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Increasing Affordable Housing through Green Architecture

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Introduction

When many think of the “American Dream”, they think of having a good job, driving a nice car and lastly owning their own home. Home ownership in the United States has, at times, been a frustrating and impossible dream for many people. Historically, in the United States, home ownership has not been accessible to minorities and low-income families. The government has put in place many policies’ to regulate fair lending, and thus increase home ownership among those who have previously been unable to secure a home of their own.

Gaining homeownership is not the only issue in housing for low and moderate-income peoples, affordability also is important. Affordability can be looked at in many ways, and must be considered at all angles. Firstly, affordability brings to mind the initial cost of a home, whether it be in the form of rent or a mortgage payment. Affordability comes at a much greater cost however, and what many people forget is, how affordable is that home over time? As we all know homes need maintenance, and with home ownership there comes additional costs not always found in rental units. Over time these additional costs can become a burden to many low-income families and can have devastating results.

Sustainable development techniques can be used in the development of affordable housing that will not only last longer, but will result in lower overall costs to the owner. Sustainable or green architecture looks at the impact of the structure on the environment and in turn results in a friendlier home to the owner.

These ideas include high energy efficiency, recycled materials, reuse of structures and more efficient use of space. Combining these concepts with goals of affordable housing could mean a stronger future for affordable housing. The purpose of this paper is to explore some of the concepts of green architecture and sustainable development and see if these concepts have played a role in government policies for increasing affordable housing.

Green Architecture

Green architecture has, for many years, been a new and evolving form of building. This form of thought is not a new concept, it has struggled to gain ground in a society that demands the biggest and best. Many of the concepts and ideas of green architecture focus on the environment and the sustainability of the buildings being built. These concepts focus on energy efficiency, adaptive reuse, reducing waste and many other sustainable, environmental-friendly themes. Combining green architecture ideas with affordable housing brings together an interesting solution to not only affordable housing goals, but the sustainability of quality, affordable housing units.

Green architecture has become a whole new way of looking at the practice of architecture. It doesn't concern itself with the look of a building as good design, but looks at the building and its organization of parts as good design. Green architecture approaches design, by looking at all the parts that go into a building. These parts can include organization of space, materials, and

use of the building. It is widely known that over time costs of a home or a building are incurred from maintenance and daily operating costs. What green architecture does is look at the broad picture of a home and takes those costly components, that are not only costly, but are usually not environmentally sound, and turns them into environmentally viable design concepts.

There are many ideas, concepts and techniques involved in sustainable development and they vary across the nation and world depending on area and climate. Some of these techniques include using unique building materials, such as rammed earth walls, or baled straw walls. Each of these different materials for building have proven to be more cost efficient in overall building costs and long lasting. There are many techniques used in sustainable development, and for urban cities there are many techniques that would prove helpful in the struggle to provide affordable housing.

One of the unique premises behind sustainable development is the principle that it follows. Efficiency is very important to sustainable development. Efficiency in the building and materials used as well as after, efficiency is important in energy and even the trip to work (Roseland, 1998). The idea is that housing would benefit from simple sustainable development concepts in order to build and maintain its affordability. Over the years the private market of builders has left affordable housing up to city governments, because the builder can get a better return on an expensive rental unit rather than one that is deemed affordable. Sustainable housing would allow the private market to build low-cost, sustainable housing that would be cost-efficient for the residents.

Besides the principles that are behind the sustainable development practice, there are also simple ideas of living and the built environment. Sustainable development is not just about building, but includes the community as a whole. Including the community allows for sustainable development to act as a mechanism with which a community can come together, despite differences in race, class, or opportunity (Edwards & Turrent, 2000). Many of our large, urban cities could use the idea of integration among a mixed community. So, as we see, as much as the buildings are built to be sustainable, so is the community.

Another important strategy in sustainable techniques is to use the existing housing stock (Girardet, 1999). This is another important issue in cities. There are many neighborhoods that have vacant and deteriorating buildings. Through the techniques of sustainable development the existing housing stock is turned into energy efficient housing that will cut future costs in energy use. Another interesting factor that is listed in the techniques of sustainability is that of density. Density is important for energy efficiency (Edwards & Turrent, 2000).

The principles behind sustainable development are the driving force behind the success of sustainable communities. Cities across the United States have shown the need for affordable housing and have shown that they could benefit from sustainable communities. With support from non-profit agencies, Housing Authorities and private developers these techniques could prove to be a viable solution to the lack of affordable housing.

Sustainable Development and Affordable Housing

In looking at sustainable development and its link to housing we must look to the past. Many large, urban cities have found that the large structures that once were easy ways to house the disadvantaged are now tattered and worn down, beyond repair. It is found to be too expensive to repair these large buildings and thus they are torn down. And as these units are being torn down and replaced, it is now becoming obvious that not all of the previous tenants will have a place in these new units.

Much of the problems that have lead to the decay of these buildings are that the maintenance of these types of buildings is very hard to maintain. Many cities have learned from the past and have no further plans to build anymore of these tall project-type towers. The City of Chicago is one of these cities that have taken to demolition, although many larger cities have done the same. It is the notoriety that followed these Chicago structures that has allowed the city to close the door on a hurtful past, and hopefully start anew. However, there is a price to pay and that is a decrease in housing units offered by not only Chicago, but all of the cities that are looking to clear away the blight of public housing.

The connection of sustainable development is two-fold. First, the techniques used in sustainable development derive from the concept that they are long lasting, with minimal impact on the environment. In housing, longevity is important and many of the ideas behind sustainable development allow for longevity. Through materials and management sustainable development

techniques allow for a structure, whether newly built, or rehabilitated, lasting far into the future. The concept of sustainable development is that through different materials and uses a building becomes a lasting representative, whether it is new construction or the rehabilitation of an existing one.

The second idea in the combination of sustainable development and housing is that the maintenance is easier. Using these different techniques provides for a housing unit that is easier to maintain, not only for the resident, but also for the management company, through cost-effective heating units and other low-maintenance. Since the two biggest problems to offering affordable housing is maintenance and longevity, as we have learned from the past, it seems only appropriate to combine sustainable development with affordable housing.

Sustainable development also can open the market for an increase in private developers to build and keep affordable housing. Over the years private developers have moved away from the affordable housing market, and unfortunately have left much of the burden on the various cities and states. The reason for this is mainly that it is not profitable to build and maintain affordable housing as it is for market rate housing. Hopefully with sustainable development techniques private developers will find that these techniques allow for a more cost effective manner of building and maintenance and will move into the affordable housing market, thus taking some of the burden off of the cities and states.

The combination of sustainable development and affordable housing is not a new concept; however it is not widely used. As the case studies, which are

illustrated later in the paper, show, this partnership is possible. It is possible for not only developers, but also with city governments, as we see in Portland Oregon. Finding affordable housing has been a problem for many families for decades. Using sustainable development as a way of increasing affordable housing seems only logical. These techniques allow not only for affordability up front, but affordability in the long run.

As we have seen the techniques of green architecture, or sustainable architecture look well beyond the house itself. In respect to affordable housing it is very clear that sustainability should play a role in affordable housing. A question then arises: Have the concepts and ideas of sustainability played any role in U.S. housing policy and affordability? While the government is not solely responsible for providing affordable housing, they are responsible for shaping the nature of policy. If these techniques truly help to increase not just the affordable stock of housing, but the affordability of housing in the long run, should not the government implement policy that will help to encourage the use of these techniques? I will look at the government programs through the Department of Housing and Urban Development, and public housing to see if these concepts are used in affordable housing.

Homeownership and the Department of Housing and Urban Development

The federal government has not always played an active role in housing in America. However, with the rise in racism among the housing market and the increasing tensions of the civil rights movement of the 1960's, the government began the long road of housing policy. In 1968 the Federal government stepped in and adopted the Fair Housing Act of 1968. This act prohibited any person, or otherwise from denying a person from renting, owning, or lending based on race, color, national origin, religion, sex, familial status or handicap.



The Fair Housing Act helped to stop red lining and gave many families a boost in gaining ownership of a home. In the early 1980's the United States saw a decline in homeownership after a 40 year increase (HUD, 2000). Because of this decline a coalition of 66 national groups that included lenders, non-profit groups, housing industry representatives and all sectors of government, came together as the National Partners in Homeownership. This partnership set a goal of raising the homeownership rate to 67.5 percent by 2000 and 70 percent by 2006 (HUD, 2000). Their goal was met in 2000, and continues to rise.

There have been many factors that have attributed to the rise in homeownership. Most recently because of world events, the interest rates have continually been low and thus have made buying a home more feasible for many

people. However, there are still many families who still have found it difficult to purchase a home of their own. It is because of this that the Department of Housing and Urban Development has encouraged Government Sponsored Entities, such as Fannie Mae and Freddie Mac; to increase lending and other programs to low-income borrowers and other underserved markets. HUD has done this by enforcing the Community Reinvestment Act and by making changes to the Home Mortgage Disclosure Act.

These underserved markets include minorities, in addition to low to moderate-income families. The following table shows the rates of homeownership during a 6-year span. There has been an increase for all groups; however minority home ownership still remains at only 60%-70% of white home ownership.

| | 1993 | 1999 |
|----------------------|------|------|
| Nation Overall | 64.0 | 66.8 |
| White (non-Hispanic) | 70.2 | 73.2 |
| Black (non-Hispanic) | 42.0 | 46.7 |
| Hispanic | 39.4 | 45.5 |
| Other (non-Hispanic) | 50.6 | 54.1 |
| Central Cities | 48.6 | 50.4 |
| Suburbs | 70.3 | 73.6 |

Table 1. Source: Department of Housing and Urban Development, 2000

FHA-Insured Loans

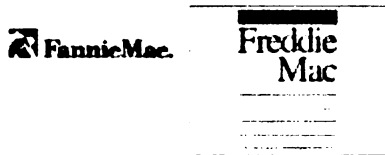
The question remains, how do you increase home ownership of not only minorities, but also low to moderate-income families? Homeownership has significantly been decreasing within central cities for decades, and many times, these are the areas in which minorities and low-income families live. In 1999, homeownership in the central city was 50.4, as shown in the table above. This was 23.2 points lower than that of homeownership in the suburbs. And while there was a rise in homeownership in the central cities as well as the suburbs, the gap between the two continued to rise also.

For many first time homebuyers, who are low income, FHA loans are the major mechanism to purchasing a home. HUD insures the FHA loan, this means that HUD takes some of the risk when lending to a low-income person. In the year 2000, 82% of the loans going to first-time homebuyers were FHA-insured loans (HUD, 2000). Over the years this amounts to millions of families with which the FHA loans have helped purchase a home. At the same time that FHA helps low-income, these loans also help minority families who historically have been discriminated against when it comes to mortgage lending. In 2000 41.8% of the FHA loans given were to minorities, 34.0% were of African-American and Hispanic heritage (HUD, 2000).

While the increases show that FHA loans are important for minorities and low-income families, FHA continues to recognize the importance of providing loans to minorities and low-income families. HUD continues to take steps to

continue these rises in lending by giving higher loan limits, lower insurance premiums, loan consolidation and streamlining the loan process (HUD, 2000). In addition to the FHA-insured loans, HUD has many other programs designed to increase home ownership, in addition there are many other government, and non-government backed programs that are focused on home ownership for underserved families.

The Secondary Market



The Federal Housing Enterprises Financial Safety and Soundness Act of 1992 further strengthened the role of HUD, as a regulator of Fannie Mae and Freddie Mac. Fannie Mae and Freddie Mac are the primary Government Sponsored Enterprises (GSEs) in the secondary market. The Act allowed HUD to establish goals for the GSEs and their purchasing of mortgages of low-income and minority homebuyers. In the mid-1990's, HUD did extensive research in order to find exactly where and who the underserved markets were.

Congress established GSE's for public purposes. These public purposes as stated in their Federal Charter Acts are to increase the liquidity of mortgage investments and improve the distribution of investment capital available for residential mortgage financing. This is done to provide stability in the secondary

market for residential mortgages, response to private capital market, provide ongoing assistance to the secondary market for residential mortgages and promote access to mortgage credit throughout the Nation. The GSE Act of 1992 gave HUD regulatory power over Fannie Mae and Freddie Mac except in financial safety and soundness. Specifically, HUD must establish affordable housing goals, monitor compliance with fair lending principles, collect loan-level data, create and distribute an extraction from the loan-level data in the form of a nonproprietary public use loan-level data base, and approve any new programs (HUD, 2001)

Because Fannie Mae and Freddie Mac are GSEs, they not only must adhere to the goals set forth by HUD, but in return are given benefits. Some of these benefits include: exemption of state and local taxes except property taxes; exemption from securities registration requirements of the Securities and Exchange Commission and the States; and, conditional access to a \$2.25 billion line of credit from the U.S. treasury (HUD, 2001). As a result, the GSE's have lower borrowing costs, because financial markets perceive an implicit Federal Guarantee of GSE securities.

Through the efforts of HUD and the goals set forth for Fannie Mae and Freddie Mac, home ownership is rising for low and moderate-income families (see graph below). HUD and its GSEs play an important role in moving low and moderate-income families into homes of their own.

Low & Moderate-Income Rates

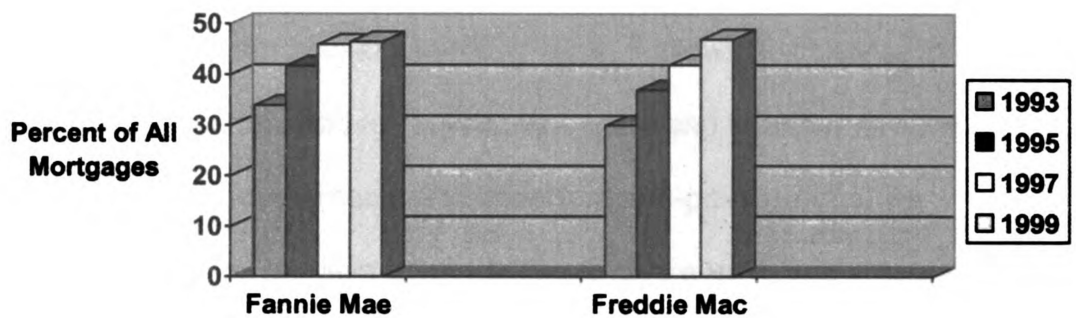


Figure 1. Source: HUD, 2001

Other Programs from HUD

The Department of Housing and Urban Development has developed many different kinds of programs for homeownership. These programs include helping with down payments, building and maintenance of homes. These programs are important for not only many communities, but for many homeowners, who otherwise would not have the opportunity of homeownership, or access to affordable housing.

HOME Investment Partnerships Program

The HOME Investment Partnership Program is a formula grant that is given to states and cities, in partnership with local non-profit groups, to assist in building, buying, or rehabilitating affordable housing, or providing rental

assistance to low-income families. The HOME program gives roughly \$2 billion to states and cities each year in order to further community development in cities (HUD, 2004). This program is useful in many ways, it allows flexibility among communities to design strategies to fit their own needs and it further strengthens the relationship of local governments and important non-profit groups. In addition, the program also requires communities to give a matching amount, which assures that a portion of community development funding from municipalities is going directly towards affordable housing.

Eligibility for states is automatic. States receive either their formula amount, or \$3 million; whichever is greater (HUD, 2004). Cities that qualify for an individual contribution receive \$500,000. For those that do not automatically qualify for an individual allocation, can combine with other non-eligible local jurisdictions, in a legally binding consortium, to meet the requirements for an allocation (HUD, 2004). These funds can then be used to provide rental assistance, home maintenance, or affordable housing rehabilitation, based on the guidelines of median household income set down by HUD.

The American Dream Down payment Initiative (ADDI), as part of the HOME grant, provides at least \$50,000 annually for jurisdictions with a population of at least 150,000 for down payment and closing costs for low-income homebuyers (HUD, 2004). This portion of the HOME formula grant once again aims to increase home ownership and stabilize communities. The ADDI grant provides six percent of the purchase price of a home, or not to exceed

\$10,000. This money can go towards down payment, closing costs, and rehabilitation costs.

Self-help Homeownership Opportunity Program (SHOP)

The Self-help Homeownership Opportunity Program (SHOP) is a program designed to help low-income people gain home ownership through sweat equity. The grant itself is given to non-profit, volunteer-oriented groups, in order to purchase home sites and improve infrastructure needs (HUD, 2004). The grant is given to sweat-equity programs such as Habitat for Humanity, and ACORN Housing Corporation, for up to 30 homes per year. Eligible costs include land acquisition, infrastructure improvements, and up to 20% of the allocation can be put towards administration and development management (HUD, 2004). The max amount per project is not to exceed \$10,000; however the most important aspect of this grant is that the prospective homeowner must contribute sweat-equity. This not only gives low-income families access to homeownership, but also gives them a sense of pride for their contributions.

Homeownership Zones (HOZ)

The Homeownership Zone (HOZ) was designed for communities to increase homeownership, reclaim vacant land in blighted areas, and promote economic revitalization in inner cities (HUD, 2003). This program provides grant

monies to cities as seed money for the building of new homes. This allows a city to take a blighted area within their inner city and rebuild entire neighborhoods. These monies are given out through competitions. City governments apply for them as the competitions are announced.

Additional Federal Home Ownership/Assistance Programs

In addition to programs that directly help fund affordable housing opportunities and increase homeownership, there some federal programs that work indirectly to revitalize a community. While not all programs are specifically geared toward homeownership, or increasing affordable housing, they allow a community to maintain neighborhoods, so that homeowners in low-income areas live in areas that are safe and viable.

Community Development Block Grants (CDBG)

The Community Development Block Grant aims to assist cities and counties to provide decent housing and expand economic opportunities for low and moderate-income persons (HUD, 2004). The grants go to entitlement communities and each community designs its own program and funding priorities, however, each community must give maximum priority to low to moderate-income persons. CDBG funds may go towards acquisition of real

estate, demolition, rehabilitation, construction of public facilities, public services, energy conservation activities, and economic development activities.

In order to participate in CDBG entitlement grants, a city, or county, must develop and submit a Consolidation Plan to HUD. This Plan lays out how the funding will be allocated. HUD then verifies that the grant money is sufficiently being spent on activities that help low to moderate-income families as well as other community development activities. Once a grant has been given the role of the states is to not only formulate objectives, but to decide how the funds will be distributed among municipalities and ensure that the money is being used appropriately.

Community Reinvestment Act

The Community Reinvestment Act of 1977 (CRA) is a federal law that requires lenders to make loans to all areas of a community in which they serve. Over the years this act has resulted in over \$1 trillion in loans to people in low and moderate-income areas since its inception (HUD, 2001). Under this act banks are continuing to raise the percent of loans that are extended to low and moderate-income families. Basically, what the CRA has done is opened up access to lending agencies to groups of people who have, in the past, been shunned.

To ensure that lending institutions are doing their part in community development, the Comptroller of the Currency monitors them. Each institution,

based on their type, such as a small bank, wholesale, or limited purpose, is tested in three areas. The areas that are tested are lending, investment, service, and community development (for wholesale and limited purpose banks) (FDIC, 2004).

HUD and Sustainable Development in Affordable Housing

While the federal government has many programs to assist people in accessing homeownership and affordable housing, the techniques of sustainable development are not to be found. In 1999, then President, Bill Clinton set forth an order that called for the use of sustainable development techniques, specifically energy efficiency, in federal buildings (Talarico, 1999). While this is a step forward in the acceptance of sustainable development, it still fails to address the obvious need for its combining into affordable housing policy.

Affordable Public Housing: A look into the past of the Chicago Housing

Authority

To speak about public housing warrants a look at the history of the city of Chicago. The City of Chicago, which lies within Cook County, has had a shaded past, with regards to its housing industry. (See Appendix 1) It is curious to note that the first permanent settler in the city was indeed an African-American, Jean

Baptiste Pointe du Sable (Biles, 2001). Over the years the population grew with both whites and blacks living in mixed communities. With the Jim Crow laws coming forth across many states, racial tension began to rise and Chicago was no different. It was during this time that African-Americans began to be geographically concentrated, mostly on the city's south side. The population of African-Americans grew rapidly despite lack of integration and growing racial tensions. After World War I, blacks from the south migrated to the north in droves, many settling in Chicago. Between 1910 and 1920 the African-American population grew by 148 per cent (from 44,103 to 100,458) (Biles, 2001). Much of this population was concentrated on the south side of Chicago on a narrow strip of land that became known as the Black Belt.

In the 1940's and 50's the south side ghetto began to expand into neighboring communities, which were mainly white inhabited. It was at this time that whites began to respond negatively to blacks moving into their neighborhoods. Together with the real estate industry and residents of white-only neighborhoods restrictive covenants and deed restriction devices were put into place as tools of segregation. Much of the use of restrictive covenants began with The Chicago Real Estate Board in 1927 (Biles, 2001). These covenants prohibited the sale or lease of housing to African-Americans. These covenants were not hidden and often were fought by civil rights organizations and other desegregation groups. Surprisingly Chicago became even more racial segregated after the Supreme Court ruled that these covenants were unenforceable in the *Shelley v. Kraemer* case.

Over time the black ghettos of Chicago grew, expanding to the west side of the city. This area soon became known as the “second ghetto” (Hirsch, 1983). It was during this time that the population of whites decreased and the population of African-Americans continued to rise. The African-American population would soon expand into the north, as white flight continued on the rise. As whites were quickly moving farther out into the suburbs of the city, blacks were quickly moving into the newly available homes. Much of the hurried white flight was due to the real estate industry. Real estate agents would move into the neighborhoods encouraging whites to move before the blacks came in to “take over”. This blockbusting tactic allowed the agents to convince the whites to sell their houses cheap, in order for them to sell to the blacks at higher prices.

The real estate market grew and so did the tactics to which the real estate agents exploited blacks. Apartment buildings and single-family homes were often divided into kitchenette apartments, which were too small, and overpriced (Biles, 2001). Realty companies also began selling homes “on contract”. These so called contracts lured blacks with low down payments, but often carried high monthly payments. If someone could not keep up with the hefty payments the realty company repossessed the property and the process was started all over again.

It was during this time, in the 1940's and 50's that the urban renewal projects began to take form. These massive public housing programs only solidified the government's involvement in segregation, but reinforced already existing patterns of segregation. These programs helped further formulate the

south side ghetto and increase the west side ghetto (Hirsch, 1983). The biggest supportive role of the urban renewal programs was the Mayor at the time, Martin Kennelly. Mayor Kennelly was a strong supporter of racial segregation in housing and the urban renewal programs gave him the power to do it. Mayor Kennelly found strong opposition in the Chicago Housing Authority (CHA). The CHA chairman at the time, Robert Taylor and the Executive Secretary, Elizabeth Wood were in strong favor of utilizing vacant land in white neighborhoods for the construction of housing units, as opposed to the already densely populated south side. To further discourage the efforts of Taylor and Wood, the state legislature passed a law in 1949, requiring city council approval of public housing sites in cities with populations of more than five hundred thousand, which left only Chicago effected (Biles, 2001). Frustrated with walls that were continually being put up, Robert Taylor resigned from his position. Mayor Kennelly, along with the city council continued with the tearing down of slums and building of public housing in areas concentrated with African-American's. The support of public housing in black neighborhoods only was also supported by not only the city council, but also the Metropolitan Sanitary District, and the Illinois Commerce Commission.

Yet during this time there were blacks that tried to locate in white neighborhoods. They were met, however, with strong resistance in what has been called by Arnold Hirsch as "guerilla warfare". Mayor Kennelly continued to segregate housing and eventually dismissed Elizabeth Wood, in order to get rid of the last resistance of the city to segregated housing (Biles, 2001).

In 1955 a new mayor took office, Richard J. Daley. By this time the CHA had lost much of its power and housing policy was strictly enforced through the city council. Mayor Daley safely surrounded himself with those who were staunch supporters of segregation, consisting of cooperative ward aldermen and CHA employees. Mayor Daley moved forward with the building of the high-rise projects located in the black communities. The fervor with which these tall buildings were erected shows the backing of the Mayor, which goes much deeper than the city council, but expands to the government, real estate and developers, all set on keeping public housing out of white neighborhoods.

Chicago Housing Authority

As one of the biggest offenders of segregation in the city of Chicago the Chicago Housing Authority (CHA) has also been an example of gross mismanagement. Though the troubles within the CHA had been building for years it seemed they had come to a head in the 1990's. HUD had been monitoring the CHA for years and had offered many corrective measures. Historically though, the Authority had been known to be resistant to corrective actions sought by the Department of Housing and Urban Development (HUD). The Authority has also been subject to ineffective management and out of control bureaucratic systems, as well as political interference by city officials (Office of Inspector General, 1998).

The CHA had previously been classified as a troubled agency, since 1979, when HUD began using the troubled public housing authority designation (Office of Inspector General, 1998). Under the Housing Management Assessment Program, a housing authority must score at 60% to be considered a standard performer. The CHA had consistently scored under 60% (Office of Inspector General, 1998). Because of this and turbulence among the administration of the CHA, control of the Authority fell on HUD on May 30, 1995 (Office of Inspector General, 1998).

As with any agency as large as the CHA, problems should be expected. The CHA is the third largest public housing authority in the nation. The CHA is in charge of 55,400 public housing units through out Chicago. These units are broken up into many different kinds of living situations. The CHA has approximately 1,489 scattered site houses throughout the city. Of the over 55,000 units operated by the CHA, 15,000 of these units are contracted under Section 8 vouchers or certificates (Office of Inspector General, 1998). Section 8 certificate and vouchers supplement the difference between a household's ability to pay and the market rent and are funded in conjunction with the Federal government. These certificates can be used within the public housing system, but were also designed to allow participants to seek residences in the private market. More recently Chicago has utilized HOPE VI funds in relocation of residents.

With the rise in need for public housing and the decline in funding for programs, the City of Chicago has faced more than their fair share of problems.

Some of the problems associated with the CHA have included security, asset management, residence issues, and of course, racial segregation. Of 26,000 occupied units within Chicago, 90% of those residents are African-American (Johnson, 1999). All of these issues combined with problems within the administration of the housing authority took their toll. After HUD gained control of the CHA in 1995, the CHA finally began to take responsibility for its actions and failures and began the process of getting back control of their agency.

It would take several years for the CHA to turn their agency around. It began with a Blueprint sent from HUD, on June 11, 1995, outlining their goals (Office of Inspector General, 1998). The first goal outlined in the Blueprint was to bring meaningful, positive changes to the Authority's residents and the second was to strengthen the Authority, in order to provide a safe, decent and livable environment for its residents (Office of Inspector General, 1998). As a result of this Blueprint the Authority restructured its administration and hired a new Executive Director, Deputy Executive Director of Operations, Deputy Executive Director of Finance and Administration and Deputy Executive Director of Community Relations and Involvement. The Blueprint also outlined areas of improvement, which included: security; maintenance; redevelopment; resident programs; asset management and building community commitment.



Figure 2. New town homes in the place of Cabrini-Green, HUD, 2001.

On June 1, 1999, after 5 years of reorganization the Chicago Housing Authority regained local control from HUD. As a result of the regain in control the CHA put together a Plan for Transformation, to better illustrate the changes that were going to be made over the next 10 years. The Plan itself included a dramatic plan of attack in order to update and rebuild the Authority and the housing units. HUD approved the plan itself in January of 2000 and the CHA began its journey into a new and improved public housing system.

A good part of this plan involved the mass demolition of the infamous high-rise buildings that had become the landmarks of poverty. It was planned that most of these units would be demolished within 5 years. In addition, 25,000 units would then be rehabilitated or redeveloped. The CHA estimated that there would be a net lose of 13,000 units and that 6,000 households would be relocated into the private housing market, using HOPE VI funds. HOPE VI would allow residents to move into temporary housing until the new housing could be finished. On completion the previous tenants will be able to apply for occupancy

of the new housing. By the end of 2003 the CHA will have finished over half of the proposed new housing.

Hope VI

As in described above in Chicago, the replacement of old housing and replacement of new and the relocation of the tenants was partially funded by the Hope VI program. The Hope VI program has received many criticisms since it was put forth in 1992. Hope VI has been, for the last decade or so, HUD's main public housing initiative. HUD believes that Hope VI will help to change the shape of public housing, by replacing dilapidated public housing structures with apartments and townhouses, reduce concentrations of poverty by dispersing residents in mixed-income neighborhoods, establish support services for residents to get jobs, enforce community responsibility and forge a partnership in planning and improving public housing (NHI, 1999).

It is because of the guidelines listed above that many have criticized the Hope VI program. Many believe that expecting community responsibility assumes too much. And while the high-rise public housing complexes from the past seem to be falling down, there is great debate over whether new housing will become and remain mix-income. While the concept is hopeful, it does not seem that Hope VI is serving displaced residents as well as many had hoped. As apartments and townhouses go up many residents find that they no longer qualify for these newly build homes as they were promised. Unfortunately a very

small percentage of residents, 11%, return to the newly redeveloped areas. The other residents find themselves using section 8 vouchers, being shuffled to other public housing establishments, or quite frankly, “lost” all together (MPLP, 2004). This is not to say that the concepts behind Hope VI are not gallant, but there are many parts of this program that are unfortunately not meeting the needs of those that are in need.

Public Housing, Chicago Housing Authority & Sustainable Development

Not unlike the federal government public housing and the housing authorities that run them, such as the Chicago Housing Authority, do not use sustainable development techniques. Unfortunately where these principles would work best, in public housing, they are ignored. Sustainable development could not only benefit the owner or renter, but also the housing authorities as a whole. These techniques would help to lower future maintenance costs of housing as well as produce housing that will last well into the future.

Sustainable development concepts can be used in many different types of urban areas. However, the reader must keep in mind that while some techniques can work in some areas, each city must find what works best. Many of the techniques of sustainable development are universal; however some can and may be very distinct to the area of the country.

Adaptive Reuse and Rehabilitation

The first important technique in sustainable development and urban areas is adaptive reuse. Adaptive reuse works with the already built environment, to rehabilitate structures into residences. Adaptive reuse in urban areas is becoming more and more common; however, many of these units become high-cost loft units only available to the wealthy. Sustainable development techniques suggest several ideas for this type of rehabilitation. With an abundance of urban warehouses, old office buildings, and empty department stores, the City of Chicago is abundant in possible housing sites. The Chicago Housing Authority, in its attempt at rebuilding most of its affordable units lost by the demolition of the high-rise projects, has built mixed-income units. These mixed-income units serve several different purposes. First they allow for a more diverse area within the housing market. Secondly, they make units affordable that would not typically be so, by subsidizing, so to speak, the lower rents, with the higher rents. This idea of mixed-income units is important in adaptive reuse.

One of the biggest reasons that these types of rehab projects only produce high-cost units is because of the initial rehabilitation costs involved. There is no doubt that there are large costs involved with gutting out an old warehouse.

These projects, however are important for more than just increasing affordable housing units, they also help to clean up unsightly areas within the city and bring more people to the downtown area to cut down on urban sprawl and

increase downtown revitalization. While at the same time providing affordable housing units to low-income families the city could encourage private developers, with the money to do these rehab projects, by giving tax breaks for including a certain percentage of affordable units.

Energy Efficiency

Because of the location of Chicago and the harsh weather that it endures over the year, energy efficiency within housing has become increasingly important. Energy costs within a large city are very high, especially one that has cold winters. It is imperative that long-term energy costs be considered not only in rehabilitation projects, but also new construction. Some of the available techniques include higher-value insulation, double-glazed windows, high-efficiency heating systems, and solar energy. By paying for these initial factors up front the cost of energy over time to the owner or renter decreases dramatically.

The Illinois Department of Energy and Natural Resources (ENR) have been working for over ten years to reduce ongoing energy costs for low-income housing units who have occupied rehabilitated buildings. (Knight, 1993) ENR has helped to fund energy efficiency in rehabilitation projects around Chicago. The techniques that the ENR use are insulation, indoor air sealing and high-efficiency heating systems. These three strategies for energy efficiency are slightly more costly up front, but over a short period of time, pay for themselves in

the amount saved in annual heating costs. The ENR states that the initial cost of upgrading these strategies is \$2,000-\$2,500 per unit, with a payback of 4-8 years through energy cost savings. For an additional investment during the rehab of fewer than 5%, energy costs are reduced 31-85%. (Knight, 1993)

In regards to the insulation that is used there are several techniques that are involved. First the new framing is “floated” 1-2 inches away from the exterior wall, and then the space is filled with high-value insulation (usually an R-19). (Knight, 1993) The “super-insulation” alone has provided a savings in energy costs to the residents. The second strategy, which follows the insulation, is indoor sealing. The objective is to seal the unit from the exterior, as well as from any neighboring units. The advantage to this is that air leakage is reduced. Because of this technique however, it is important that exhaust fans in bathrooms and exhaust hoods on stoves, in order to prevent air quality problems. (Knight, 1993) The last strategy is that of the heating systems used. Each unit is individually heated. The heating systems used in these units’ combines water heating and space heating. The average fuel bill within these units is \$135 per year. These three techniques are simple, low-cost techniques, which in the long run help to reduce monthly housing costs for low-income families.

Co-housing

A Large portion of residents in need of affordable housing in Cook County is the elderly and single mother. One technique that combines the sustainable

development idea of efficiency, but also incorporates a sense of community is that of co-housing. Co-housing is a shared living community. The community is made up of private dwelling units, but the units share common facilities and other resources. (U.S. Department of Energy) Though this type of urban cooperative living may not be for everyone, there are several social, economic and ecological benefits that could help the elderly and single mothers by forming a type of partnership.

Socially co-housing offers a support network, including child-care, emotional support, community activities and camaraderie not always found in low-income housing. Economically, co-housing can mean lower living costs, by sharing certain items, or building a community garden that is maintained by the residents. Ecologically co-housing has proven to have lower fuel and electricity costs. (U.S. Dept. of Energy, 1996) Environmental projects of co-housing such as, community recycling is very important also. Lastly co-housing allows residents to take in interest in there community. By getting to know there neighbors and relying on each other, gives residents a vested interest in where they live.

Non-profit and Private Sustainable Development Examples

While the federal government and city governments have largely failed to utilize sustainable development in affordable housing, the private and non-profit sectors have embraced many of the techniques previously described. The

following examples are different uses of the techniques in sustainable development and each is unique in its approach. It is important though to continually encourage these sectors to continue using and thus proving that sustainable development techniques are important in increasing affordable housing.

Chicago, Illinois

Bethel New Life is a community development corporation that has been working to revitalize West Garfield Park, a mostly African-American community in Chicago. (U.S. Dept. of Energy, 1994) Bethel new Life has worked to rehabilitate low-income housing, create jobs and develop community programs through sustainable development techniques. New Bethel Life was founded by Bethel Lutheran Church and originated as a volunteer program that provided affordable housing. The project soon grew to include an employment center in 1984.

To further increase the employment opportunities to the West Garfield Park community, in 1992, Bethel opened a \$1.2 million Material Recovery Facility. This facility recycles 100 tons of plastic a day. The facility employs residents from the community and the plastic that is recycled has been used in various projects around the community, such as, park benches and equipment.

Bethel has also instituted an affordable housing rehabilitation program, to help rehabilitate aging apartment buildings in the community. These buildings

are being rehabilitated using energy-efficient construction materials, as well as cost-efficient building materials. These techniques will produce rehabilitated units that are cost-efficient and energy efficient.

The efforts of the New Bethel Life project and the combined efforts of the community and other businesses as revitalized a once downtrodden community. Through sustainable development techniques, according to New Bethel Life, the project has been able to provide affordable housing units, build a stronger community presence and create jobs.

Austin, TX

In order to sustain a better community and economy, Austin, Texas, has embarked on a greener, more affordable housing effort. Using sustainable development techniques the city promotes health, safety, and conservation of energy, water and other natural resources. To bring down overall costs of affordable housing in an urban environment, Austin, Texas has put together a Green Builder Program. The program focuses on affordable housing and uses the house as a system of four main areas: water, energy, materials, and waste. This program gives low-income families a way to buy homes that are certified as “greener” and thus are cost efficient in the long term.

The City of Austin has set up the criteria and supports those builders who follow their guidelines to build these certified homes. These certified homes use

materials that provide for a more efficient home, including plumbing fixtures that conserve water, solar heating, and energy-efficient appliances, lighting and heating and cooling systems. (U.S. Department of Energy, 1998) Through the support of the city low-income families are able to purchase housing that will be affordable for years. And while not all houses built in Austin are green houses, the initiative of the city in building more efficient, affordable housing shows their commitment to a more sustainable, affordable stock of housing.

Portland, Oregon

After facing a serious lack of affordable housing, the City of Portland began a project to begin rehabilitating the cities aging housing stock. The first project began as a model for future projects to help raise the available affordable housing. The first project was located at Johnson Creek Commons on the outer southeast side of Portland. This building was home to 15-units, which were built back in 1973. The apartments were operated until 1998 as market-rate housing.

In the spring of 1998 two organizations purchased the apartments in order to rehabilitate and manage the area. With the help of the Portland Development Commission and the Housing development Center, these two non-profit organizations began the process of rehabilitation.

These organizations were very careful about choosing cost-efficient materials, such as flooring, light fixtures and appliances. Since the goal was to have units that were both affordable and ecological, the rehabilitation project

included many aspects. Highly efficient insulation and windows were installed to decrease heating costs, as well as water-conserving plumbing. The land surrounding the complex was planted with vegetable gardens and fruit trees that were available to the residents. Programs are also in the works that would provide for job skills training, transportation alternatives and cooperative business ventures. (City of Portland, 2000)

The results of this cooperative effort with the city is a rehabilitated, cost and energy-efficient housing structure that offers 2/3 of it's units to those earning 50% of the median income and 1/3 of the units to those earning 30% of the median income. The success of this project serves as a model for other efforts to increase and improve affordable housing in Portland, as well a model for other urban areas struggling with housing issues.

Tucson, Arizona

On the outskirts of Tucson, Arizona a new concept in housing development was built in 1999. Civano is the city's first large-scale sustainable housing development (Cheek, 2000). The requirements for each household are that they must use 50% less energy than specified in the city's 1995 Model Energy Code and use 54% less potable water than the residential average (Cheek, 2000). Three builders offer several different energy efficient designs that a buyer can choose from. While these homes are not aimed at the low income, they are aimed at middle income families; they do offer a more long-term

affordable home. Because of the relative newness of this community it can not be said whether it is a success or not, but 120 homes were sold in the first seven months that the community opened. In addition to its energy wise designs, the community is also built around New Urbanist ideals, the community is walkable and leaders hope that in the coming years they will build their commercial and office districts within the community.

Directions for Future Research

Using sustainable techniques in affordable housing seems to be a perfect partnership. It is however, hard to measure the success of the two for many reasons. The most important reason is that there have not been enough projects to measure its success. Secondly, the projects that have been created have not had enough time to mature and thus see the long-term benefits. Because the idea of sustainability means that it will last longer, time will only tell if this is true. Energy efficiency can be measured much easier; however, these projects must be given time to mature before an accurate analysis may be done.

Cost has also been a concern for many and cited as the reason that green ideas are not used in many projects. While cost is higher initially, it is only a slight raise in material cost and the long-term benefits outweigh these initial costs. And if usage of these green materials was more abundant these initial costs would most likely be lowered. An additional direction for future research

would be to continue to explore additional green materials and find more initial cost effective green materials.

Policy Recommendations

Through out this paper I have looked at several federal programs as well as public housing and whether sustainable practices are incorporated into affordable housing. My conclusions, as earlier stated, are that they are not. While the federal government does much to improve access to home ownership and affordable housing, the ideas of sustainable development are ignored. My policy recommendations are for the federal government to offer tax incentives for builders who use green materials for affordable housing. I would recommend that they government adopt “green” criteria in order to evaluate these materials and buildings as a whole. In addition, I would recommend that the government continue to promote green building, not just in federal buildings, but to push for a movement of green building into the affordable housing market.

The government plays an important role in affordable housing and promoting sustainable techniques for better affordably housing shows once again, their commitment better affordable housing. The environment has been for years, a focus of concern. With the governments support affordable housing can help to sustain the environment as well as offer homes to those who could not otherwise afford them. I recommend promoting housing technologies and those involved in it, such as PATH, a Public-Private Partnership for Advancing

Housing Technology. PATH is made up of private builders, developers, researchers, manufacturers and many government agencies such as, HUD, Department of Energy and the Environmental Protection Agency. These organizations work through PATH to make information and product information available to everyone. It is important for the government to continually embrace groups such as PATH and work for more affordable, sustainable housing. While the government's role in groups such as PATH show a commitment to affordable, sustainable housing, policy changes further support this effort.

Conclusion

Affordable housing is important for many people who have low or moderate incomes. Developing and putting in place policies that provide affordable housing is just as important. The government today should focus on exploring new ways in order to increase affordable housing for those who are in need. Sustainable development and green architecture can be an important role in increasing affordable housing.

Housing policy has recognized the need for affordable housing, but has failed to recognize the importance of maintaining a quality, efficient standard for affordable housing in the United States. By using and specifically citing the techniques of sustainability in housing policy, the government can make a commitment to assisting in providing a better affordable housing market in the

U.S. I believe that based on our history of providing housing for those who are in need, the use of sustainable techniques, only increases the level of awareness of affordable housing. By making a commitment to not only building, or offering affordable housing, but making housing energy efficient and more community oriented, government can ensure that there will be quality, affordable housing for future generations.

Appendix 1.

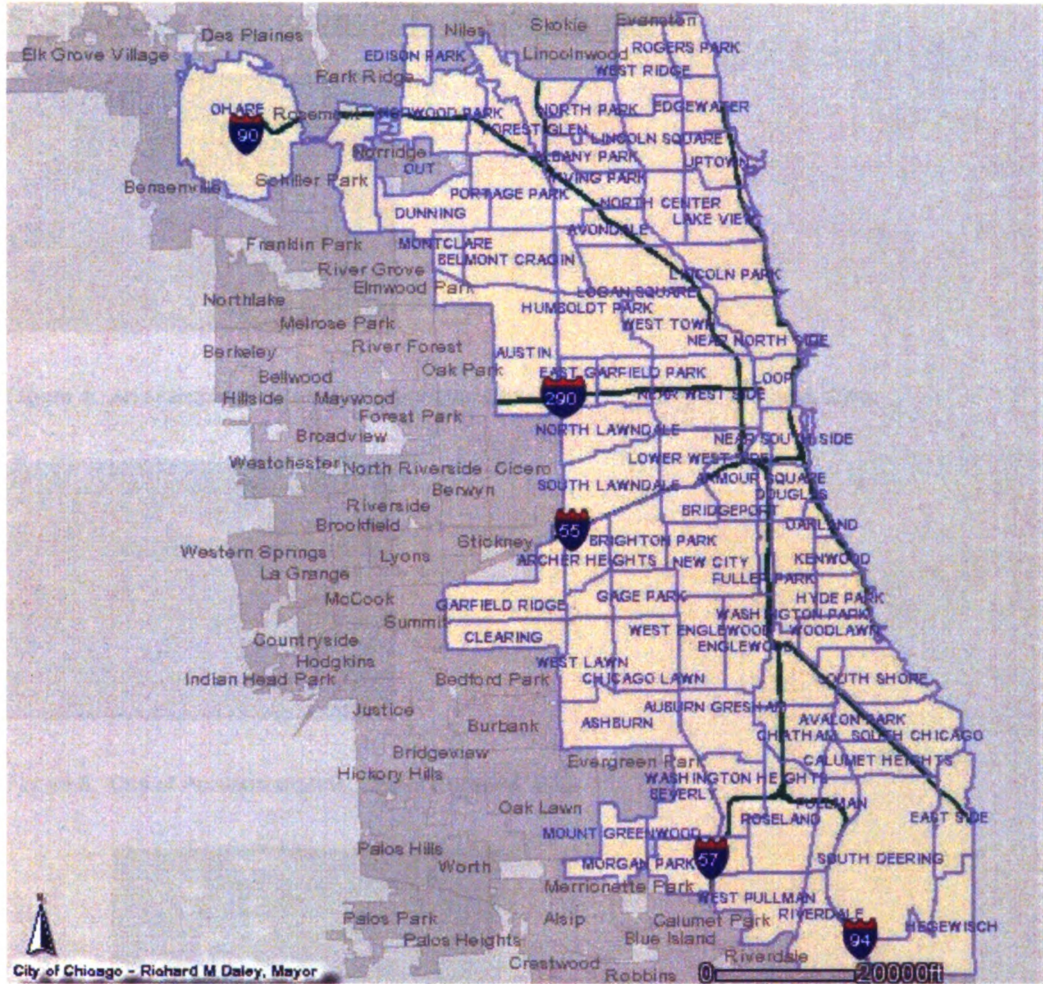


Figure 3. City of Chicago & Cook County Map, City of Chicago, 2002.

Appendix 2.

Sustainable Development Example Photos



Figure 4. An example of converted warehouses to apartments, City of Portland, 2000.



Figure 5. City of Portland skyline, City of Portland, 2002.



Figure 6. Finished Green Builder Program home, Austin, Texas, 2001.

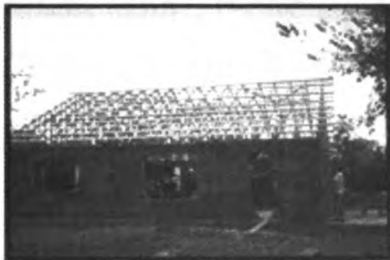


Figure 7. Green Builder Program new construction, Austin, Texas, 2000.

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Proposals to redevelop the Cabrini-Green complex, a large public housing site on Chicago's Near North Side, using communitarian rationales.

Biles, Roger. *Race and housing in Chicago*. Journal of the Illinois State Historical Society. Vol. 94:1. pg. 31-34. 2001.

Birkeland, Janis. Design for sustainability: a sourcebook of integrated ecological solutions. London: Earthscan. 2002.

By integrating social, political, and economic factors resource use can be reduced. The principles of industrial, urban, and construction ecology can be used to maximize efficiency in materials use and to minimize waste.

Bhatti, Mark. "Housing/Futures? The Challenge from Environmentalism." *Housing Studies*, 16, no. 1, pp. 39-52. 2001.

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The integration of social, economic, and environmental factors into future housing policy is the next step that needs to be taken if housing is to be sustainable in a holistic sense. Housing has become part of a wider

agenda of health, poverty, education, social exclusion, and employment. By linking local housing problems to global environmental change, the aim is to develop a green housing policy that includes social, economic, and resource issues.

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Croxtan, FAIA, Randolph R. *Architectural Record*. Sustainable Design Offers Key to Control. New York: June, 1997. pg. 76

Chicago Housing Authority. *Plan for Transformation*. Chicago. 2002.

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Follain, James R., Donald R. Leavens and Orawin T. Velz. "Identifying the effects of Tax Reform on Multifamily Rental Housing." *Journal of Urban Economics*, 34, no.2, pp. 275-298. 1993.

Gracey, John. *Architectural Record*. Sustainable Community Planned for Burnaby Mountain Near Vancouver. New York: September, 2000. Vol. 188, Iss. 9; pg. 42.

Hays, R. Allen. "Housing America's Poor: Conflicting Values and Failed Policies." *Journal of Urban History*, 28, no. 3. pp. 369-381. 2002.

Hirsch, Arnold R. Making the second ghetto: Race and housing in Chicago, 1940-1960. Cambridge; New York. Cambridge University Press. 1983.

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Johnson, Elmer W. *Chicago Metropolis 2020: Preparing Metropolitan Chicago for the 21st Century*. Chicago. The Commercial Club of Chicago. 1999.

Knack, Ruth Eckdish. "The price is right and so is the design: best practices in affordable housing." *Planning*, 67, no. 9, pp. 8-13. Sept. 2001.

Noting that when a building budget is tight, good design and good materials are the first to go in affordable housing. Low housing need not be a stereotypical style.

Knight, Paul. "Affordable Housing Through Efficiency". Home Energy Magazine. January/February, 1993.

Malin, Nadav. *Architectural Record*. New York: Feb. 2003. Vol. 191, Iss. 2; pg. 173.

Murillo, Fernando. "Private-public partnership, the compact city, and social housing: best practice for whom?" *Development in Practice*, 11, no.2/3. pp. 336-343. 2001.

Nyden, Philip, Michael Maly and John Lukehart. "The emergence of stable racially diverse urban communities: a case study of nine U.S. cities." *Housing Policy Debate*, 8, no. 2, pp. 491-534. 1997.

Stable diverse communities will not just happen, but they will be influenced by several policy recommendations stemming from research. Recommendations for stable diverse communities include helping

individuals and organizations take leadership roles in their communities, strengthening and enforcing fair housing and antidiscrimination laws, earmarking economic resources to encourage neighborhood diversity, and creating community safety and jobs programs.

Office of the Inspector General. Program Review of Chicago Housing Authority.

U.S. Department of Housing and Urban Development, Office of the Inspector General. 1998.

Pett, Jacqueline M. and Rita van der Vorst. "A Framework for Achieving Eco-Efficiency in New Housing Developments." *Journal of Environmental Assessment Policy and Management*, 3, no. 2, pp. 195-207. 2001.

The technologies for building environmentally sound homes are well known and have been demonstrated in numerous projects, but are yet to be adopted as standard. One barrier to attaining sustainable housing is the lack of a framework to combine the objectives and policies of the urban environment, environmental impacts, resource use, and the design and construction of the houses themselves.

Ralph Jr., James R. *Home truths: Dr. King and the Chicago Freedom Movement.* American Visions. Vol. 9:4. pg. 30-36. August-September 1994.

Roode, Liias. "Housing stock: the facilities for future development." *Facilities*, 16, no. 11, pp. 288. 1998.

Currently in use in the housing sector in transition economies and the influence of these on the quality of the housing stock as a resource. The critical criterion when examining and proposing any of the alternative management schemes is the sustainable development society.

Roseland, Mark. Toward sustainable communities. Gabriola Island, BC: New Society. 1998.

Seeks to make ideas, tools and resources on sustainable communities accessible. Addresses the principal environmental issues of water and sewage, waste reduction and recycling, energy efficiency, atmospheric

change and air quality, land use and urban form, housing and community development and community economic development. Tools, initiatives and a list of resources.

Roseland, Mark. "The eco-city approach to sustainable development in urban areas." *Sage Urban Studies Abstracts*, 29, no. 4, pp. 411-568. 2001.

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The redevelopment of distressed public housing under the Urban Revitalization Demonstration Program, or HOPE VI, has laudable social, physical, community, and economic goals. Demonstrate the complexity and trade-offs of trying to lessen the concentration of low-income households, leverage private resources, limit project costs, help residents achieve economic self-sufficiency, design projects that blend into the community and ensure meaningful resident participation in project planning.

Snoonian, P.E., Deborah. *Architecture Record*. In Washington, a showcase for sustainability by looking ahead, not back. New York: Feb. 2003. Vol. 191, Iss. 2; pg. 93.

Solomon, Nancy. *Architectural Record*. New York: Jul. 2003. Vol.191, Iss. 7; pg. 155.

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Zhang, Tingwei. "Community features and urban sprawl: the case of the Chicago metropolitan region." *Journal of Planning Literature*, 16, no. 3, pp. 397-477. 2002.

Local and regional factors contribute to urban sprawl. Local features include socio-economic status, transportation accessibility, housing stock and land use regulations.

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