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Obtaining permits for manufactured and modular homes might be more time-consuming than securing permits for site-built homes, because local authorities may be unfamiliar with these building technologies. This will vary from city to city.

In some cities manufactured homes are, in fact, zoned out. This is changing but can present a big hurdle if this is the case. Some resistance by building and zoning officials might stem from erroneous preconceptions. Officials may perceive a manufactured home to be nothing more than a trailer and, as such, not up to standards. Modular homes are often grouped with manufactured homes, thus suffering from the same negative perception.

The information in this chapter is more applicable to nonprofit developers using manufactured homes that are zoned out in some urban areas.

## **WORKING WITH BUILDING OFFICIALS**

Chances are city building officials will have little, if any, experience with manufactured and modular homes and this can translate into significant delays in moving a project through the approval processes.

Brad Lovin of the North Carolina chapter of the Manufactured Housing Institute was involved in a pilot house situated in Raleigh, where manufactured homes were previously zoned out. Lovin says to obtain the permit they had to go through public hearings, committee meetings, several committee votes, and even before the town historic commission (he explains that the home wasn't even in a historic area). The city required the developer to submit pictures of surrounding homes and show their plan along with the existing houses to be sure the home would visually fit into the neighborhood. The city council kept a close eye on progress, requiring photographic evidence as the project progressed.

Once the project got through the lengthy approval process, the house was erected and sold. Lovin says that the project was recently commended by the mayor. "We're glad we were able to get through the process so that now it will be feasible for others to build manufactured homes," says Lovin. He cautions nonprofit developers not to underestimate the time it might require to talk the project through with building officials.

**HUD-CODE HOME ACCEPTANCE IN CONTINENTAL U.S.**  
**State Laws Regulating Local Zoning of Manufactured Housing**  
 1999



- Have no specific, mandatory state legislation addressing exclusion of manufactured housing
- Prohibit exclusion from specified districts, i. e. within agricultural areas or urban growth boundaries
- Exclusion not prohibited but some protection is available for manufactured housing
- Prohibit exclusion of some (or all) units, unless based on criteria applicable to other types of housing
- Prohibit exclusion from single-family districts if aesthetic, installation, age size and/or other standards are met.
- Prohibit total exclusion from the jurisdiction, but permit special criteria to be applied to manufactured housing

Adapted from *Home Builders Guide to Manufactured Housing*, U.S. Department of Housing and Urban Development, 2000.

## TIPS ON THE APPROVAL PROCESS

Expect to invest some time up front when first proposing to build a modular or, more significantly, a manufactured home. Following are some practical measures that can be followed when confronted with opposition. Or better yet, to avoid opposition altogether:

- If zoning board hearings are necessary, work carefully on the presentation to the board. When describing the home, call it a “single-family” home as often as possible. Point out how either the infill house or urban development will breathe new life into a downtrodden area and help beautify a neighborhood. And mention how it will bring needed affordable housing to an area.
- Consider hiring a consultant. The first time around might be daunting so consulting with an expert can yield tips that can save both time and money and help the nonprofit developer handle



Developers should show examples of factory-built homes that fit with the neighborhood (courtesy, MHI).

building officials and zoning boards unfamiliar with and skeptical about factory-built housing.

- Ask the housing producer for assistance. Some manufacturers, such as manufactured home producer R-Anell Custom Homes, Inc., in Denver, North Carolina, offer builders and developers a pack of materials they may need to secure a permit. And it can be tailored to a specific project. For example it will cite zoning regulations and show how the roof pitch, square footage, and appearance meet single-family zoning requirements.
- Come with information. Pamela Beck Danner—an attorney who specializes in manufactured home permits—recommends bringing in supporting materials, particularly visual aids. If there are concerns about what the manufactured home will look like, bring examples of units that are representative of styles in the neighborhoods where the home will be sited. Manufacturer’s brochures are helpful, as are testimonial letters from satisfied customers. Be prepared to show how well a manufactured home can blend with the neighborhood to overcome any fears and negative preconceptions.
- Bring in official documentation. For a manufactured home, bring in the HUD Code, show the language stating that it is a pre-emptive code and that the home will be built to a federal standard and approved as such. Do the same with modular homes, bringing in documentation showing that homes are built to a state-approved code with which they are familiar.
- Get the neighbors involved (see next chapter). When Brad Lovin of the North Carolina chapter of MHI set out to build a manufactured home in an impoverished area of town in need of quality affordable housing, he mitigated some of the official resistance by getting a neighborhood group that supported the urban renewal aspect of the project to come to open meetings and rally for the cause.
- Enlist the local news media. Often they are looking for new and creative solutions to housing problems. They can help promote market acceptance by featuring positive stories on television, radio, and print media. Public officials are generally amenable to being associated with a publicized good cause.

## **WHAT IF PERMITS ARE WITHHELD OR IF MANUFACTURED HOMES ARE ZONED OUT?**

If zoning clearly states that manufactured homes are not permitted and city officials withhold approval, apply for a variance. According to Pamela Danner, if all else fails, have the zoning

board or zoning officer issue an opinion in writing stating the reason why the permit was not issued. Take the case to the county attorney and see if he or she will help, which, says Danner, has been successful in several cases.

Discrimination against manufactured housing is no longer permissible in certain states and localities. These laws are slowly being phased out across the country. Thanks, in part, to years of pressure from the manufactured housing industry and its one of trade associations, the Manufactured Housing Institute, some states and localities are revising local codes to allow for manufactured homes provided they are placed on a permanent foundation and meet the same construction and, if required, aesthetic guidelines as site-built homes.

There was a flurry of activity to implement non-discrimination codes in the early 1980s after California became the first state to do so. Several areas, mainly in the Midwest and Pacific Northwest, quickly followed suit. Slowly over the past decade, more nondiscrimination statutes have been ushered in.

To help keep builders and developers up to date, the Manufactured Housing Industry has a valuable resource tool—a page on its website that tracks and regularly updates state laws and court decisions regarding the zoning, placement, and tax treatment of manufactured homes. This website can be accessed at [http://216.167.103.115/DR\\_state\\_laws.html](http://216.167.103.115/DR_state_laws.html). Follow the prompts to see the latest state updates. If the city or state where the home is sited has addressed the discrimination issue, print out pertinent information and offer it to building officials and zoning boards.

## **WILL USING MANUFACTURED OR MODULAR HOMES AFFECT FINANCIAL SOURCES, WARRANTIES, AND INSURANCE?**

### **Financial Sources**

For community development corporations and other nonprofit groups using manufactured or modular housing, there should be little impact on financing programs. Nonprofit developers interviewed for this book indicated that there was no change in their financing arrangement because they were using factory-built homes and that they used the typical financing arrangements they have in place.

There is one vital caveat here: Without favorable appraisals, financing may be severely affected. Appraisers must be educated about modular and especially manufactured homes. Some nonprofit developers report resistance from appraisers when it comes to using modular or manufactured homes. According to Paulette Huber with Neighborhood Housing Services of Toledo, Ohio, nonprofit developers might need to work diligently with appraisers on a one-on-one basis to educate them about modular and manufactured homes. She suggests reassuring them about overall neighborhood development using these housing technologies, and showing drawings, photos, specifications, and the use of permanent foundations for manufactured homes.

Steve Hullibarger of the Home Team adds that the appraiser should use manufactured home comps that are recent and local. As there are huge variations in manufactured homes, and even wider variations in how they are sited, the information that the appraiser uses should be accurate to reflect the house to be built. Failing the use of manufactured home comps, the appraiser can use site-built homes as comps. As in all appraisals, which use market comparables as an indicator of value, adjustments are made for location, square footages, bedrooms, baths, obsolescence, etc. But value adjustments should not be made by the appraiser strictly on the distinction that the subject property is a manufactured home.

For the eventual homeowners, modular homes and manufactured homes converted to real property generally will not have problems in terms of obtaining typical mortgage financing. The terms should be comparable to site-built housing. FHA, VA, and FMHA loan programs are also available to purchasers of modular and manufactured homes. Recently, Fannie Mae and Freddie Mac have stepped up their support of manufactured homes, and Fannie Mae now offers a booklet touting the positive attributes of manufactured homes.

### **Warranties**

Most modular and manufactured home producers offer homeowner warranties that cover the home's structure and all factory-installed components such as plumbing, heating, and electrical systems. There will be separate warranties for appliances, roofing, windows, doors, carpets, and more. A notebook with this information neatly compiled should be given to the homeowner.

Warranties can last from one to two years and some manufacturers offer up to five years of coverage against structural defects.

At the housing plant, manufacturers use detailed checklists to ensure that homes leave the factory undamaged and in pristine condition. If damage is found, the home will be repaired before it is transported.

The transport aspect is one to research seriously. Though the home will presumably leave the plant undamaged, a long highway trip can mean a home may arrive on site in less than perfect condition.

Check in advance with the manufacturer's transport company. Have the company assure that there is a good route from the plant to the building site. Be sure to get a comprehensive written warranty and understand the provisions therein. Remember to check the terms of the warranty, as certain problems that arise later might be warranted by the manufacturer and either will be repaired by the manufacturer or be reimbursable to the nonprofit developer if they contract for repairs.

Once on site, the home should be carefully inspected, as mentioned in Chapter 3. Note, in writing, any visible damage inside and out. Also list any differences in design or materials that weren't contracted for. Immediately fax or email a list of any damages or uncontracted materials to both the manufacturer and the transport company.

## **Insurance**

General contractors and subcontractors who have not worked with manufactured or modular homes should be able to safely continue with the general builder liability insurance they use and should not have to reconsider any insurance issues.

In fact, says insurance expert Bill Stegman of the Foremost Insurance Company, going from using site-built to factory-built homes can actually result in less insurance exposure. Many risks associated with building are assumed by the production plant.

For the owner, homeowner insurance is the same for modular and site-built homes and should be the same for manufactured housing, says Stegman. Though rates for factory-built homes were once 20 percent higher than rates for site-built homes, they are now much more comparable. Foremost does not distinguish between factory- and site-built homes, says Stegman.

Insurance rates may vary slightly but are tightly regulated and there is not a lot of difference among companies. Insurance should be discussed with an insurance professional prior to starting the project.

## SUMMARY

Being informed about the permitting process, and the differences in inspections and approvals of manufactured and modular homes, will aid the nonprofit developer when working with local zoning boards and building officials. Keeping these parties informed and sharing information to belay preconceptions about factory-built homes should smooth the way. Remember, these officials may have a learning curve regarding manufactured and modular homes if they are unfamiliar with these affordable housing alternatives. Another part of the equation regards warranties, insurance, and financing. Today, there are more options available in each of these realms for manufactured and modular housing.

## RESOURCES

### Publications

"Adelante Modular Project Houses Seven Families." *Automated Builder*, April 1999, p. 25.

Beamer, Wayne. "Zoning: The Current State of Affairs." *Manufactured Home Merchandiser*, May 2000. Industry experts are interviewed for their insights into the current state of zoning when it comes to manufactured homes. Of interest to those contemplating building in urban areas.

Bevier, Charles. "Signs of Momentum in Modular Housing." *Building Systems Magazine*, March/April 2001, p. 4.

Bevier, Charles. "Upgrade Your Speed, Volume, Quality with Modular Technology." *Building Systems Magazine*, January/February 2001, p. 27.

*Building Industry Technology Roundtable on The Manufactured Home*. National Association of Home Builders (NAHB), February 1999. Twenty-page manual is a summary of information gathered at an industry roundtable attended by major builders, manufactured and modular home producers,

and product manufacturers. Meeting was co-sponsored by *Professional Builder* and the NAHB Research Center, and covers information gleaned in the following areas: Land planning and zoning, products and design, labor issues, new markets, and future areas of research.

Hullibarger, Steve. *Developing with Manufactured Homes*, Manufactured Housing Institute Press, January 2001. *Developing with Manufactured Homes* illustrates how the manufactured housing industry functions and how the homes are constructed. Includes a comprehensive section on urban infill housing.

Romigh, Kelly. "Task Force Raises Quality Consciousness in Modular Industry." *Building Systems Magazine*, March/April 2001, p. 26.

"65 Questions to Ask Systems Manufacturers." *Building Systems Magazine*, May/June 1999, p. 94.

"Victory At Last," *Modern Homes*, March-April 2001. Discusses the newly-passed Manufactured Housing Improvement Act and what its impact will be on the manufactured home industry.

Watson, Kami, "Show Me the Money: A Primer for Understanding Manufactured Housing Finance," *Modern Homes*, March-April 1999. Information on financing of manufactured homes. Considers different financing options and lists manufactured housing lenders.

### Websites

**[http://216.167.103.115/DR\\_state\\_laws.html](http://216.167.103.115/DR_state_laws.html)**. Direct link to the Manufactured Housing Institute's compiled list of state statutes on nondiscrimination laws. The section is updated regularly so if a state or locality does not have nondiscrimination laws in place, check back.

**[www.mfghome.org](http://www.mfghome.org)**. The official site of the Manufactured Housing Institute is a centralized source for anyone contemplating using manufactured homes. This site houses information on manufactured homes including downloadable publications, news updates, photo galleries, special reports. A special research section lists all completed, current, and future research projects being undertaken.

**[www.mhousing.com](http://www.mhousing.com)**. A gateway to a wealth of information on manufactured housing. Has an entry for consumers and one for professionals.

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## BEING A GOOD NEIGHBOR

Any successful affordable housing development is a good neighbor. With manufactured and modular houses the developer will probably need to conduct outreach and education for those in the established neighborhood. Neighbors should be presented with important information about the factory-built housing that will be coming to their neighborhood. Based on the misinformed preconception that a “trailer home” will be built, many might have concerns that need to be addressed. It’s important to stress that factory-built homes can be an asset to the neighborhood, and fit in with its existing character.

Neighborhood opposition can be a stumbling block for some nonprofit developers wishing to use factory-built homes. Brad Lovin of the North Carolina chapter of MHI reports that a pilot manufactured home slated for a traditional neighborhood met with such strident opposition that a new site had to be chosen.

On the other hand, neighborhood approval can help guarantee a project’s success. When the MHI pilot home was knocked out of one area, the developer chose a new one where neighbors were actually enthused about the turn-around of a blighted piece of land and rallied behind the project. Lovin said they even helped persuade city officials to allow the home in despite a restrictive zoning ordinance.

Working with neighborhood groups is somewhat similar to dealing with zoning boards, as discussed in Chapter 4. Information, visuals, and reassurances that the new home is meant to help revitalize the neighborhood can be powerful tools.

### REACHING OUT TO THE NEIGHBORS

Any nonprofit developer of affordable housing is already aware of neighborhood sensitivities. Factory-built housing can magnify neighborhood concerns. Several of the nonprofit developers interviewed for this book reported that they were unprepared for the neighborhood opposition that arose when it became public knowledge that factory-built housing was coming to their neighborhood.

The previous chapter discussed the need to explain factory-built housing to uninformed zoning and design-review boards. Many of the same strategies apply here.

Following are some additional suggestions culled from the many good ideas of nonprofit

developers who actually succeeded in getting their manufactured and modular housing projects built despite initial protest.

- Meet with the neighborhood groups and answer their questions. Bring pictures and hand outs so they can see what the homes will look like.
- Emphasize that the houses will be placed on permanent foundations, when this is the case, and won't be something the owner will hitch to a trailer and drive south for the winter.
- Bring in plans of houses that are more in line with their neighborhood architecture. Remember, they'll be picturing older style manufactured homes with lackluster boxy shapes, skirting, and the telltale flat roof. Explain the technology that allows manufactured housing producers to create homes with high roof pitches with two-story models and a variety of styles.
- If all else fails, take some of the more vocal opponents on a trip either to another site where a manufactured or modular home was successfully used or to a housing plant. A trip to a home site helped assuage the concerns of neighbors who opposed HomeSight's Noji Gardens project in downtown Seattle. HomeSight deputy director Tony To says looking at other quality homes not only helped the neighbors drop their opposition but actually got them excited about revitalizing the look and value of their community.

### ACT IN A NEIGHBORLY MANNER

Once the neighborhood comes on board, remember to maintain a good relationship:

- Be considerate with parking and vehicle traffic caused by incoming construction and delivery trucks and workers.
- Keep noise to a minimum.
- Make sure the site is cleaned up at the end of each workday.
- Keep the closest neighbors abreast of what is happening; for example, give them a heads-up if a lot of trucks will be present for foundation pouring and give them advance notice of the day the house is arriving and being set.



Well-designed factory-built homes can be sympathetic with existing housing (courtesy, SWA).



Keep neighbors informed on when house will be delivered (courtesy, MHI).

## SHOW HOW MODULAR AND MANUFACTURED HOMES CAN IMPROVE

### APPRECIATION

One of the common concerns about having modular and especially manufactured homes in a neighborhood is that they will devalue surrounding properties. But experience suggests that manufactured and modular homes placed on permanent foundations and built with an attention to style and amenities appreciate in line with other area homes.

Several studies of property values and manufactured homes have been conducted by Auburn University-Montgomery, the University of Michigan, and the North Carolina Manufactured Housing Institute. In the Auburn study, manufactured homes generally appreciated in value and do not have a significant impact on the value of adjacent site-built homes.

Industry consultant Steve Hullibarger has been tracking manufactured home sales for two decades now and reports that appreciation rates have kept up with site-built neighboring homes. In general, Hullibarger concludes that manufactured homes resembling site-built homes are accepted by the market at the same prices as site-built homes. Manufactured homes that look like old-style mobile homes are pariahs in most markets.

Hullibarger has 1,261 manufactured homes in a database, all on individual urban lots, all converted to real property. The first units were sited 20 years ago and Hullibarger has tracked resale amounts for the 273 units that have changed ownership. A recent review of the data yields the following observations:

- Manufactured homes that look like plain manufactured homes lag behind the market in valuation.
- Many new manufactured homes were originally sold for less than comparable site-built homes. Lower hard costs permitted this to happen in many cases. Developers were able to move homes more quickly because lower costs meant lower sale prices, with equal margins.
- Some developers priced their new homes at the market and achieved absorption in normal time frames, with larger profit margins.
- Manufactured homes that are finished to be indistinguishable from site-built homes assume parity with their site-built brethren in the neighborhood. In the early 1990s they declined in value, along with neighboring homes. In the late-'80s and late-'90s, they rose in value like site-built homes.



Factory-built homes that look site-built retain their value (courtesy, SWA).

## SUMMARY

Just as zoning boards and building officials unfamiliar with modular and manufactured homes may need to be better informed to overcome negative stereotypes about these housing technologies, so too must neighbors be assured that the factory-built housing proposed will fit into the architectural character of the neighborhood and not threaten property values. Meeting with neighborhood groups, sharing information, and inviting them to visit other factory-built housing developments will go a long way in winning them over to the idea. When a neighborhood group turns into a proponent of factory-built housing, it can be a key ingredient in the project's success.

## RESOURCES

### Publications

Bevier, Charles. "Modular Momentum: How Four Builders in Four States are Out-Classing the Competition." *Building Systems Magazine*, July/August 2000. Highlights four builders who discover that they save money by building modular homes and who have discovered that design and product choices abound. Focuses on some of the hurdles they face along the way.

Hullibarger, Steve. *Developing with Manufactured Homes*, Manufactured Housing Institute Press, January 2001. *Developing with Manufactured Homes* illustrates how the manufactured housing industry functions and how the homes are constructed. Includes a comprehensive section on urban infill housing.

Hullibarger, Steve. "Manufactured Homes In Single-Family Subdivisions." *Urban Land*, January 1996. Contains good examples of manufactured home communities using innovative design ideas that helped them fit into existing neighborhoods.

Hullibarger, Steve and Wang, Paul. "Building Fast and Easy. Manufactured Homes Have Revitalized Many Oakland, California Streets." *Urban Land*, June 1998. Discusses how several low-income areas with vacant, overgrown lots were revitalized using manufactured homes. Good information on both the benefits and potential pitfalls.



Site-built porches lend scale to factory-built homes (courtesy, MHI).

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Adjustable sink height aids use by the disabled (courtesy, SWA).

## TRENDS IN FACTORY-BUILT HOMES

Many of today's factory-built homes are breaking out of the box—the boxy, flat-roofed configuration that continues to unfairly characterize modular and particularly manufactured homes. For decades modular homes have been competing with site-built homes in terms of size, design quality, and interior appointments such as wood floors, fireplaces, custom cabinets, upscale appliances, luxury baths, and solid-surface counter tops.

More manufactured homes are coming into a new age with a range of interior design offerings plus the advent of two-story models, high-pitched roofs, cathedral ceilings, permanent foundations, and the addition of site-built extras like garages, porches, decks, and exterior trim.

Exterior elements on today's manufactured homes are also a long way from the shallow, single-line 2-in-12 roof pitches that cried out "mobile home." Today's modular and manufactured home manufacturers now offer roof pitches from 5-in-12 to 12-in-12, often with multiple roof lines. Decorative windows, bay windows, columns, porches, and fancier exterior trim are also boosting curb appeal.

The HUD-Code at one time was updated so infrequently that it was difficult to keep up with the technological advancements that continue to abound. The recent adoption of The Manufactured Housing Improvement Act will help keep manufactured homes current by promoting continued advancements.

Following are some of the best new items on the menu for manufactured and modular homes:

### UNIVERSAL DESIGN

Medical and technological advances are enabling more seniors to live independently and longer. In addition to being healthier, today's seniors are wealthier on average than their predecessors, and tomorrow's will be even wealthier than today's.

And these healthier seniors want to be able to age in their own homes. A national survey of 2,000 Americans ages 45 and older, carried out by the American Association of Retired Persons (AARP) in 1999, showed that 83 percent of participants want to stay in their homes as long as possible. Further, 63 percent expect to stay in their residence for the duration of their lives. Site-built and factory-built housing builders are becoming increasingly aware of designing homes

suited to occupants of all ages and abilities.

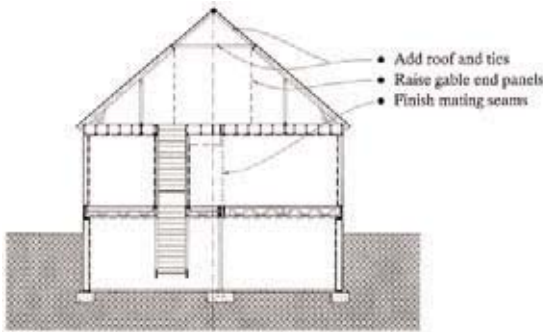
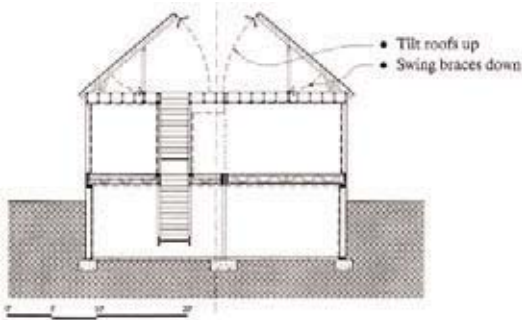
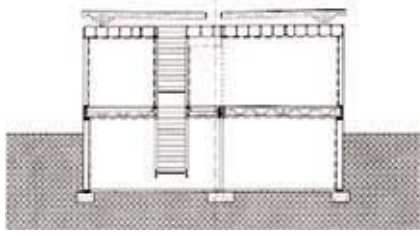
To serve this growing market, manufacturers are coming out with a range of “Universal Design” plans. Universal Design is so named because it allows people of different (universal) abilities to use the same equipment, doors, ramps, kitchens, bathrooms, etc. Nationwide Homes now offers Universal Design features that can be adapted into some of their more popular models. Such features include 36-inch-wide entries into bedrooms, baths, and closets, which allows clearance for a wheelchair or walker. Hallways are 42 inches wide. Light switches 48 inches from the floor level, no more than half-inch thresholds at all exterior doors, 5-foot turning radii in all bathrooms, bathroom grab bars, and a 30-inch knee space beside bathroom lavatories mean wheelchair users can access all important home amenities. Varying counter heights, use of lazy Susans in cabinets, and dishwashers raised 9 inches above the floor for easier loading and unloading, all result in kitchens that are user-friendly for all.

Even homes that are not constructed with the disabled in mind may now sport some common-sense safety items. Brighter lights can aid those with dimmed vision. Carpets and rugs installed with double-sided tape can prevent slippage for young and old. Other modifications include installing rocker-type light switches on stairwells top and bottom, handrails on both sides of the stairs, adding hand rails or grab bars in the bathrooms for better balance (or adding reinforced blocking for future addition of these items), higher toilets, and larger or walk-in showers. Ask modular and manufactured home producers if they offer Universal Design features in their houses.

## **DESIGN IMPROVEMENTS**

Increasing attention to aesthetic features is helping manufactured and modular homes blend harmoniously with established communities. In fact, many are indistinguishable from their site-built neighbors.

One of the least attractive features of a manufactured home is the common flat or low-pitched roof. This type of roof was a necessity to ensure that manufactured homes met transport guidelines to clear underpasses. Although modular homes have included tilt-up roofs for more than a quarter century, manufactured homes have only offered them in recent years because of their added cost and complexity. The flat roof problem is intensified in urban areas where steeper-



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Tilt-up roofs, which arrive on site as flat sections and are then raised and secured into place, provide steeper pitches and room for additional living space (courtesy, SWA).

pitched roofs are often characteristic of older neighborhoods.

Tilt-up roofs have revolutionized the factory-built home industry. No longer are all manufactured homes destined to have flat roofs. In modular homes, the high-pitched roof allows for second-floor or attic spaces, which increase square footage—especially important on a narrow urban lot.

Another impediment to using manufactured homes in urban areas, particularly on infill sites, is the relative rarity of two-story models. Two-story modular homes are very common. Finding a manufactured housing producer that offers two-story models may still be a challenge, but they are becoming more common and availability is helping push manufactured homes onto urban infill sites.

Urban infill projects are often on narrow lots, with the narrow end of the home as the point of entry. Such models are becoming more available from manufactured and modular home producers. A gable entry with a steep roof pitch is often a staple design in urban neighborhoods. This style, fitted with a welcoming porch, is a favorite for urban dwellings.

Other features that help modular and manufactured homes to blend into existing neighborhoods are site-built elements such as garages, decks, and porches. These elements can also be factory produced but are generally built on site. While these options can upgrade the look and function of a manufactured or modular home, they add another step to the home-construction process.

Modular and even manufactured home producers can modify homes for a better fit in urban neighborhoods, which often sport neo-Victorian and other eclectic housing types. Different window shapes, prefabricated trim, a variety of gable and window trims, designer roof lines, porches, decks, and colors all help a new factory-built house to fit in.

Interior design and space-saving features such as built-ins, cabinets, and under-stair space are helping maximize space and heighten design. On the outside, manufactured homes can be given added curb appeal with neighborhood-compatible materials such as masonry and cedar, and topped off with tile, shake, or other roofing materials. There are even factory-applied stucco systems now developed for manufactured homes. The housing developer should inform the manufacturer if any of these features are desired so that the manufacturer can make necessary adjustments if such products are heavier or denser than standard choices, or if they require special substrates or long purchasing lead times.

## UPGRADED ENERGY EFFICIENCY

Modular and manufactured home producers have an impressive and ever-expanding array of strong, energy-efficient construction materials available to customers who want better performing homes. The fact that factory-built homes are built under controlled factory conditions and have better construction quality contributes to their potential for having added energy efficiency.

Samson Homes, Louisville, Kentucky, in conjunction with FischerSIPs, also in Louisville, recently unveiled a line of modular homes constructed entirely of structural insulated panels (SIPs). SIPs are two sheets of 7/16-inch (or other thickness) oriented strand board (OSB) with 3 to 10 inches (nominal) of expanded polystyrene (typically) foam insulation sandwiched in between. Panels provide both structure and insulation for the home and can be finished inside and out. The company purports that houses built with SIPs use up to 50 percent less energy than site-built wood-frame homes, although other published tests place the savings at lower, but still significant, levels.

Since nonprofit housing agencies help those in need of affordable housing, it has become increasingly important that homes not only be built as cost effectively as possible but also that they be cost effective to operate.

Two nonprofit groups in the Midwest are currently at work on urban modular home projects that have been upgraded to ENERGY STAR<sup>™</sup> status. The ENERGY STAR Homes program is an energy efficiency ratings system jointly run by the U.S. Department of Energy (DOE) and the Environmental Protection Agency (EPA).

Not only can an ENERGY STAR home result in reduced operating costs, but it can also save money by reducing the size and cost of mechanical and distribution systems. An ENERGY STAR home can also be attainable for more potential homeowners because it can be financed with a preferential mortgage that considers lower operating costs. This permits greater loan-to-income ratios and reduced downpayment requirements, resulting in the borrower being able to buy more house for his or her income.



Structural insulated panels improve energy efficiency (courtesy, SWA).



Modular Energy Star home (courtesy, Neighborhood Housing Services of Toledo).

## Change to HUD Code May Speed Innovation in Manufactured Homes

On December 27, 2000 President Clinton signed the Manufactured Housing Improvement Act into law (P.L. No. 106-569). The Act has been long in coming to the manufactured housing industry, which spent years lobbying for legislation of this sort.

Bringing any innovation to manufactured homes has been hampered by the long periods between code updates. The Act will help keep manufactured homes up to date by stipulating that a private sector consensus committee make recommendations to the HUD Secretary at least every two years. The new law also requires that each state institute a uniform installation program and a dispute resolution program within five years of the law's enactment.

## SUMMARY

As housing products, modular and manufactured homes are now undergoing new developments and improvements. In some cases, the changes are making these factory-built housing alternatives more responsive to the existing architectural character of established urban neighborhoods. The houses are also better designed inside, with more amenities available than before. Two other improvements are also adding value to modular and manufactured homes: Universal Design is making it possible for residents to “age in place,” because their homes are designed to accommodate people with different physical abilities. And a focus on energy efficiency is making these homes more affordable over their life-cycle by lowering operating costs. When choosing a modular or manufactured home producer to work with, ask if such new features are available.

## RESOURCES

### Publications

*Air of Importance: A Study of Air Distribution Systems in Manufactured Homes.* Alternative Energy Corporation, Research Triangle Park, N.C., May, 1996. The first research study on how air distribution systems in new manufactured homes affect overall HVAC system performance.

Bevier, Charles. “Innovations in Modular Technology: Survival of the Fastest.” *Building Systems Magazine*, January/February 2000. Discuss innovations that not only enhance the appearance of modular homes but also make them even quicker to erect.

Carlson, Don. *How and Why to Buy a Factory-Built Home.* CMN Associates, Inc., 2001.

Steven Winter Associates, Inc. *Energy-Efficient Modular Homes: A Guide for Affordable Housing Providers.* U.S. Department of Energy, Chicago Regional Office, Chicago, September 1999. Written for nonprofit, affordable housing organizations (CHODOs) in the Midwestern U.S. Intended to educate CHODOs on how to build a Five-Star modular home.

Vermeer, Kimberly and Josephine Louie. *The Future of Manufactured Housing.* Joint Center for Housing Studies, Harvard University, Boston, Massachusetts, January 1997. Discusses research on

the origin of manufactured homes; the quality and costs of the homes; installation, zoning, and code issues; and forecasts on the future of manufactured housing.

### Websites

**www.nahbrc.com.** Go directly to the “search” feature and search on “manufactured,” and “modular,” to bring up lots of good, informative pieces most of which are downloadable. Topics of interest include, “Two Story HUD-Code Homes,” “Steel Frame Modular Housing,” “On-Site House Factory,” “Manufactured Housing Ground Anchor Systems,” “Manufactured Housing Disaster-Resistant Pier Systems,” “Tilt-up Roofs for Manufactured and Modular Home,” “Hybrid Modular/Panelized Housing,” and “SIPs Modular Housing.”

**www.pathnet.org.** Website focuses on technological innovation in the housing industry. A number of the books and research manuals listed above can be accessed and downloaded at this site.

## 7

## WHAT ARE SOME OF THE POSSIBILITIES?

The following six case studies provide information on how a range of housing providers have used modular or manufactured homes to provide affordable housing.

**Project Name:** Wellington Heights

**Location:** Cedar Rapids, Iowa

**Developer:** Rural Housing Institute (RHI) and Mid-America Housing Project

**Home Manufacturer:** Iowa Quality Homes, subsidiary of RHI

**Design:** Three infill homes are two-story "Queen Anne" Victorian style in keeping with the neighborhood. Total square footage of the three-bedroom, two-bath homes is 1,320. Features include a peaked roof, garage, front porch, and shutters.

**Why chose modular:** Mid-America was aware of modular construction and used modular homes for several reasons. The homes' dimensions were a perfect choice for deep, narrow lots. It was also believed that the cost would be lower than site built.



Modular units feature site-built porches and steep-pitch roofs (courtesy, Rural Housing Institute).



**Working with permit officials:**

The modular producer was much more accustomed to working in rural areas where “anything goes.” City codes were much stricter and there were tighter constraints to design.

**Reception by neighborhood:**

Plans were taken to the neighborhood, which had a well-organized homeowner group. Brought in an artist’s rendering of the plan and made several minor design changes after the meeting.

**Point of interest:**

Rural Housing Institute, a nonprofit developer in rural Iowa, became interested in using modular homes. The organization worked with several manufacturers but found that they were unable to accommodate the customization they wanted. So they opened their own 20,000-square-foot modular housing plant. The land was acquired through grants and was in an industrial part of town. The plant was built from scratch. While starting up was not an easy prospect, they’re now producing homes and plan to produce 45 this year. They have worked out great deals with local Iowa manufacturers like Pella Windows and Amana to obtain products at low costs.

**For more information:** See [www.ruralhomes.org](http://www.ruralhomes.org).

**Project Name:** Hazel Park  
**Location:** Hazel Park, Michigan  
**Developer:** Venture, Inc., a subsidiary of Oakland/Livingston Human Services Agency, Pontiac, Michigan

**Home Manufacturer:** Redman Homes, Topeka, Indiana

**Design:** This project consisted of four homes: two ranch homes at 1,230 square feet; two two-story Colonials at 1,560 square feet. These fit into an eclectic neighborhood filled with many home styles.

**Why chose modular:** Quick site wrap-up left little exposure to theft or vandalism of both homes and tools in this inner-city project. Also allowed the nonprofit developer to start and wrap up the project in minimum time.

**Working with permit officials:** No problems here. City planner was supportive of the plan following a presentation to the city council where sketches were shown and



Single-story modulars fit into this neighborhood of eclectic home styles (courtesy, Venture, Inc.).



assurances were given that they were not “mobile” homes. The newspapers also picked up on the story and presented it in a positive way.

**Reception by neighborhood:**

Neighbors were happy that these unsightly empty lots were being revitalized. On the day the homes were set, neighbors assembled their children, set up lawn chairs and watched the procedure. Lemonade was passed out.

**Point of interest:** The prevailing concern for these homes was that they be energy efficient. To reach an ENERGY STAR rating, they used basement walls made of reinforced concrete with insulation applied to interior of walls. Redman Homes agreed to do extra sealing between marriage walls with particular attention to sealing the area between the sill plate and foundation wall. All lighting fixtures have compact fluorescent light bulbs.

**Project Name:** ROAR Project

**Location:** Toledo, Ohio

**Developer:** Wallick Construction, Columbus, Ohio, along with Renaissance Ottawa Area Residences, a nonprofit housing group in Toledo.

**Home Manufacturer:** Unibilt Industries, Inc.

**Design:** This large-scale scattered infill project consisting of 50 homes is, at press time, more than halfway completed. The homes are all variations of three basic neo-Victorian styles in sizes ranging from a 1,300-square-foot three-bedroom, one-and-a-half bath home to a 1,500-square-foot four-bedroom Colonial. Homes have front porches and garages and feature fish-scale siding, gable details, varying window sizes, and different colored siding.

**Why chose modular:** Main reason was to get the house up and secured quickly to deter thieves and vandals. Quicker production time also helped save money on interest on the construction loan.



Modular homes in foreground are virtually indistinguishable from older house at left (courtesy, Unibilt Industries, Inc.).



**Working with permit officials:**

This plan was developed in conjunction with the mayor of Toledo who used his influence with city officials and inspectors to help push the project through the permit and the building process. Revitalization of a neighborhood in need was the main goal.

**Reception by neighborhood:**

There was no opposition and neighbors were happy to see the project getting underway.

**Point of interest:** To fit into the neighborhood and to maximize square footage, these houses were designed with partial basements built to store the home's mechanical systems. The basic plan called for one-third basement, one-third crawl space, one-third under garage as is. This also helped solve another problem relating to urban sites—dealing with what lays underground, for example, fuel and septic tanks, old foundations, and more. These items didn't necessarily have to be unearthed and disposed of but rather left buried underground.



**Project Name:** Pilot House

**Location:** Raleigh, North Carolina

**Developer:** Joan Troy, Roxboro, and Downtown Housing Improvement Corporation, Raleigh

**Home manufacturer:** R-Anell Homes, Denver, North Carolina

**Design:** This home is a one-story bungalow built in the style of the surrounding homes. The 1,512-square-foot, three-bedroom, two-bath home has a front porch and a storage unit attached to the back of the house.

**Why chose manufactured:** This project was sponsored by the North Carolina chapter of the Manufactured Housing Institute to show how manufactured housing could be a viable alternative to site-built housing on urban infill lots.

**Working with permit officials:**

This project faced multiple hurdles on its way to completion. First of all, "mobile" homes are zoned out in the area. After months and countless hours of work, this has now



Bungalow style manufactured home uses siding and trim that replicates those of older homes (courtesy, North Carolina MHI chapter).



been changed. There were public hearings and multiple meetings with city council and other boards including the historic commission; and the house wasn't even in a historic area. The developer had to photograph homes in the neighborhood and bring in artistic renderings of their plan to show that it would fit in. They had to document and photograph every phase of construction as well.

**Reception by neighborhood:**

Plans were thwarted on a site in one neighborhood following neighborhood objection. A new site was found and the neighbors proved amenable. The neighborhood groups also showed up in front of the city building and zoning boards to lend their support.

**Point of interest:** While getting through the permit process was arduous, the city council ultimately voted six to two to rezone land in downtown Raleigh to allow the use of manufactured homes.

**Project Name:** Next Generation of Manufactured Housing (NextGen) House

**Location:** Danbury, Connecticut

**Developer:** NextGen is a demonstration house sponsored by HUD's Partnership for Advancing Technology in Housing (PATH) program, along with Steven Winter Associates, Inc., Norwalk, Connecticut, and the Danbury Housing Authority, Danbury.

**Home Manufacturer:** New Era Homes, Strattanville, Pennsylvania.

**Design:** NextGen is a 1,300 square foot, gable-ended Cape Cod home featuring three bedrooms and two baths and is built on a permanent, poured-concrete foundation. To blend in with the neighborhood, the home was designed with a front porch, front, side, and back entrances, and a tilt-up roof with a 12-in-12 pitch.

**Why chose manufactured:** This demonstration home was built to show that advanced technologies could be successfully included in a



Tilt-up roof and traditional Cape Cod design make this manufactured home perfect for its New England setting (courtesy, SWA).



manufactured home. This home was developed for use on infill sites.

**Working with permit officials:**

Manufactured homes are not zoned out in Danbury and the house went through the permitting process just as any other single family home.

**Reception by neighborhood:**

No neighborhood opposition.

**Point of interest:**

The NextGen house was built to demonstrate the adaptability of manufactured housing. Some of the innovative energy and resource-efficient features of the home include: low-emissivity (low-e), argon-filled windows; a programmable ventilation system; a Cosmo hot water heater with a fan coil unit that handles the home's heating and hot water needs without a separate heat pump or furnace; energy-efficient appliances; compact fluorescent lighting fixtures; and increased insulation in the floor. Another NextGen house is scheduled to be built in Schenectady, New York, and more are in the pipeline.

**Project Name:** Noji Gardens

**Location:** Seattle, Washington

**Developer:** HomeSight, Seattle

**Home Manufacturer:** Marlette Homes, subsidiary of Oakwood Homes Corporation, Hermiston, Oregon

**Design:** This 6.5-acre subdivision was divided into 75 lots averaging 5,000 square feet. Noji consists of variations on two different models. A two-unit townhome yields two 1,400-square-foot dwellings. The second model is a single-family three-bedroom, two-bath home with an integrated front porch. Neo-Victorian design features may include eyebrow and other decorative window shapes, exterior trim, 8-in-12 pitch roofs, all in varying colors to give the neighborhood character.

**Why chose manufactured:**

Manufactured homes were chosen primarily for one reason: cost savings. And it's paying off.

HomeSight immediately realized savings of 10 to 15 percent on the first phase of building. Estimates on cost savings go as high as 30 percent. Other reasons for selecting manufactured homes are the scarcity of good construction labor.

**Working with permit officials:**

HomeSight and its advocates spent years developing this project, including time going over the plans with HUD. Seattle didn't specifically rule out manufactured homes in any city ordinances but getting through the city building officials was slow. HomeSight got through partly on its



Noji Gardens manufactured homes are set on permanent foundations (courtesy, SWA).



established reputation as a large nonprofit developer, because the project had political support, and because it took care in presenting public officials with the benefits of using manufactured homes in this urban setting. Officials were ultimately swayed by the fact that the homes would be two-story Neo-Victorian homes with 8-in-12 pitch roofs that blend in with the surrounding neighborhoods.

**Reception by neighborhood:**

Went through a neighborhood design review. Held public meetings to show neighborhood advocates what they were doing. Showed them pictures of what they envisioned and neighbors agreed that they looked like “regular” houses. Neighbors were happy to be having this tract of land revitalized. They continue to be impressed by the quality and appearance of the homes.

**Point of interest:** Noji Gardens is one of the first owner-occupied urban manufactured home communities. HomeSight was extremely vigilant in its operation and is realizing significant cost savings over site-built housing. Mike Wolf, general manager of housing manufacturer Marlette Homes, says he is so impressed with the way the project is progressing that they’re pursuing this type of project in other urban areas. The advent of hinged pitched roofs and the ability to stack modules to create two stories led to HomeSight selecting manufactured homes.