



# qualityhome<sup>sm</sup>

## IN THIS ISSUE

- Lighting ..... 1
- Contractors ..... 2
- Window Installation & Flashing Guide ..... 3
- Performance Products ..... 5
- Tax Credits for Builder ..... 6
- Training Programs ..... 6

A BI-MONTHLY NEWSLETTER FOCUSING ON CONSTRUCTION QUALITY

JANUARY 2003

## ADVANCED RESIDENTIAL LIGHTING DESIGN

*As part of a quality home, advanced residential lighting design not only improves the look and feel of rooms, but can also reduce the energy required for lighting and cooling. Reduced energy use, a cost savings for homeowners, is an advantage that has become clearly marketable because of increased consumer awareness and rising energy prices.*

EVER SAT DOWN TO WATCH TV AND NOTICED GLARE ON THE SCREEN FROM LAMPS OR CEILING FIXTURES? WANTED TO READ A MAGAZINE IN YOUR FAVORITE CHAIR BUT HAD TO SQUINT BECAUSE OF POOR LIGHTING? ADVANCED APPROACHES TO RESIDENTIAL LIGHTING DESIGN ADDRESS THESE ISSUES, IMPROVING THE AESTHETICS AND COMFORT OF THE HOME, AS WELL AS SAFETY AND VISIBILITY IN AREAS WHERE HOMEOWNERS PERFORM COMMON TASKS. AS AN IMPORTANT COMPONENT OF HIGH PERFORMANCE QUALITY HOMES, ADVANCED RESIDENTIAL LIGHTING DESIGN TECHNIQUES CAN ALSO REDUCE THE HOME'S ENERGY USE.

Residential building code requires that every habitable room and bathroom be lit by at least one switch-controlled source. Yet a single light source rarely provides more than one type of light. Types of light include ambient (general lighting around the room), task (lighting that illuminates a specific area such as a counter or reading chair), and accent lighting (the track light that highlights photos of Aunt Marge). Research into lighting design indicates that each room needs a balance of different types of light to help homeowners perform common tasks while making the home aesthetically attractive. Achieving this balance means a lot of different light sources. Unfortunately, incandescent lamps, which are most often used in homes, are energy hogs and burn out quickly.

### Why Change?

Chances are homebuyers don't make as much fuss about wanting better lighting as they do about, say, wanting a bay window. So why should you? As part of a quality home, advanced residential lighting design not only improves the look and feel of rooms, but can also reduce the energy required for lighting and cooling. Homebuyers notice the difference in how homes that are well lit feel, and in a market where there is often little difference between one builder's product and another, this small competitive edge may give you an advantage. Additionally, reduced energy use, a cost savings for homeowners, is an advantage that has become clearly marketable because of increased consumer awareness and rising energy prices.

### Where Do I Start?

Prioritize. Focus on rooms used most, such as the kitchen, family room, and perhaps a home office. According to a study by Parker and Schrum, on average, fewer than 30% of the fixtures in homes account for 75% of the lighting energy costs (see "Florida House Aglow with Lighting Retrofit," Home Energy magazine, Jan/Feb 1997). By designing with energy efficient lighting like fluorescents, lighting electricity costs can be substantially decreased. This approach gives the best return on an investment in high quality fluorescent lighting

*continued on page 2*

### Changing Attitudes About Changing Light Technologies

Common barriers to using energy efficient fluorescent lamps are that they cost too much and that they're ugly. But the cost and performance of fluorescents have improved considerably in recent years, making the argument for using them strong.

#### "THEY COST TOO MUCH."

Quality residential linear fluorescent bulbs cost between \$3 to \$15.

It's important to remember that this associated first cost is offset by the life of the lamp. According to Home Energy magazine, CFLs use one-quarter to one-third as much electricity to give the same light output as a standard incandescent bulb, and last up to 10,000 hours, compared to 1,000 for the typical bulb. Most incandescents would have to be replaced several times during the lifetime of a fluorescent. Furthermore, fluorescents give off less heat, which contributes to cooling cost savings.

But are consumers willing to pay more? According to "The State of Green Building 2001 Survey" conducted by HousingZone ([www.housingzone.com/green/](http://www.housingzone.com/green/)) consumers are willing to pay more up front for energy efficiency upgrades that will reduce their monthly bills. And, they're willing to accept a longer payback period for those upgrades.

#### "THEY'RE UGLY."

A big advance in fluorescents over the past few years has been improved color, according to a researcher at the Energy Efficient Fixtures Lab at Lawrence Berkeley National Laboratory (Home Energy magazine, May/June 1998). It is quite possible to achieve excellent residential light quality that is indistinguishable from incandescent lighting, if care is taken in selecting the fluorescent bulbs. For residential use, color temperature of 2700-3000°K and a CRI of 80 or greater are recommended.

## F Y I :

Homeowners notice the difference in how homes that are well-lit feel. In a market where there is often little difference between builder's products, this small competitive edge may give you an advantage.



Good lighting makes the home look and feel better.



and allows latitude to use incandescents in rooms that are used infrequently.

#### Emphasize the Architectural Character of Rooms

An aesthetically appealing technique for quality lighting design is to use concealed light fixtures in coves or window trays to illuminate distinctive room features like the ceiling. The light will appear natural and unobtrusive, thereby enhancing its effectiveness.

#### Layer Lighting for Maximum Effect

Design lighting in layers. Ambient light from room surfaces and furnishings provides general illumination and light for way-finding and safety. Provide task lighting for activities such as cooking, TV or computer viewing, reading, and socializing. Provide accent light for highlighting architectural features and other decorative and aesthetically distinctive aspects of the home.

#### Consider The Room's Purpose

When designing a room's lighting, consider which activities are most important for that room. In the kitchen, for example, counters, eating areas, and work surfaces should receive primary lighting, while cabinet interiors should receive secondary consideration.

#### Lighting as Part of Integrated Systems Design

It's important to remember that, as a component of the house, lighting can impact other house systems. When hard wired energy efficient fluorescents are installed in the most used fixtures throughout the house, reduced cooling loads can result, and a downsized air-conditioning system may be possible. An integrated systems design that starts in the planning stages and is carried through in the field will enable you to plan for these interactions to maximize the performance of the home.

If you're committed to building quality homes, it's absolutely necessary to consider advanced approaches to residential lighting design. Improving lighting as part of an integrated systems design can improve the home's overall appearance and performance, making it more energy efficient, safe, and visually comfortable.

# CONTRACTORS:

A KEY TO

# QUALITY HOMES

At a seminar I was conducting on quality practices for a builder's preferred contractors, one contractor approached me during the break, clearly upset. "This builder says I'm preferred," he explained. "He invites me to this quality seminar, and just now, during the seminar, I found out that we're not going to get the contract on that upcoming development!"

A few phone calls later we discover that the person who was supposed to call the contractor and inform him of the builder's decision a few days before the seminar had dropped the ball. Sure, mistakes happen to the best of us. The problem here was how the builder handled the situation.

Will this incident affect the quality of the contractor's future work? Because the builder did an excellent job of reassuring the contractor of his company's importance, it probably won't. But for other trades and contractors who perceive that in some way they are not being treated fairly or with dignity and respect, the quality of work will often follow the quality of treatment.

#### POINTING FINGERS DOESN'T HELP

We've all heard stories of homeowners taking time off work and contractors not showing up. You know the outcome. No matter how above and beyond the sales and construction teams went to delight the homeowners, in an instant, homeowners were angry, and customer satisfaction scores get slammed. String enough incidents together and there goes the builder's reputation—at least in the eyes of that homeowner and everyone they tell.

It's easy to blame it all on the contractors. However, experience tells us that contractors often do not have an intimate understanding of what the builder is trying to accomplish in terms of quality and customer satisfaction. It's the builder's responsibility to make sure they're getting the message across in a way that the contractor can understand and relate to. That means communicating without threat or intimidation. To accomplish this effectively means educating and involving the trades and contractors in decisions that affect them and the quality of their workmanship.

#### Involve your best trades and contractors at the planning stage.

Contractors who are involved in decisions that affect them tend to be more committed to providing quality workmanship and are more likely to go above and beyond the scope of work.

**Invite contractors and suppliers to your in-house quality seminars.** Give them an opportunity to interact and develop a more cooperative relationship with field and office personnel away from the job site. Across the country, we've heard that contractors appreciate the opportunity to participate in these types of meetings.

#### Implement an advisory council.

Since builders have to manage what is, by nature, a very unpredictable process, structure and stability must be imposed. An effective solution is to implement an ongoing advisory council of key suppliers and trades.

This group represents a core leadership body from the mass of people who do the daily work of the builder, but are not under that builder's direct control. They serve as a conduit from the builder to the worksites that enhances communication both ways and serves as a monitoring and measuring device, giving the builder continual feedback from the work site.

#### INVOLVE CONTRACTORS

One superintendent told me of communication problems he was having with non-English speaking contractors. "I'd have to always ride those guys to make sure the work met our quality expectations. It was kind of a brute force management method. I kept thinking 'there's got to be a better way.' Then it dawned on me that I was always expecting the contractors to see the world in my terms. A couple of the other superintendents laughed when they caught me with a paperback dictionary in my hands trying to speak several Spanish phrases. They stopped laughing, however, when we were coming in with few major items on final walks. I began noticing over time that the contractors began seeking me out, anticipating problems and going the extra-mile, as they seemed to feel a greater sense of respect for their skills, knowledge and culture." This superintendent's small gesture of respect yielded significant and positive results.

#### ALL FOR ONE, AND ONE FOR ALL

From the homeowner's down payment through the warranty period and often beyond, think about how many disciplines will be involved directly or indirectly in building a quality home with satisfied homeowners.

Now think about how many homes you hope to close in 2003. What should your customer satisfaction survey scores look like in order for you to become or maintain your reputation as the builder of choice in your area? Now, which discipline or function don't you need in order to hit your numbers on every level? Which realtor, contractor, trade or supplier does not need to understand precisely why quality and customer satisfaction are important as well as to be treated with total dignity and respect by all builder employees?

The answer should be clear. What goes around comes around. Treat contractors, trades and suppliers with at least the same level of dignity and respect you show your homebuyers. The quality of your communication, education and treatment will follow in the quality of workmanship.  
--Daron Powers

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# W I N D O W

## installation & flashing

### guidelines

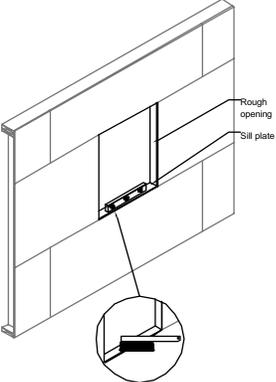
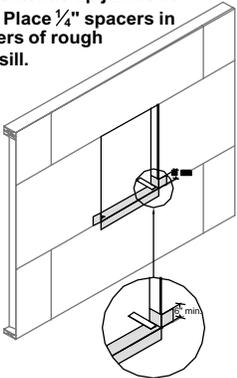
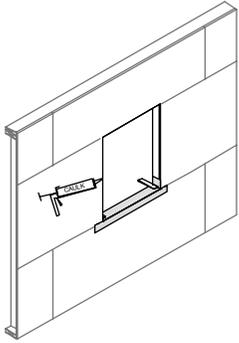
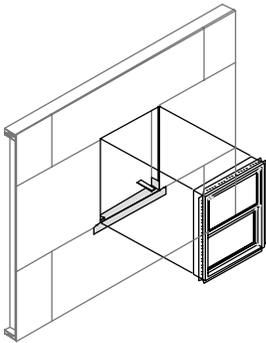
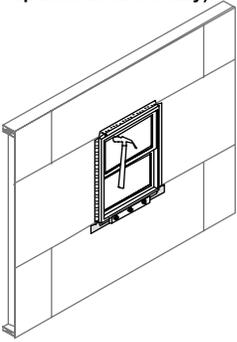
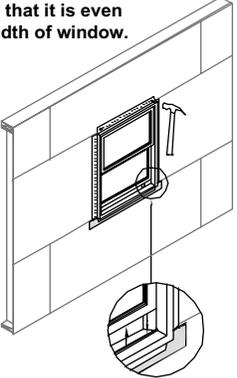
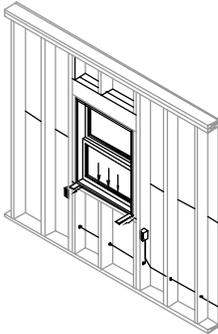
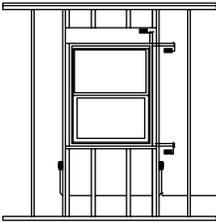
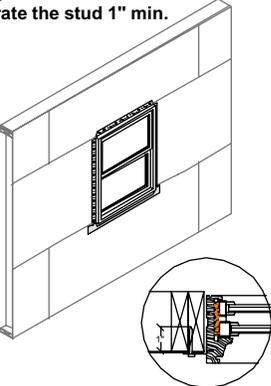
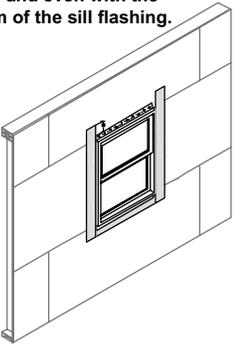
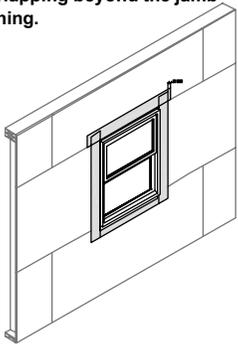
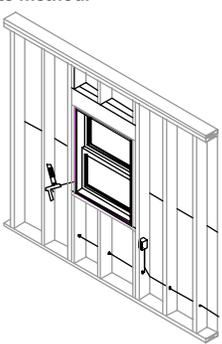
Installing windows can be tricky. Try it without knowing how to do it right or skip a step, and you run into problems. At a minimum, the warranty will become invalid if the window isn't installed to the manufacturer's specifications. More seriously, if window flashing is not properly installed, rain water can leak behind the windows and enter walls. If wet building materials can't dry, moisture has the potential to seriously damage the home. Moisture intrusion can lead to mold growth, a cause of unhealthy indoor air. It can also lead to wood rot, which creates structural problems.

The twelve steps on the back of this page illustrate the preferred method when installing flanged windows in an envelope that will use an exterior sheathing as a drainage plane. Following these steps will minimize the potential for moisture intrusion and contribute to a quality home. Planning for frequent inspections is also important to ensure the windows are installed properly.



BEST PRACTICES

# window installation & flashing guidelines

<p><b>Step 1</b> Check to ensure sill plate is level &amp; surface sheathing is clean.</p> 	<p><b>Step 2</b> Install self-adhesive flashing to the sill, ensuring that flashing extends up jambs at least 6". Place 1/4" spacers in the corners of rough opening sill.</p> 	<p><b>Step 3</b> Caulk the outside edges of the head and side jambs.</p> 	<p><b>Step 4</b> Install window in to opening.</p> 
<p><b>Step 5</b> Nail one side of head flange. Check window for level (adjust spacers as necessary).</p> 	<p><b>Step 6</b> Nail other side of head flange. Narrowly open window sash and check gap to ensure that it is even across width of window.</p> 	<p><b>Step 7</b> Close window sash, remove sill shims.</p> 	<p><b>Step 8</b> Ensure even space between the sash and frame on top, bottom, and sides.</p> 
<p><b>Step 9</b> Finish nailing through every other pre-punched hole on the nailing fin. Ensure nails penetrate the stud 1" min.</p> 	<p><b>Step 10</b> Install the jamb flashing, with 4" above the top of the head flange and even with the bottom of the sill flashing.</p> 	<p><b>Step 11</b> Install the self-adhesive head flashing, with 1" min. overlapping beyond the jamb flashing.</p> 	<p><b>Step 12</b> Seal gap between the window and the rough opening with appropriate method.</p> 

# SELECTING PRODUCTS for performance

If you're a builder concerned about long-term liability and customer satisfaction, it's absolutely imperative that you take control of the quality and performance of your product—the home. A key part of that equation is taking control of the quality of the critical products that are installed in your homes and the process in which they are installed.

## SET YOUR OWN STANDARDS

Suppliers, trade associations and third party organizations have specific performance characteristics that they measure and report. But don't leave it up to external parties to provide the guidance you need to appropriately select products that will help to ensure the performance of your homes. Set your own standards and institutionalize them in your company.

Once standards are set, it's up to you to ensure that adequate training and quality assurance procedures are provided to consistently meet the standards that have been set. Major production builders are particularly at risk because they produce so many houses every day—if the installed performance of a product deviates from the desired specification, it will show up in the form of frustrated customers inundating customer service phone or email systems. Because of the scale of production, systemic issues with quality and performance may landslide when they occur.

## CHEAP ISN'T CHEAP IN THE LONG RUN

The cheapest product is not the cheapest product. Period.

Lean profit margins and quick turnarounds tempt cutting corners in the most obvious places—often, this means purchasing less expensive products. However, initial cost versus delivered cost must play into the equation or the cost is far more than expected. Lack of trade familiarity with a new product or lower product quality can lead to improper installation or increased labor cost and can result in increased callbacks and warranty issues. Ensuring a deliberate training effort for your trades, as well as providing site supervisors with appropriate tools to check for quality during installation, is imperative in ensuring installed quality.



Also, consider the cost of low quality products to the builder's brand—after all, cost is not only measurable in dollars. Tom Brick, Director of Construction and Quality Initiative Programs for U.S. Home Corporation (a member of the Lennar Family of Builders) relays, "70% of premature product failure is the result of poor installation, not poor product. If the product fails, the product brand, and the builder's brand, suffers."

If you're going to change a product specification, do it deliberately and slowly. Do your research on implementation issues, as lack of trade familiarity with new product technologies can cost you money and cause you headaches. Have a trial run (or six) to apply the new product to a limited number of homes where the risk is manageable and correction of any issues is manageable. Make sure your trades are trained appropriately and that your site supervisors have the tools they need to do an adequate quality assurance check.

Pat Kurek with Hedgewood Homes in Atlanta, GA shares the following wake-up call. "We were looking at a new pressure treated exterior wood shingle, with a 50 year warranty. The one we were using had no warranty, so there was a clear benefit to the new product we could pass on to the homeowner. The manufacturer told us that the product was the same price, and we had heard that it could be installed the same way." After doing a trial run on one home, Kurek found that the product looked terrible. The lap, exposure, and size of the new product were very different from the existing product. If he had approved it for use in his production before this trial, there would have been a much greater problem than simply dealing with the aesthetics of the one test home.

Examples of poorly researched and implemented product or system changes can be more extreme than repercussions to the aesthetics of the house. For example, take basement insulation, which is now required in many regions under the IECC (International Energy Conservation Code). Builders who select blanket insulation with non-permeable facing (like vinyl or foil) risk creating a veritable petri dish for mold growth when the insulation is applied against a new concrete basement wall, which can contain hundreds of pounds of water that take up to a year to dissipate.

## THE CHICKEN OR THE EGG?

According to many builders, product selection comes second to vendor selection in the process of ensuring product quality and performance.

"I would rather have an ordinary product from a vendor who was willing to be flexible and work with me, than an extraordinary product from a vendor with a bad attitude," says George Casey of Arvida Homes, in Florida.



Find a supplier who recognizes the importance of individual customers and who is both willing and, as an organization, able to be responsive and to create strategies that work within the nuances of your business.

## ENSURE THAT THE QUALITY IS THERE

Basic product testing and good brand reputation doesn't mean the product will live up to your customer's expectations.

Talk to your trades. Understand their limitations and weigh their experience (good, bad, or none at all) with the products you're specifying in the product selection equation.

Talk to your suppliers. What do they do to assure quality of the delivered product in the factory, during distribution and delivery? How often is the product tested for performance? If the performance of the product relies heavily on installer skill (such as blown-in insulation), what does the supplier do to ensure that the installers have adequate information and training to achieve the specified performance?

Talk to other buyers (the suppliers' customers) and be nosy. Looking at other builders who were using [the wood shingle product], Kurek noted that although the manufacturer clearly states a 50-year warranty, there were clearly apparent durability problems. They're still not using the new product, and according to Kurek, they won't until he's been assured through additional research and simply keeping his eyes open, that it will hold up to the manufacturer's promises.

The actual selection of products is only a small component in ensuring installed performance, and ultimately, overall building performance and quality. Deliberately taking control of the quality and performance of your homes through the development and implementation of performance standards, selection of trades and suppliers for flexibility and performance, appropriate training of trades and quality assurance, and product selection is an integral part of reducing liability, increasing customer satisfaction, and finally, simply building quality homes.



## ABOUT US:

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Since 1991, IBACOS has worked in the field to enable builders to consistently design and build homes to higher standards of quality and performance, and in the lab to define and develop the technology and process necessary to achieve this goal. We provide the tools and resources necessary to build better homes. For more information contact Stacy Hunt, at 412.325.1523 or shunt@ibacos.com.

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## TAX CREDITS FOR BUILDER TRAINING PROGRAMS

Most builders have realized that training their employees is necessary, especially considering high staff turnover and changing product technologies. After all, the quality of a home is only as good as the quality of the way in which it was constructed. A common reason for not implementing training programs, though, is cost. How much more likely would you be to train more if you knew you could offset the cost with tax credits?

John Wieland Homes is taking advantage of just such a program. They've successfully applied for and received tax credits in excess of \$400,000 from the State of Georgia over the past four years.

Programs differ by state, and each program has its own criteria for qualification. If a company is unable to apply internal resources to research and take advantage of these programs, there are several companies that assist in finding a match between a tax credit program and the builder's training initiatives. One company, Tax Break L.L.C., has created a national database complete with all relevant tax credit and grant information on a state-by-state level. This company, who worked with John Wieland Homes, will work with builders to help them take advantage of the tax credit programs. For more information on this company, visit <http://www.trainingdollars.com>. Or, you can begin your own research by visiting [www.taxcreditresearch.com](http://www.taxcreditresearch.com).

Consistently training your employees is an important part of quality construction practices. With tax credits that offset the cost of training, there's even more reason to improve or begin a training program.

"Initially, taking advantage of the tax credit in 1998 allowed us to offset about 25% of our very small budget. We were able to gain acceptance for a brand new initiative called training. Capitalizing on that momentum, we were able to continuously expand our efforts. Today, Wieland University provides 1,000 Company Members with 18,000 training hours annually."

**LAURA McMURRAIN**  
VICE PRESIDENT OF  
ORGANIZATIONAL DEVELOPMENT  
JOHN WEILAND HOMES