





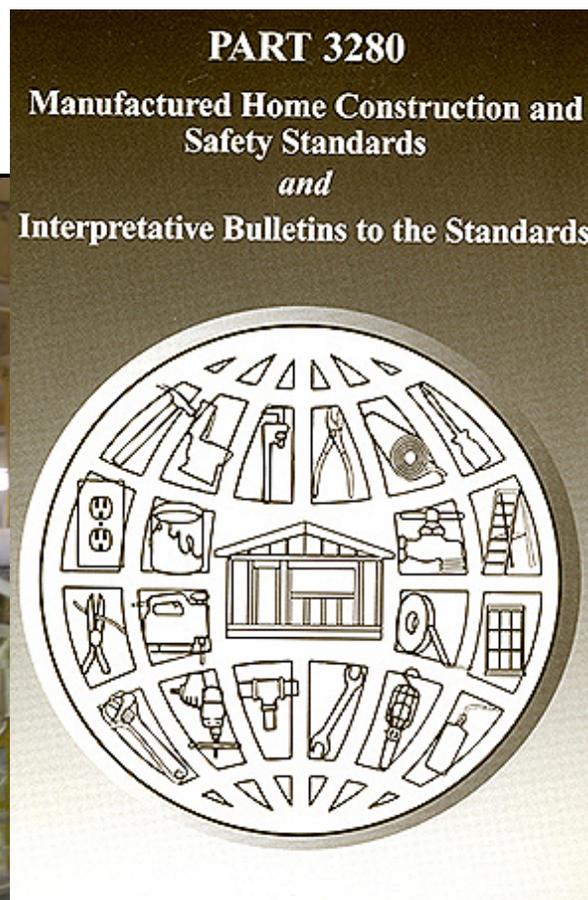
# ***Working with Factory Built Housing: HUD-code and Modular***

**Emanuel Levy**, Executive Director  
Manufactured Housing Research Alliance

# Selected HUD-code Characteristics



- ❑ Single, nationally preemptive code
- ❑ 90%-95% completed in factory
- ❑ Small number of industry players, about—
  - 200 plants
  - 5,000 retailers
  - 20 lenders



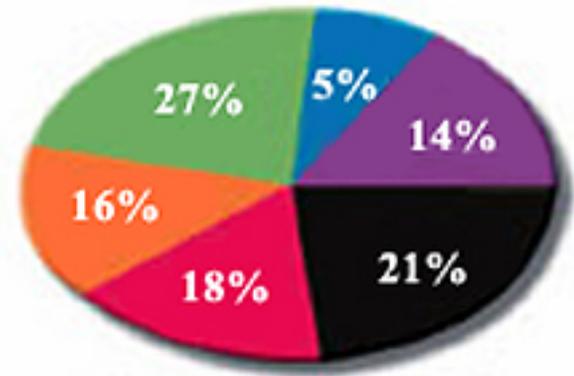
## DEMOGRAPHICS / BUYER PROFILE

- ❑ High proportion of first time buyers and retirees. First time buyers may be less cognizant of the importance of energy costs.

### Annual Household Income

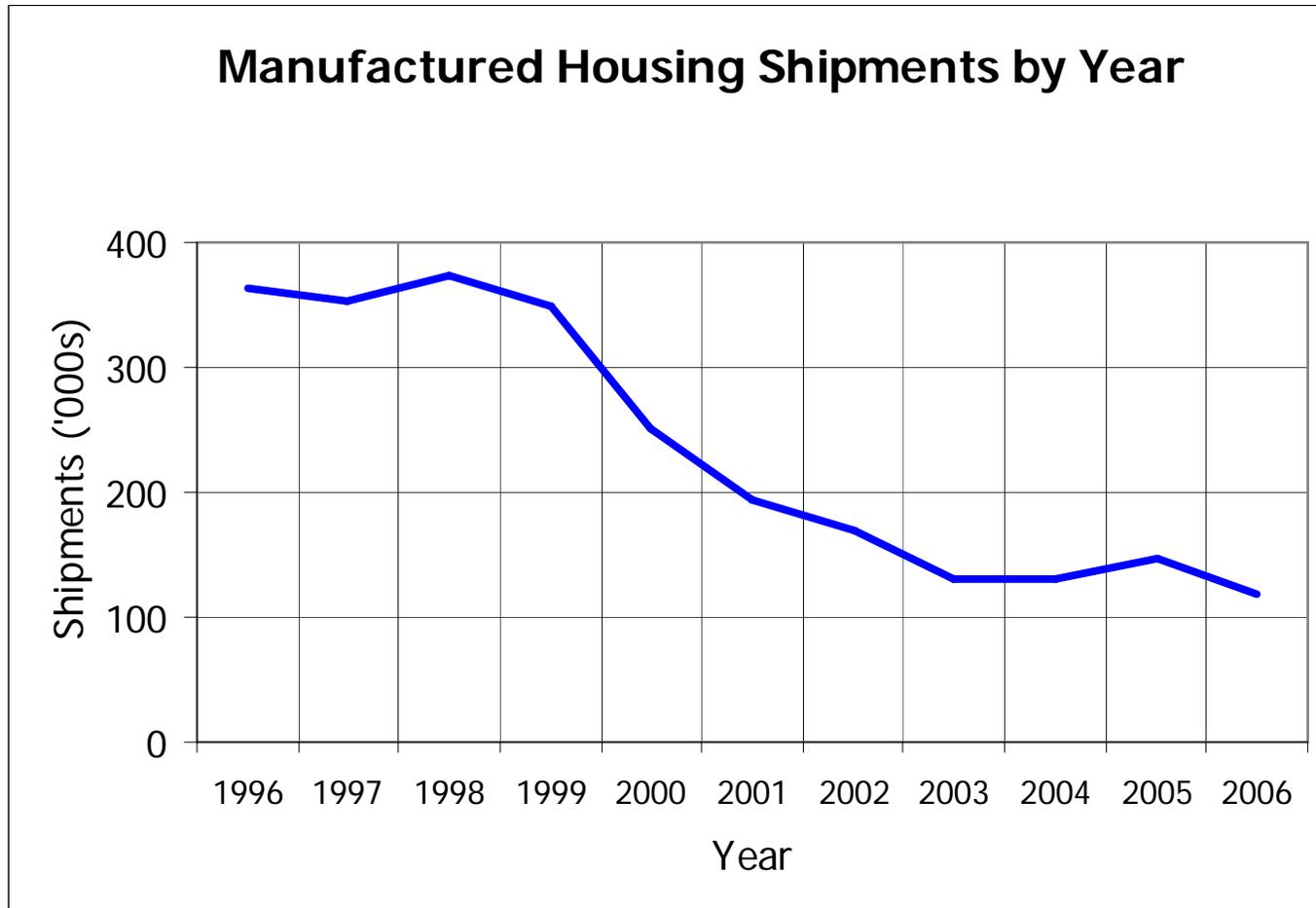
Less Than \$10,000	5%	
\$10,000- - \$19,999	14%	
\$20,000 - \$29,999	21%	
\$30,000 - \$39,999	18%	
\$40,000 - \$49,999	16%	
\$50,000 & Over	27%	

*The median income is \$35,000.*



SOURCE: Manufactured Housing Institute

## MARKET SIZE



SOURCE: Manufactured Housing Institute

# Selected HUD-code Characteristics



## MARKET SIZE

<b>Top Ten States: Then and Now</b>		
<b>STATE</b>	<b>1996</b>	<b>2006</b>
<b>1. Florida</b>	17,388	11,036
<b>2. Texas</b>	39,594	10,278
<b>3. California</b>	3,855	8,281
<b>4. Louisiana</b>	10,038	7,905
<b>5. Arizona</b>	8,095	5,518
<b>6. North Carolina</b>	32,411	4,443
<b>7. Alabama</b>	19,869	4,185
<b>8. Tennessee</b>	15,941	3,798
<b>9. Kentucky</b>	11,762	3,708
<b>10. Virginia</b>	7,039	2,243

**SOURCE:** Manufactured Housing Institute

# Prospects for Future Growth



- ❑ Demographics shape up well
- ❑ Lending conditions will improve
- ❑ Innovation continues
- ❑ Herd has thinned
- ❑ Many manufacturers “going MOD”
- ❑ MH discrimination continues
- ❑ Net loss in communities



**SOURCE:** Manufactured Housing Institute

# Market Actors and their Roles



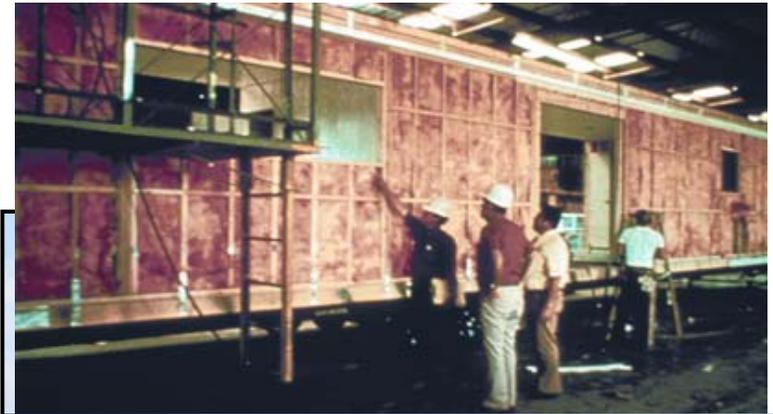
- ❑ **Manufacturers**—design and produce homes, responsible for final product
- ❑ **Retailers** (company stores and independents)—sell homes, customer interface
- ❑ **Suppliers**—sell materials in volume, many closely tied to industry
- ❑ **Lenders**—Finance homes and implicitly decide which features will be financed.

Production Volume Lenders	
Clayton Homes	25.80%
Champion Enterprises	12.27%
Fleetwood Enterprises	12.14%
Skyline Corporation	5.63%
Palm Harbor Homes, Inc.	4.72%
Cavalier Homes	4.14%
<b>Total</b>	<b>64.70%</b>
<b>Top Three</b>	<b>46.21%</b>

# The ENERGY STAR Qualification Process for HUD-code Homes



- ❑ Plant Certification—plant is responsible for overall qualification. 100% of home checked in the plant
- ❑ Spot checking of limited features in the field that have a low probability of problems (shell and duct leakage)
- ❑ Three-tiered quality control process (Certifier, IPIA and MHRA)
- ❑ On-line Reporting/tracking of homes with Information Manager



Select to Print	Serial Number	Package	Basement	Manufacture Date	Checklist	Retailer	Homeowner Name	City	State
<input type="checkbox"/>	12345	4-21	N	4/6/2006	N		Joe		
<input type="checkbox"/>	234234	4-6	N	3/27/2006	N				
<input type="checkbox"/>	abc54321	2-20	N	11/02/2005	N	Top Quality Homes			
<input type="checkbox"/>	abc54322	2-20	N	11/04/2005	12/10/2005	First Rate Homes	John Smith	Pikeburg	MD
<input type="checkbox"/>	abc54323	2-22	N	11/27/2005	12/17/2005	Blue Label Homes	Betty Johnson	Bowie	MD
<input type="checkbox"/>	lgn2856	2-1	N	10/22/2005	11/03/2005	Top Quality Homes	Brian Enon	Backwater	PA
<input type="checkbox"/>	lgn7295	2-5	Y	11/22/2005	N				
<input type="checkbox"/>	lgn7842	2-3	Y	11/13/2005	12/21/2005	First Rate Homes	Robert Smith	Foredwak	VA
<input type="checkbox"/>	lgn9324	2-17	Y	12/1/2005	N				
<input type="checkbox"/>	chc7362	2-16	N	10/27/2005	11/29/2005	Top Quality Homes	Ian McKay	Norfolk	VA
<input type="checkbox"/>	chc1264	2-26	N	11/02/2005	N	First Rate Homes			

## 'Pluses'

- ❑ Public image enhancer, leverages the brand
- ❑ Federal tax credit is a plus for some companies
- ❑ Adds value to the home
- ❑ Stepping stone to "Green"



## ‘Negatives’

- ❑ Specifications complicates design, manufacturing, cost control, and quality control
- ❑ Need to motivate and educate retail to sell efficiency
- ❑ Need to convey to retail new responsibilities and verify field work



**Common manufacturer refrain:**  
***“We’ll build whatever the retailer orders”***

## 'Pluses'

- ❑ Public image enhancer, leverages the brand
- ❑ Equivalency with site-built competition
- ❑ Adds value to the home (resale value?)



**Many retailers are personally committed to pushing energy efficiency, others more pragmatic**

## 'Negatives'

- ❑ Explaining energy savings is a challenge, may complicate or delay the sale
- ❑ Turnover in sales staff requires a continual training program
- ❑ Additional paperwork and oversight is abhorrent to retailers
- ❑ Retailers resist selling features that can't be offered on all of their homes
- ❑ Not in inventory/display
- ❑ Lenders don't qualify buyers for higher cost based on projected energy savings



# Utility's Perspective on ENERGY STAR for Manufactured Housing



- ❑ Volume production suggests a potential high return on early investment
- ❑ Buyer's are customers that derive the greatest relative economic benefit from energy savings
- ❑ Greatest number of high bill complaints
- ❑ Energy Star engenders significant energy and demand savings



# Utility's Perspective on ENERGY STAR for Manufactured Housing



- ❑ “Plus” features, such as CFLs and proper cooling sizing, enhance benefits



**Cooling Equipment Sizing Guidelines for ENERGY STAR® Qualified Manufactured Homes**  
Southern California Edison ENERGY STAR Manufactured Home Rebate Program



Manufactured Housing Research Alliance

ENERGY STAR qualified manufactured homes typically require less cooling capacity because their high insulation levels and tight construction slow the transfer of heat from outside into the home, and their tight air distribution systems minimize the loss of conditioned air from the ducts.

Find the city on the table that is closest to the location where the home will be placed. To find the required cooling equipment capacity in tons for a heat pump or air conditioner, read across that row to the column that corresponds to the home's conditioned floor area. The value represents the appropriate cooling equipment size (in tons of cooling capacity) for ENERGY STAR qualified manufactured homes.

FLOOR AREA (square feet)	Up to 840	841 to 1,120	1,121 to 1,280	1,281 to 1,440	1,441 to 1,680	1,681 to 1,960	1,961 to 2,240	2,241 to 2,520	2,521 to 2,760	2,761 to 3,000
<b>CITY, STATE</b>										
Bakersfield, CA	2	2	2.5	2.5	3	3	3.5	4	4	4
Barstow, CA	2	3	3	3	3.5	4	4.5	5	5	5.5
Bishop, CA	1.5	2	2.5	2.5	2.5	3	3.5	3.5	4	4
Blythe, CA	2.5	3	3.5	3.5	4	4.5	5	5.5	5.5	6
Fresno, CA	2	2	2.5	2.5	3	3	3.5	4	4	4
Glendale, CA	1.5	2	2	2.5	2.5	3	3.5	3.5	3.5	4
Lancaster, CA	1.5	2	2.5	2.5	2.5	3	3.5	3.5	4	4
Lemoore, CA	2	2	2.5	2.5	3	3	3.5	4	4	4
Long Beach, CA	1.5	1.5	2	2	2	2.5	3	3	3	3.5
Los Angeles, CA	1	1.5	1.5	1.5	2	2	2.5	2.5	3	3
Needles, CA	2.5	3	3.5	3.5	4	4.5	5	5.5	5.5	6
Oxnard, CA	1	1.5	1.5	1.5	2	2	2.5	2.5	2.5	2.5
Palm Springs, CA	2.5	3	3.5	3.5	4	4.5	5	5.5	5.5	6
Pasadena, CA	1.5	2	2	2	2.5	3	3	3.5	3.5	3.5
San Bernardino, CA	2	2.5	2.5	3	3.5	3.5	4	4.5	4.5	5
Santa Barbara, CA	1	1.5	1.5	1.5	2	2	2.5	2.5	2.5	2.5
Santa Maria, CA	1	1.5	1.5	1.5	2	2	2.5	2.5	3	3
Victorville, CA	2	2.5	2.5	2.5	3	3.5	4	4	4.5	4.5
Visalia, CA	1.5	2	2.5	2.5	3	3	3.5	4	4	4

Disclaimer: The technical basis for the values that appear on the chart is Right-J™, an Air Conditioning Contractors of America (ACCA)-endorsed software version of ACCA Manual J, Load Calculation for Residential Winter and Summer Air Conditioning, Seventh Edition. The values on this chart are intended as a guide for equipment selection. This information is not a substitute for proper evaluation and judgment by an equipment specifier. The cooling capacity estimates are based on typical home configurations and assumed design conditions (up to 14% window to floor area ratio). Actual sizing requirements may differ from the values on the chart. The Manufactured Housing Research Alliance and its members assume no liability for errors in equipment sizing, selection and installation.

# Utility's Perspective on ENERGY STAR for Manufactured Housing



- ❑ Manufactured homes comply with standards last updated in 1994—significant jump to ENERGY STAR (high TRC score)
- ❑ Electrically-heated ENERGY STAR homes need heat pumps—not common in most markets and engender a significant cost



# Transforming Markets



1. Private sector support
2. Combined supply-side / demand-side strategy
3. Program brand recognition



**Source: *National Energy Efficiency Best Practices Study, Volume R8—Residential New Construction Best Practices Report*, Pacific Gas and Electric Company (December 2004)**

# Transforming the HUD-code Market



- ❑ **Getting industry to act in unison**, leveraging competitive pressures—companies compete on product not location
- ❑ **Incentives for retailers**, coupled with education—making retailers Energy Star advocates
- ❑ **Keeping it simple**, seamless, routine—integrating Energy Star into current procedures
- ❑ **Buy-down equipment costs**—removing a psychological and financial barrier
- ❑ **Incenting the buyer** with rebates and rate discounts—they sound good but as a stand-alone inducement lack an effective delivery mechanism

# Modular Market Actors



- ❑ Manufacturers—  
design and  
produce homes,  
responsible for  
final product
- ❑ Builders and  
Retailers
- ❑ Otherwise similar  
to site building



# Selected Characteristics of Modular Homes



- ❑ Built to the local code
- ❑ 50%-75% completed in factory
- ❑ Small number of industry players (<100 plants)
- ❑ Sold through small volume builders and increasingly mh retailers



# Selected Modular Characteristics



## MARKET SIZE

Top Ten States (2006)	
State	Sales
1. North Carolina	4,668
2. Virginia	3,084
3. New York	3,070
4. Pennsylvania	2,327
5. Michigan	2,070
6. Wisconsin	1,660
7. Florida	1,435
8. Colorado	1,387
9. New Jersey	1,319
10. South Carolina	1,208

SOURCE: National Modular Housing Council (NMHC)

# Selected Modular Characteristics



## Modular Home Production Leaders (2006)

Company	Homes	Company	Homes
1. Champion Enterprises	4,653	16. New England Homes	350
2. CMH Manufacturing	3,166	17. American Homestar Corp.	341
3. Palm Harbor Homes	1,614	18. Four Seasons Housing	320
4. Muncy Homes	1,346	19. Handcrafted Homes	307
5. Excel Homes	1,200	20. Westchester Modular Homes	305
6. Ritz-Craft Corp.	849	21. Fleetwood Enterprises	261
7. Professional Building Systems	781	22. Unibilt Industries	253
8. Royal Concrete Concepts	600	23. Integrity Building Systems	247
9. Liberty Homes	552	24. Penn Lyon Homes Corp.	230
10. Pleasant Street Homes	526	25. Oxford Homes	220
11. Patriot Homes	490	26. Deluxe Building Systems	165
12. Crestline Homes	480	27. Barvista Homes	125
13. Simplex Industries	452	28. Custom Building Systems	121
14. R-Anell Housing Group	408	29. Heritage Homes of Nebraska	121
15. Stratford Homes	375	30. Manufactured Hsg. Enterprises	106

SOURCE: Manufactured Housing Institute

# The ENERGY STAR Qualification Process for Modular Homes (Under Development)



## Bifurcated process

### Plant (manufacturer)

- ❑ Plant Certification—plant is responsible for overall qualification with third-party
- ❑ Certifier oversight
- ❑ 100% of homes checked in the plant



### Site (builder)

- ❑ Individual homes are qualified
- ❑ Third-party inspections by Rater. 100% homes inspected, 1 in 7 tested)

# Green with ENERGY STAR



- ❑ Factory builders investigating options for building “green” homes (LEED and NGBS)
- ❑ Using ENERGY STAR as the certification platform



# Looking Ahead for Factory Building



- ❑ Roll out of modular program—many plants build both HUD-code and modular
- ❑ Rebound in sales will accelerate Energy Star
- ❑ Proof of concept in several markets
- ❑ Incentives for retailers (key in most markets)
- ❑ Green building will help catalyze Energy Star



# More Information



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