U.S. Department of Housing and Urban Development
Office of Policy Development and Research

Albany, New York
Burlington, Vermont
Louisville, Kentucky
Orange, New Jersey
Springfield, Massachusetts

Affordable Infill Housing:

Five Case Studies

The Joint Venture for Affordable Housing

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
THE SECRETARY
WASHINGTON, D.C. 20410-0001

When I came to HUD in 1981, making affordable housing available to more Americans was high on my list of priorities.

As part of the effort to do so, I created the Joint Venture for Affordable Housing in January 1982. It is a public-private partnership designed to find ways to overcome the impact of outdated, and unnecessary, building and land use regulations on the cost of housing.

Over the last five years, we have worked with builders and local government officials in more than 30 communities across the Nation. Together, we have shown that regulatory reform does, in fact, reduce construction costs and, thereby, housing prices.

For the most part, our projects involved the construction of new homes in subdivisions designed for the demonstration. But we did not stop there. We found that effective cooperation between builders and local government could also reduce the cost of building new homes in established neighborhoods, which we call "infill housing."

The HUD experience shows that houses can be built for less in existing neighborhoods. This publication contains case studies of five infill projects which can serve as guidelines for builders and communities interested in similar efforts.

The Affordable Housing Demonstration Program has achieved its objective. As the Joint Venture now evolves from a demonstration into an operating program, the information in this study will help anyone interested in using infill housing to reach the goal of affordable housing for everyone.

Very sincerely yours,

Samuel R. Pierce, Jr.

Albany, New York
Burlington, Vermont
Louisville, Kentucky
Orange, New Jersey
Springfield, Massachusetts

Affordable Infill Housing:

Five Case Studies

Prepared for:

U.S. Department of
Housing and Urban Development
Innovative Technology and
Special Projects Division

By:

NAHB National Research Center
Economics and Policy Analysis Division
400 Prince Georges Ctr. Blvd.
Upper Marlboro, Md. 20772

This report was produced by the NAHB National Research Center for the United States Department of Housing and Urban Development. The views and conclusions contained herein are those of the authors and should not be interpreted as necessarily representing the official view or policies of the United States Government.

Table of Contents

Executive Summary

There is currently a wide range of underutilized methods to reduce the cost of new housing. One of the primary reasons these methods are not applied is that out-of-date regulations and building practices discourage their use. Many builders and local officials may not be aware of these opportunities to cut housing costs. The Joint Venture for Affordable Housing was initiated to remedy this problem.

The purpose of each demonstration was for the builder to work with local regulatory officials to identify ways to cut housing costs and to modify or interpret local building codes and site development regulations so that potential cost reductions could be achieved. Before any city was designated a demonstration city, a letter was required from the highest elected official in the city stating that he or she would work to facilitate suggested cost cutting ideas when appropriate.

The Joint Venture for Affordable Housing originally included only subdivision projects, but in September 1983, the program was expanded to include infill projects. Infill sites pose a unique set of problems. Some of these include odd lot configurations, subterranean hindrances such as buried foundations, sketchy records on utility locations, dilapidated structures ready for demolition, problems associated with land acquisition (i.e., obtaining clear title), limited choice of architectural style because of the need for compatibility with the surrounding neighborhood, and potential neighborhood opposition to development.

This book contains case studies of infill demonstrations in five cities: Orange, New Jersey; Albany, New York; Burlington, Vermont; Louisville, Kentucky; and Springfield, Massachusetts. Because of varied conditions at the five sites, different housing construction methods were used. In Albany and Burlington, the houses were entirely site-built. In Louisville and Orange, factory-built modular housing units were used. The Springfield demonstration used both site-built and factory-built housing.

Orange, New Jersey, is a city of 31,000 residents five miles west of Newark. Mayor Paul Monacelli and city administrator Leonard Matarese viewed the infill demonstration as an opportunity to show the marketability of moderately priced housing and to review local regulatory and administrative procedures.

Joseph Deming, President of Neighborhood Resources Passaic, Inc., developed the project, called Concord Court. The demonstration consists of 12 two-story modular townhouses manufactured by the Ryland Group. Each townhouse contains 1,120 square feet with either two bedrooms and two and one-half baths or

three bedrooms and one and one-half baths. All units were sold, at around $50,000 each, before the project was completed. The use of modular units together with a density of 16 units per acre helped the developer make these homes very affordable. The project's status as an Affordable Housing Demonstration expedited changes in the city administrative processes that promise to benefit future projects. In addition, its success stimulated the development of several other infill sites in Orange.

Albany is the state capital of New York and is located 156 miles north of New York City. The city has a population of 99,451. The project highlights the viability of building on underutilized land available in older, suburban neighborhoods on the fringe areas of the city. It also features the builder's concept of designing a single-family home with a rental apartment in order to help defray the carrying charges of the primary home.

Charles Touhey, President of the Latham Four Partnerships, developed and built the demonstration project. He built thirteen two-family homes on 4,000 square foot lots. The homes are two stories and have a total of 1,920 square feet of living space in both units, and an attached garage. The primary home is on the second floor and includes three bedrooms and one bath. The accessory apartment on the first floor has two bedrooms and one bath. Priced at $65,000, a family with a combined income of $26,000 can afford these homes.

Burlington, Vermont, is a city of 39,000 residents situated on the eastern shore of Lake Champlain in northwest Vermont. This project shows the marketability of building new housing on an infill lot that was previously passed over due to accessibility problems. It also features construction cost-savings achieved through the use of Optimum Value Engineered design and construction methods.

William R. Hauke, Jr., President of Hauke Building Supply, developed and built the demonstration project. The project consisted of both two- and three-bedroom townhouses with basements and garages. The two-bedroom unit had 850 square feet and sold for $45,000. The three-bedroom unit had 1,040 square feet and sold for $49,000.

With median income 25 percent below the national level and over 6000 vacant lots, the city of Louisville, Kentucky, was a prime location for an affordable infill housing demonstration. The demonstration site is located in an old industrial neighborhood near the downtown area.

Joseph Rey-Barreau, President of JRB Development, Inc., worked with All-American Housing, Inc., and The Reasor Corporation to develop modular units compatible with the prevailing architecture of the neighborhood. The demonstra-

tion consists of four homes, two of which were two-story and two of which were one-story buildings. The homes range in size from 876 to 1,440 square feet and contain three bedrooms and one and one-half baths, or four bedrooms and two baths. The four homes range in price from $34,000 to $42,000. One factor which helped to contain costs was that the city sold the lots to the builder for $1 each. The project offered an affordable alternative to lower income home buyers and an attractive option to small builders.

Springfield is an older city located in western Massachusetts. This project illustrates the important role that the city can play in providing land for infill housing, and highlights some of the problems which can arise when site clearance and development pose unusual problems for the builder.

The site was developed by Robert L. Del Pozzo, President of JDS, Inc., and is composed of three duplex units. While the original plan called for all modular units, delays in delivery and necessary design changes prompted the developer to site build two duplexes. The units ranged in price from $93,000 to $98,000. Each of the homes has three bedrooms, one and one-half baths, and a basement.

The following case studies offer practical solutions and insight for builders and local government officials interested in providing affordable infill housing.

The Joint Venture for Affordable Infill Housing

Housing costs have risen dramatically in recent years so that many people have been unable to buy a home. Part of this cost increase was due to the high rate of interest on home mortgages, which reached almost 20 percent in some areas of the country before dropping under 10 percent in 1986. A large part of the increase, however, was due to other factors--inflation in the cost of materials and labor; a reduction in the amount of land available for housing, which has drastically increased lot prices; and changes in market patterns leading to larger homes on larger lots. Studies by the President's Commission on Housing and a special U.S. Department of Housing and Urban Development (HUD) Task Force on Housing Costs confirm the findings of earlier studies which show that there are ways to cut the cost of housing. Too often, these studies show, out-of-date regulations and building practices prevent these ideas from being applied. In fact, the studies point out that many builders and local officials do not even know about many of the ways to reduce housing costs.

The Joint Venture for Affordable Housing was initiated by HUD Secretary Samuel R. Pierce, Jr., to correct this situation. Since affordable housing is a problem which involves all levels of government as well as the rest of the housing industry, finding an answer requires the participation of all of these elements. The Joint Venture, therefore, has been a real partnership of the following organizations, all of whom have an interest in making housing more affordable:

American Planning Association
Council of State Community Affairs Agencies
International City Management Association
National Association of Counties
National Conference of State Legislatures
National Governors' Association
Urban Land Institute
National Association of Home Builders
NAHB National Research Center
U. S. Department of Housing and Urban Development

Through conferences, workshops, demonstrations, publications, and similar activities, ways to cut construction costs through more effective and efficient planning, site development, and building procedures are being brought to the attention of builders and local government officials all over the country.

The Affordable Housing Demonstrations

Home builders learn from other builders; successful ideas are copied and used in new ways by other builders in many different areas of the country. The affordable housing demonstrations were developed to illustrate ideas for reducing housing costs in real projects and to provide information on the cost savings that resulted.

The central theme of the demonstration program has been that a builder and those local officials responsible for regulatory approval can, together, identify ways to reduce the cost of housing and to modify or interpret local building codes and site development regulations so that these methods can be used. No Federal support funds were provided either to the builder or to the community to help finance the demonstration projects, but HUD and the NAHB National Research Center did provide technical assistance to the project designers.

The 28 projects involving new subdivision construction completed at the present time have clearly demonstrated the value of this approach, with savings in one project approaching 30 percent, and in several others about 20 percent. The cost-cutting measures used in the various demonstrations vary widely. In some projects, unit densities were increased to reduce the impact of land cost on the final price, while good site planning and design made this increased density acceptable to the community. In other projects, street widths, street design standards, and utility system requirements were changed to reduce costs. Housing materials and construction methods were changed in many projects. In addition, many projects benefited from improvements in local administrative procedures which reduced the time and effort needed to obtain building and land use approvals.

The Affordable Infill Housing Demonstrations

In September 1983, HUD expanded the scope of the demonstration program to include infill housing projects. There had been an increasing interest among builders and local government officials in the development of infill lots as a viable alternative for providing affordable housing. From a city's perspective, infill housing meant the development of vacant or underused lots, thereby increasing the tax base. Builders viewed it as an opportunity to build new homes in areas where land prices were sometimes less expensive than those in suburbia.

For purposes of the demonstration, infill housing was defined as up to 45 housing units surrounded by existing development at similar densities. Most of the infrastructure (such as streets, sidewalks, and water and sewer lines) are generally in place and directly available to the site. Different types of buildings have been used for infill development, such as stick-built, panelized, modular, or manufactured units. Potentially, using factory-built housing permits the builder to capitalize on economies of scale while minimizing the risks associated with site-built construction. For example, savings may accrue from plant efficiencies and standardized operations; bulk purchasing; less time lost due to inclement weather; reduced carrying charges for the builder due to fast turn-

around time; lower costs for supervision on small, scattered sites; and better protection against vandalism.

There are often constraints associated with infill development not found in conventional subdivisions. Some of these include odd lot configurations, subterranean hindrances such as buried foundations, sketchy records on utility locations, dilapidated structures ready for demolition, problems associated with land acquisition (i.e., obtaining clear title), limited choice of architectural style because of the need for compatibility with the surrounding neighborhood, and potential neighborhood opposition to development.

Although marketing is key to any type of development, infill offers a somewhat different product than conventional subdivisions. Developers market typical suburban developments in competition with other suburban developments, focusing on the differences among them. Infill housing has fewer kindred projects available for comparison, but it must still compete with conventional developments. Therefore, marketing the surrounding neighborhood may become critical in infill housing.

The Case Study Approach

Each project undertaken as an Affordable Housing Demonstration as part of the Joint Venture for Affordable Housing has been or will be described in a case study report. The case studies are intended to be learning tools to help home builders, local officials, and others concerned about affordable housing recognize and seize opportunities to reduce housing costs through regulatory reform and the use of innovative planning and construction techniques.

Information on the changes and their impact on costs has been collected by the NAHB National Research Center. Each case study describes the community, outlines the builder's experience, and discusses the specific project characteristics and history. Where possible, the cost savings resulting from the use of the various procedural, planning, development, and construction changes have been calculated and reported in the case studies.

This volume contains the case studies of the five "affordable infill" demonstration projects carried out under the Affordable Housing Demonstration program. The report on the project in Orange, New Jersey, is provided in some detail; the reports on the projects in Albany, New York; Burlington, Vermont; Louisville, Kentucky; and Springfield, Massachusetts, are more limited in scope. In every case, however, the reports show that the cooperation achieved between the developer/builder and the local government was a significant factor in the successful development and marketing of the project.

The Affordable Infill Housing Demonstration Case Study 1

Orange, New Jersey

Table of Contents

Orange, New Jersey, a city of 31,000 residents five miles west of Newark, is the site of an affordable housing infill demonstration. Mayor Paul Monacelli and city administrator Leonard Matarese viewed the infill demonstration as an opportunity to show the marketability of moderately priced housing and to review regulatory and administrative procedures.

Joseph Deming, President of Neighborhood Resources Passaic, Inc., developed the project, called Concord Court. The demonstration consists of 12 two-story modular townhouses manufactured by the Ryland Group. The houses are arranged in three groups of four units around a central parking court in a horseshoe pattern on a three-fourth acre site. Each townhouse contains 1,120 square feet with either two bedrooms and two and one-half baths or three bedrooms and one and one-half baths. All units were sold, at around $50,000 each, before the project was completed. Using modular units and a density of 16 units per acre helped the developer make these homes very affordable.

This project's status as an Affordable Housing Demonstration expedited changes in the city administrative processes that will benefit future projects. In addition, its success stimulated the development of several other infill sites in Orange.

Chapter 1

Project Description

The Community - Orange, New Jersey

Orange, New Jersey, a city of 31,000 residents five miles west of Newark, was incorporated in 1872. Once called Orangedale, the community was officially named in honor of William of Orange, later William III of England, who was popular among the early Puritan settlers. As in many New World communities, settlement in this area stemmed from religious controversy. Newark was founded by a group of Puritans from Connecticut opposed to the interference of civil authorities in church affairs. They emigrated in 1666 to found what is now the First Presbyterian Church of Newark. By 1718 Orange had its own church, the Mountain Society, which separated from the First Presbyterian Church of Newark.

Mineral springs discovered in the early 1800's led to Orange's national fame as a resort area. The Morris and Essex Railroad was built, fostering the growth of other businesses. Notable among these was the hat industry. Orange's water supply was considered ideal for the felting and dyeing process in hat manufacture. The subsidiary industry of boxmaking also prospered.

In January 1861, the Village of South Orange became a separate entity. Two years later, East Orange and West Orange also gained independence, leaving Orange

Orange logo

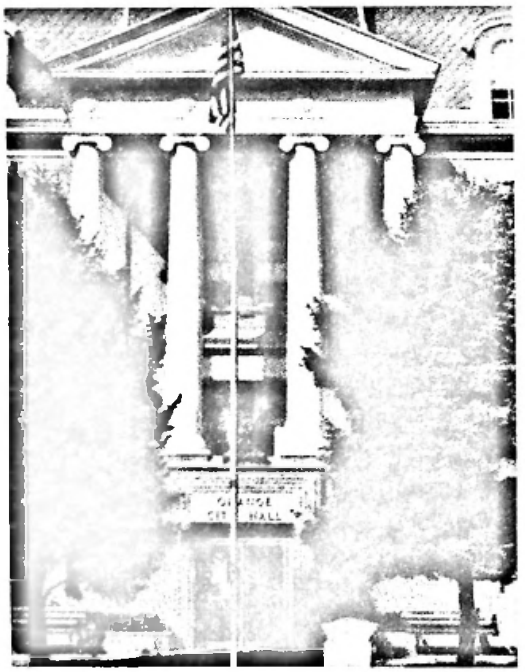
with an area of only 2.2 square miles. Nevertheless, the population continued to grow, and Orange became a city on April 3, 1872.

Orange is part of the Newark Metropolitan Statistical Area (MSA). Like other older, industrialized areas in the Northeast, Orange and the Newark MSA have experienced economic decline. The populations of both the City of Orange and the Newark MSA have decreased over the past two decades. According to the U.S. Census Bureau, Orange had a population of 32,566 in 1970, and 31,136 in 1980. Similarly, the Newark MSA population was 1,967,468 in 1970, and 1,965,969 in 1980. Due to a lack of new construction, however, the residential vacancy rate is 4.0 percent, compared with the national average of 5.9 percent.

Orange's population is growing older. According to the 1980

U.S. Census, the city had a median age of 31.3 years compared with a national median age of 30.0 years.

The 1980 Census reported median family incomes for Orange and the Newark MSA of $17,148 and $24,534, respectively. The national median income in 1980 was $21,023. Only 44.6 percent of the residents own their homes, compared with 64.4 percent nationally.



Orange City Hall

Orange has a mayor-council form of government. Mayor Paul Monacelli was elected in 1984 for a four-year term. There are seven part-time council members, four representing separate wards and three at-large.

City Administrator Leonard Matarese, appointed in 1984 by the mayor with advice and consent of the council, is responsible for day-to-day managing of city affairs. The city administration is aggressively attempting to reverse the economic trends of the past 30 years. City officials have been promoting Orange to home builders by highlighting its proximity to the New York and Newark job markets, making numerous lots available for infill development and encouraging new housing development. The Affordable Infill Housing Demonstration Project, Concord Court, was a direct result of the city's effort to attract new housing. Most importantly, it appears that Concord Court has stimulated other residential infill development in Orange, as discussed in Chapter 2 of this report.

Leonard Matarese, Business Administrator

City officials hope that the resurgence of housing activity in Orange will boost the community's economy. Property vacant for years has begun producing tax revenue for the city. The demonstration has shown that a profitable market for moderately priced housing exists in Orange.

The mayor and city officials have been strong proponents of the Affordable Infill Housing Program. Mayor Paul Monacelli recently said, "Construction of new housing has been a major priority of my administration, and, as a result of the demonstration, infill housing has played an important role."

As discussed in Chapter 2, Mayor Monacelli also claims that the demonstration gave the city a chance to review its regulatory and administrative procedures for new development and make changes to expedite the process.

The Developer - Neighborhood Resources Passaic, Inc.

The developer of Concord Court is Neighborhood Resources Passaic, Inc., a nonprofit neighborhood corporation created in 1976 to advance the cause of affordable housing. Initially, the organization worked exclusively with housing rehabilitation, but in 1982 it diversified and began working on new construction. It has built commercial and residential projects throughout the metropolitan area.

Joseph Deming, president of the company, advocates modular housing for infill sites. In

Walter Johnson (Newark Field Office Manager, HUD); Joseph Deming (builder/developer); and Paul Monacelli (Mayor of Orange)

an interview with the New York Times on the project, he said, "...factory-built homes were just as sturdy as conventional structures and in some cases were better. For instance, the insulation is superior and, because they are built inside a factory, the modules are very tightly put together." He has used the demonstration to illustrate the demand for new, moderately priced modular housing in Orange.

10 R N.J. THE NEW YORK TIMES, SUNDAY, MARCH 3, 1985

IN NEW JERSEY

Fitting Housing Into Tight Urban Spaces

Modular Cluster In Orange Aided By H.U.D. Advice

By ANTHONY DePALMA

OVER the last decade, new housing in most New Jersey cities has been limited to high-rise apartment buildings because there simply is not enough land available to build sufficient numbers of affordable one- and two-family houses.

What developable land there is in a city usually is limited to what are known as infill sites — small parcels cleared after a fire or when an abandoned house became so rundown that it had to be razed. New houses on such sites usually are expensive because, in effect, they are custom-built. An urban developer cannot take advantage of the economies of scale that come with large suburban subdivisions where hundreds of individual houses are erected.

For the last year, the Federal Department of Housing and Urban Development, recognizing the problems that keep affordable housing from being built where it is most needed, has been highlighting local projects that successfully overcome the obstacles of building in the city, holding them up as models for other cities to follow. Of the several demonstration sites it has selected around the country, the most recent is in Orange, an old city of 31,000 residents not far from Newark.

The project that interested H.U.D. is a 12-unit town-house development on North Day Street, about 100 yards from the Orange City Hall. A cluster of two-story, two- and three-bedroom town houses will be built on a three-quarter-acre lot that was once a natural-gas storage facility, then a lumberyard and most recently a municipal parking lot.

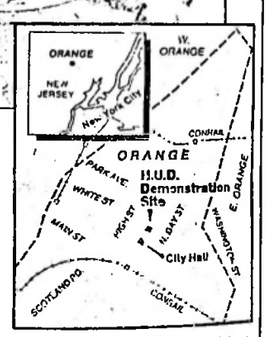
The Orange town houses will be built with modular components. In such a project, 10-by-28-foot modules are built on an assembly line at the manufacturer's facility, in this case the Ryland Modular Homes plant in North East, Md. Each town house consists of four modules, which are trucked to the site and bolted into place on a prepared foundation.

Once the sections are joined, the seams are covered with siding, and all that remains to be done is to hook into city sewers and complete the landscaping. The modular units come equipped with all electrical and plumbing lines, carpeted floors and windows and doors.

The town houses, which have about 1,200 square feet of living space and can be erected in less than a month, sell for $49,725.

The New York Times / F. H. Kinney

Joseph Deming, developer, at modular-house project site in Orange.



Although modular factory-built houses have been around for some time, they have not caught on — despite their price — to urban areas where housing officials, builders and potential buyers have had little experience with them.

"People think of them as mobile homes, but they're not," said Paul R. Mouscelli, the Mayor of Orange. "There's a lot of resistance to them that has to be overcome but generally when people see the sketches of what they will look like, they change their minds and think they are very nice."

The Federal lending agency hopes that focusing attention on the efficiencies of modular houses and their suitability for cities will encourage more consumers and local officials to accept them.

"A lot of northern cities look at factory-built housing and say it's junk," said Joseph Sherman, director of building technology for H.U.D. "But it's not. It's very well-built and a lot more efficient than conventional housing."

Being selected for the affordable-housing program means that Orange will benefit from the Federal Government's experience in lowering the cost of building houses in other demonstration sites, and that in turn it may be able to contribute new techniques and ideas to the program. Mr. Sherman said he had been seeking ways of making house construction more efficient by using new technology and lifting arbitrary zoning restrictions.

"We work with local communities and individual builders who are willing to close their books and open their minds when it comes to building houses," he said. "We are starting over from scratch."

According to Mr. Sherman, new construction techniques matched by streamlined zoning regulations can reduce prices from 15 to 20 percent on every component of a new house.

Joseph E. Deming, developer of the 12 town houses in Orange, said there were many reasons why he could sell the units so inexpensively. For one, land costs are low because the city owned the parcel. Mr. Deming paid $30,000 for the property, which had been taken by the city in a tax foreclosure years ago.

Another is that Mr. Deming's development company, Neighborhood Resources Passaic, is a nonprofit group that has just entered the housing field.

THE developer said modular houses were so much cheaper than on-site construction that "they are not even in the same ballpark."

Mr. Deming, who is having a modular house built for himself in Montville in Morris County, said the factory-built houses were just as sturdy as conventional structures and in some cases were better. For instance, he said, the insulation is superior and, because they are built inside a factory, the modules are very tightly put together.

While the town houses will be finished with carpeting and some appliances, they will not come with either a garage or central air-conditioning. "I couldn't afford to get too fancy," Mr. Deming said. "But I didn't bare-bones it either."

In place of a garage, the homeowners will be alloted parking pads in front of their houses. The units, four to a cluster, will be arranged in a horse-shoe pattern around a central parking court.

Site preparation began last month and Mr. Deming said he expected to have the units ready for occupancy by May. The New Jersey Housing and Mortgage Finance Agency will provide low-interest mortgages.

Officials in Orange said they had been converted to the virtues of modular housing and would encourage developers to put up factory-built homes on vacant lots throughout the city. Mayor Mouscelli said there was enough land available to erect an additional 96 modular town houses.

"It's the only solution to providing affordable housing in urban areas," he said. "Rehabs don't always work as well. I'd rather see an old building torn down and replaced with some of these. In the long run, I think the city is better off."

New York Times article

The Modular Manufacturer - Ryland Modular Homes

The Ryland Group was founded in Columbia, Maryland, in 1967 and has since become one of the nation's leading home builders. The Ryland Group consists of three divisions, Ryland Modular Homes, Ryland Homes, and Ryland Mortgage Company, which offers financial assistance to builders.

As a general practice, the company does not purchase land for investment nor develop raw land. Normally, Ryland acquires options on fully developed lots that it intends to use for the construction and sale of homes.

Single-family detached homes are the mainstay of the business with townhouses and multi-family housing accounting for about 45 percent of total units.

The modular townhouses at Concord Court were manufactured at the Ryland Modular Homes plant in North East, Maryland. The 1,120 square-foot houses were available in two and three bedroom models and were priced around $50,000 to attract the first-time home buyer.

Exterior of homes

The Project - Concord Court

Concord Court is on a three-quarter acre tract bounded on three sides by residential development and located near Orange City Hall. The immediate neighborhood consists of primarily wood-frame single-family detached houses and duplexes built in the early 1900's. The architecture in the area is Victorian, although a variety of other designs have been added over the years. The traditional facades of the demonstration houses make them compatible with the surrounding neighborhood.

The condition of houses in the area varies considerably. Some are well maintained, while others are in various stages of deterioration. A number of boarded-up buildings and vacant lots occupy the area.

Surrounding neighborhood

The demonstration project consists of 12 modular townhouses arranged in three groups of four units each. The houses are in a horseshoe pattern around a central parking court.

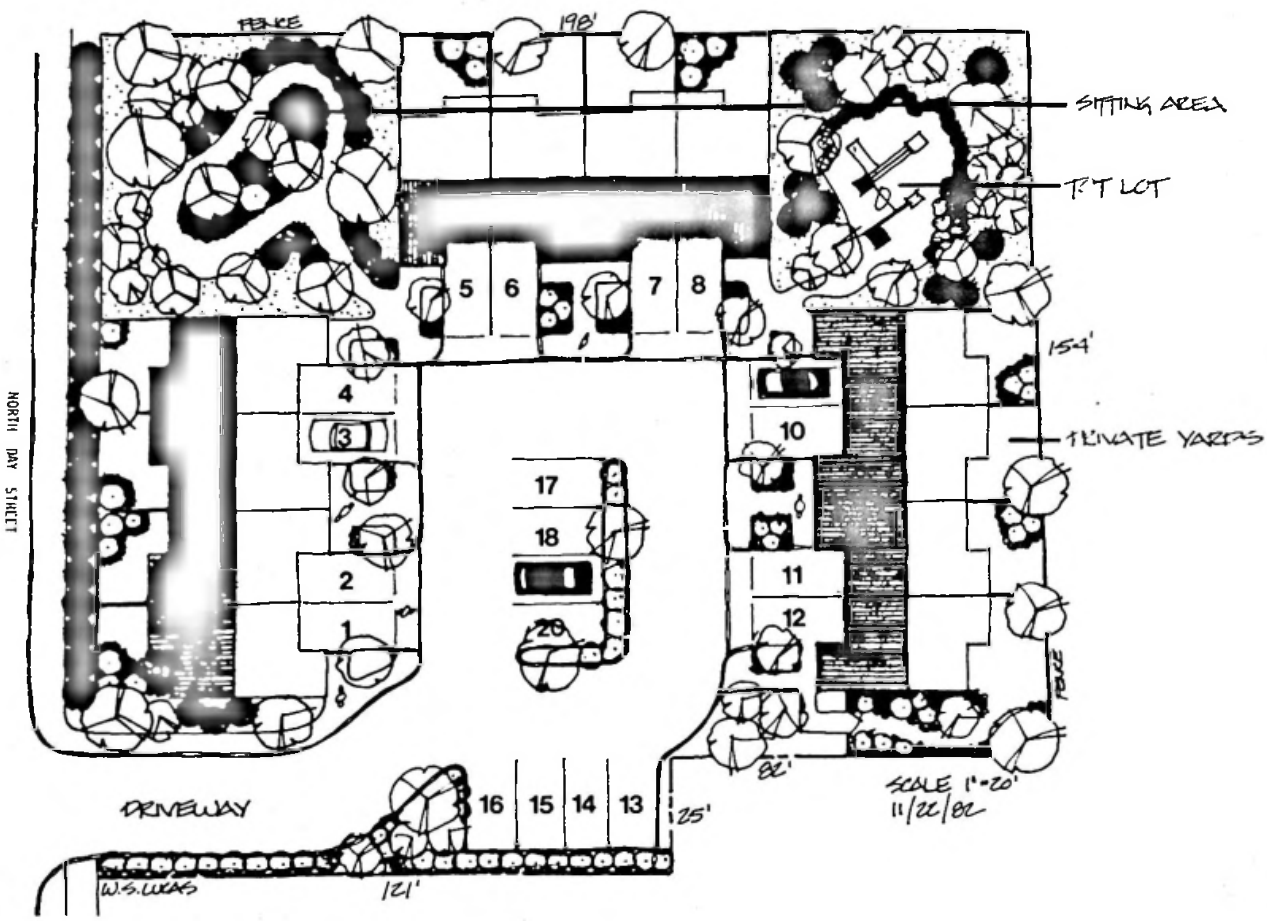
The project has one and one-half parking spaces per unit.

Parking is a critical issue on infill sites because many of the existing houses lack off-street parking, and new development exacerbates parking problems.

Surrounding neighborhood

The 16-unit-per-acre density is consistent with that of the surrounding neighborhood; moreover, the cluster plan, by diverging from the face-the-street configuration of homes, varies the streetscape. The project's effective site planning further enhances the neighborhood's aesthetics. Clustering the homes increases the land available for amenities, such as a tot lot and open space. Effective landscaping and fencing screen the project from the street and adjacent homes.

The Ryland 2820 model, a two-story townhouse, was used for the project. Each townhouse contains 1,120 square feet and was shipped 245 miles to Orange in four 14' x 20' modules. Because Orange is outside Ryland's 100-mile service area, the company added $400 per unit in shipping expenses.



Site plan

Schematic Design for North Day Street Site, ORANGE, NJ

John Rahenkamp and Associates, Inc.
1717 Spring Garden Street Philadelphia PA 19130

Elev. A D B C E

2820 TOWNHOMES

KITCHEN REAR

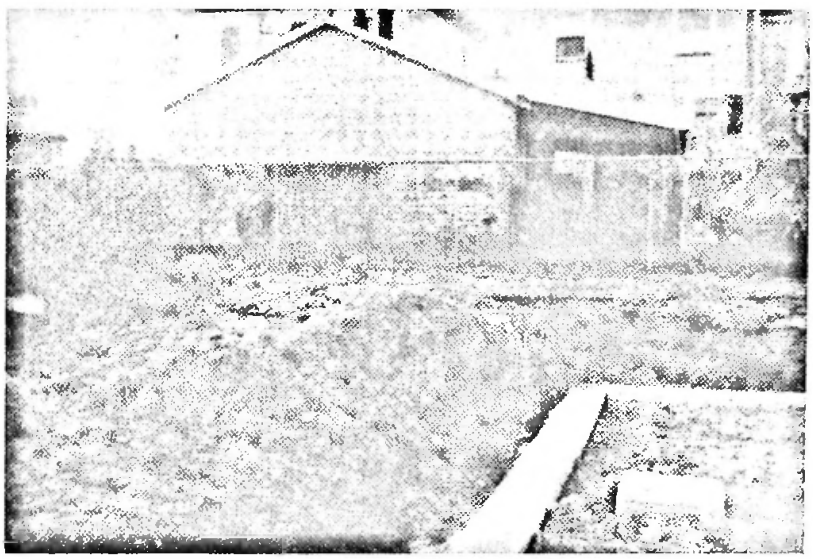
RYLAND MODULAR HOMES

EQUAL HOUSING OPPORTUNITY

At the site, Ryland provided a 35-ton crane, set the house on the prepared block foundation that included two center piers, and made the house weather-tight. Ensuring weather-tightness involves sealing the exterior of the unit along the mating walls and roof.

Crane lowering modules

Deming used his own subcontractors to complete the final work necessary to make the unit habitable. An electrician and a plumber handled electrical, water, and sewer hook-ups. A general subcontractor did the remaining work including covering exposed seams along the sides and roof with siding and shingles, installing porch overhangs, and finishing interior mating walls. Because the subcontractor had difficulty aligning the vinyl siding for the exposed seams with the vinyl siding on the delivered unit, Deming had the next cluster of townhouses delivered without siding. He received credit for taking delivery of the houses without siding, compensating for the added cost of installing the siding on site.

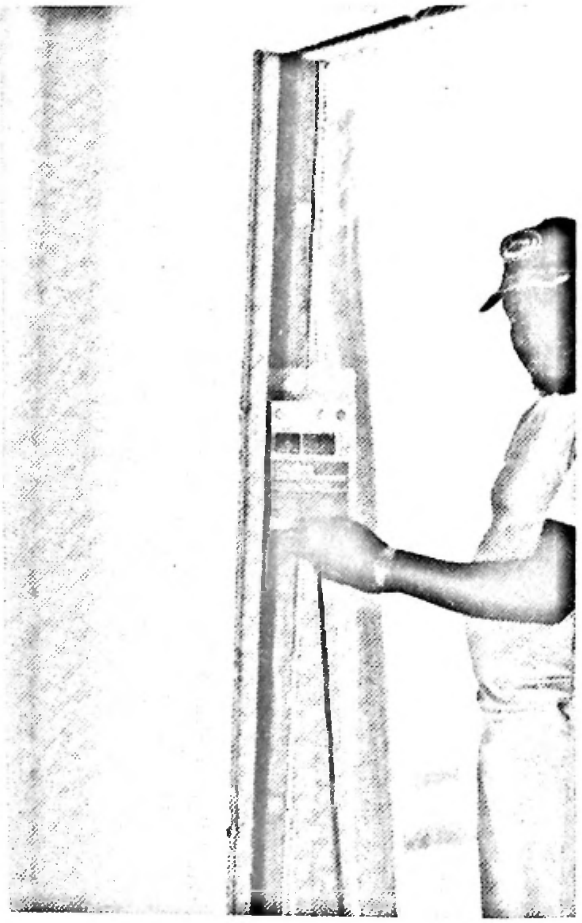


Foundation pier for module

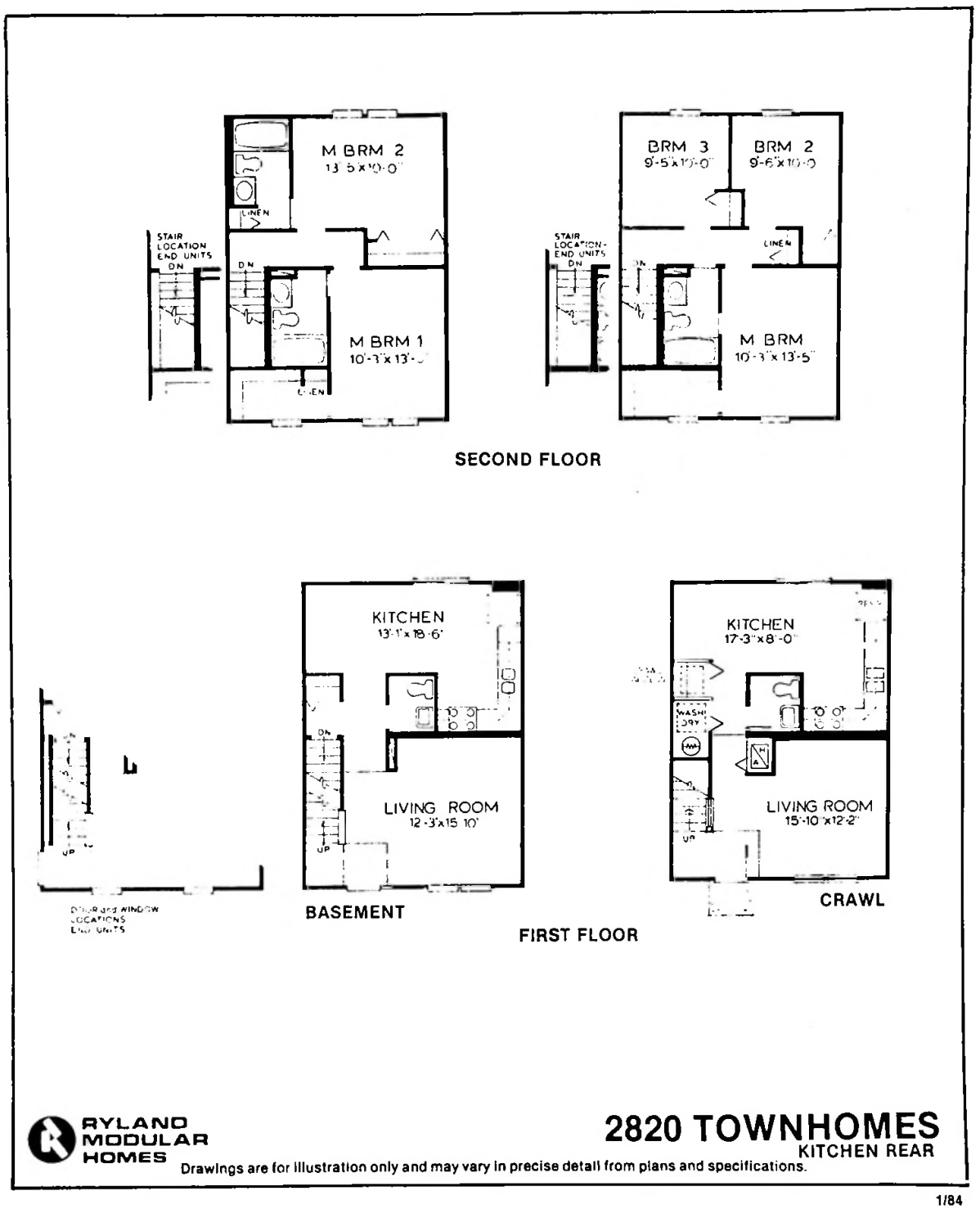
Units delivered without vinyl siding

The townhouses contained many standard features (see Appendix II for list of standard features and options), including an energy package consisting of extruded polystyrene board insulation, which increased insulating value of the walls by 25 percent. Deming also ordered vinyl siding (upgraded from aluminum), which cost an additional $350 per unit and enhanced the exterior appearance of the house.

Because these homes were priced from $49,750 to $54,500, they suited first-time home buyers with limited finances. The houses were available in either a two-bedroom, two and one-half bath or three-bedroom, one and one-half bath layout. The two-bedroom layout was designed for a singles market (two non-related persons sharing a house), while the three-bedroom was designed for a family. All 12 units were sold by August 1985, and ready for occupancy by January 1986.



Mating wall inside a unit

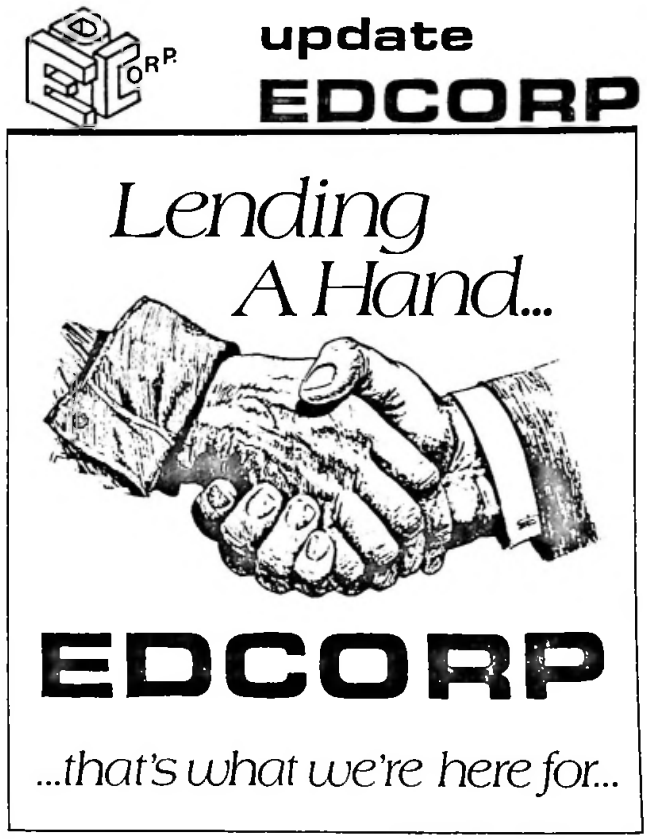


A condominium association provides for all exterior maintenance, common grounds, parking lot, and master insurance policy.

Project History

According to Leonard Matarese, approximately 10 percent of Orange's land area is vacant or underused, leaving an abundance of infill lots available for development. Some of these had been left undeveloped; others have become available due to abandonment or fire. The presence of a high percentage of renters in Orange aroused the city's interest in using available lots to increase the home ownership rate. City officials, through the Economic Development Corporation (EDCORP) of Orange, a city-funded nonprofit economic development group, implemented a program to encourage developers to build new housing on city-owned parcels of land.

EDCORP began seeking prospective developers to build new houses on these available lots. Bennett Herman, President of EDCORP, felt that modular housing would be appropriate for infill development. While attending a manufactured housing conference in Atlantic City, he met Deming and convinced him to build houses in Orange. Deming chose the site on North Day Street because he wanted to build on a single site rather than on scattered sites. At the time, the property was used as an overflow parking lot for City Hall.



The above is a picture of four of the twelve Townhouses to be erected at 81-85 No. Day Street, Orange, in the very near future. For details and applications, contact Economic Development Corporation, 29 No. Day Street, Orange, 266-4012.

Mr. Matarese has aggressively promoted moderately priced housing to increase the home ownership rate in the city. After learning about HUD's Affordable Infill Housing Program, he sought designation of Concord Court as a demonstration site. He viewed the project as a chance to demonstrate the marketability of moderately priced housing in Orange and hoped that it would stimulate additional housing construction. HUD designated Concord Court an Affordable Housing Demonstration project in January 1985.

In addition, Mayor Monacelli viewed the demonstration as an opportunity to review regulatory and administrative procedures. Prior to Orange's regulatory reform, city regulations required approval of new development by five separate departments. This arrangement had presented difficulties since each department had its own set of concerns, with little coordination between departments.

Working closely with the developer, city officials recognized the need to streamline the approval process and, in March 1985, created the Department of Community and Economic Development to handle the entire process. This department consolidated the functions of the following five departments:

- Engineering
- Licensing and Inspections
- Economic Development
- Planning
- Housing

The Department of Community and Economic Development handles the entire approval process from beginning to end. The new, centralized processing system takes approximately two weeks less than the previous approval process.

While breaking ground in February 1985, the developer discovered a natural gas storage tank foundation beneath the site. (Subterranean obstacles from previous land uses are common on infill projects.) The city helped to pay for the foundation's removal; the costs involved are discussed in Chapter 3.

Excavation for third cluster of townhouses

While proceeding to remove the old foundation, Deming faced another problem: a clause in the land disposition agreement specified that all improvements to the property had to be made before the title could be transferred to Deming. This was an obstacle since banks normally do not provide construction financing without land as collateral. The city immediately proposed the following three solutions to the problem:

1. Deed the property to the developer for $1 but require that a performance bond be posted. The city takes a second mortgage on the balance due (the prearranged sales price) that is subordinate to the construction lender. The payback to the city occurs about the time the last draw is made on the construction loan or at any prearranged interval during the construction period.

2. Deed the property to the developer and, instead of requiring a performance bond, add a clause in the land disposition agreement reverting title to the city if the agreed upon improvements are not made. This alternative saves the cost of posting a performance bond. Also, performance bonds are difficult to obtain in Orange because of strict insurance company underwriting standards.

3. Pay the full price for the land at settlement. A performance bond is unnecessary in this situation, since the developer has a financial interest in completing the project.

Deming chose the third option of paying cash for the land. The city negotiated a reduced sales price for the land to compensate for the unanticipated excavation costs of removing the foundation. As a result, Deming paid only $23,000 for the site instead of the agreed-upon $30,000; the $7,000 difference represented the city's contribution to removing the existing foundation.

With the city's assistance, resolving this disposition problem was accomplished in one week. The week that the problem surfaced, an emergency item was scheduled on city council's agenda removing the restriction that improvements be made prior to transfer of title and reducing the sales price to compensate for the added cost of removing the foundation. City Council passed the resolution on March 5, 1985. (See Appendix I for a copy of the resolution.) This entire process usually takes much longer because the transfer of property in Orange requires a resolution by city council, which only meets twice a month; and agenda items are scheduled two weeks in advance.

Groundbreaking was in January 1985. By April 30, 1985, the foundations were completed and the first four units were delivered on May 3, 1985. By March 1986 all units were complete.

Deming supervising foundation construction

Initially, Deming worked with EDCORP, which had developed a waiting list of qualified households. The first five presales came from this list. After a while, Deming contracted with Empire Realty to sell the remaining units.

As a result of Concord Court's success, other infill sites are being developed in Orange. The following are illustrations of the type of infill development occurring in the city.

VCG Developers is building 25 townhouses on one and one-half acres at Reynolds Terrace. These two-story, 1,140 square-foot townhouses have two bedrooms and one and one-half baths and are priced in the mid $60's.

Trenk Development Company is converting Our Lady of the Valley Church school building into one- and two-bedroom condominium apartments for a total of 24 converted and 24 newly constructed units.

On the adjacent church parking lot, builder James A. Fierro is developing a townhouse project, Valley West Condominiums. Eight two-bedroom, one and one-half bath Ryland Modular Townhouses will be placed on the site. The 1,140 square-foot houses are selling for $79,900.

The Orange Difference

Is 1985 a boom year for Orange?

City officials are predicting that the next year will see the biggest building boom in Orange in 20 years. Orange's Economic Development Corporation (EDCORP), working with local developers and investors, has planned or begun construction of 85 townhouses and apartments, and expects to auction 19 more buildable lots in September.

EDCORP, under the direction of President Joseph Maree and Executive Director Bennett Herman, has been working for nearly 10 years attracting business and development to Orange. Their most notable success, among many, was the Joule industrial complex off Route 280.

Maree said the present and planned buildings were arranged separately, but that it was "fortunate" that all were being put up at the same time. He said, "It really means a boom for Orange housing."

He also stressed that EDCORP's commitment was a continuing one. EDCORP is a member of the Auction Sales Committee, which is chaired by City Attorney Cecil Banks. They are presently preparing a booklet submitting information on 19 buildable lots that will be auctioned on September 13.

Where and how many?

—Plans for 25 townhouses on Reynolds Terrace have been made and checked by the city's acting Planning Director Bob Ringleheim. The developers will appear before the Planning Board July 18.

—Eight townhouses have been planned for the corner of Nassau and Valley streets on property formerly owned by Our Lady of the Valley Church. An ad was placed in daily newspapers and two were sold. The developer is planning on placing another ad.

—The Lyceum Building on Valley and McChesney streets, formerly the Our Lady of the Valley School, will be rehabilitated into a 24-unit condominium complex. There are also plans for another 24-unit complex next to this property, as soon as the rehabilitation of the Lyceum is completed.

—An option to purchase the property at Ridge and Linden streets has been signed by both parties. Sixteen townhouses will be constructed on the site.

—Four of the 12 planned townhouses on North Day Street have been completed and the other eight are on the way.

Maree said this represents "more units than have been constructed in Orange in the past two decades." He added that their assessed valuations should exceed $2 million.

This article appeared in a local newsletter

Innovations and Their Impact on Costs

Concord Court was able to benefit from a productive relationship between the developer and Orange city officials. This cooperation affected administrative and development changes that produced cost savings. In addition, the use of modular units saved money. The following describes cost-saving methods in the administration and processing of approvals for and the development and construction of Concord Court.

Administrative and Processing Innovations

The city officials created the Department of Community and Economic Development to centralize the approval process, shortening it by about two weeks.

Site Planning and Development Changes

City officials also negotiated a reduced sales price for the land for Concord Court to compensate for the unanticipated excavation costs of removing the old gas storage tank foundation. The city bore part of this expense by reducing the price of the land from $30,000 to $23,000. The price of the land did not include any on-site infrastructure (i.e., streets, sidewalks, parking, and water and sewer lines). Had the city not aided the developer, this additional cost could have made the project infeasible by raising the selling price of the units beyond the targeted maximum of $54,500.

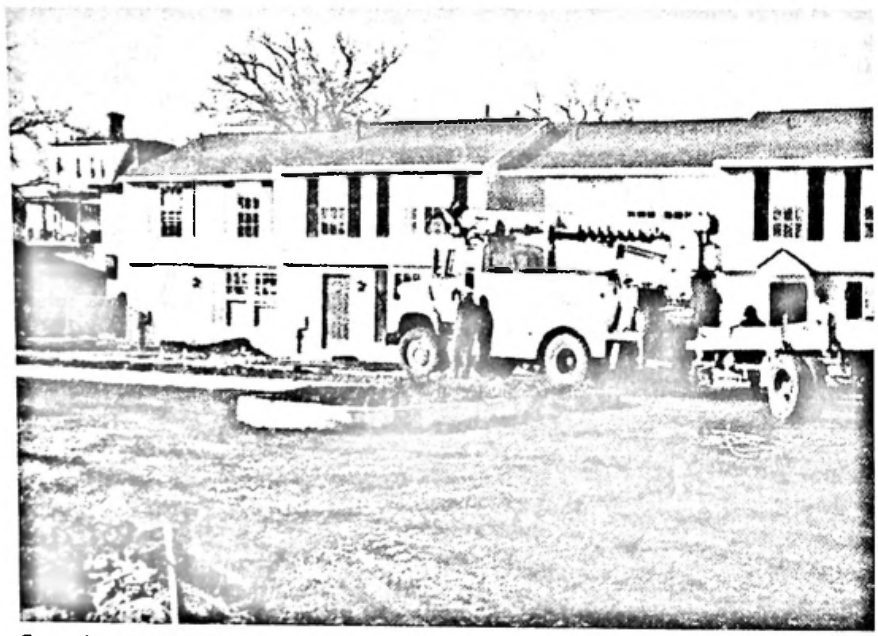
James Taylor (Project Manager) and Bob Ringelheim (Planning Director)

In addition, city officials waived a requirement to install an additional fire hydrant, since one already located across the street from Concord Court could adequately serve the development. Deming was required, however, to replace the existing hydrant with one that had four nipple connectors. Because the additional hydrant was not required at the demonstration site, the water supply line and shut-off valve diameters for the entire project were reduced from six to four

inches. This involved 270 feet of ductile iron supply lines, so the city waiver resulted in a total project savings of $1,300.

Infill development, though, involves risks and uncertainties, as evidenced by the unexpected foundation beneath the Concord Court site. Factors such as unusual shape or formidable topography make excavation expensive; or the lack of accurate records for locating buried utility lines can make connections difficult.

In addition, unanticipated site costs due to these risks must be distributed among fewer units than are found in a typical subdivision. In Concord Court, there were only 12 units to defray costs of removing above- and below-grade obstacles. Since the site had been a parking lot, the asphalt had to be excavated and removed from the site. In an urban area, it is difficult and expensive to dispose of asphalt. The total cost of excavating the asphalt and transporting it to a fill site was $2,400.



Central parking court

A masonry building on the far corner of the property facing the street was removed to allow for an entrance to the project. The demolition and disposition took two days and cost $5,000.

A survey of the land revealed that a chain link fence was encroaching on the rear property line by approximately two feet. Valuable construction time was spent moving the fence back to the property line.

Masonry building removed

Entrance to Concord Court

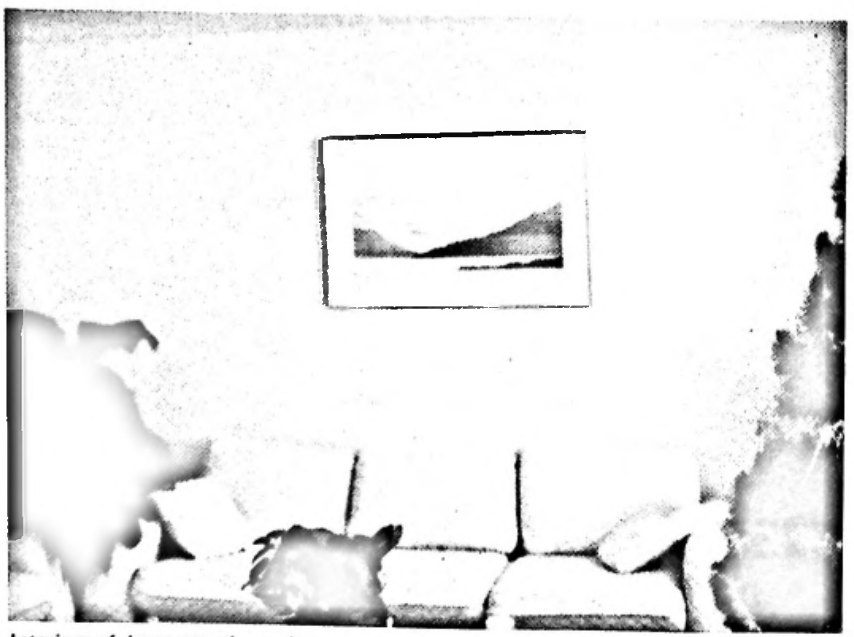
Building Design and Construction Innovations

At Concord Court, the use of modular construction effected additional cost savings. Cost savings in modular homes are primarily due to reduced indirect costs achieved through (1) reduced construction time on site, including overhead costs, (2) efficient production, and (3) proven designs and engineering.

Using modular homes saves valuable construction time. A site builder often loses construction days because of inclement weather, the problems of scheduling subcontractors, delayed material shipments, and vandalism. Because modulars are built indoors in an assembly-line process, many of these problems are reduced. Costly security problems are also minimized since materials do not have to be stored on site. It takes, for example, nine working days to complete a module at the Ryland plant. Modular construction is especially advantageous when units have been presold because a house can be ready for occupancy in just 10 days, if all conditions are right.

Exterior of modular units

Many modular manufacturers conduct extensive market research on house designs and materials selection. The Ryland plant, for example, uses innovative building approaches such as Optimal Value Engineering (OVE) design and construction. This method reduces material and labor costs while maintaining structural integrity.



Interiors of demonstration unit

Cost savings achieved in modular construction, however, are somewhat negated by the cost of shipping the units to the site. The standard price of a Ryland modular home includes shipping costs up to 100 miles. At Concord Court, the extra distance (over 100 miles) cost an additional $400 per unit.

The following is a cost breakdown of the delivered per unit cost:

Average Price of Delivered Townhouse (Includes $1,350 credit for unit delivered without vinyl siding.)		$27,098
Transportation (145 extra miles)		400
Buttoning-up unit		2,000
Energy package, upgraded insulation		395
Gutters and downspouts		150
On-Site Work:		
Excavation		$ 800
Masonry		1,250
Plumbing and electrical		1,000
Installation of vinyl siding		1,350
	TOTAL	$ 34,443*

*This price does not include any land or site development costs.

Conclusion

The Concord Court Project demonstrates that infill housing is an affordable alternative to new suburban subdivision construction. The city of Orange owned land which was not generating income or being used in an esthetically pleasing or beneficial manner. Concord Court put the lots back on th tax rolls and provides affordable housing to 12 former rental households.

Appendix I

Copy of Resolution

CITY COUNCIL **The City of Orange Township, New Jersey**

DATE May 17, 1983 NUMBER 143-83

TITLE: **A RESOLUTION** DESIGNATING THE URBAN AND DEVELOPMENT COMPANY, INC. AS THE DEVELOPERS OF TWELVE (12) CONDOMINIUM TOWNHOUSES AT 81-85 NORTH DAY STREET, BLOCK #68, LOTS 28-29, CITY OF ORANGE TOWNSHIP.

WHEREAS, the Economic Development Corporation of Orange proposes a development of twelve (12) Condominium Townhouses at 81-85 North Day Street, City of Orange Township, Block #68, Lots 28 & 29; and

WHEREAS, the Economic Development Corporation of Orange has been designated by the City of Orange Township as the agency to review proposals submitted by developers, Resolution #322 82, dated December 7, 1982; and

WHEREAS, the Economic Development Corporation of Orange has advertised in the Star Ledger for developers to build on Block #68, Lots 28 and 29; and

WHEREAS, we received a written proposal to build said twelve (12) Condominiums from the Urban Planning and Development Company, Inc., 241 Cedar Lane, Teaneck, New Jersey 07666; and

WHEREAS, a meeting of the Economic Development Corporation held May 10, 1983, the proposal of the Urban Planning and Development Company, Inc., 241 Cedar Lane, Teaneck, N.J., was approved.

NOW, THEREFORE BE IT RESOLVED by the City Council of the City of Orange Township that the Urban Planning and Development Company, Inc., 241 Cedar Lane, Teaneck, N.J., be declared the developer of the twelve (12) Condominium Townhouses at 81-85 North Day Street, Block #68, Lots 28 and 29, according to the building codes of the City of Orange Township and in conformance with the City of Orange Township's UDAG application for the EDCORP Housing Development Project as per the developer's proposal hereby attached to this resolution.

Adopted: May 17, 1983

Motion: Brown
Seconded: Silvestri
Yeas: Brown, Juliano, Mitchell, Monacelli, Silvestri, Pres. Detore
Nays: Varanelli

Felix De Feo
City Clerk

Robert R. Detore
Council President

APPROVED AS TO FORM, SUFFICIENCY AND LEGALITY

LEGISLATIVE COUNSEL

CITY COUNCIL **The City of Orange Township, New Jersey**

DATE October 4 1983 NUMBER 265-83

TITLE: A RESOLUTION BY THE REDEVELOPMENT AGENCY AUTHORIZING THE CITY OF ORANGE TOWNSHIP TO ENTER INTO A CONTRACT FOR SALE WITH NEIGHBORHOOD RESOURCES, INC. FOR PREMISES LOCATED AT 81-85 NORTH DAY STREET, BLOCK 68, LOTS 28 & 29, AND AMENDING RESOLUTION NO. 143-83 ADOPTED MAY 17, 1983.

WHEREAS, on May 17, 1983, pursuant to Resolution No. 143-83 the governing body designated the Urban Planning and Development Company, Inc., as the developer of twelve (12) townhouses at 81-85 North Day Street, Block 68, Lots 28-29; and,

WHEREAS, there is a joint venture Agreement between the Urban Planning and Development Company, Inc. and Neighborhood Resources Passaic, Inc., the developer for the development of twelve (12) condominium townhouses at the above property; and,

WHEREAS, a pre-Contract meeting was held between the City of Orange Township and Neighborhood Resources Passaic, Inc., setting forth a timetable for the scheduled construction of the development located at 81-85 North Day Street; and,

WHEREAS, pursuant to the joint venture Agreement between Urban Planning and Development Company, Inc. and Neighborhood Resources Passaic, Inc., conditional site plan approval has been obtained from the Planning Board; and,

WHEREAS, a preliminary Contract of Sale has been prepared awaiting execution by all parties and authority from the City Council sitting as a Redevelopment Agency for said approval;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ORANGE TOWNSHIP sitting as the Redevelopment Agency as follows:

1. Authority is hereby given to the appropriate officers of the City of Orange Township and the Redevelopment Agency to enter into a Contract of Sale with Urban Planning and Development, Inc. and Neighborhood Resources Passaic, Inc., joint ventures as the Purchaser/Developer for twelve (12) townhouses to be constructed at 81-85 North Day Street.

2. That the Contract of Sale shall set forth a time schedule for the submission of documents required by the City of Orange Township and its consultant in processing an application to the U.S. Department of Housing and Urban Development for a UDAG Grant for secondary financing of the individual units and the Contract for Sale shall additionally set forth a time schedule for completion of pre-screening of applicants, construction and permanent financing to be obtained by the Purchaser/Developer and time schedule for commencement of construction and full occupancy of all units.

3. That the Contract of Sale shall set forth the purchase price of the above

APPROVED AS TO FORM, SUFFICIENCY AND LEGALITY

LEGISLATIVE COUNSEL

parcel to be $30,000.00 and that the Deed of Conveyance shall not take place until the monies have been received and that all on site improvements with regard to water and sewer hook-up, landscaping, ingress and egrees and lighting and the construction on lots 9 through 12 have been completed.

Adopted: October 4, 1983

Felix De Feo, City Clerk

Paul Monacelli, Council President
on behalf of the Redevelopment Agency

Motion: Brown
Seconded: Silvestri
Yeas:Brown, Detore, Juliano, Mitchell,Silvestri, Varanelli, Monacelli
Nays:None

CITY COUNCIL **The City of Orange Township, New Jersey**

DATE March 5, 1985 NUMBER 62-85

TITLE: A RESOLUTION BY THE REDEVELOPMENT AGENCY APPROVING AND MODIFYING THE CONTRACT OF SALE ENTERED INTO BY THE CITY OF ORANGE TOWNSHIP AND NEIGHBORHOOD RESOURCES PASSAIC, INC. DATED MAY 30, 1984.

WHEREAS, on October 4, 1983, pursuant to Resolution No. 265-83, the Redevelopment Agency authorized the City of Orange Township to enter into a Contract with Urban Planning and Development Company, Inc., and Neighborhood Resources Passaic, Inc. (now Neighborhood Resources Passaic, Inc.) as Purchaser/Developer for twelve (12) townhouses to be constructed at 81-85 North Day Street, Block 68, Lot 28-29; and,

WHEREAS, the aforementioned resolution provides for the execution of a Contract of Sale, with certain conditions; and,

WHEREAS, a Contract of Sale was executed by the City of Orange Township, dated May 30, 1984 subject to approval by the City Council sitting as Redevelopment Agency, and modification of Resolution No. 265-83 previously passed; and,

WHEREAS, the purchaser requests a modification of said resolution and the conditions set forth in the Contract of Sale to permit an immediate conveyance of title with reverter and release provisions, the granting of a purchase money mortgage by the City at no interest for ninety (90) days; the subordination of said purchase money mortgage to Fellowship Savings & Loan Association for $350,000.00, the requirement of a performance bond in the amount of $350,000.00, and a $7,000.00 cap on the costs of excavation at the site to the Township.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ORANGE TOWNSHIP sitting as the Redevelopment Agency as follows:

1. The Contract of Sale dated May 30, 1984 and executed by the City of Orange Township, Seller, and Urban Planning and Development Company, Inc. and Neighborhood Resources Passaic, Inc. (now Neighborhood Resources Passaic, Inc.), Purchaser, is approved subject to the amendments set forth herein.

2. That title to the property, Block 68, Lot 28-29, be immediately conveyed to Purchaser with conditions for reversion upon default and release upon payment.

3. That Purchaser execute a purchase money mortgage to the Township for $300,000.00 at no interest for ninety (90) days, subject to subordination for construction financing up to $350,000.00.

4. That a performance bond be posted in the amount of $350,000.00.

APPROVED AS TO FORM, SUFFICIENCY AND LEGALITY

5. That the Township's liability for excavation costs be limited to $7,000.00.

6. That there be conformity with all conditions of the site plan and subdivision approval and agreements with the Township in respect hereto.

Adopted: March 5, 1985

Felix De Feo, City Clerk

Nicholas Varanelli, Council President
on behalf of the Redevelopment Agency

Motion: Brown
Seconded: Corvino
Yeas: Brown, Corvino, Detore, Silvestri, Varanelli.
Nays: None
Absent: Mitchell

Standard Specifications Sheet - Ryland Modular Homes

THE RYLAND GROUP, INC. BUILDERS OF RYLAND HOMES

STANDARD SPECIFICATIONS SHEET

RYLAND MODULAR HOMES

VALUE LINE

FLOOR SYSTEM

Sill plate with fiberglas sill sealer
Four member 2x8 #2 S.Y.P. girder
Single 2x8 #2 S.Y.P. ring joist
Floor joists 2x8 #2 S.Y.P. 16" on center
⅝" tongue & groove waferboard
Monolithic floor system, glued & nailed
Construction adhesive A.P.A. rated glue
No-wax sheet vinyl (by room schedule)
25.5 oz. nylon carpet with 7/16" pad (by room schedule)

INTERIOR WALL SYSTEM

2x3 studs at 24" on center when less than 3'0"in length
2x4 at 24" on center when over 3'0" in length
Single top and bottom plates
½" gypsum board sheathing
Interior paint: High quality primer coat

EXTERIOR WALL SYSTEM

2x4 studs at 24" on center
2x4 studs at 16" on center (First Level of Townehomes)
Single top and bottom plates
½" gypsum board sheathing (interior surface)
Interior paint. High quality primer coat
Structural aluminum faced exterior sheathing
Siding: Double 4" Aluminum
Fixed vinyl shutters, front windows only
Windows: Peco single-hung aluminum thermobreak
with storm sash and screen

MATING WALL SYSTEM

2x4 studs 24" on center, flatways (Single Level Houses)
2x4 studs 16" on center, on edge (First Level of Townehomes)
Single top and bottom plates
½" gypsum board sheathing (interior surface)
Interior paint: High quality primer coat
Structural aluminum faced exterior sheathing

1/15/85

ROOF SYSTEM (See Architectural Drawings)

Trusses 24" on center 5/12 pitch
7/16" waferboard sheathing
15# felt
220# fiberglas shingles (Black or Brown)
Continuous eave and ridge vent (typical)
Front and rear overhang
1½" rakeboard with 6" barge trim
½" gypsum board ceiling - textured finish

INSULATION

Ceiling: R-30 blown rockwool
Exterior walls: R-13 fiberglas with vapor barrier
Floors: R-19 fiberglas batt installed

DOORS AND TRIM

Exterior: Insulated steel weatherstripped door with passage lock & keyed deadbolt (base coat paint only)
Sliding glass door (Townehome): aluminum "white" tempered, double glazed with thermal break & screen
Interior "Swing Type": pre-finished natural oak hollow core with privacy lock and colonial trim
Interior "Bi-fold": pre-finished steel, off white (7'6" nominal height)
Handrails (Townehome): pre-finished wood
Entry door trim (if applicable): molded pilasters and head
Base trim: painted white with shoe mold at vinyl areas
Shelving: open wire mesh, pre-finished
Towel bar, grab bar, tissue holder & door bumps provided
Vanity mirror & cosmetic box provided (see plans)
Locks: Antique brass

HEATING AND VENTILATION

Electric baseboard heat with individual room thermostats.
Dryer vented to exterior
Range hood vented to exterior
Baths vented to Ridge Vent

PLUMBING

Tub: Four piece fiberglas with shower rod
Water closet: China water saver
Vanity: Wood with self-closing hardware; Cultured marble top with integral bowl
Lavatory (Townehome): wall hung, china
Kitchen sink: 32" double bowl, stainless steel
Brass: Kitchen sink - single lever faucet
Bath vanity - hot & cold controls
Tub - single control faucet
Water Heater: Electric 52 gallon installed
Laundry Hook-up: Standard
Water Lines: Polybutylene
Hose Bibbs: By others
Soil, waste & vent: ABS plastic
Shut off valves provided with each fixture

ELECTRICAL

Main panel: 200 amp with circuit breakers
Washer & dryer outlets provided
Lighting: preselected fixtures
Smoke Detector - one
Outside receptacle, dryer outlet & bath receptacle - G.F.I. protected
Door bell installed
Telephone sleeve - kitchen & master bedroom

KITCHEN

Cabinets: Aristokraft Sunglo
Countertop: Plastic laminate with integral backsplash
Appliances (Almond): Electric Range - GE UBS03C
Range Hood - 30"

TOWNHOME MODELS

These models have a one hour fire separation wall between living units.

Ryland Modular Homes reserves the right to substitute products of substantially equivalent quality, style and value.

RYLAND MODULAR HOMES
59 N. LESLIE ROAD
NORTH EAST, MD 21901
(301) 287-2700

1/15/85

The Affordable Infill Housing Demonstration Case Study 2

Albany, New York

Table of Contents

Albany, the state capital of New York, is located in the Hudson River Valley of upstate New York, and is approximately 56 miles north of New York City. The city is 21.63 square miles in area and has a population of 99,451. Albany is the site of an affordable infill housing demonstration. The project is located in Hoffman Park, a residential neighborhood on the southern edge of the city.

Charles Touhey, President of The Latham Four Partnership, developed and built the demonstration project on Frisbie Avenue. Touhey built 13 two-family homes on 4,000 square foot lots. The homes are two stories and have a total of 1,920 square feet of living space in both units, and an attached garage. The primary home is on the second floor and includes three bedrooms and one bath. The accessory apartment on the first floor has two bedrooms and one bath.

The target market for these homes was first-time home buyers who desired but could not afford a suburban style single-family house with a yard and garage. Priced at $65,000, a family with a combined income of $26,000 can afford these homes since the income from the apartment helps defray the carrying charges on the house.

In conclusion, Touhey builds on underutilized land located in established, middle-class neighborhoods on the fringe areas of the city. He also has designed a single-family home with a rental apartment that is compatible with the architecture in the surrounding neighborhood and that provides a solution for making the primary home more affordable.

The Community - Albany, New York

Albany, the state capital of New York, is located in the Hudson River Valley of upstate New York, approximately 156 miles north of New York City. The city is 21.63 square miles in area and has a population of 99,451 according to the 1984 estimates from the U.S. Census Bureau. The Capital District Area, which includes Albany, Rensselaer, Saratoga, and Schenectady counties, has a population of 748,447.

The largest employer is government, with 39.6 percent[1] of the labor force employed in this sector. Government is followed by professional and related services, representing 32.3 percent[2] of the labor force.

Albany is home to eight major colleges and universities in addition to a number of vocational and training schools. The State University of New York at Albany (SUNYA) is the largest, with an enrollment of 16,000 students. The total student population in Albany is estimated to be 23,000.

Albany's unemployment rate has remained much lower than the national rate. In April 1985, the unemployment rate was 4.8 percent for Albany, compared to 6.6 percent for the State of New York and 7.1 percent for the nation. Similarly, in 1984, the national average rate was 7.5 percent, the New York State average was 7.2 percent, and the Albany average rate was only 5.9 percent.

In April 1985, HUD released figures on the typical market value of single-family homes in the Capital District. The data showed that the cost of new homes increased rapidly relative to other market areas in the country. Between 1983 and 1984, the price of an average three-bedroom home increased by 10.5 percent to $51,100. This high rate of increase indicates that the Capital District may be catching up to comparable market areas elsewhere in the United States.

Additionally, the data suggest a strong demand for housing in the region. The indicators include a fast pace in residential sales and building permit activity, an increase in resale values of properties, and an increase in mortgage activity. In 1979, the median household income was $12,511. This is below the national figure of $16,841. Given the rapid increase in the market value of new homes, there appears to be a need for affordable housing.

---

[1] County and City Data Book 1983, U.S. Department of Commerce, Bureau of Census

[2] Ibid.

The Neighborhood - Hoffman Park

The demonstration project is located in Hoffman Park, a residential neighborhood on the southern edge of the city. Most of the housing stock in the neighborhood is one- and two-family houses built prior to 1940. The single-family homes are primarily one-story wood-frame buildings. Hoffman Park is considered a stable working class neighborhood with a high percentage of homeownership, a fact that may explain the good condition of the houses and the low percentage of substandard dwellings in the neighborhood.

There are a few small businesses located adjacent to the project on Second Avenue. The neighborhood, however, is primarily residential with densities ranging from eight to 10 buildings per acre. Very little new development has occurred in recent years as most new development has skipped over Hoffman Park in favor of suburban locations. Residential construction in the city has concentrated on single-family and multi-family housing rehabilitation in gentrifying neighborhoods.

The demonstration project was built on a vacant parcel of land owned by the State Department of Transportation. Similar parcels are available throughout the neighborhood for additional infill development. These sites are ideally suited for residential infill development because most of the necessary infrastructure is in place and the land prices are often below similar lots in the suburbs.

The Builder/Developer - The Latham Four Partnership

Charles Touhey is both the developer and builder of the demonstration project. As Managing Partner of The Latham Four Partnership, he oversees over one million square feet of offices, distribution facilities, and apartments in Pennsylvania, New York, and Texas.

Charles Touhey

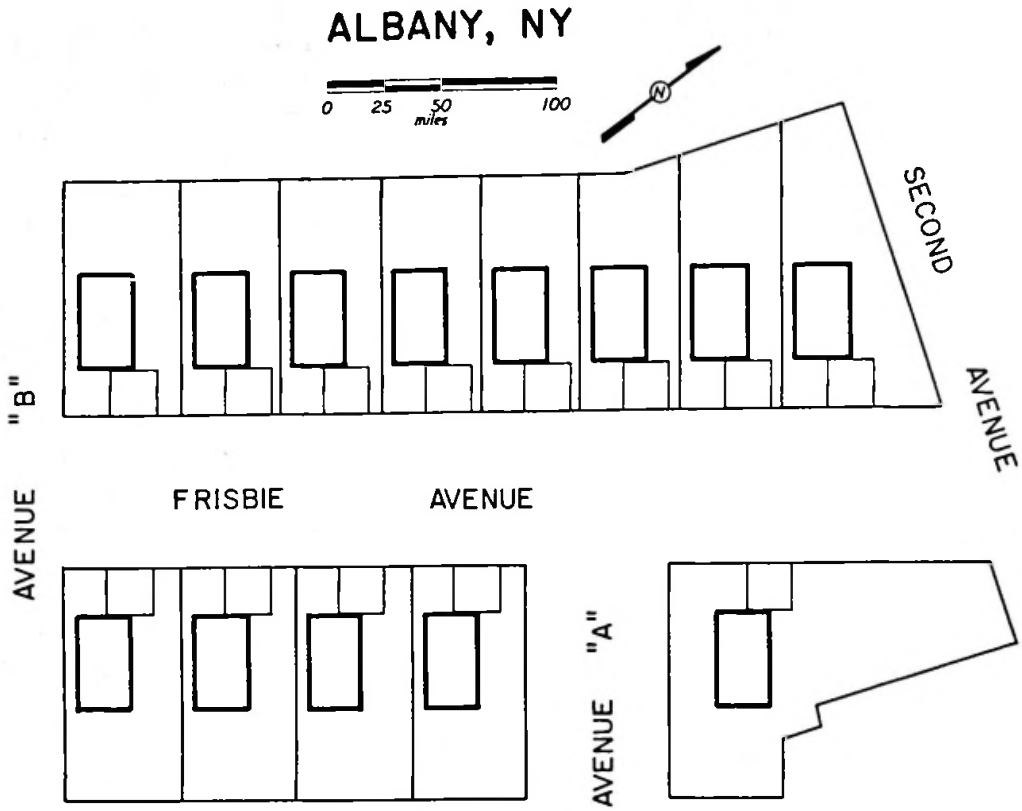
For 10 years he was the Director of Capital Housing of Albany, a nationally-recognized housing and rehabilitation and home ownership

program. Under his direction, over 200 families were provided with homes at no cost to taxpayers and with minimal government involvement.

As part of his campaign for mayor of Albany in 1981, Touhey designed and constructed a new "infill" prototype which was intended to provide homeownership opportunities for first-time buyers and to attract middle-income homeowners back to central cities. He is currently constructing and marketing these new homes in five cities and two states in the northeastern U.S.

Prototype unit

Project History



A two-and-one-half acre tract of land between Frisbee and Second Avenues in Hoffman Park was acquired by the State between 1967 and 1969. It was slated to be used for the construction of the then-proposed Mid-Crosstown Arterial. The proposal called for linking I-90 to I-787 by cutting through town with an underground interchange beneath Washington Park. But slow economic conditions delayed the purchase of the additional parcels of land. The project was eventually abandoned, and the property became surplus.

In March 1985, HUD announced a project in Albany on Frisbee Avenue as a site for the Joint Venture For Affordable Housing demonstration. Charles Touhey proposed building 13 two-family homes for moderate income families on the surplus land owned by the State Department of Transportation. In February 1986, the city purchased the parcel for $100,000 and subsequently sold one and one-half acres of developed land to The Latham Four Partnership for the affordable housing project. Touhey paid $1.00 per square foot ($4,000 a lot) for the land.

Mayor Thomas M. Whalen has made affordable housing for city residents the number one priority of his administration. Mayor Whalen, along with Planning Directors Willard Bruce and Dick Patrick, facilitated the project by assisting with the purchase of the land from the State. They also shortened the administrative process by accelerated review and approvals of all site and building plans.

On February 6, 1986, the city presented a check for $100,000 to the New York State Department of Transportation (DOT) in order to purchase land for the demonstration. John K. Mladinov, DOT Executive Deputy Commissioner, said the sale of this property serves four important purposes:

- DOT is relieved of the burden of owning and managing property which it no longer needs.
- The property is made available for locally desired purposes.
- The property--once developed--is returned to local tax rolls.
- Half of the funds from the sale are used to modernize DOT operations and the other half is returned to the state's general fund.

The Delaware Neighborhood Association, which in the past had opposed low-income developments in the area, was in favor of the project. They saw it as an opportunity to bring new middle-income families back into the neighborhood.

The project was built in two phases. Subdivision approval was necessary for that part of the project that required an extension of the water and sewer lines. The city allowed Touhey to begin construction on the first six duplexes which did not require subdivision approval. He proceeded with the approval process that included a public hearing and city review for the remaining seven duplex homes.

The Project

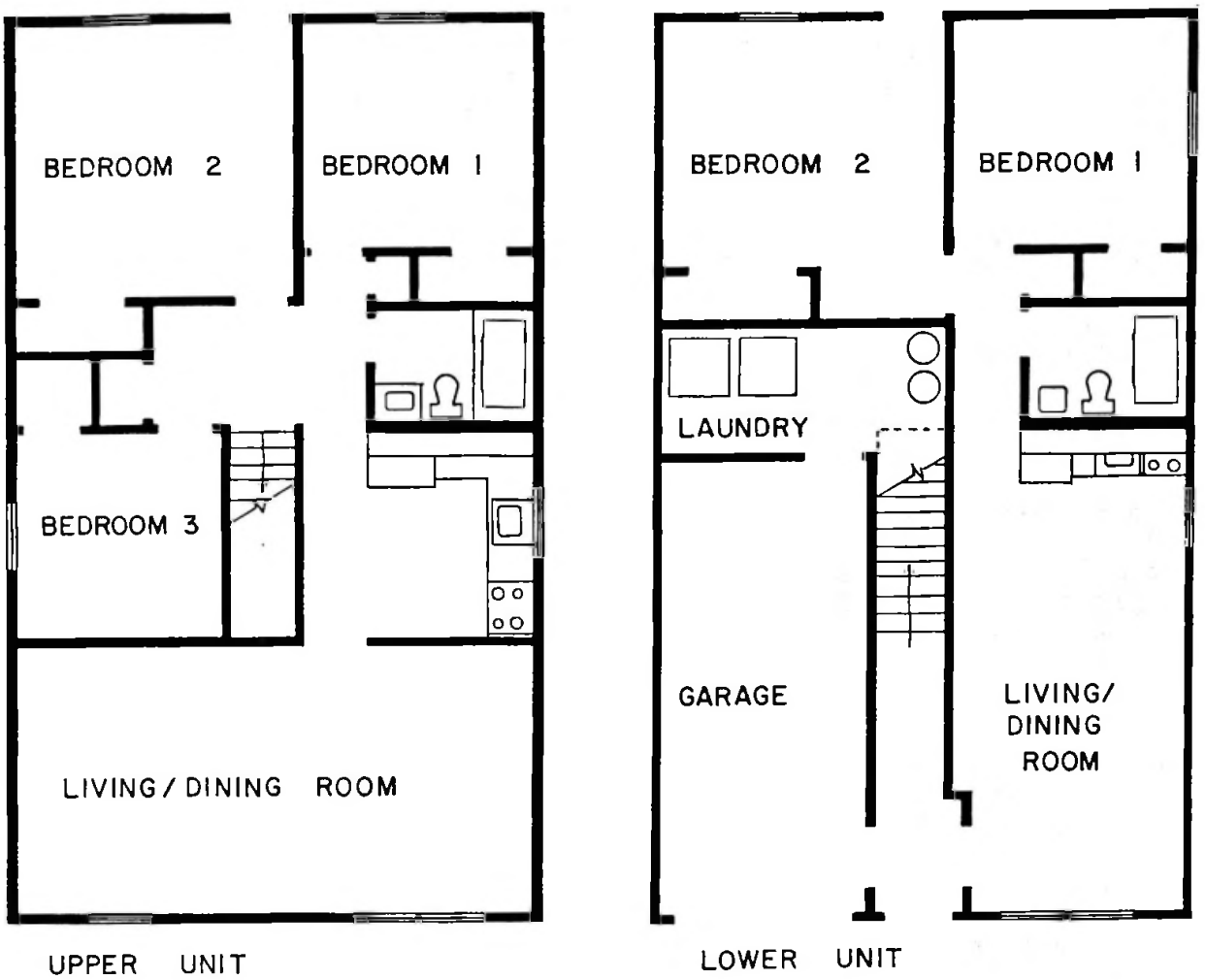
The 13 two-family buildings, as shown in the site plan, were built on both sides of Second Avenue and adjacent to existing homes on one side. The total density for the site is 20 units per acre because of the inclusion of a rental unit in each building. This is consistent with the R-2 zoning of the neighborhood that allows two-family homes. Because the project is located in an existing neighborhood, minimal development work was required.

Homes under construction

The lots are 4,000 square feet with a 40-foot frontage. The homes are 24 feet wide by 40 feet long and are situated to allow a 10 feet of side-yard on the garage side and 6 feet on the opposite side. This arrangement will allow the homeowner the option to lengthen the driveway on the side of the house at a future time.

The homes (see Appendix) are two-stories and have a total of 1,920 square feet of living space in both units and an attached garage. The primary home is on the second floor and includes three bedrooms and one bath. The accessory apartment on the first floor has two bedrooms and one bath. Both share a common entry vestibule on the first floor.

Finished homes


BEDROOM 2
BEDROOM 1
BEDROOM 3
LIVING / DINING ROOM
UPPER UNIT
BEDROOM 2
BEDROOM 1
LAUNDRY
GARAGE
LIVING/
DINING
ROOM
LOWER UNIT

Floor plans

Touhey has an alternative floor plan used at other sites. A separate outside entrance is provided for both the upstairs and downstairs units. This arrangement allows Touhey to sell each unit as a condominium and further lower the sale price.

The house is sited so that the shorter 24 foot side faces the street. This allows a house of this size and dimension to fit on a 4,000 square foot lot with a 40-foot frontage.

Since this project was built in an established neighborhood, most of the infrastructure (streets, curbs, utilities) was already in place. The houses are set back 20 feet to allow for off-street parking. This allows for maximum use of the rear yard and minimizes the cost of running utility lines to the house. It is also consistent with the established setbacks in the neighborhood.

Marketing

The target market for these homes was first-time home buyers who desired but could not afford a suburban style single-family house with a yard and garage. Priced at $65,000, a family with a combined income of $26,000 can afford these homes since the income from the apartment helps defray the carrying charges on the house. The rental income from the two-bedroom apartment is approximately $375 a month.

Home with rental unit

Touhey used a real estate agent familiar with the neighborhood to sell the homes. All thirteen homes were sold before he broke ground. The homebuyers were generally working class families, e.g., hospital workers, utility company employees, a policeman, wage earners. The racial composition was mixed. Touhey claims that the idea of becoming a landlord turned out to be a selling feature as many families in this market aspire to this position.

The standard features offered were an important consideration for marketing the homes; it was considered essential that they resemble the features offered by their suburban counterparts. The homes are situated on the lot to maximize the size of the rear yard, while still providing a small green space in front. The exterior facades are of traditional style, to be compatible with the surrounding neighborhood. However, vinyl siding replaces the traditional wood clapboard siding since it is offered on suburban homes and is relatively maintenance-free. A feature not typical for the neighborhood but included on these homes is the attached garage.

Conclusions

The availability of underutilized land in established middle-class neighborhoods close to the downtown area makes the city

Frisbie Avenue demonstration

of Albany ideally suited for affordable housing infill projects. The land values are lower than in the surrounding suburban communities, and the infrastructure is in place thus minimizing the required development costs. In addition, the city has made affordable housing a high priority and was instrumental in obtaining land at reasonable cost from the state. Each of these factors contributed to the overall success of the Albany project.

The project also benefited greatly from the experience and political awareness of the builder. There was little difficulty in gaining approval from the public regulatory authorities for the project. The builder has also developed highly efficient methods for constructing infill housing and is presently operating in several cities in the northeast. The concept of constructing two-family homes with rental units proved to be particularly attractive to potential home buyers for the Albany infill project.

Standard Features and Options

Standard Features

- Maintenance-free vinyl siding, aluminum trim
- 220 volt electric service
- individual room thermostats
- R-20 walls, R-30 attic
- thermopane window with fall screens
- natural colonial wood trim
- 40 gallon electric hot water heater
- ceramic tile tub area (choice of color)
- wall to wall carpet (choice of color)
- linoleum (choice of color)
- marble top bath vanity
- stainless steel kitchen sink
- smoke detector
- insulated steel entry doors

Options

- pull-down attic stair
- 9' x 9' treated deck
- deluxe kitchen cabinets
- Frigidaire appliances (at builder's cost)
  - range and range hood
  - refrigerator
  - washer and dryer
  - trash compactor
  - garbage disposal
  - dishwasher

The Affordable Infill Housing Demonstration Case Study 3

Burlington, Vermont

Table of Contents

Summary

Burlington, Vermont, is a city of 39,000 residents situated on the eastern shore of Lake Champlain in northwest Vermont. It is the largest city in the state and a principal business, financial, and economic center. Burlington is the site of an affordable infill housing demonstration.

Burlington officials saw the infill demonstration as an opportunity to provide moderately priced, affordable housing, as well as an opportunity to review and revise the administrative and regulatory procedures under which housing is built.

William R. Hauke, Jr., President of Hauke Building Supply, developed and built the demonstration project. The project was built in two phases. Phase I had 20 units and was designated for the demonstration project. Phase II will have 22 units.

All 20 units in Phase I have been sold. The two-bedroom units sold for $45,000 each and the three-bedroom units sold for $49,000 each. The typical buyers consisted of younger couples, semi-professional, first-time home buyers, several of whom had one child.

Total cost savings for the entire development (42 units) was estimated to be $99,000 or about $2,378 per unit. The specific savings were obtained from changes in the methods for site development and by using several of the recommended Optimum Value Engineering methods.

This demonstration project showed the marketability of building new housing on an infill lot that was previously passed over due to accessibility problems.

The Community - Burlington, Vermont

Burlington, Vermont, is a city of 39,000 situated on the eastern shore of Lake Champlain in northwest Vermont. During the early 19th century, the city became a center for logging and processing Vermont trees; by 1870 it was the third largest lumber port in the nation. As the local supply of timber diminished, the city turned to processing lumber imported from Canada. During the early 1900's, construction and investment were concentrated largely in the outer parts of the city, and consequently the downtown area suffered from lack of investment and maintenance. Efforts to revitalize the city, particularly during the 1960's with the Federal Urban Renewal Programs, were relatively successful.

Burlington, the largest city in the state, is a principal business, financial, and economic center. As of September 1984, Burlington's 2.9 percent unemployment rate was the third lowest in the nation for Metropolitan Statistical Areas (MSA's). In addition, the city was one of eight to receive an award from the United States Conference of Mayors for being one of the nation's most livable cities.

During the past decades, there has been great emphasis among city officials in Burlington on controlling growth and on historic preservation. From 1970 to 1980, the city's population decreased by about 2.4 percent while that of the county increased by about 16.5 percent. The high costs of homeownership in the city resulted in many families seeking homes in surrounding communities within the county (Chittenden County).

The site selected for the Burlington affordable infill housing development project was 10.3 acres of land on North Avenue, close to the downtown area. The land is surrounded by swamp area, public housing, and homes of 1940's style wood-frame construction located at the roadway entering the site. The site is set off from the road; difficult access had prevented prior development.

The neighborhood

The availability of low and moderately priced housing within the city of Burlington has become increasingly limited as the supply of land for new development has been depleted. A housing crisis for low-income housing has developed in recent years. Between 1980 and 1983, the population of Burlington increased by 0.5 percent, the

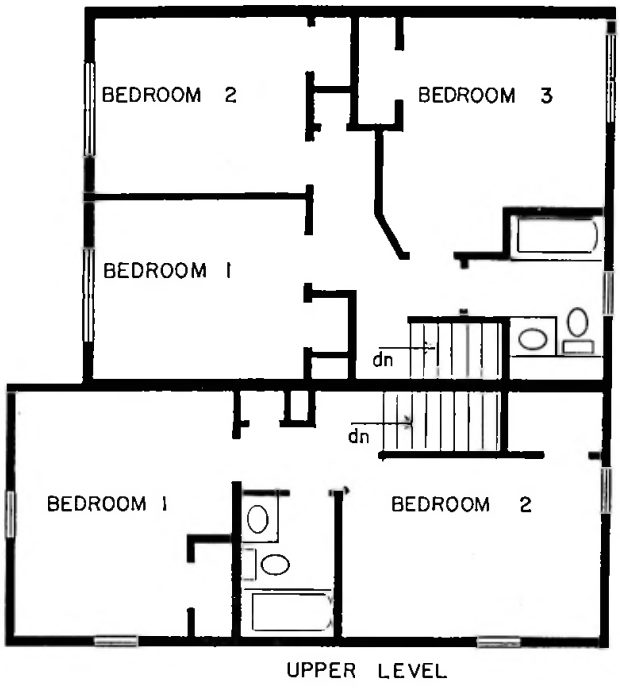
majority of that increase being students, elderly, and poor, all of which are low-income groups. About eight percent of the families in Burlington and nearly seven percent of the families in the county live below the poverty level. Fifty-six percent of the city residents are renters; with rents rising from an average of $102 in 1970 to $500 in 1984 and a rental vacancy rate of only around one percent, the housing crisis has worsened. Burlington city officials saw the infill demonstration project as an opportunity to provide moderately priced, affordable housing, as well as an opportunity to review and revise the cumbersome administrative regulatory procedures under which housing is built.

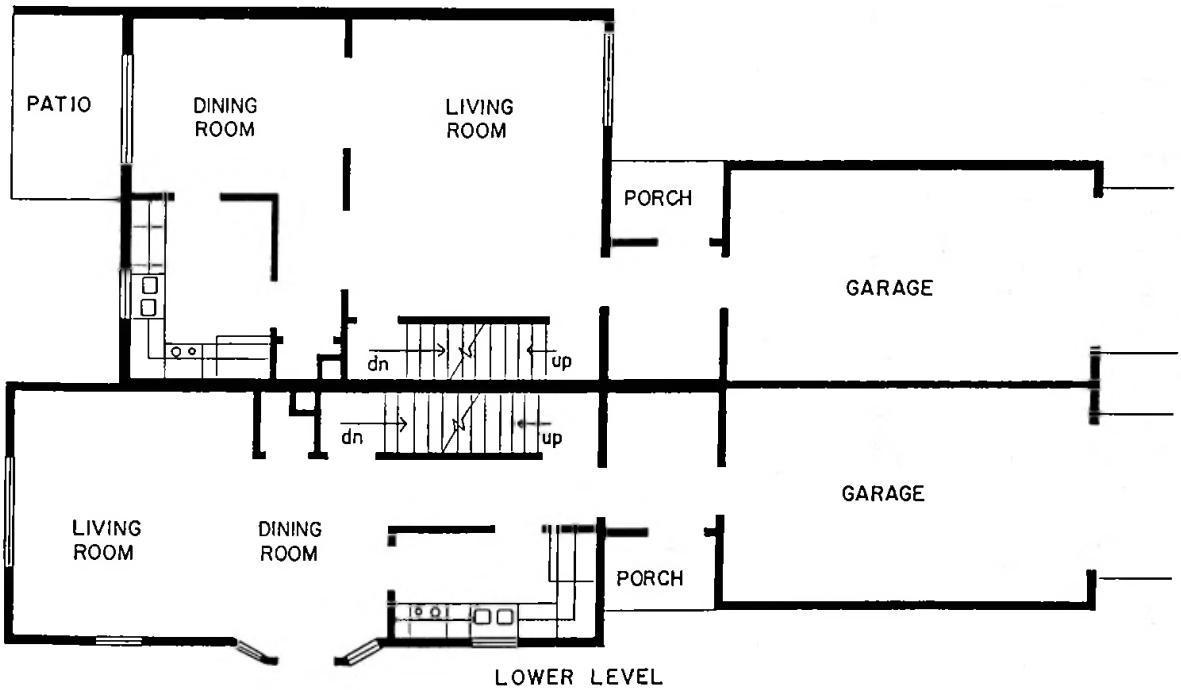
The Builder - Hauke Building Supply

Hauke Building Supply owned the land and was the developer for the project. William R. Hauke, Jr., president of the company, was responsible for the company's participation with the infill demonstration project. His company had been

William Hauke, Jr. and son

in the home building business for over 50 years and specialized in constructing houses for the lower cost housing market. Since 1958, Hauke has built more than 600 reasonably priced homes in the Burlington area, constructing an average of 30-40 units a year. The most recent development consisted of single-family ranch style houses on one-half acre lots which sold for about $52,000. The builder was experienced in using low-cost and innovative construction techniques, and enthusiastic about working with the technical consultants at HUD and NAHB National Research Center (NAHB/NRC) in the affordable housing land infill development project.


BEDROOM 2
BEDROOM 3
BEDROOM 1
dn
dn
BEDROOM 1
BEDROOM 2
UPPER LEVEL


PATIO
DINING ROOM
LIVING ROOM
PORCH
GARAGE
dn
up
dn
up
GARAGE
LIVING ROOM
DINING ROOM
PORCH
LOWER LEVEL

Floor plans

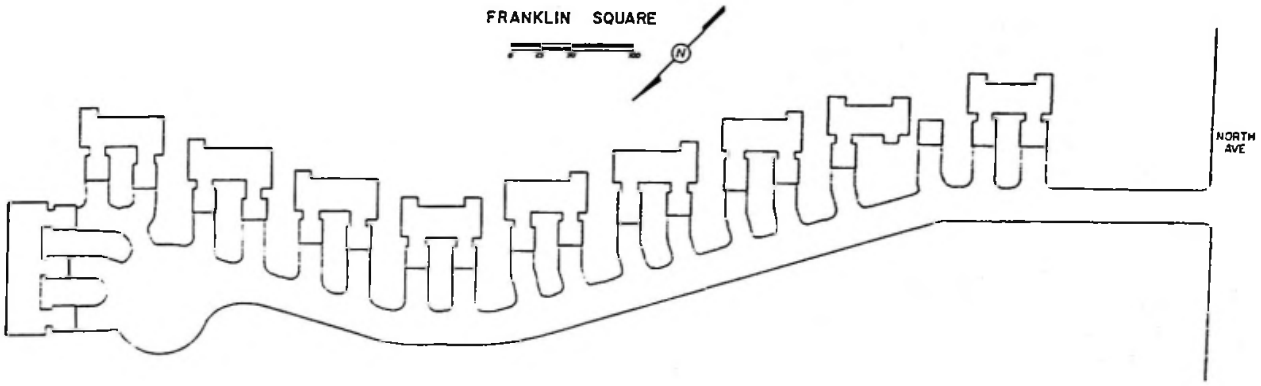
Project History

Following receipt of a letter of intent to participate from the developer William R. Hauke, Jr., and a letter pledging active city support by Mayor Bernard Sanders of Burlington, HUD announced the selection of Burlington, Vermont, as a demonstration site for the construction of affordable housing on March 26, 1985.

Units under construction

Existing homes at the roadway entering the site

The neighborhood



Site plan

The initial development plan for infill housing was to construct 42 two- and three-bedroom units in townhouses (nine four-plexes and a six-plex), with a one-car garage and full basement for each unit. The homes were to be fully insulated with R19 walls and R38 ceilings, triple glazed windows, and thermal doors. The two-bedroom units were to be about 850 square feet and the three-bedroom units were to be about 1,040 square feet. The units were to be constructed on approximately one-third of the available land area at a density of 4.4 units per acre. Twenty of the units (i.e., five four-plexes) were constructed during 1986 as part of the infill demonstration project.

In the builder's initial letter of intent to participate, the areas of potential cost-savings were listed. These included using all of the optimum-valued engineering (OVE) concepts permitted by the local inspection office in the unit construction, and substantial savings in site development costs. Specifically, these included using plastic water mains instead of cast iron; provision of water and electric services by developer, rather than public authority; reducing the road width, eliminating the curb on one side of the road, and placing a sidewalk on one side only; and using plastic piping for water and internal waste piping. Other areas of potential savings were suggested as well.

Units under construction

At the initial meetings between members of the Burlington city staff, Community and Economic Development Office (CEDO), and the technical consultants at HUD and NAHB/NRC, several steps aimed at streamlining the regulatory approval process were also recommended. The city's land use and development controls for approval, inspection, and permit issuance for residential construction projects appeared to be overly complex. The builders believed that the controls significantly increased costs of residential construction in Burlington as compared with surrounding communities. Typically, four separate reviews by either the Planning Commission or the Design Review Board were required before a residential construction project could be started. These included a site review, design review, zoning permit review, and subdivision review; all reviews were conducted separately, dramatically increasing the required processing time. In addition, the scope and separation of authority between the Planning Commission and the Design Review Board was not clearly specified, and further delays often resulted as developers proceeded from one board to another with no clear progress.

Based upon these concerns, Jim Roistacher of CEDO developed a proposal to streamline the regulatory process in order to achieve additional cost savings. The proposal led to the passage of a resolution to reduce the time spent in the development review process. It "directs the Planning Commission to prepare an amended review process." The specific changes in the regulatory process which were later adopted involved initiating monthly project review meetings attended by all department heads with responsibility in the development preview process and clarifying the role of the Design Review Board. The cost savings made possible by these changes were not all apparent with the Burlington infill demonstration project because the development phase occurred largely under the old system; however, they should be realized with future residential construction projects within the city of Burlington.

Cost Savings

The 20 units constructed as part of the affordable housing infill demonstration project were completed during 1986. In total, the savings for the entire development (42 units) was estimated to be $99,900, or about $2,378 per unit. The specific savings were obtained from changes in the methods for site development and by using several of the recommended OVE methods. These savings are described in greater detail and summarized in the following table:

Burlington Cost Savings

	Total Savings	Per Unit Savings
Construction of:		
Water service, mains	$8,000	$190.48
Electric service	4,000	95.24
Sewer Service	4,200	100.00
Streets and Sidewalks		
Curbs, one side	7,000	166.67
Reduced width	3,200	76.19
Sidewalks	9,600	228.57
Area Drainage	20,000	476.19
Provision of Land	25,000	595.23
Application of OVE Techniques	18,900	450.00
TOTAL COST SAVINGS	$99,900	$2,378.57

The majority of savings (about $81,000) resulted from changes in the site development phase rather than from changes in home construction practices. The site development savings occurred in four specific areas: (1) construction of water, electric, and sewer services; (2) area drainage; (3) construction of roadway and sidewalk; and (4) provision of land.

First, significant savings were achieved when the developer rather than the city provided work and materials for water and electric services. In particular, savings for the water services were about $5,000 and about $4,000 for the electric services.

Additional savings were achieved by reducing the required number of main water lines and sewer service units. One main water line per four units resulted in savings of about $3,000; and placing one sewer service per two units (with separate sewer lines to each unit) saved approximately $4,200.

Second, substantial savings were achieved in construction of the drainage system for the development area. About $20,000 was saved by channeling the storm water drainage in swales rather than into culverts and catch basins.

Changes in roadway and sidewalk construction resulted in additional savings totaling about $19,800. In particular, constructing the roadway three feet narrower than current standards resulted in savings of about $3,200. Placing the curb on only one side of the road saved an additional $7,000. Finally, constructing the sidewalk using asphalt rather than concrete and placing it on just one side of the road saved about $9,600.

Demonstration project across from public housing

The final area of savings in the site development phase concerned the provision of the development area land. By donating "marginal" land for parks, rather than money, savings of about $25,000 were achieved.

The application of OVE methods of construction resulted in additional savings of about $18,900 or $450 per unit. The developer has been using OVE techniques successfully for several years and applied many of the recommended methods in construction of this development project. These include 2 x 6 exterior walls, 24-inches on-center; 2 x 4 interior partitions, and 2 x 6 party walls, 24-inches on-center; two-stud corners with metal drywall backup clips; single top plates; elimination of partition posts (where walls intersect); a two-foot exterior modular design; 24-inches on-center floor framing; and 24-inches on-center roof trusses. All vertical framing was in-line. In addition, Hauke used polybutylene hot and cold water supply piping instead of copper and PVC instead of cast iron for drain, waste, and vent pipe inside the building units.

Home under construction

Marketing

At this time, each of the 20 units has been sold by Hauke's real estate company for prices under $50,000; they are scheduled to be occupied between January and April 1987. The two-bedroom units sold for $45,000 each and the three-bedroom units sold for $49,000 each. As planned, the units were constructed on approximately one-third of the available land at a density of 4.4 units per acre. Following the initial listing, the units sold very quickly; although they were not for sale until August 1986, each had been sold by the end of September. Substantial marketing was not required. The advertising consisted of a sign at the development site and a small three-line advertisement in the local paper.

Finished units

Rear of units

The rapid sale of the Burlington units was not surprising given the large demand for low and moderately priced housing in the area. At these prices, a family income of $24,000 was required to afford the homes. The typical buyers consisted of younger couples, semi-professional, first-time home buyers, several of whom had one child. A few of the homes were sold to older, middle-aged singles or divorced persons. Typical occupations of the buyers included sales and secretarial work.

Remodeled house on property

The Affordable Infill Housing Demonstration
Case Study 4

Louisville, Kentucky

Table of Contents

With median income 25 percent below the national median and over 6,000 vacant lots, the city of Louisville, Kentucky, was a prime location for an affordable housing infill demonstration. The demonstration site is located in the "California" neighborhood of the city, an older, industrial neighborhood near the downtown area.

Jim Rey-Barreau, President of JRB Development, Inc., worked with All-American Housing, Inc., and The Reasor Corporation to develop modular units which fit in with the architecture of the neighborhood. The demonstration consists of four homes, two two-story and two one-story buildings. The homes range in size from 876 to 1,440 square feet and contain three bedrooms and one and one-half baths or four bedrooms and two baths. The four homes range in price from $34,000 to $42,000. One factor that helped contain costs was that the city sold the lots for $1 to the contractor.

The project offered an affordable alternative to lower income home buyers and an attractive option to small builders.

The Community - Louisville, Kentucky

Louisville is situated on the south bank of the Ohio River in north-central Kentucky. It is the largest city in Kentucky and the principal industrial, commercial, financial, and cultural center of the state. The population of the city is 290,000 persons (1984), and the land area is 61.1 square miles. Louisville is also the center of a seven-county, bi-state metropolitan area covering 2,254 square miles in Kentucky and Indiana. The metropolitan area population is 964,000 (1984).

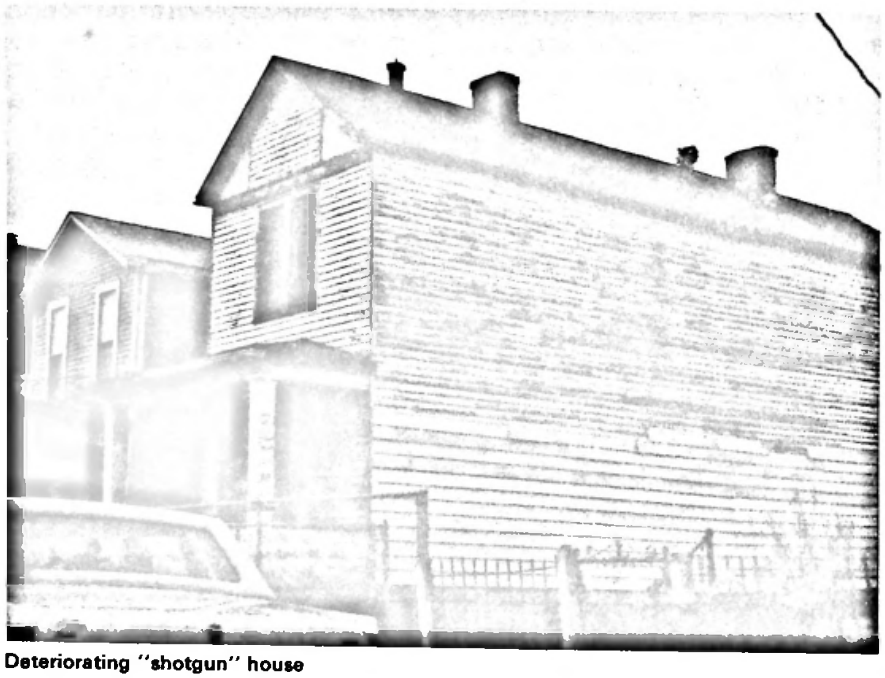
The economy of Louisville is broad-based. Employment and economic activity are distributed fairly evenly across several industries, with the largest concentrations in manufacturing, professions and service businesses, wholesale/retail trade, and government. These sectors account for 84 percent of all labor force employment. Major manufacturing activities include: chemicals, electrical appliances, paints and varnishes, synthetic rubber, foods and beverages (including distilling), and lumber and timber products (including furniture). Changes in national economic and employment patterns that occurred during the 1980's were reflected in changes in Louisville's economy and

Louisville City Hall

employment: a declining manufacturing sector; an expanding professional and service sector; and demands for more technically skilled, better educated labor. These changes, in turn, were reflected in income and housing data for the city. Median household income in Louisville is more than 25 percent below the national median. Nineteen percent of the city's population lives below the poverty level. The median value of owner-occupied housing is $27,200.

Changes in employment and incomes have underscored the need for affordable housing in Louisville, especially in the city's older neighborhoods. The city government, individual private organizations, and local developers have responded to this need with a variety of projects. Louisville's Affordable Housing Demonstration Project was one such response.

The project is located in an older neighborhood in west-central Louisville known as

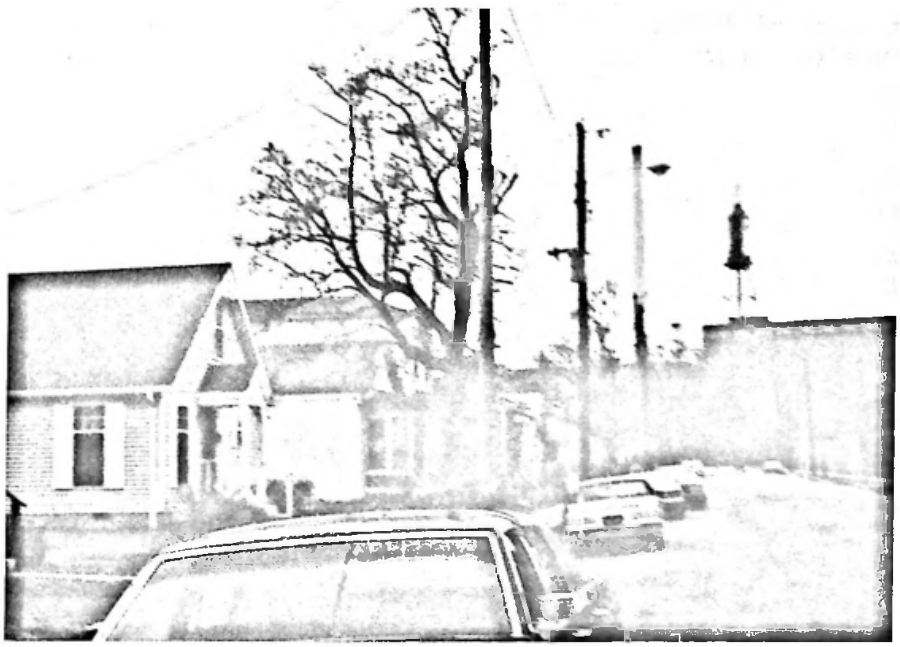


Deteriorating "shotgun" house

the "California" neighborhood. Historically this area had been a working-class neighborhood, with most of the jobs provided by the nearby Brown-Forman distillery. Its more recent history is typical of other older inner-city areas: loss of local employers and jobs; abandoned and deteriorated structures; and other signs of urban distress.

The neighborhood has a mixture of land uses, the most prevalent being residential (41 percent), followed by industrial (29 percent). Residential uses range from single-family houses to mid-rise, multifamily buildings. There are more than 4,000 homes in the California neighborhood, of which 25 percent are in need of major repairs. Over the past 10 years many homes have been rehabilitated through various public, private, or joint programs. A few new homes have been built on scattered vacant lots during this period.

Vacant land accounts for approximately 10 percent of the neighborhood area, mostly in scattered parcels. Many vacant parcels are ideally



Foreground - demonstration unit

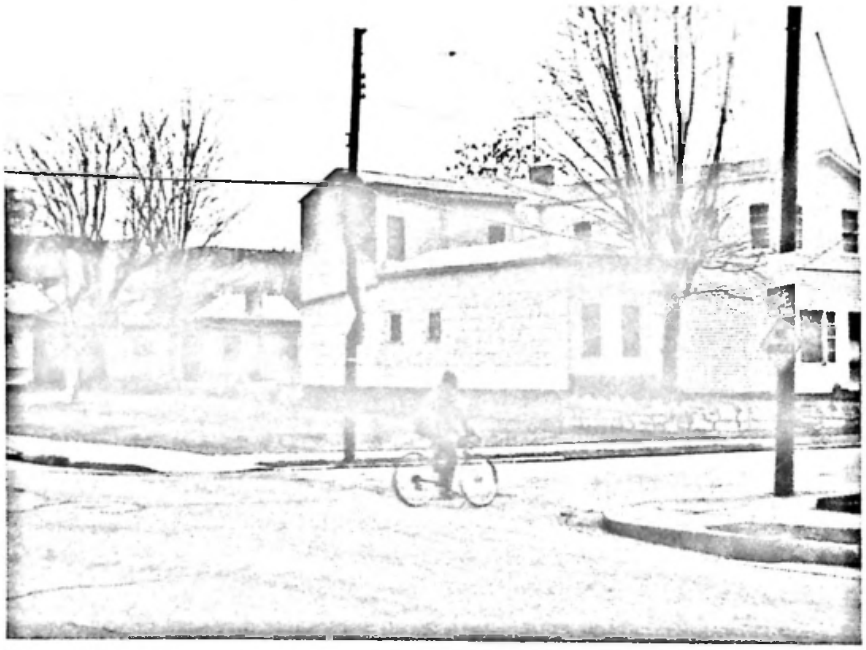
Background - Brown-Foreman distilleries

suited for infill housing. The most common housing types found in the California neighborhood are one- and two-story wood-frame houses built during the early 1900's. They are typically situated on long, narrow lots, known locally as "shotgun" lots, a vestige of local property tax policies of the early 1900's which were based on street frontages.

The Developer - JRB Development Company

Joe Rey-Barreau, president of JRB Development Company, a small-volume builder, worked in conjunction with two modular housing producers--All-American Homes and the Reasor Corporation--to build infill demonstration units. Rey-Barreau worked closely with both manufacturers to design modular homes compatible with the housing type prevalent in the California neighborhood.

Rey-Barreau is a professor at the University of Kentucky. He favors the use of modular housing for his projects because they reduce construction time, on-site materials requirements, and labor costs, all critical factors for a small-volume builder. Therefore, by using modular construction, an infill developer can achieve economies on scattered-lot construction that are unavailable to site builders.



Vacant lot

The Modular Producers - All-American Homes, Inc., and The Reasor Corporation

All-American Homes, Inc., of Decatur, Indiana, is a subsidiary of Coachman Industries, a major national producer of manufactured (mobile) homes. All-American produces a line of complete single-family and multifamily factory-built housing units ranging in size from 950 to 1,350 square feet. Houses are shipped in sections from the Indiana plant to sites within a 300-mile radius.

The Reasor Corporation of Charleston, Illinois, produces both modular houses and customized panel and precut units through two subsidiaries. The modular line includes nine single-family detached models. In addition to its standard product lines, the company offers custom design service for single-family homes, multifamily homes, and commercial structures. Reasor's factory-built products are marketed throughout the midwestern United States.

Project History

In January 1985, the State of Kentucky announced a $1 million cluster loan program to help revitalize rundown neighborhoods in four Kentucky cities. Of this amount, $273,000 was earmarked for the California neighborhood in Louisville. Each of the four cities prepared development proposals that included designated builders. The overall concept of the program was to concentrate funds in a small enough area to produce a visible impact. This cluster approach was used to minimize objections from potential home-buyers about spotty development, renovated homes next to empty lots, or boarded-up buildings. Mortgages were targeted to first-time home-buyers with interest rates of 7.5 percent for 30-year financing at a time when conventional mortgages were approximately 12 percent. The Kentucky Housing Authority administered the low-interest mortgage program.

Concurrently, the California neighborhood was designated as an Enterprise Zone by the State, thus making numerous tax advantages available to local businesses and targeting the area for redevelopment. At the local level, the city was operating a program to dispose of vacant lots for $1. Prior to sale, the city condemned and demolished any dilapidated structures remaining on the lot and cleared title to the land. As a result, the City had over 6,000 infill lots available and was encouraging builders to use them for infill housing.

The infusion of low-interest mortgage funds, along with the other State and City programs, has helped to revitalize the California neighborhood and stimulate new housing construction. A number of local builders from Louisville, including Rey-Barreau, participated with the State Cluster Loan Program and the City's $1 Lot Program. Rey-Barreau saw opportunities beyond the cluster loan program and began marketing units on his own. The neighborhood began to show signs of improvement, and the demand for new housing increased. His next set of homes did not receive low-interest mortgage subsidies and were included as part of the national Affordable Infill Housing Demonstration Program.

The Homes

All four models in the demonstration are factory-built modular homes. Reasor Corporation built three of the models and All-American built one. The homes range in size from 876 square feet to 1,440 square feet, with selling prices ranging from $34,000 to $44,000. Rey-Barreau worked closely with both manufacturers to design homes to be compatible with the neighborhood. An important consideration in the building design was the long, narrow configuration of the lots. Typical lots measured 25 feet wide by 150 feet long,

a total of 3,750 square feet. The manufacturers had to design homes specifically for these narrow lots, that could easily be marketed in other cities around the region as well.

Another feature of the modular homes in this demonstration is the 10/12 pitch roof. This steep pitch is typical for the Louisville area but is not usually found in modular construction (5/12 pitch roof is standard construction practice). Rey-Barreau worked with both manufacturers to design a 10/12 roof pitch similar to the roof lines found in other homes in the California neighborhood. The resulting 10/12 pitch on the modular is indistinguishable from the existing site-built homes. In fact, Rey-Barreau claims that most buyers did not even realize that these homes were factory-built.

Modular unit being lowered into place

The following are descriptions of the four models in the demonstration (see Appendix I for floor plans).

The first model, located at 16th and Prentice Streets, was a single-story, single-wide unit built by All-American Homes. A third bedroom was built on-site for a total of 876 square feet, and a front porch was added to the unit at the site. A list of specifications and standard features is included in Appendix II. The selling price of this three-bedroom, one-bath model was $34,000.

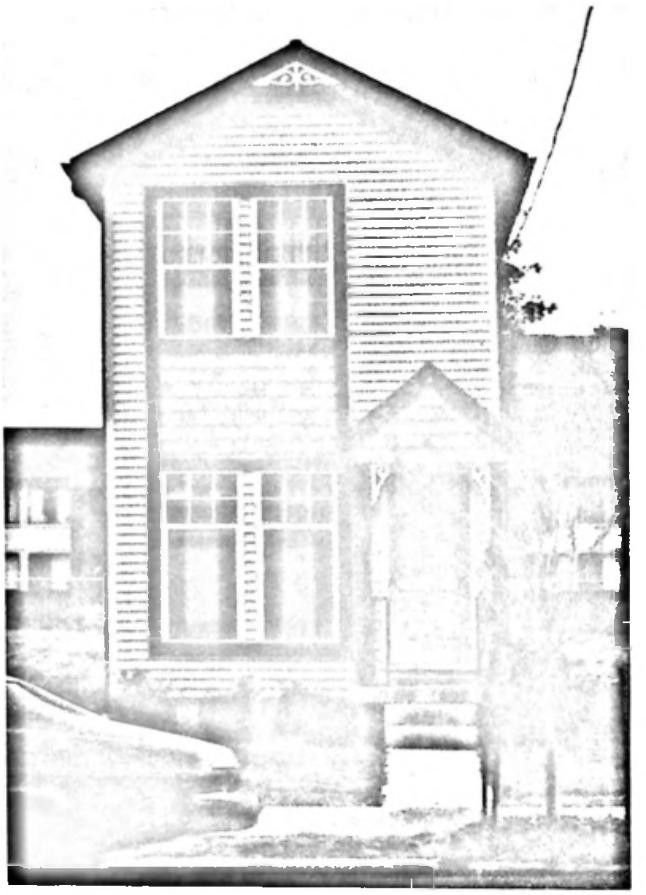
All-American Home

The second unit was built by Reasor Corporation. This is an end elevation "Cape Cod" home with four bedrooms and two baths. The total square footage of the home was 1,440. The porch, dormers, and trim were added at the site. A list of standard specifications are included in Appendix III. The selling price of this house was $42,000.

Reasor end elevation "Cape Cod"

The third and fourth units, also built by Reasor Corporation, were two-story, three-bedroom, one and one-half-bath units. Porches and trim were added at the site.

The homes were 1,120 square feet in plan, and sold for $42,000 each. Standard specifications are listed in Appendix III.



Reasor two-story model

Marketing

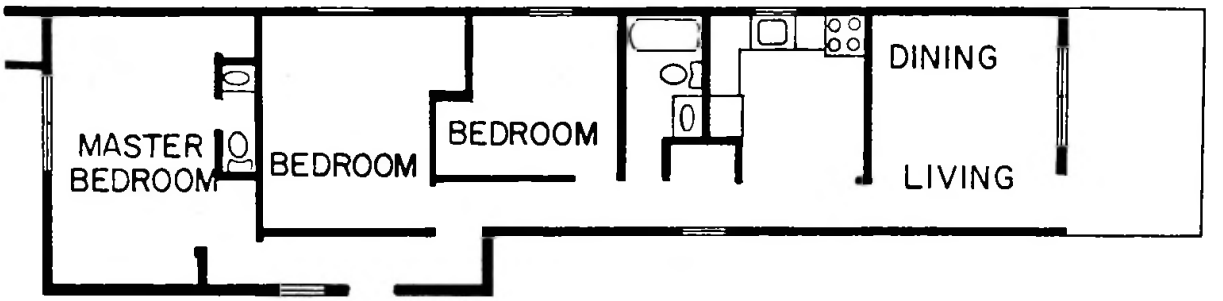
Rey-Barreau used a California neighborhood-based realtor, ERA Frank Clay Realty, to sell his homes. The low prices attracted first-time home buyers, many of whom had been residents of the California neighborhood. A model home was placed next to the ERA Frank Clay Realty office on Broadway Avenue, and potential buyers were given the opportunity to select any available vacant lot in the neighborhood and choose a home from the available models. The two-story home built by Reasor Corporation proved to be the most popular. Rey-Barreau attributes this to the greater feeling of openness which he believes is crucial in these narrow homes.

Conclusion

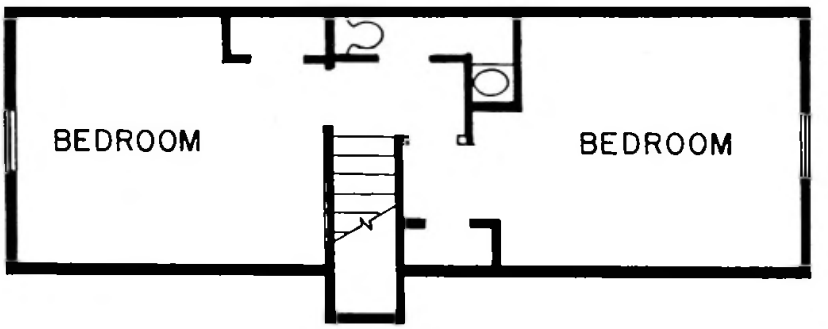
The Louisville demonstration project has shown that infill housing offers an affordable alternative to lower income home buyers, and an attractive option for small builders. The City of Louisville had over 6,000 vacant infill lots available that were not generating tax revenues. These vacant lots also exerted a blighting influence on their surrounding neighborhoods. Since the land was virtually free, the selling price of the houses was kept to around $40,000. With respect to the modular construction, Rey-Barreau helped to design a home so compatible with the predominant housing type in the neighborhood that very few home buyers could tell the difference. In addition, the price of the modular home was competitive with site-built construction. This was ideal for Rey-Barreau who builds on a part-time basis and does not have the time required by site-built construction. The result was an attractive, well built, affordable infill project.

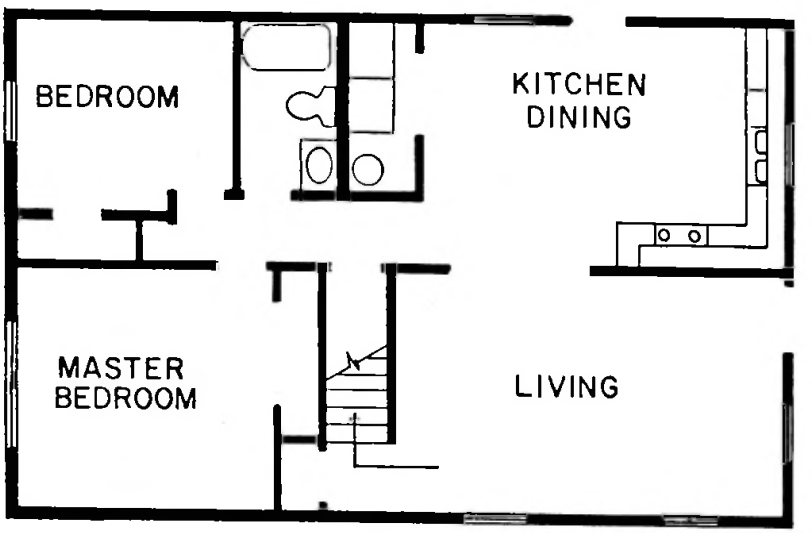
Demonstration project across from local distillery

Floor Plans

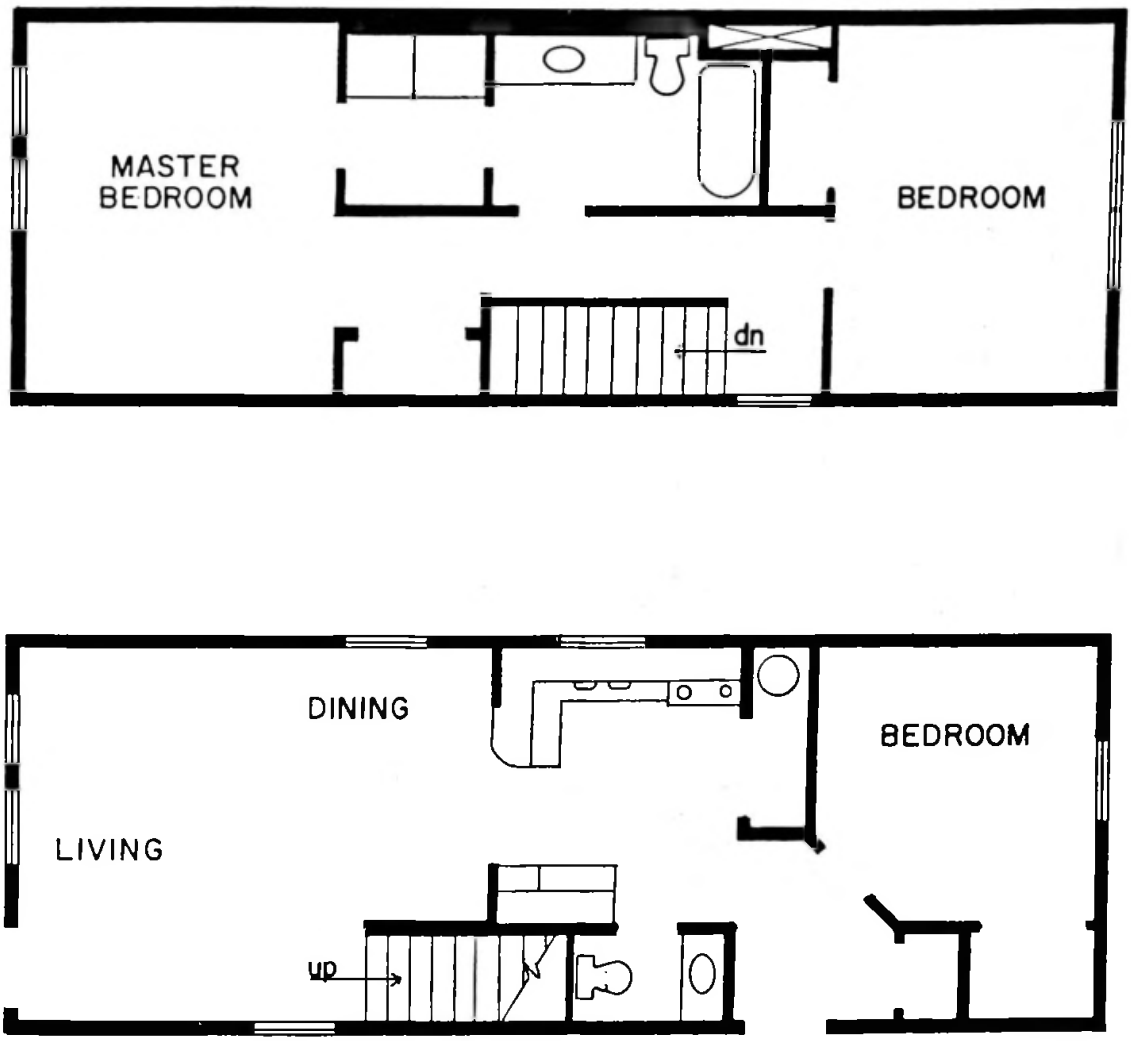


Floor plan for All-American Homes unit





Floor plan for Reasor Corporation "Cape Cod" unit



Floor plan for Reasor Corporation two-story unit

Appendix II

Specifications and Standard Features - All-American Homes

The following are the specifications and standard features on the 14 foot x 54 foot single-story, single-wide All-American Home:

LOWER LEVEL FLOOR:

2" x 8" floor joists
2" x 8" box joists
2" x 8" cross beams
Construction Adhesive
3/4" T & G structurwood subfloor or equal

UPPER LEVEL FLOOR:

2" x 8" floor joists
3/4" T & G structurwood subfloor or equal

EXTERIOR WALLS:

2" x 4" studs - 16" o.c.
2" x 6" door & window headers
2" x 4" plates

INTERIOR WALLS:

2" x 4" studs - 16" o.c.
2" x 4" plates

INSULATION:

Lower level ceiling - 8" fiberglas insulation - R-25
Exterior Walls -
Foil back drywall or equal vapor barrier
3-1/2" fiberglas wall insulation plus 1" urethane insulation board - R-19 Factor
(Note: On Ohio homes exterior walls will be as follows:
Foil back drywall or equal vapor barrier
3-5/8" fiberglas wall insulation plus 1/2" urethane insulation board plus
1/2" insulation board - R-19 Factor)
Floors - furnished and installed by Builder or Consumer
6" fiberglas minimum R-19 (FmHA, FHA, VA, & HUD financed homes)
3-1/2" fiberglas minimum R-11 (on all other homes)

EXTERIOR:

Metal corner bracing or equal
Andersen Narrowline Insulated Windows w/screens
1-3/4" steel insulated entrance doors
D-5" vinyl siding

ROOF:

10/12 pitch trusses - 24" o.c. (50 psf total live and dead load)
7/16" Weyerhaeuser structurwood or equal sheathing
15# felt underlay
235# Sealdown shingles - Class "C"
12" aluminum soffit system - front and rear
Flush aluminum finish - both gable ends

HEATING:

Baseboard electric

PLUMBING:

Copper water lines
PVC Drainage System
52 gallon electric water heater
1 hose bibb

ELECTRICAL:

200 amp entrance panel
Copper wire

range	6-3 wg
baseboard electric	12-2 wg
115 v. circuits	12-2 wg
3-way switch legs	12-3 wg
switch legs	12-2 wg
water heater	10-2 wg
clothes dryer	10-3 wg
GFI circuit	Bath & exterior outlet

PVC electrical conduit riser supplied to upper level

WALL AND CEILING COVERINGS AND FINISH:

Ceilings - 1/2" gypsum wallboard
Walls - 1/2" gypsum wallboard
3 coats of mud and sanding
Latex paint finish
Prefinished 1-3/8" doors
Prefinished casing (wood)
Prefinished base (wood)
Prefinished door frames (wood)
Stained wood stair banister & railing

FLOOR COVERINGS:

Carpeting and/or vinyl throughout lower level

KITCHEN:

Wood kitchen cabinets (Glenwood)
Stainless steel sink
Ventless range hood
Laminated plastic countertop

BATH #1:

Vent fan & light combination
Medicine cabinet w/light
Wood vanity w/sink (Glenwood)
Laminated plastic countertop
One piece fiberglas tub
& shower combination

BATH #1: (C 2444-2-1 only)

Vent fan & light combination
Corner medicine cabinet w/mirror (2)
Mirror and makeup light bars
Wood vanity (Glenwood) (2)
Laminated plastic countertop
One piece fiberglas tub
& shower combination

LIGHT FIXTURES:

In hall	Ceiling fixture
In utility room	Ceiling fixture
Above sink in kitchen	Ceiling fixture
Kitchen ceiling	Ceiling fixture
Dining room	Ceiling fixture
Front entrance	1 coach lamp (may change by elevation)
Rear entrance	1 coach lamp
Basement stairwell	Ceiling fixture
Upper level stairwell	Switched electrical box

MISCELLANEOUS:

Doorbell
Washer & dryer hookup
(except models which require washer & dryer to be located in basement)
Smoke detector

NOTE: Upper level is unfinished
Upper level materials furnished and installed by others
Upper level ceiling insulation - minimum R-19 with venting by others

*Specifications subject to change without notice 3/85

Standard Specifications - The Reasor Corporation

The following are the standard specifications of the Reasor Corporation:

1985 STANDARD SPECIFICATIONS
Single Family Product Line

(EFFECTIVE MARCH 18, 1985)

FLOOR	2x8 or 2x10 Joists - 16" o.c. - Per Plan 4 - 2x8 or 2x10 Center Beams - Per Plan 2 - 2x8 or 2x10 Rim Joists Front & Rear - Per Plan 5/8" T & G Structural Subfloor OSP Resilient Floor in Kitchen, Bath, & Utility - Per Plan Carpet with Pad in Living Room/Great Room, Dining Room, Hall and Bedrooms - Per Plan
WALLS	Double Top Plate on Bearing Walls Exterior Walls 2x4 - 16" o.c. Joining Walls 2x3 - 16" o.c. Interior Walls 2x4 & 2x3 - 16" o.c. R-13 Sidewall Insulation Thermo-Ply Sheathing (3/8" Structural - Front) 1/2" Foilback Drywall - House Only
ROOF	Engineered Roof Trusses - 24" o.c. 6/12 & 10/12 Pitch - Per Plan 1/2" Structural Roof Sheathing OSP 220# Fiberglas Shingles Over 15# Felt R-30 Ceiling Insulation Continuous Ridge Vent Vented Aluminum Eaves - Per Plan Aluminum Gable Overhang - Per Plan
EXTERIOR	Aluminum Windows W/Insul. Glass, Thermo Break & Screens Metal Insulated Front and Rear Doors - Per Plan Front and Exterior Lights - Per Plan Exterior Trim - Per Plan Horizontal Vinyl Siding, Prefinished Vertical Siding and Unfinished Vertical - Per Plan
PLUMBING	Copper Water Supply System PVC Drain/Waste/Vent System Washer/Dryer Hook-Up With Electrical Outlets - Per Plan Dryer Vent Individual Plumbing Shut-Offs One Hose Connection - Rear
BATH FIXTURES	Fiberglas Tub & Surround - Per Plan China Bath Fixtures Single Lever Faucets - Kitchens Vented Bath Exhaust Fans W/Lite

1985 STANDARD SPECIFICATIONS
(Continued)

(EFFECTIVE MARCH 18, 1985)

VANITIES & LAVORATORIES . .	Mirror W/Light Strip Over Vanities Vanity Cabinet Cultured Marble Countertops - Per Plan Wall-Hung Lavatory and Lighted Med. Cabinet in Some Half Baths
INTERIOR	Prefinished Doors & Trim - Per Plan Wallpaper Accents All Kitchens & Baths
KITCHENS	Cabinets - Per Plan Brushed Chrome Ventless Range Hood W/Light Stainless Steel Double-Bowl Sink Light Over Kitchen Sink
ELECTRICAL	Ceiling Light in Kitchen Outlet for Electric Range Hallway Light 100 AMP Service Wiring Meets National Electric Code Rear Water-Proof Electric Outlet on GFI Circuit NFPA - Approved Smoke Detector Front Door Bell
HEATING SYSTEM	Forced Air Natural Gas Heat - Per Plan 40 Gallon Natural Gas Energy Saver Water Heater
APPLIANCES	Optional, at Extra Cost
GARAGE	Optional, at Extra Cost

NOTE: 1. The "Town & Country Series" offers an unequalled choice of personal selections and optional appointments in addition to these standard specifications.

NOTE: 2. THE REASOR CORPORATION RESERVES THE RIGHT TO CHANGE SPECIFICATIONS OR TO SUBSTITUTE MATERIALS OF SIMILAR PATTERN, COLOR, AND/OR QUALITY.

The Affordable Infill Housing Demonstration Case Study 5

Springfield, Massachusetts

Table of Contents

Springfield is an older, blue collar city located in the southwest quadrant of Massachusetts. This project highlights the important role that the city can play in providing land for infill housing, as well as some of the problems which can arise when site clearance and development pose unusual problems for the builder.

The site was developed by Robert L. Del Pozzo, President of JDS, Inc., and is composed of three duplex units. While the project was originally planned for all modular units, delays in delivery and necessary design changes required by the city of the units prompted the developer to site build two duplexes. The duplexes ranged in price from $93,000 to $98,000. Each of the homes has three bedrooms and one and one-half baths and a basement.

While several problems were encountered in developing the site, the price was kept within reason due to the city having sold the lots at less than half their value.

The Community - Springfield, Massachusetts

Springfield is situated in the southwestern quadrant of Massachusetts on the banks of the Connecticut River, New England's longest waterway. The city covers an area of approximately 33 square miles, and has a population of 152,319.[1] The population has remained fairly stable over the past decade; prior to 1975, the population declined slowly from a high of 174,463 in 1960. The city is the center of a Metropolitan Statistical Area (MSA) of over 530,668 people.

Springfield is an older, industrial, blue collar city. As is typical in older cities, many areas need renovation, many commercial establishments have gone out of business, and large manufacturing plants have closed. Nevertheless, the city has retained a strong manufacturing and service industry base. Major manufacturers are Monsanto Chemicals, Hasbro-Bradley, Inc., Spaulding Worldwide Sporting Goods, Digital Equipment Corporation, United Technology Diesel Systems, and Smith and Wesson small arms. Service industries include Massachusetts Mutual Life Insurance Company, Baystate Medical Center, Bank of Boston, Bank of New England, and Monarch Life Insurance Company.

Out of a total of 58,280 housing units, approximately 41 percent are single-family homes, and 32 percent are four or more family units and mixed-use dwellings. Forty-nine percent of the homes are owner-occupied. About 55 percent of the city's total housing units were built before 1930 and represent styles and craftmanship characteristic of older New England housing. Most homes are within 15 minutes of downtown.

Springfield homes

The Springfield project highlights the important role that the city can play in providing land for infill housing, as well as some of the problems which arise when site clearance and development pose unusual problems for the builder.

The Developer - JDS, Inc.

JDS, Inc., a Springfield general contracting firm, was the developer for the project. Robert L. Del Pozzo is the president of the company. He is a member of the local home builders association, is enrolled in the Home Owners Warranty (HOW) program, and is active in the local Chamber of Commerce and Better Business Bureau. Since 1979, the firm has built over 250 homes, primarily for first-time buyers, through the FHA Section 235 program and Farmers Home Administration programs. They are currently constructing low and moderately priced homes to be sold to people who qualify for mortgage money from the State of Massachusetts. Since 1982, the firm has also been involved in remodeling and rehabilitating both residential and commercial buildings.

The initial plan for achieving cost savings was to construct the Springfield infill demonstration project using modular units. Architectural Specialties, Inc. (ASI), of Victor, New York, supplied the modular units for the first duplex. Due to design changes and time delays in ordering and delivering units, the second and third duplexes were site-built.

The Project - Forest Hills

The demonstration is situated on three contiguous lots located in Forest Hills, just south of Springfield's central core. The lots were listed on the register of city-owned infill sites and appear typical of available infill lots in older cities. A factory formerly located on the site was destroyed in a fire, and the city gained title in a tax foreclosure.

Typical Forest Hills home

The three lots were located in an area targeted by Mayor Neal for revitalization and would have been priced at $10,000 to $12,000 each on the market. The city sold the lots to JDS, Inc., for $5,000 each. This support by the city was vital to the success of the project and provides an incentive to developers/builders to provide infill housing units.

The neighborhood is a stable residential area of two- and three-family frame homes built between 1910 and 1920, with porches, balconies, and separate entrances. Comparable two-family existing homes sell for $85,000 to $90,000. There are no other new units to use for comparison. The residents are generally working class families who have lived there for many years.

Project History

City officials have been concerned with the condition of the downtown area and its housing for many years. Several square-block areas in the core of the city were cleared to make space for new housing, mixed-use development, and commercial establishments. Mayor Richard E. Neal has worked to improve downtown and neighborhood living conditions and has designated city funds for specific priority areas. He has also attracted federal and state dollars to assist private resources to revive the inner city and other areas. One of his priorities has been to provide affordable housing for residents of Springfield. Subsidies from HUD, the Farmers Home Administration, and the state are available to builders, investors, and low-income renters. Condemned and vacant housing is being rehabilitated with various government subsidies and will be available for low-income, subsidized, and unsubsidized renters.

Two factors that often constrain infill development are finding suitable sites and obtaining clear title to those sites. In an effort by the mayor and city council to encourage the use of infill lots for housing, the city planning department maintains a list of all city-owned, vacant infill lots acquired through owner abandonment, foreclosure or delinquency, nonpayment of taxes, and the like. Although sometimes tedious, this process can save a potential developer the time and expense of locating lots that do not require substantial lead time to acquire, thus providing a substantial development incentive.

The city was also willing to sell the lots at below market cost because the builder had a sound, marketable plan to improve the land and its surroundings. The property will then be taxable and produce revenue for the city, as well as help revitalize the area.

Dick Collins, Springfield Housing Coordinator, actively sought a builder interested in participation in the affordable subdivision demonstration. Robert Del Pozzo, the developer, proposed the affordable housing infill project to the mayor and city council, and, on March 14, 1984, the mayor wrote to HUD offering support to a developer to provide affordable infill housing and requesting official designation in the program. HUD designated Springfield a participant in the program in August 1984.

The support of the city greatly contributed to the success of the Springfield infill project and helped offset other unique expenses of infill development. In addition to providing the land at low cost, the city waived water and sewer connection fees. This saved the developer about $2,000. These savings turned out to be particularly important because

site clearance and construction costs, as described below, were considerably more expensive than anticipated.

Site clearance was expensive because old concrete foundations and an asphalt parking lot from the factory required removal, as did unusable water and sewer lines. Mr. Del Pozzo located a firm that removed and hauled the debris in exchange for keeping it. He paid $1,382 per lot for excavation and $142 per lot for removal of the black top.

Concrete and asphalt chunks and other debris continued to surface as the ground settled, requiring additional removal. The developer purchased loam and had it hauled to the lots, creating more unanticipated expense. Unplanned site preparation is common on infill lots with former uses and often necessitates city assistance if a project is to be economically feasible.

Old concrete foundations

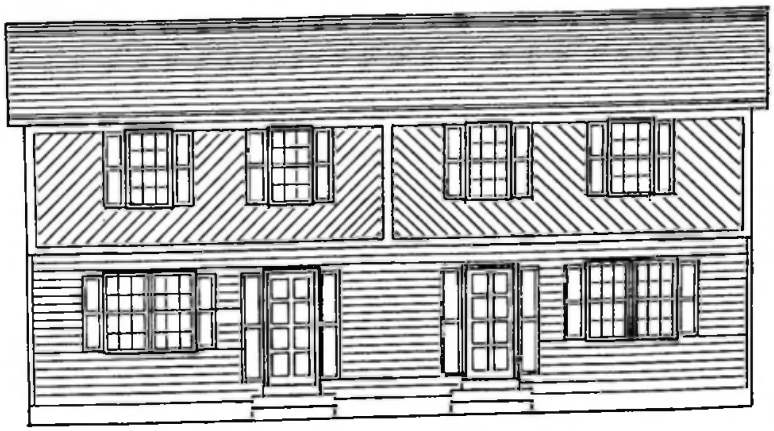
The first duplex in the demonstration is a modular unit, manufactured by ASI.

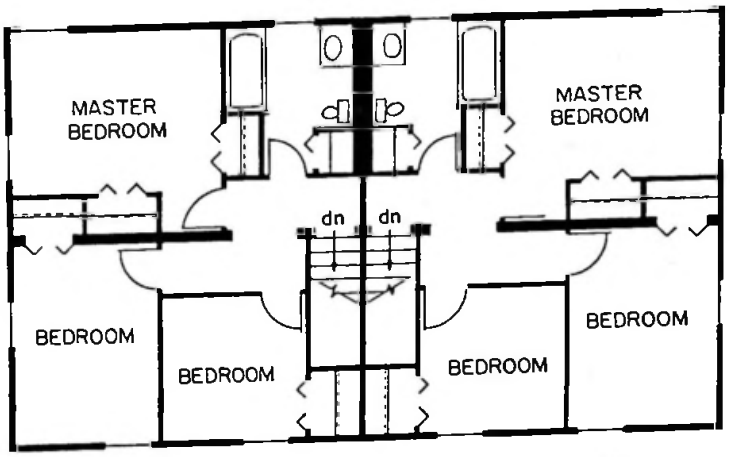
Modular units were selected because of a perceived advantage over site-built units. Modular construction, for example, can offer some cost efficiencies, particularly when time is a major factor or labor is expensive. It also minimizes the possibility of vandalism, since the unit, once delivered, can be secured.

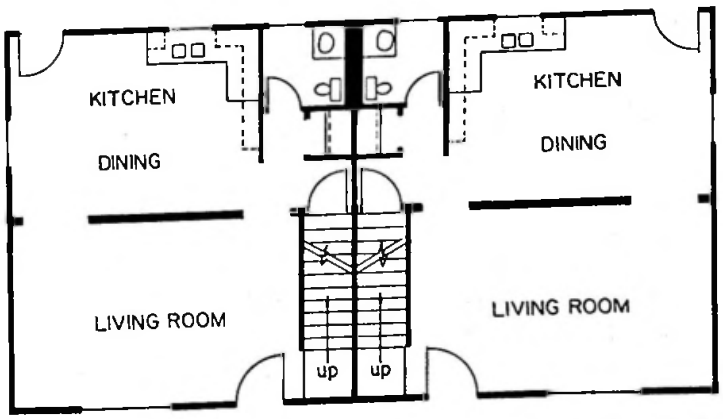
Several problems arose in placing the modules on site, demonstrating the need for builder/manufacturer cooperation. First, the modules for the first duplex in the demonstration arrived at the site without the proper manufactured housing seals of approval. The State of Massachusetts normally approves units before they leave the manufacturing plant and the city does not routinely inspect the units. Because the ASI, Inc., unit arrived on site without a seal, the city inspector had the authority to open the panels for inspection on site. The city and ASI worked together to settle the problem, and the city allowed ASI to deliver the proper certification and affix it to the unit on site.

Second, the duplex was designed with a one-foot overhang on the top modules on front and back, but workers set the top modules with a two-foot overhang in front. The incorrect placement meant the plumbing pipes and heating vents did not line-up. Other problems also resulted, including a sizable leak requiring drywall replacement. ASI assumed financial responsibility for the mistake, reimbursed JDS, Inc., $4,199 for damages caused by misplacement of the unit on the foundation, and reset the top modules correctly for no charge.

The modular house




MASTER
BEDROOM
MASTER
BEDROOM
dn
dn
BEDROOM
BEDROOM
BEDROOM
BEDROOM


KITCHEN
KITCHEN
DINING
DINING
LIVING ROOM
LIVING ROOM
up
up

In April 1985, after the first duplex was in place, the city council passed an ordinance requiring an 80-foot frontage for duplexes, 30 feet more than was required at the start of the project. This change meant there was not adequate frontage for the remaining two duplexes. Mr. Del Pozzo appealed to city council at a meeting on April 16, 1985, and the issue was referred to committee for study. Mr. Del Pozzo then lobbied for an exception to this requirement for the demonstration. After four months, the exception was granted and Mr. Del Pozzo proceeded with the remaining two duplexes, but reduced their width.

The second two duplexes were site-built because the design changes necessary to accommodate the narrower units would have resulted in a production delay. The site-built units look similar to the modular unit.

Marketing

The first duplex contained 2,200 square feet and sold for $98,000 in May 1985, two months after completion. The second and third duplexes sold in July 1985, in a single transaction at $93,000 each, even before they were built. These units contained 2,040 square feet and were 34 feet by 60 feet wide compared to the original 44 foot by 50 foot-wide unit. Mr. Del Pozzo anticipated the buyer would reside in one unit and rent the second for approximately $400-$500 per month plus utilities. In actuality, the buyers ended up renting out all of the units. Each home has three bedrooms, one and one-half baths, and a basement but no garage.

Stick-built unit under construction

Experience Gained

The Springfield affordable infill housing project offers some valuable lessons for city officials and developers. The project illustrates the potential role for cities interested in furthering development of infill land. Springfield encourages infill development through providing low-cost land, offsetting some unanticipated development costs, and providing the developer with an inventory and evaluation of potential infill properties. The inventory of available lots is a substantial incentive for small developers like JDS, Inc., who often lack the capability to undertake this process. The demonstration also highlights several of the unique problems that may arise in site clearance and infill construction, and underscores the viability of such projects. Developers for similar projects in other cities can benefit from the Springfield project by exercising caution in choosing and inspecting land for infill housing and by working closely with the manufacturers of modular components to ensure consistency with the construction plans.

☆ U.S. GOVERNMENT PRINTING OFFICE:1987-181-397 / 74008

U.S. Department of Housing and Urban Development
Washington, D.C. 20410

Official Business

July 1987
HUD-1103-PDR