



MANAGERS

Putting building science to work for your bottom line

This document tells company leaders how to use proven technologies and a successful marketing program to gain competitive market advantage and improve your company's economic and product performance. A more efficient home can mean a faster return on your investment

An Invitation to Building Company Managers

We invite you to use the information in this packet to lead your company to increased profits and greater customer satisfaction. Building America is a U.S. Department of Energy (DOE) program that has sponsored building science research on 25,000 homes nationwide. These technologies and the Building America systems approach can set your company apart, giving you a considerable competitive advantage in how you design, build, and sell homes.

Building America

Building America works with the nation's premier building scientists to conduct research and bring knowledge to builders to help them build better homes. This knowledge has been gained from private/public partnerships involving builders all over the country working with DOE. Many builders have adopted the program's principles and improved the performance of their houses and companies. Over 250 builders and venders have partnered with Building America, including five of the largest 10 builders in the nation. This best practices guide contains results from this research in a form that your company can immediately build into your homes to increase efficiency, comfort, and durability. Learn more about Building America at www.buildingamerica.gov.

"About 4-5 years ago, we decided if we were going to stay in business in the business climate we are in with all the liability issues, we needed to find a different way to do things and that's when we found Building America...I have been in construction since 1965 and standard practice hasn't changed much. People did things the way they'd always been done. We were doing a lot of things wrong, not on purpose, we simply didn't know any better. Building America taught us how to build the right way. Through their experiments, they found out why buildings didn't work. They've taken new technology and they've developed a lot of ways to make a house perform."

Jerry Wade, President of Artistic Homes,
Albuquerque, New Mexico

QUICK TIPS | MANAGERS

- The smartest builders in the industry are working with Building America.
- Applying the Building America process can: cut your production costs, reduce risks, improve your bottom line, help make you a market leader, and turn your customers into lead generators.
- This document gets you and your company started.
- ENERGY STAR® can help you market your new and improved product.

INTRODUCTION

Taking action in your community



HOMEOWNERS

Shopping for value, comfort, and quality



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MARKETERS

Energy efficiency delivers the value that customers demand



SITE PLANNERS & DEVELOPERS

Properly situated houses pay big dividends



DESIGNERS

Well-crafted designs capture benefits for builders, buyers, and business



SITE SUPERVISORS

Tools to help with project management



TRADES

Professional tips for fast and easy installation

CASE STUDIES

Bringing it all together

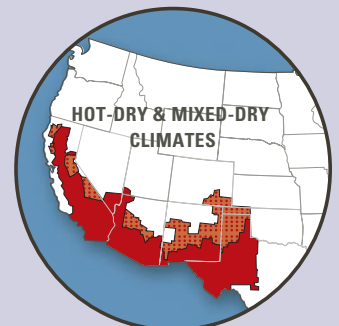


FIGURE 1: A small sampling of Building America’s 250 partners

Building America Partner	Ranking among Top 100 Builders
Pulte Homes	2
Centex Corp	4
The Ryland Group	7
Beazer Homes USA	8
K Hovnanian	9
Shea Homes	12
Habitat for Humanity International	16
Weyerhaeuser Real Estate Company	17

Source: *Builder ONLINE*, 2005

“The biggest benefit is the sense of satisfaction of doing something good. We’re conserving the environment and providing a better product to our buyers.”

Lucian Kragiel, Co-owner of Atlantic Design and Construction



The Business Case for Building Science and Energy Efficiency

Why are all these builders working with Building America? The answer is simple – Working with Building America can enhance your company’s bottom line. The Building America process and systems approach embraces building science, component technology and the system approach for house design and construction. The benefits include:

- Cost savings from making the best materials and equipment choices
- Reduced risks, increased productivity, and fewer callbacks
- Greater profit margins on energy efficiency and other upgrades
- Competitive advantage in the marketplace
- Customer satisfaction and referrals.

More information on each of these points is presented below. But boosting the bottom line isn’t the only reason builders build quality, efficient homes. Builders tell us it boosts their pride in their craft, increases the morale of their workforce, and gives them a good feeling at the end of the day, knowing they’re doing their part to help the environment.

Properly Choosing Materials and Equipment

Building science offers many tools to help you pick out the right materials and size them correctly, and to help make sure you are using them to build the right product. Explanations and suggestions on building systems, designs, and trade-offs are in the *Designers*  chapter of this document. The costs of some measures can be more than what you are currently spending. The idea is to use the materials best suited to the job and to size equipment accordingly. Higher prices in one area can be at least partially offset with savings in other areas. Costs for all building materials can vary tremendously in their own right, but your level of experience and design choices have a large bearing. For comparison, some builders find they experience no overall increase in materials costs to offer an energy-efficient package, but others suggest added costs of up to \$1,500 per home. In the *Designers*  chapter, we show one example of costs and savings that resulted in no added costs for the design used by a Building America partner in the mixed-dry climate. Read on to find out how this investment can add to your bottom line.

“Any home we produce is going to be here for a 100 years or better. Whether for our own legacy or to try to inspire a trend... We have never built a home that would not conform to ENERGY STAR or Building America standards.”

Chet Nichols, Executive Vice President of Amland Development, builder of *The New American Home 2003*, in Lake Las Vegas, NV

“There is a sense of pride in knowing that Medallion Homes takes the extra effort in research and production to deliver the best product for the price.”

Andrew Nevitt, Architect
Medallion Homes, San Antonio, TX

Reduced Risks, Increased Productivity, and Fewer Callbacks

These benefits follow closely from selecting and properly using the right materials and equipment. Making a change in your process may take extra time the first few times you try it, but once established, the payoffs can be significant.


One of the great values of using Building America approaches is that they were designed to solve construction problems, such as moisture degradation and mold growth, that plague builders. More than 10,000 mold cases are now pending nationwide, with an increase in cases of more than 300% since 1999 (Insurance Information Institute as reported in Wood and Clift, 2003).

Applying building science reduces the risk of big problems and helps to eliminate the more mundane defects that cost money to fix. If you reduce the time your crews are working on callbacks, you increase the time they can be working on new product.

From an Economic Standpoint, Everyone Wins

As a manager, watching your profit margins is a full-time job. The structure of your business and emphasis you place on consistency determines how much profit you get from options packages. Some builders choose to incorporate energy efficiency and health and comfort options into their base price; others include them as options with a profit margin similar to other premium add-ons. Whichever approach you use, the experience of other builders suggest that customers place great value on energy efficiency and will pay to get it.

Profit margins vary substantially from company to company. A National Association of Homebuilders report (1999) and *Professional Builder* magazine (2003) suggest a net profit margin of about 10% on overall house construction. This number is consistent with publicly traded homebuilding companies. Six companies' annual financial reports to the Securities Exchange Commission over 2001 and 2002 reported net profit margins ranging from 4.2% to 9.6%. Gross profit margins over this same time period ranged from 7.4% to 19.2%. In comparison, builders report they have gained about a 30% profit margin on efficiency upgrade packages.

In the *Homeowners*  chapter, we offer an example showing how energy-efficient homes end up costing less for consumers on a monthly basis when both the mortgage and energy expenses are taken into account. Consumers can either pocket these lower costs or use them to buy a more expensive home. Any upgrades translate into added profit.

In short, builders can increase their profits at the same time that consumers lower their costs. From an economic standpoint, everybody wins.

Customer Satisfaction and Referrals

Customer satisfaction matters to your company's future and energy efficiency matters to your customers. Pulte is a Building America Partner that brands its homes using ENERGY STAR. J.D. Power and Associates, a market research firm, gave Pulte's various divisions top rankings in 12 of the 21 U.S. markets it surveys, including Las Vegas, Phoenix, and San Diego, and placed it among the top 3 companies in 17 markets.

"We have seen a direct impact on our quality through the Building America Program. We are able to build a better product because of our consistent approach [in implementing Building America practices]."

Josh Robinson, Pulte Sun Lakes project manager and a Pulte Vice President (Vice President of Operations for Pulte, North Inland Empire Division of Southern California)

"A lot of our first-time home buyers do not realize what they are getting because they have not had the experience with another home. But the more sophisticated buyer, once they find out about our house, they won't buy anything else."

Jerry Wade, President of Artistic Homes in Albuquerque, NM

"Building America's technical assistance on building science helped us to reduce callbacks by 70% in our Chicago Division. That's a tremendous savings for our company and means our customers are happier with their homes."

Frank Beasley, V.P. of Building Science, Town and Country Homes

"Since partnering with Building America in 2001, Artistic Homes reports that its liability for defects and damage has been reduced, as has the number and cost of warranty calls; 'meanwhile, customer satisfaction is at an all-time high,' according to Max Wade of Artistic. The production builder has produced more than 2000 ENERGY STAR homes in Albuquerque, NM, since 2001."

As reported in *Builder Magazine* 11/1/03

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Pulte Phoenix, which J.D. Powers ranked first in that local market, also won the Diamond Award from *Professional Builder Magazine* and NRS Corp., a market research company that works with the home building industry. Pulte had the top customer satisfaction for production builders of nearly 300 builders in the nation.

Paul Cardis of NRS, a market research expert, notes that “customer satisfaction is important for many reasons, not least is that satisfied customers refer future customers and the conversion rate for referrals is twice that of non-referred shoppers.”

Consumers Expect More

Buyers want energy efficiency and they are willing to pay for it. A 2000 *Professional Builder Magazine* survey found that energy efficiency is the number one upgrade that homebuyers seek in a new home. Nearly 90% of new homebuyers in the survey were willing to spend more for energy efficiency features (Johnston 2000). Consistent with this study, the National Association of Homebuilders (NAHB) found that consumers would be willing to spend up to \$5000 more on a new home if it saved them \$1000 on their annual utility bills (NAHB 2002). And Pulte’s customers in Phoenix rated energy efficiency as the most important product-related reason for referring their contractor to new buyers.



Atlantic Design, a Building America partner, was recognized as a 2000 EPA Builder of the Year for its quality energy-efficient construction.

Competitive Advantage in the Marketplace

One of your key goals as a manager is to gain competitive advantage in the marketplace. The technologies described in this packet can give your company a technological edge. One easy way to tell the public about your new product is to partner with ENERGY STAR. ENERGY STAR is a nationally recognized branding program sponsored by the U.S. Department of Energy and the U.S. Environmental Protection Agency. Consumers trust the ENERGY STAR logo to tell them whether their product is energy efficient. Participating in ENERGY STAR is easy and it gives you an effective way to distinguish your product from your competition’s. Over 2,000 builders work with ENERGY STAR in the United States. And half of the 100 largest builders in the nation have at least one division building ENERGY STAR qualified homes.

ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient in space conditioning and water heating than homes built to the 1993 national Model Energy Code or 15% more efficient than the state energy code, whichever is more rigorous. These savings are consistent with the practices described in this best practices manual. Heating, cooling, and hot water energy use make up about half of a household’s total utility bills.

The September 2003 issue of *Professional Builder* provides six top reasons why customers are willing to recommend a builder. **Energy efficiency is first among the reasons related to product.**

“Nearly 93% of buyers of Pulte Homes in Phoenix had made at least one positive recommendation.”

Professional Builder Magazine, September 2003, p. 67

“Our attention to energy efficiency is what really makes Pulte’s homes stand out.”




Les Woody, Pulte Phoenix
Director of Customer Service

“Building America helps us with our reputation within the building community. Our reputation on the street is that if you want a good quality home you go to Pulte.”

Alan Kennedy, Vice President of Construction for Pulte Tucson

Take the Next Step

This information packet is designed to give your company all the information you need to start using the Building America systems approach in the hot-dry and mixed-hot climates. The techniques described will help you avoid many of the problems plaguing all builders in hot-dry and mixed-dry climates.

Make sure your team reviews the sections prepared for each of your company's capability areas: marketing, site planning, design, building site supervision, and the trades. This information will help your company compete in an increasingly complex and risky market. Following the design practices discussed in the *Designers*  chapter and the inspection and testing procedures outlined in the *Site Supervisors*  chapter will give you the technical information you need to build your business. Find more information on ENERGY STAR in the *Marketers*  chapter and on the Web at www.energystar.gov.

Case Studies

Take a look at the case studies at the end of the book. All offer examples of how builders achieve energy efficiency in the hot-dry and mixed-dry climates. And each is a working example of building science and building profits in action.

These case studies show builders that companies can set the pace for your move to high-quality building science-based construction. Some builders climb stairs one step at a time. Others jump on the elevator and push the button for the top floor. Both approaches will get you to your destination.

Sources & Additional Information

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You can learn more about Building America and download additional copies of this document at www.buildingamerica.gov