths and memories. One example of this is the pitched roof as compared to the flat roof. It makes a considerable amount of sense for a single family detached home to have a pitched roof for practical reasons such as shedding rain and snow if nothing else. Pitched roofs are perhaps what many would consider directly tied to the modernist saying that “form follows function.” Yet for some reason, modernism has rejected this notion. Though flat roofs have their place in many building types, they are not cost effective enough to have a large impact on the mass-market of housing. Another aspect to consider is that pitched roofs have an inherent symbolic value deeply rooted into society’s instinctive urge for shelter. This is not to say that for the sake of tradition, all homes should come standard with a pitched roof in order to respect past traditions. There are cases where a flat roof makes sense. What is being questioned is the desire to unnecessarily complicate an already meaningful functional form. The purpose of this argument is not to prove that the conventional pitched roof is the ultimate answer, but instead it is hard to conclude that the flat roof, though equally aesthetically appealing, should be considered an absolute in home design. Le Corbusier was a strong advocate of the “flat roof garden” which was one of his five points of architecture. Le Corbusier’s approach of combining a garden with the roof structure in a manner which allowed them to coexist, is not only innovative but aesthetically appealing as well. However, many other modernists put a flat roof on anything and everything, right or wrong, garden or no garden. This poses the question if all roofs were flat, would a new design solution be pitched roofs? The “Magney House,” which was constructed in 1982-1984 by the modernist architect, Glenn Murcutt, has a roof structure which is
concave in design. This was done not merely for sculptural or aesthetic purposes but, instead, for the functional purpose of collecting rain water which was necessary considering its rural location. Each roof type has its advantages on many different levels, but to limit housing to one can hardly be the right compromise.

This is believed to be where Modernism falls short of impacting the general landscape. As the author Susan Doubilet states, “The aesthetic limitations and sociological failings of American Modernism were easily targeted by a new generation of architects who absolutely rejected the idea of absolutes” (Doubilet pg12). Though it is important to set principals in architecture the modernist movement ultimately failed in that it allowed little room for compromise and ignored the cultural needs of society. Thus housing should embody to some extent the idea of flexibility. Modernism still continues to serve society in that many architects have taken from it what they need, and disregarded the rest. This can be seen in the work of architects such as Richard Meier, Charles Gwathmey, and Glenn Murcutt, who have taken from modernism what they find important and shaped it into their own distinctive style.

Architects have great flexibility in home design, but if housing should appeal to the masses then perhaps there should be certain criteria that are considered when designing. There is a need for the home to express and share the collective cultural myths and memories of its time. This entails more than just creating the illusions of the memories. Rather it is taking out of the past what is real and meaningful and merging it into the present which continues to be real and meaningful. An example of the opposite of this is homes that have vinyl siding shutters, which are attached to the exterior of the window frame on each side. They are merely screwed on and are completely incapable
of being used for their original purpose which is to block sun and still allow wind passage in the summer months. Today they are there for ornamentation reasons only and are a fraud to the culture they once belonged to.

There are multiple ways in which the home can serve today’s needs and promote a healthier living environment. The home should, in some sense, relate physically to the landscape, as well as aesthetically. In a sense, the intent is for the home to relate to the site more fully in that it considers pragmatics such as; sun, wind, and surrounding conditions that impact a building. By doing this and nothing else the home already becomes more intimately tied to the earth in a similar relationship to that of the human body. This may be similar to Le Corbusier notion of a home being a “living machine.” In many ways a home should aspire to be a “living machine.” In other words a home should coexist naturally with nature to the extent that a machine is capable. Using nature as an example it wouldn’t make sense to plant a vegetable garden in a shady area that gets little water and then compensate by using sun lamps and tap water. However this is how housing has responded to nature. Instead of taking advantage of the natural characteristics of the site these are ignored only to compensate by wasting resources. This is a major concern of today’s housing. People have come to rely solely on non-renewable resources to heat their homes in the winter and cool them in the summer. Consider the following facts from the Maryland Energy Administration;

“More than one third of the energy used in the U.S. goes to heat, cool, and light our homes and workplace. If each US household lowered its average heating temperature by 6 degrees Fahrenheit over a 24-hour period, we would save the energy equivalent
of 500,000 barrels of oil a day. If we used "off the shelf" energy efficient technologies available today, we could cut the cost of heating, cooling, and lighting our homes and workplaces by up to 80%.

This begins to suggest that even minor changes in our energy consumption could make a considerable amount of change for the positive. Perhaps homes should use a systems approach to analyze building energy use and efficiency. This approach treats the various components of a building, the building site, the occupants, and environmental conditions as an interactive system. For example, one of the most basic ways to reduce energy use in the summer is to reduce the amount of sunlight that reaches the building. This can be achieved by maintaining or planting deciduous trees on the side (south facing) of the site where the sunlight is greatest. Vegetation can also be used to block cold winter winds. These ideas may seem simple; however they are currently ignored in place of mechanical heating and cooling. Ultimately when more consideration is paid to the site conditions the result will be housing that connects more fully with nature.

Material consumption is also another concern when dealing with sustainable design. Thus homes should use sustainable materials if for no other reason as a moral obligation. Sustainability often is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable home designs are suited to both the place where they are built and the functions they will serve. Using locally available building materials aids a design in being appropriate to its place. In addition, sustainable design has a style respectful of its cultural surroundings, which contributes to the preservation of the community’s cultural heritage and
neighborhood value. Designing and building smaller houses is the most certain way to achieve greater energy and resource efficiency. Yet the functionality of a house shouldn’t be compromised by reducing its size. Well designed smaller homes can serve their occupants needs much more effectively than large dwellings. Larger housing often thoughtlessly tacks on extra space for no reason. Space-efficient designs eliminate wasted hallway space, and help to unify the home as well. Multipurpose spaces and built-in storage help make the most of every available space. Lastly good design is much more appealing and functional than simply adding more square footage and is often easier to maintain, heat, and cool. It is these reasons that sustainability should be incorporated into home design, if for nothing else to ensure a better environment for future generations.

Another contemporary housing issues is the ever-changing family structure. The family household is no longer what it was twenty years ago. The traditional family household may also consist of: single parent, retiree, and working female etc. Not only is it important that architects reflect these issues of the new family but that they should also respond to it in a way that helps bring families closer together. Thus tackling the issue of public versus private space and the transitions between them need to be further evaluated to meet a changing society. Ideally an open plan in which more than one activity can occur may help to unify the family structure in a healthier way. Another design concept worth exploring is movable walls to allow a space to change with a family’s changing needs. A common trait analogous to the home being a refuge from the world is, the bedroom has become refuge from the home. Members of a household are retreating to their bedrooms, which are now equipped with a T.V, computer, and or an individual
phone line. The family dining room is only being used for holidays and special occasion and is being converted the rest of the time into a makeshift office. (especially with more and more people working at home). Meals are now being prepared in the microwave and then eaten in the living room. Though this may not be true for everyone, it does however shed some light on growing trends. Spaces are being designed which no longer are used the way they were original intended. Thus, architecture should reflect these changes and respond in a way that helps create a healthier living condition.

A home should also aspire, in some way, to deal with its relationship to community. Housing today has become, in a sense, a “mooted castle” closed off to the rest of the world. Many people have a feeling of invasion at the sight of a car pulling into their driveway. The front door is now being pushed further and further from the street only to be replaced by the garage door. The single family home continues to push itself away from the community. Though this problem may be more related to a larger urban fabric, the design of the single family home still has the capability of contributing as a single part of this infrastructure.

Lastly, it should be addressed that these points are merely guiding principles and not to be taken as the full range of aspects when dealing with housing. This thesis does not aspire to solve all of housings problems, but rather, to understand what is currently most important. Keeping this in mind, Alan Cohen states, “It takes a lot of courage to release the familiar and seemingly secure, to embrace the new. But there is no real security in what is no longer meaningful. There is more security in the adventurous and exciting, for in movement there is life, and in change there is power.”
**Precedent Study One:**

**ARCHITECT:** Glenn Murcutt

**TITLE:** “Magney House”, Bingi Point, Moruya, Australia (1982-84)

ANALYSIS:

The Magney House is located in Moruya within the country of Australia. Unlike many homes the roof is concave not convex. The roof is shaped this way for many factors, all in some way relating to the site. For one the clients requested a look which would appear lightweight like canvas. There was also a need to collect rainwater and to do it as economically as possible. Thus the water drains toward the center and then out of each end where it is then collected. The overhangs of the roof were calculated in such a way that summer sun was omitted, and winter sun was allowed in. On the north-facing wall adjustable metal blinds were added so that no sun could enter during summer. The house sits on an insulated slab on grade. The slab and the back brick wall of the house act as a thermal sink, because the winter sun warms them. The plan of the house takes a linear shape with a functional spatial order and environment control.

CRITIQUE:

The “Magney House” is a good example of a home which takes advantage of site conditions on an ecological level. However, from an aesthetic level it seems as if this home had just been plopped down onto a piece of land. There is a strong sense of contrast from the home and the land. Though the architect in
an attempt to create a relationship used zinc aluminized silvers on the outer skin, (to pick up tones from the surrounding ground plane) the curved roof and shiny texture of the steel create remarkable contrast.

**RELEVANCE:** I believe the Magney house can help with my thesis in the fact that it takes into account many ecological considerations with a straightforward simplicity. It also challenges the idea of what a house is. However if a house of this type were put into a non-rural contexts, I can't see society embracing it with open arms. This might be because it doesn't fit the preconceived notions people have of a home. Most people would consider it more representative of a factory. The question that can then be asked is how does a new building type weave itself into the existing neighborhood landscape?

**Graphic Illustrations:**

The following images illustrate some of the characteristics of the Magney House. The factors that are trying to be expressed specifically are the relationships between private and public, as well as movement within the home. The red indicates movement, yellow indicates public, and blue indicates private. Notice that the image on the left shows that the center axis of the home indicates movement. This is consistent on a conceptual level on both the interior
as well as the exterior of the home. Movement is not only expressed by the path of people throughout the home, but as well as the movement of rain water which is collected at the center axis.

This image is also expressing the relationships,

between private and public, as well as,

the movement within the home. Notice that the rainwater is collected at the center axis. This image is also expressing the relationships.

As well as the exterior of the home. This can also be seen in the storage area adjacent to the home. Also there is a clear dividing line between public spaces (Indicated with yellow) and Private spaces (indicated with blue). The elevations also illustrate the strong separations between public and
private spaces. However, though there is strong differentiation in public and private spaces they are tied together by a common path of travel. The elevations also indicate how lighting is used as another means of indicating public and private spaces. Notice, that in the more public area of the home there is much more glazing provided. Increased lighting allows the viewer to be more subconsciously aware of the differing spaces.
Precedent Study Two:

ARCHITECT: LE CORBUSIER

TITLE: “Villa Savoye”, Poissy. (1928-30)

ANALYSIS:
The Villa Savoye is located in the city of Poissy. The structure of the home is made up of a grid that goes in two directions with four bays of five meters or roughly sixteen feet each, with a different plan on each floor. The ground floor of this home where the garage is located is designed around the idea of the path of the car, thus the home takes on the shape of the turning-circle that a car would take. Living rooms and bedrooms are located on the perimeter of the first floor, with the central part of the home dedicated to the bedroom of the homeowner, which is exemplified by the roof structure. A visual connection is made between floors only by stairs and a central ramp.

CRITIQUE:
The “Villa Savoye” is a good example of architecture that not only challenges society’s preconceived notions of what a house should look like, but also deals with some of the issues concerning housing today. One example of this is how Corbusier incorporated the car into his overall design of the Villa Savoye. Though this home at first glance appears to contrast greatly from the site in a visual context it does however respond greatly to the site conditions. Due to the site being somewhat swampy the main floor of the house is raised
sitting on columns. Also on the roof a garden is incorporated, which is one of distinctive qualities of Corbusier's designs. The flat roof of the home also relates well to the surrounding site which is relatively flat.

**RELEVANCE**

Though I feel that the Villa Savoye is helpful as a case study, I believe that a closer look into the architect Le Corbusier and his theories of the home will prove just as helpful. With a closer examination of his five points and the way he uses this technique when designing, and how these five points might have evolved to fit the concerns of today. It is also important to understand how Corbusier solved new task and how he found new ways and means of realizing what they were.

**Graphic Illustrations:**

The following images illustrate some of the characteristics of the Villa Savoye House. The factors that are expressed specifically here are the relationships between private and public, as well as the movement within the home. The red indicates movement, yellow indicates public, and blue indicates private. Notice that the image above shows that the home is conceptually separated according to what level of the home the person is on.
In this home Le Corbusier's understanding of the importance of the automobile even in his time, is illustrated by the path of the car in relation to the path of the pedestrian. He wanted this relationship to be a much smoother transition. Thus he conceptualized the path that the car would take and corresponded that with the path pedestrians would take throughout the home. Notice that in the illustration above that the movement of the car ends where the movement of the pedestrian begins.

The illustration below also shows the differentiation between public and private areas of the home in relation to the floor levels. The bottom right picture (taken during construction phase) also shows Le Corbusier interest in the concrete grid system which is evident throughout all his designs.
Precedent Three:

Introduction:

Name: The T-house
Architect: Simon Ungers and Tom Kinslow
Owner: Lawrence Marcelle
Site: Wilton, New York

Program: Residence and 10,000 volume library including living room, dining room, kitchen, half bathroom, bedroom, bathroom, and mezzanine.

Square Footage: 2,500

Mechanical system: Forced Air

Site: The home is located in a rural area adjacent to a former gravel pit in upstate New York, the house is situated on a southward sloping site with a wide view of the Berkshire Mountains. The residential part of the house is located east west with the library going north south.

Design Description/Analysis:

This home has a clear separation of its rooms based on the functions and or activities that will take place within them. Both living and working areas such as the bedroom and library have been separated by placing them on different floors. Yet this home's appearance remains unified by both a cohesive form and materiality, which is common throughout the building. This gives the sense of a singular unified home with distinctively separate spaces within it. This division is expressed by differential in floor heights as well as the use of predominantly private spaces to act as transitional buffer. An example of this is seen on the first
floor which uses the bathroom to create a distance from living room and that of the master bedroom. This gives a certain level of privacy to the master bedroom area. What is unique is that by doing this there is no need for doors to separate private from public. This creates a stronger unity that begins to treat the home as a single entity, with its parts overlapping and coexisting to perform a specific function. Furthermore the areas designated as public are also expressed on the outside of the home with the use of glazing. Thus the occupant inside is given a visual expression of public and private zones through the lighting quality, regardless of the buildings form. Another element to differentiate this further is expressed on the outside. By situating the sleeping area partially underground it communicates the nature of the activity within. The working area or library is a double-story space and is placed such that it can take advantage of the surrounding views as well as natural light. To further articulate the differences between spaces the glazing in the living quarters is conceptually and spatially the reverse of the library. Also worth recognizing is the shutter system which was designed for this home. They are designed in such a way that when fully closed it creates a continuous, uninterrupted interior wall. This attention to detail unifies the home thus creating a collective experience for the occupant.

Some of the weaknesses in comparison to my own exploration of the home are that this home was designed more for a single individual rather than the family condition. Thus it is more reflective of individual needs rather then the collective needs of an entire family. It also divides spaces with less rigor, by using furnishings such as the fireplace and the kitchen cabinets rather than
through skins and or wall assemblies. Though this works quite nicely for this home and its intended purpose, under a more stressful family condition, private spaces may require more defined areas.

Floor Plans

1. Entry
2. Half-bathroom
3. Kitchen
4. Dining
5. Living room
6. Bathroom
7. Bedroom
8. Library
9. Mezzanine

Library Level Floor plan

Library takes advantage of natural light, and views on all sides of the elevations.

Roof Terrace Level Floor plan

This entry into the home is subtle yet powerful due to its position with respect to the above floors. Which in a way allows it to be more prominent.

Lower Level Floor plan

Notice no doors are used here in order to separate public and private areas. Instead small gestures are given such as window placement.

Kitchen is relatively closed off from the rest of the home physically however it is left open visually.
This picture depicts the central living space. Notice the hallway becomes a part of the collective space. A partition wall is placed within the center of the room, however space beyond is still visible.

The Kitchen is connected to the rest of the home visually by allowing many views from each side.

This is a view depicting the bathing area which is made up of only three walls. Privacy is still given by a clever use of positioning within the home.
This site is located in a rural area adjacent to a former gravel pit in upstate New York. The home is partially underground, which gives the home the appearance of blending into the earth with a rich wood panel finish.

Exterior view of the T-House.
Proposed Site:

Location: Wyandotte Mi.

Suburban Condition

This site is located in the City of Wyandotte on the corner of Fourth and Cedar St. roughly one mile from the downtown area. The area directly across from the site used to be home to a tire factory which burned down some time in the mid nineties and has since then its been rezoned for residential housing. The proposed site sits on a corner lot with five newly constructed homes to the east of it. Directly across the street from the lot is an area currently being developed to house low-density condominium projects. (Three of which are nearly completed.) Towards the north end or back of the lot sits an older single-family house. On the east end (Third Street) sits newly constructed Row-Style homes, which were sold as condominiums.

*Note (The following pages are the initial site investigations prior to the site being narrowed down to include only the Wyandotte site).
Wyandotte MI.  Cedar St.  Wind/Sun/Temp

Prevailing Winter Wind
WSW

Prevailing Summer Wind
SW

This conception of "Nature..."
PREVAILING WINTER WIND
WSW

PREVAILING SUMMER WIND
SW

RE-MAN" IS ONE AMONG O
INSEPERABLE LINK IN A CHAIN
JACKSONVILLE FL.   S. POINT LA VISTA   WIND/SUN/TEMP

PREVAILING WINTER WIND
   NW

PREVAILING SUMMER WIND
   SW

UNDERSTAND, AND RESPECT...

JAN  FEB  MAR  APR  MAY  JUNE  JULY  AUG  SEP  OCT  NOV  DEC
This site is located in the City of Wyandotte on the corner of Fourth and Cedar St. roughly one mile from the downtown area. The area directly across from the site used to be home to a tire factory, which burned down some time in the mid nineties and has since been rezoned for residential housing. The proposed site sits on a corner lot with five newly constructed homes to the east of it. Directly across the street from the lot a low-density condominium project is being developed. (Three of which are nearly completed.) Towards the north end or back of the lot sits an older single-family house. On the east end (Third Street) sits newly constructed Row-Style homes, which were sold as condominiums.
This site is located in the city of Detroit on the corner of Palmer and Brush St. The area directly across from the site is relatively vacant with some abandoned houses closer to the northwest end of the block. Directly next to the lot is an abandoned house sitting alone on more than half of the east end of the block. Towards the rear of the lot is an alleyway, which gives view to a newly built condominium complex located on Ferry Street. Ferry Street between Woodward and Brush has restored many of the larger houses in the area to be used as “Bed and Breakfast” inns. The site is located near the Wayne State area, and is also near a community center.
INK THAT THEY MUST

This site is located in a suburban neighborhood which consists of both single-family homes and apartment complexes. Most homes in the area are a very distinctive style with two story homes with the front door being located typically in the center of the buildings. Facade near the sidewalk.
This site is located in the city of Albuquerque in the state of New Mexico. The plot of land is located in a suburban neighborhood. Most of the homes in the area are one story which is possibly due to the substantial heat in the summer months. There are many adobe homes in the area, which distinctive of New Mexico.
This site is located in the city of Jacksonville in the north end of the state of Florida. The site is placed in a gated upper-class subdivision, where the average house is roughly four thousand square feet and climbing. Nearly one mile from the site is Mariman Lake.
- MIDDLE DENSITY HOMES
  CONDOMINEUM/APARTMENTS
- LOW DENSITY SINGLE FAMILY
  HOMES
- PUBLIC BUILDINGS
LOW DENSITY SINGLE FAMILY HOMES
JACKSONVILLE FL.

-LOW DENSITY SINGLE FAMILY HOMES

THEY ARE EXPRESSED...
Initial Main Design Considerations

Healtheir Neighborhood Environment

"The existing neighborhood is part of what makes home, thus the house should be connected as part of a whole."

Main Objectives:
The home should be designed in that it can encourage a stronger tie between neighbors. In addition, it should be respectful of its cultural surroundings, which in turn contribute to the preservation of the community's cultural heritage and neighborhood values.

- Use materials common within the region so that the home can better relate with its neighbor.
- Designing the home less closed off from its neighbors by eliminating barriers such as fences, garages, etc.
- Orientating yards that can encourage social interaction.

Today it has become common to place the garage at the front of the home, however this gives off an unwelcome appearance. A better alternative can be seen above with a front porch, which encourages social interaction.
Healtheir Neighborhood Environment

"The existing neighborhood is part of what makes home, thus the house should be connected as part of a whole."

Notice in the top sketch that blocks are disconnected by barriers, and that the center one does not seem to fit in with the existing neighborhood. The Bottom sketch is a more ideal condition by eliminating barriers and connecting into the neighborhood by adopting some of the neighborhoods characteristics.

These diagrams attempt to convey a more ideal condition between neighbors. By creating pockets on the side of homes rather than just the back, people are then given a greater chance at social interaction between one another.
"[M]eeting the needs of the present without compromising the ability of the future generations to meet their own needs."

Main Objectives:

• Designing homes whose construction and operation benefit the site on which it is placed.

• Maximizing the benefits to the local economy through use of local techniques and materials.

• Minimizing demands for energy and natural resources; a home which creates less waste throughout the region by reducing material shipping and utilizing materials whose extraction and manufacture are most benign.

• Creating an ideal indoor living condition which includes natural daylight, clean air, and ergonomic spaces and equipment.

• Multipurpose spaces and built in storage to help make the most of every available space.

• Space efficient design to eliminate wasted hallway space.
Sustainable Design

"[M]eeting the needs of the present without compromising the ability of the future generations to meet their own needs."

Left: This home takes advantage of the sites natural resources, by placing windows on the south facing wall and its elongated shape. To allow sun on the North facing side the home incorporates a clerestory.

Above: is a of a mobile home which is a good example of a dwelling that takes advantage of every available space.

Below: Two examples of multipurpose built in storage, which could aid in designing a more compact home.
Mans Spiritual Tie to Earth

"[E]xpressing earths natural elements in a deep and profound way."

Main Objectives:
To express natural elements such as; water, fire, sunlight, and vegetation. In a sense creating a harmony between man and nature, that is deeply rooted within the human psyche.

- Using materials in their raw natural form whenever possible.

- Enhancing elements such as; sun, wind, fire, and water.

- Similar to that of a tree sprouting from the soil a home should feel part of the earth.

Notice in this picture that vegetation is able to grow around the beems to creating a more natural environment.

This picture illustrates the use of water and natural lighting.

This picture is of a fireplace which uses massive stone to collect the fires energy.
"[E]xpressing earth's natural elements in a deep and profound way."

Top Rt: This picture illustrates the use of vegetation which blends into the home from its main entrance.

This home illustrates a sense of harmony with the existing landscape. The textured roofs tone blends into the earth as if the two were one.

Bottom Rt: Natural stone is used as the flooring for this main entrance. Notice how the stone picks up the tone of the wall surrounding the opening, giving a smooth transition from earth to the main home. Giving the sense that the home was carved from this stone.
Main Objectives:
How does the home respond to the differences in spaces where people sleep, eat, laugh, cry, bathe, cook, dress, play, reflect, work, entertain, etc.? Though these activities deserve separation, the answer for most homes is to separate them physically by compartmentalizing spaces and adding doors. However, this creates a physical detachment with the rest of the home.

- Separating spaces with careful use of thresholds, edges, floor and ceiling heights, window placement, lighting, etc.

- Creating an internal hearth that is fluid to all areas of the home.

- Creating transitions between spaces that are considered to be more private.

Rt: This is a picture of a Frank Lloyd Wright house which uses the fireplace as a central hearth which joins the home.

Lt: This picture of the T-house is a good example of a home with separate distinct spaces yet unified by a common rhythm. The top is a library with living space below.
"The home should have separate distinct areas that are tied together by a common rhythm."

These three wall openings illustrate how the perception of space can be altered by thresholds. The smallest opening alludes to a space of confinement while the largest opening may be to the point where the enclosing attributes of the wall ceases to exist. Furthermore aiding to the notion that carefully altering certain nuances of a home can have a profound impact on how the space in that home is perceived.

1. Illustrates the current conceptual model of the compartmentalizing spaces within the home.

2. Beginning to pull spaces out and creating an open area.

3. Eschewing different areas based on its public and private functions.

4. This sketch illustrates overlapping different spaces within the home which should be tied to the central hearth.
Changes in Family Structure

"How does the past and present meet, in order to reflect and respond to today's family structure."

Main Objectives:
To create an environment that responds to the changes in family structure, with the intent of encouraging a healthier family condition.

- Unifying spaces within the home in such a way that different family activities can feel united physically and or psychologically.

- Responding to social changes which would imply altering the way we use spaces such as the: kitchen, bedroom, dining room, bathroom, garage, ect.

- Careful consideration of public and private spaces and the transitions between them.

- Responding to technological changes such as computers more effectively.

Though much has changed since the 1950's when this picture was taken. The same cannot be said for housing on a mass market level.

Lt: This picture illustrates an entire family watching TV. Today however the average four person family is likely to have two or more.

Rt: The average family now owns a personal computer. How can architecture better respond to this new conditions such as this?

Lt: Though it may have been unheard of to have a T.V or a computer in the bedroom some time ago, today it is quite common.
Changes in Family Structure

"[H]ow does the past and present meet, in order to reflect and respond to today's family structure."

A major concern for housing today as with in the past is the lack of individuality. Though conformity has its advantages it can often times be harmful if its not based on sound judgement. Furthermore a home should be designed for its place in time, its place on earth, and for its intended purpose.

Rt: These conceptual sketches are intended to illustrate the current compartment like generic home, with a more open plan with an internal core. The idea is to create a home which residents can interact more readily yet still feel comfortable off in another room.
**Project Program:**

LOCATION: Wyandotte Mi. Cedar St.
Suburban Condition
Site Size: 72' x 98'

The intentions for this site will be to design a single-family detached home for a family of four. The clients will be two parents in their early forties with two children a girl and a boy eight and nine years of age. The clients are relatively middle class with the husband working full-time and the wife working part-time.

**Program Quantitative Summary:**

- Parent Sleeping Areas 144 sq/ft.
- Children Sleeping Area joined 325 sq/ft.
- Collective Gathering areas 150 sq/ft.
- Dining area 135 sq/ft.
- Cooking area 140 sq/ft.
- Utility Room 100 sq/ft.
- Bathroom 2@ 90 sq/ft.
- Storage Area 3@ 25 sq/ft.
- Working stations 40 sq/ft.
- Closets 3 @ 36 sq/ft.
- Outdoor Collective Space N/A

Total Sq/ft 1,247 Sq/Ft

**Space Details Sheet:**

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Sleeping area</td>
<td>2</td>
<td>1</td>
<td>144sq/ft</td>
</tr>
</tbody>
</table>

**Purpose / Function:** To provide an area where residents can sleep. A secondary function we be to provide a personal space where the occupants can feel relaxed and or at leisure.

**Activities:** Husband and wife sleeping, reading at night, nap time, private conversations, relaxing.
**Spatial Relationships:** The sleeping area should feel somewhat private in respect to other rooms however there should be some type of connect or transitional element to tie them together. Elements such as lighting, material, and form, should be considered.

**Special Considerations:** The bedroom should be located on the first floor of the home.

**Furnishings / Equipment:** Furnishing such as beds and dressers should be utilized such that they take maximum advantage of the space. Built in storage should act as a component of this, as well as a walk in closet.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collective Gathering Area</td>
<td>10-15</td>
<td>1</td>
<td>150sq/ft.</td>
</tr>
</tbody>
</table>

**Purpose / Function:** to provide a personal space where the occupants can feel relaxed and or at leisure. A secondary function will be to provide an area where residents and or guest can unite to socialize or entertain.

**Activities:** Multiple activities can take place such as, watching T.V, talking, resting, socializing etc. This space would not be viewed as a single purpose space.

**Spatial Relationships:** This area of the home should feel connected to all parts of the home. It should be considered a public space where all members of a family can meet.

**Special Considerations:** There should be elements such as an internal hearth to help pull the family to this centralized space.

**Furnishings / Equipment:** Built in furnishing should be a vital part of the space. However these should be somewhat versatile to meet the changing needs of the family.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dining Area</td>
<td>5-10</td>
<td>1</td>
<td>135sq/ft.</td>
</tr>
</tbody>
</table>
Purpose / Function: To provide an area where residents can eat collectively. A secondary function for this space will be a space where visitors and family can socialize.

Activities: This space would be viewed as a multipurpose space.

Spatial Relationships: This space should be tied into the more public spaces of the home. It should be considered a public space where all members of a family can meet. It should also be expressed on exterior of the home. In a sense it should be viewed as the welcoming part of the house.

Special Considerations: This space should merge into various spaces of the home.

Furnishings / Equipment: Furnishings should challenge the more conventional means or practices relating to the dining area.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking area</td>
<td>N/A</td>
<td>1</td>
<td>140sq/ft</td>
</tr>
</tbody>
</table>

Purpose / Function: To provide an area where residents can prepare food.

Activities: All the normal activities should take place associated with a kitchen.

Spatial Relationships: The cooking area should be adjacent to the dining area. It should be designed to interact with adjacent spaces such that the user still feels an attachment with other occupants of the home.

Special Considerations: Space should be allowed for viewers to interact with those preparing food.

Furnishings / Equipment: Furnishings should allow residents with efficient means of preparing and serving food.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Room</td>
<td>1</td>
<td>1</td>
<td>100sq/ft</td>
</tr>
</tbody>
</table>
Purpose / Function: To provide an area for mechanical systems, hot water tanks, and laundry equipment.

Activities: All the normal activities should take place associated with a utility.

Spatial Relationships: Should be placed in an efficient locale of the home.

Furnishings / Equipment: Mechanical system, hot water tank, laundry machines and built in storage arrangements.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathroom</td>
<td>1-2</td>
<td>2</td>
<td>90 sq/ft.</td>
</tr>
</tbody>
</table>

Purpose / Function: To provide an area where residents can bathe.

Activities: All the normal activities should take place associated with the bathroom.

Spatial Relationships: The bathroom area should be private in respect to other rooms. However aspects of the bathroom such as washing hands may be more connected or part of adjacent rooms.

Furnishings / Equipment: Showers, baths, toilets, and sinks not necessarily located within one room.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>3-4</td>
<td>2</td>
<td>25 sq/ft.</td>
</tr>
</tbody>
</table>

Purpose / Function: To provide an area where residents can store goods.

Activities: All the normal activities should take place associated with a storage area.

Spatial Relationships: Kitchen and bedrooms should all have some type of storage nearby.
Special Considerations: Where ever applicable storage should be provided as a multiple use item, such as within a table or part of a bed unit, as a way of limiting the amount of space needed.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working study</td>
<td>1-3</td>
<td>2</td>
<td>40sq/ft.</td>
</tr>
</tbody>
</table>

Purpose / Function: To provide an area where residents can do homework, read, etc., in an area connected to the public part of the home with a single divider to differentiate space.

Spatial Relationships: This area of the home should feel somewhat separated. Its placement could act as a transition from public spaces such as the eating area and private space such as sleeping areas.

Furnishings / Equipment: Furnishing such as desk and shelving with an area designed for the computer.

<table>
<thead>
<tr>
<th>Space Name</th>
<th>Capacity</th>
<th>No. Units</th>
<th>Sq/Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outdoor Collective Area</td>
<td>N/A</td>
<td>1</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Purpose / Function: To provide an area outdoors where residents and guest can be leisure. A secondary function will be to provide a bridge or connection between neighbors.

Activities: Multiple outdoor activities.

Spatial Relationships: Space not only behind the home but as well as on the side of the home will be created. Also there will be a somewhat merging harmony between the outdoor space and the indoor spaces.
Schematic Design Process:

Throughout my exploration of the single family home, I have discovered that there is an infinite amount of ideas and solutions, related to the design of a house. With this in mind, realistically there can never be one solution that can adequately fulfill the demands and needs of everyone, nor should that be the intention of this exploration. This led me to refine my search into what I felt were the most critical aspects to consider when designing the home. The first principal of my design should reflect on issues of sustainability, which will be defined here as a method of meeting the needs of today’s generation without compromising the needs of future generations. The second design principal will consider creating unity between public and private spaces. The idea is not to just create a single solution that only reflects its given place and time, but more importantly to develop a method which can be used for multiple conditions. The attempt is to create a stronger understanding of how these design principals can fit into a broader scope. It is for this reason that I have chosen six sites (which have now been reduced to three-four) all of which differ in some aspects. I have begun the design process with one corner site located in a suburban neighborhood. I have chosen this site for my initial investigation due to the various limitations it creates such as its size and orientation. It is also situated next to both an older home and one which has been constructed recently. It is my hope that these limitations will allow for my thesis to be stronger by testing with adverse conditions. This also limits the amount of possible solutions which may help me develop it more efficiently. At this point I have to presuppose that when I begin developing a
design for my other sites which will invariably allow me to rethink some of the implications of my first site. The design process thus far has been exploring the relationship of public and private spaces at the same time that issues of sustainability are explained. The struggle to fulfill both these conditions simultaneously has up to this point been a bit overwhelming. Thus it seems appropriate to focus on public and private relationships with greater intensity and then refining sustainability issues later in the schematic design process. This is not to suggest that sustainability will not affect the initial design strategy; in many ways it must at a fundamental level. Perhaps even further as I begin developing on the next site, sustainability may or should take precedence over that of the public and private relationships. It may be interesting to see any differences in the design interpretation. I can presume by the third I will have a better grasp of my two design principals, thus interweaving them more harmoniously. Some of the missing components as of this point are the neglecting of materiality which I feel plays a vital role in both the public/private issues as well as sustainability issues. It is my hope as I further refine my project that these issues will become more evident in my design process.
SKETCH PROBLEM:

This sketch problem was to select one primary raw material, with one secondary material, and through various manipulations construct a full scale enclosure. The primary material, that was chosen is a standard three by five note card. The secondary material was a standard staple. The main concept was to create a module that could provide flexibility as well visual expression both within the space as well as out. As can be seen on the left there are multiple variations, however for the full scale construction I eventually settled with one that I felt best resolved all of my issues.

Images on the left, and below, all show possible manipulations of the form that the note card wall could have taken.
Left: The finished result of this experimentation resulted into this form.

Above: the same module was used however it was connecting differently in order to illustrate the flexibility of the module to create different forms.

The two images below show how space within is given a certain level of privacy without fully losing sight of what is going on around the individual.
Screen Wall Study:

This is a Wall Study using both base wood, and trace paper. The idea here was to create a non-bearing wall that would allow some privacy yet some sights, sounds, and smells would be able to pass through.

Above: illustrates the slight transparency, which allows for light and movement to be captured from either side of the screen wall.
Initial Study Models:
Initial Study Model:

This designed focused more on public and private issues.
Initial Study Model:

The left illustration shows an attempt at trying to implement passive solar techniques. The site for this proved to be too narrow to allow for an elongated east to west plan, thus a clearstory technique was used.
**Final Design Description:**

I began the design process with a 4x4 grid modular layout which was done in an effort to ensure that the home keep a certain simplicity. It is also the most common module used in construction and cuts down on cost of construction. Most of the partition walls within the home are centered on the grid lines or offset in two foot increments. Conceptually I wanted the interior of the home to have a relatively open plan in which all occupants of the home felt united. The idea is that even if the occupants were engaged in separate activities they would still feel somewhat involved in what is happening around them. To further this idea I wanted the notion of a central hearth to act as a catalyst to which all of the main activities of the family could take place. Thus the pellet stove fireplace is centered on the dining room / living room / study / and kitchen. I also felt it was important that the movement throughout the home have a strong axis of travel thus beginning from the entrance of the home I emphasized a concrete wall which would continue it of set orientation into the back of the home. I also located the stairs going upstairs adjacent to this path as well as the main hallway which is ruining down the center so that even in the fast paced movement of today that even if a family member is running to the kitchen and then out the door they are still a part of the of the main area of the home.

The children’s room is located upstairs which is part of one main living space this allows the children some room to play or even go outdoors to a balcony facing the front of the home. The room has a certain degree of privacy being located upstairs however a visual connection is made in that the light from the upstairs is allowed to bounce into the
downstairs to some degree of course this glazing would be equipped with internal blinds at night when the downstairs could no longer benefit from day lighting.

The design of the exterior of the home though based mostly on the sites pragmatics, I wanted to feel somewhat inviting. Thus I wanted to emphasize the main entrance of the home by protruding the wall out. I also incorporated seating which could face the street or sit within this pocket perhaps act as cover from the rain. Lastly the sustainable features of the home can be explained throughout the various diagrams.
FIRST FLOOR PLAN.
SECOND FLOOR PLAN.
ELEVATIONS

NORTH ELEVATION

WEST ELEVATION

SOUTH ELEVATION

EAST ELEVATION
SECTIONS

SECTION A - NW + E

SECTION B - NW + E

SECTION C - NW + E
WALL AXON

1. LEAVE A GAP OF 6" BETWEEN JOINTS.
2. GLUE JOINTS WITH WOOD GLUE.
3. USE BEAD OF CAULK OR CONSTRUCTION ADEHSLAVE.
4. USE FOAM FOR INSULATION.
First Floor Perspective View
Second Floor Perspective View
All occupied rooms and spaces within the home are capable of meeting the required amounts of inlet and outlet ratios, in order to take full advantage of the prevailing winds specifically in the summer months.

Inlet/Outlet

Main Area of Home: 615 sq. ft.
Required Inlet: 36.5 sq. ft.
Required Outlet: 40.5 sq. ft.

Children Bedroom: 280 sq. ft.
Required Inlet: 16.5 sq. ft.
Required Outlet: 18.5 sq. ft.

Master Bedroom: 144 sq. ft.
Required Inlet: 8.6 sq. ft.
Required Outlet: 9.5 sq. ft.
Pellet-Burning are highly efficient and pollute very little. Overall operating efficiencies (the amount of heat delivered inside the room as opposed to the amount of wasted heat going up the flue) of pellet stoves is high. Pellet stoves efficiencies are typically 8 to 10 times better than fireplaces, 1-1/2 to 3 times better then wood stoves, and comparable to the best natural gas furnace. They furnish 7,000 to 40,000 BTU per hour. Pellet stoves burn cleanly, so very little pollution is released. They produce virtually no visible smoke, and less odor then a conventional wood burning appliances. Glass window allows viewing of the fire.
COLLECTING and TRANSFERRING HEAT

Solar radiation warms the roof, under which air inducted from the outside is heated and transferred to a concrete slab beneath the ground floor.

External air inducted through the air inlet will naturally rise into the roofs apex after being heated under the glass panels on the roofs surface. Whenever required, the hot air is then transferred via the air handling unit down under the ground floor to pass eventually upward through the home.

The Air Handling unit is also very simple in design. Equipped with dampers that open and close, a heat exchange coil and a small fan, this unit controls the flow of air, either to send it down into the home or to expel it to the outside through an exhaust outlet when additional inside heat is not required.

Throughout the summer months heat is collected for the hot water tank after which the warm air beneath the ground floor and throughout the house is drawn upward to be expelled outdoors.
Rain Harvesting Process:

1. Water is collected into a downspout which will run into two 20 gallon tanks anchored to the wall within the home.
2. This rain water is stored into both an upstairs and downstairs tank where it can be used for toilet flushing.
3. Once capacity of both tanks is reached excess water is then discharged into outdoor storage tank which runs into an irrigation channel.
4. In the front of the home a downspout collects water which is also stored in a tank for irrigating the front of the home.
5. Water purification system collects waste water from the sinks and toilets which is then purified.
6. What was once waste water is now an attractive organic pond in the front of the home.

This water purification system is designed for use as a septic tank purifies the waste water from toilets kitchen sinks and bath tubs through a biological treatment procedure that uses bacteria as the cleansing agent. It is therefore a natural process that is 100% ecologically friendly. Once the treated water reaches a biological oxygen demand index of 5%, which indicates a satisfactory level of purification, the wastewater is then released for safe absorption back into the environment, or in this case an organic pond.
Model South View:

Model East View:
Model Perspective:
Conclusion

The final design seen above was derived as sustainability as its main issues. More specifically passive and active heating and cooling techniques, as well as water harvesting methods where used. The goal was to achieve a healthier living environment and on some levels the project did achieve this. Yet it did not articulate a new solution for housing. The changes that were implemented failed in that they were too subtle to really challenge the conventional contemporary home. Though the original exploration began with a much broader topic concerning the many issues of housing, the final result had to be condensed with sustainability being the main focus. In a sense this approach (in my personal circumstances) did not lend to an original scheme that was free from conventional design methods. Also the sustainable features of the home have only been integrated on a purely conceptual level. Yet it is my desire that the home will lend itself to greater possibilities that may become evident with further exploration. Specifically how the home can better express our lives, and at the same time not compromise the generations to come. I’m sure with further exploration these principals could eventually be totally integrated in that they could lay in the background of the design and allow other issues such as public and private become the main concern. Also more research needs to be done in analyzing the many patterns of conventional housing.
Works Cited:


(Radical experimentation concerning space and how we perceive it from tents to homes.)


(Some of the concepts and theorizes of Le Corbusier quoted from him)


(A variety of architecturally designed buildings concerned with aesthetics)


(An exploration of the work of Adolf Loos and Le Corbusier, and a comparison)
