

Word On Windows

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Builders View Window Upgrades as High Priority, Reports IBACOS

Builders are getting the message that energy efficient windows represent their high technology solution for comfortable, economic and energy efficient housing. That's not just anyone's opinion—it is the word from IBACOS Consortium, or Integrated Building and Construction Solutions, Pittsburgh, PA. Experts from IBACOS, as part of the Building America team, counsel and assist builders who want to bring their home-building products up to higher standards in advanced performance.

Builders are open these days to hearing the message about efficient windows, says Bill Rittelmann, an engineer with IBACOS. The impetus is not consumer-driven, it is coming from builders who are taking the time to educate themselves about the energy benefits and added comfort that high performance windows can provide. Part of the growing interest is fueled by the growth of Energy Star Homes builder participants. In the past, Building America teams have met with mixed reception from some builders, but this year the IBACOS group is having 100 percent success in approaching key builders.

No one likes the time and effort needed to master new skills. So, why are builders now showing renewed interest in learning the principles and fine points of building a new home as an

integrated system? The answer, according to Rittleman, can be found in the economy. Times are good in many regional markets and there is enough business for builders so that they feel they can afford to invest some thought in preparing for the future. "The best builders don't want to be left behind when the technology is advancing so quickly," he says.

Hedgewood Properties, a builder in the Atlanta, GA area, is one of the latest to come under the mentoring guidance of IBACOS and Build America. Vice President Pam Sessions got interested in green building through conversations with Peter Yost of NAHB's Research Center. Pam chaired a Green Builders committee in the Atlanta area and the company agreed to construct five pilot homes to put some of the theories to the test.

When approached by IBACOS, Hedgewood Properties already was constructing very good houses. The two Hedgewood-built homes analyzed by IBABOS easily complied with Georgia Energy Code (MEC 95). Bringing the level of performance up to Energy Star was a "very realistic goal," said Rittelmann. The building consultants conducted tests to quantify the current level of construction and observed construction practices. To test the house shell and the ductwork, a series of blower door and duct blaster tests were performed. A digital manometer was also used to check for unsafe space pressure conditions for gas burning appliances and attached garages.

"Typically, we find that the homes we

test are far leakier than the builders believe they are," reports Rittelmann. The testing helps crystalize in the builders' minds at what level the house performs and builds credibility for the suggestions in the initial report that IBACOS makes to the builder.



The package of IBACOS recommendations to Hedgewood is resulting in construction of a new Hedgewood home, Edmund Park, crafted to Energy Star standards. The 3550 square foot model home, scheduled for completion this fall, will be called the Earth Craft Show House and will showcase the local green building program in Atlanta.

The house will be on display for one to two years and will be used as a sales office for Hedgewood. The garage will be used for multiple demonstrations of energy efficient techniques and materials used in the home. Even after the home is sold and occupied, the builder plans to monitor it for performance.

Window specifications call for double-paned, low-E glazing with a U-factor of 0.33 and solar heat gain coefficient (SHGC) of 0.34. The consultants noted that the window performance values had to be achieved in order to attain the Energy Star rating for the house.

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Alternatively, if Hedgewood opted to use its current windows— $U=0.54$ and $SHGC=0.59$ (estimated)—the condensing unit efficiency would need to be greater than 14 SEER in order to achieve Energy Star performance levels, the IBACOS team stated. “Going to a higher performance window substantially reduced the cooling load which allowed for a more economical cooling system to be used,” said John Broniak, project manager for IBACOS.

In the Atlanta market, the standard window type used by builders is double-glazed aluminum-framed. The high performance windows for Edmond Park were not easily available and were almost considered a “special order.” Delivery time for these products took longer than the builder had expected. “We’ve been spoiled by the convenience of our local shop-built windows,” said Sessions. It took three houses to get the ordering process straight. Adding to the confusion, terminology for door sizes reflects regional customs. The doors that Hedgewood ordered, ended up being the wrong size and arrived untrimmed, unlike the products used previously. These glitches, common to a developing market, are being systematically addressed by IBACOS as it attempts to move the marketplace toward more efficient construction practices.

“It’s a learning curve,” explained Sessions. “Once you have the procedures in place and the people educated, everything moves much faster.” Labor markets in the Atlanta area are tight. It was a challenge to train all the subs, but—once trained—they developed initiative and started proposing ideas that further improved the process.

The follow-up service and attention to detail mark a new stage in the Build America partnerships. “In the past, after completion of a pilot home, the Feds (federal government) moved on to develop new relationships,” explained Riddleman. “Now, we have as our priority to get these changes adopted into standard practice. We want to see a pilot home that sets the stage for many to come.”

Boston Gas Shares Proposal To Promote Efficient Windows

Boston Gas, serving 480,000 residential customers, is sufficiently convinced of the comfort and energy savings of high-performance windows that it is willing to put up real money to prove its point.

Pending regulatory approval, the utility will unveil this Fall its efficient windows rebate plan, with an overall first-year budget of \$400,000. On a first-come, first-served basis, homeowners can apply for a \$1/sq foot rebate for windows that meet Energy Star standards, up to a maximum \$500 per customer. “We expect customer interest to be intense,” predicts Boston Gas Program Manager Janice Carroll.

The action will make Boston Gas the first utility in the Northeast to promote efficient windows as a separate technology.

The rebates will be paid directly to consumers. The utility, which successfully ran similar rebate programs in the past, will conduct random inspections of installed products.

Once the money runs out—and Carroll predicts only 550 customers will be lucky enough to grab the rebates—Boston Gas hopes to work with major window manufacturers or distributors to offer, for a limited time, a discounted price on qualifying Energy Star windows.

Although the rebate plan is new, Boston Gas has successfully promoted efficient windows over the past two years. The utility participates in several large home shows, where it displays an NFRC-labeled demonstration window that meets Energy Star standards. The utility distributes Efficient Windows Collaborative Fact Sheets, customized to the local climate and featuring the company logo, at the home shows. Boston Gas also supports and works with builders participating in the Energy Star Homes program.

To give the public a glimpse of the benefits that high performance win-

dows can offer, Boston Gas developed last year a windows demonstration program that resulted in two noteworthy residential retrofits.

The Pine Street Inn is a single-family residence that serves as a transition home for homeless families in Dorchester, MA. The home’s existing 22 windows were replaced with high efficiency windows (low-e with argon gas-fill, u-value .33) and Boston Gas covered half the cost.

Originally, the utility had expected to cover the incremental cost of windows meeting Energy Star ($U=.35$ or less), but that approach proved troublesome. “There was no stability in the costs we received,” recalls Carroll. “It became almost impossible to accurately determine incremental cost.” Instead, the utility focused on finding worthy non-profits for its demonstration of window efficiency.

The second window project was an elderly housing complex in Winthrop, MA, consisting of 30 individual units in 3 buildings. The utility audited the facility and conducted blower door tests, then replaced all 120 windows. Like the Pine Street Inn, this project was also going to be a cost shared one, until it was learned that Housing Authority rules would require the non-profit agency to go out to bid on the window replacement. Rather than go through the trouble and delay, Boston Gas simply donated the windows.

The retrofit has been a resounding success with the elderly inhabitants. They told Boston Gas staff that they were delighted with the comfort of the new windows and they especially appreciated the windows’ operational ease. Former windows were too difficult for many residents to adjust by themselves.

Natural Light in Schools Credited With Higher Student Test Scores

A new study, one of the largest and most rigorous ever on natural light in schools, suggests children learn faster and do better on standardized tests in classrooms with more daylight. Heschong-Mahone Group, a Sacramento-based energy consulting firm, conducted the research for the California Board for Energy Efficiency and Pacific Gas and Electric Co. Statisticians analyzed test scores of more than 21,000 elementary school students in school districts in Capistrano, California; Seattle, Washington; and Fort Collins, Colorado. The study found that learning rates were 26 percent higher in reading and 20 percent higher in math in classrooms with the most natural light.

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The research also looked at daylighting's effect on retail sales, finding that sales in stores with skylights were up to 40 percent higher compared with almost identical stores in the same chain without skylights.

While daylighting strategies such as skylights, well-placed windows, and reflective surfaces have long been advocated as a way to conserve energy, builders or building owners may be more excited about daylighting's effects on people. The new daylight research is "one of the better recent studies that indicates there are effects here worth looking at," says Steve Selkowitz, head of the building technologies department at the Lawrence Berkeley National Lab, who coordinated the scholarly review of the findings.

Psychologists and energy efficiency experts have long suspected that something as simple as sunshine may help people work more efficiently, learn more, call in sick less often and sell more.

To order a copy of the studies:
[/www.h-m-g.com/toppage11.htm](http://www.h-m-g.com/toppage11.htm)

This article is reprinted courtesy of the Sacramento Bee, 28 Jun 99, p A1, by Carrie Peyton.

"Students enjoy learning in a naturally-lit classroom designed by Gary Bailey, Innovative Design Architects, Raleigh, N.C."

SPOTLIGHT On Collaborative Members

EMPIRE PACIFIC FINDS WEST COAST MARKET RECEPTIVE TO NEW LINE OF LABELED VINYL WINDOWS

Empire Pacific Industries (EPI) a Pacific Northwest-owned and operated company, is well known in the window manufacturing industry with markets in both residential and commercial construction. Empire Pacific Industries was established in the early 1960's. Bob Bassett and Tom Foley appropriated the window portion of the business in 1986. Russ Taylor, Vice President of the Eugene and Northern California divisions said that at the time Bassett and Foley took over the company, EPI had a very small niche in the marketplace.

Through aggressive product development, added sales staff and emphasis on service, EPI has grown from a very small company to one that holds a substantial share of the vinyl window industry in the markets it serves. The key to EPI's growth and success is a focus on exemplary customer service, experienced and dedicated employees, and the development of products that go beyond the minimum code and industry requirements.

For the past 6 to 8 months EPI has been rolling out it's new proprietary line of windows and patio doors. These products are offered to the market with Energy Star performance ratings. With vendor support of Royal Sierra and Cardinal Coated Glass, EPI meets or exceeds the needs and codes of the marketplace. One hundred percent of EPI products are NFRC-labeled.

EPI quickly realized the marketing advantages of Energy Star Windows and was one of the first manufacturers to sign on with the EPA/DOE program. Through aggressive dealer and contractor educational seminars, EPI has been promoting the Energy Star program and

as a result, new markets have been opening. Peter Gram, Sales Manager of the Eugene Division, and his staff have been working diligently to see that the Residential Builder recognizes and implements the advantages of the Energy Star Program in promoting their homes. Clyde Tipton, General Manager of the Northern California facility in Sacramento is also experiencing renewed interest of consumers in energy savings in markets where air conditioning is quite costly.

"It is very exciting to see a builder's real estate representatives conceptualize and use the benefits and advantages of

the Energy Star Program to the houses they are marketing," says Gram.

"Management at Empire Pacific feels the company's promotion, participation, and use of the Energy Star Program is truly a win-win situation. Builders and dealers win with added market share and the consumer wins not only with added value, but also a product that in part pays for itself in energy savings. This is one program that passes the "no-losers" test," summarizes Vice President Russ Taylor.

Recognition of these benefits has led to the expansion of Empire Pacific Industries's Tualatin and Eugene manufacturing facilities, as well as growth in the company's Sacramento distribution center.

Over the next few months, EPI will be sponsoring training sessions conducted by the Efficient Windows Collaborative in three locations. EPI's sales force, production employees, and marketing executives will learn together how to best

present the benefits of efficient windows. The company, in turn, will be well positioned to use NFRC and EnergyStar to full advantage.

TRADITION AND INNOVATION MIX EASILY AT MATHEWS BROTHERS

A 145 year tradition of attention to detail along with an abiding interest in technology and innovation is what keeps Mathews Brothers Company, a regional manufacturer of wood and vinyl windows, thriving. Located in Belfast, Maine, the millwork manufacturer has been in business since 1854 . . . and with the increasing demand for energy efficient products, business has never been better.

Started by Spencer Walcott Mathews and his brothers Sanford and Noah, the company has overcome many obstacles through the years, including the depression of the thirties and a fire that completely destroyed the company storehouse in 1873. Mathews Brothers managed to survive these challenges by adapting to the economic times of the day. In the early 1900's the company also built sailing schooners for coastal tradesmen and later, during World War I, built pine coffins for the war effort. However, the company's primary focus has always been to make quality window products for the people of New England.

In 1991, Mathews Brothers moved their manufacturing operations from the original mill location on the Belfast waterfront to a new state-of-the-art facility consisting of 120,000 square feet of manufacturing and warehouse space. This new location gave the company the opportunity to incorporate many efficiencies into the manufacturing process, and provided it the space to also manufacture vinyl window products, a rapidly-growing part of the business.

Mathews Brothers sells their window products through a network of dealers and distributors located primarily in Maine and Massachusetts, although their products can be found in homes as far south as New York.

Mathews Brothers has long been an advocate of energy efficient window products, incorporating insulating glass into their traditional style windows in the

1970's. The company has been a member and supporter of NFRC since it was first formed and currently labels all its product lines. Mathews Brothers is also a charter member of EWC and involved in the EnergyStar windows program.

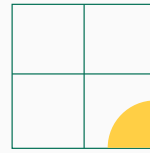
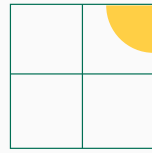
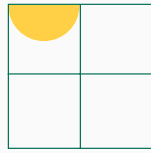
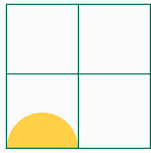
"Membership in these organizations has helped Mathews Brothers stay on top of what is happening in our industry," says Steve Hart, Vice President. "We are a small, regional company but our involvement in NFRC has given us the opportunity to have a voice in its programs, and to be recognized with manufacturers that sell on a national level."

When Massachusetts adopted a requirement that all windows be NFRC labeled, representatives from Mathews Brothers provided real-world evidence to manufacturers and builders not familiar with the program that the cost of certifying and labeling was not as unreasonable or burdensome as feared by some. Initial start-up costs for labeling seem high, of course," said Steve Hart, but when spread over the four years that the certification is valid, the cost is not significant.

"Because of the severe Maine climate, local builders and customers have always looked for and used the most energy efficient products available. It was therefore a surprise to us that over the border in Massachusetts, there was resistance to the minimum requirements proposed by the state. Since the new law has gone into effect, however, we have seen a dramatic increase in the demand for our more efficient windows," Hart said.

Mathews Brothers conducts annual seminars and training sessions for its dealers to acquaint them with the benefits of using energy efficient products. "Once a customer is informed about the increased comfort realized by using efficient windows, there is no reluctance to spend a few dollars more," Hart said.

In sum, said Hart: "We strongly feel that continued involvement in organizations such as NFRC and EWC will give Mathews Brothers the ability to offer the best in efficient window products and enable us to stay in business another 145 years."



CollaborativeNEWS

WINDOW WATCHING ON THE WEB

Those readers who haven't been hitting their favorites button for www.efficientwindow.org are missing some exciting improvements.

Designed to serve as an unbiased and comprehensive resource on all aspects of windows and energy efficiency, the Efficient Windows Collaborative web site, www.efficientwindows.org, receives significant and exponentially-increasing use. Last Spring, soon after the site was launched, it was receiving approximately 1500 user sessions a month. Current use is approximately 9,600 user sessions (or 200,000 hits) per month. If current trends continue, monthly usage will more than double by the end of 1999; for calendar year 1999, user sessions will total 180,000 users and total traffic will be 4 million hits.

While a number of the changes are enhancements to graphics to give a consistent "feel" to all the content, there also has been a major re-design of the Window Selection page. This page is the top-ranked favorite (other than the opening page), according to web analysis reports.

Now, in the Selection page, it is easier for visitors to navigate by first selecting their region, then their city, then Energy Star, NFRC or specific data. Energy Star windows information is displayed for the specific Energy Star zone. NFRC information is displayed for the recommended properties for the zone. And all the fact sheets are downloadable at national, regional and city levels.

Our web wizards at the University of Minnesota didn't stop there. They also reworked the How Windows Work page, adding a Technical Details page, a Frame Types page and Glazing Types page (with the ability to cross reference between them).

Is anybody noticing? Well, on May 22, 1999—our most active day—there were over 32,000 hits on the site. That day just happened to coincide with a CBS Saturday Morning segment that mentioned

the web site. A month earlier, April 11, was the site's low point, when only six people hit the button.

We hope you'll take a moment to visit the renovated pages and convey your comments and compliments to Kerry Haglund. Her email is haglu001@maroon.tc.umn.edu

EWC FEATURED IN MEDIA SPOTLIGHT

It's nice to be noticed. The Efficient Windows Collaborative is basking in the warm rays of flattering attention from the news media recently. The Chicago Tribune did a special feature on windows in mid-June, quoting extensively from EWC Director Alecia Ward and also quoting John Carmody, senior fellow at the University of Minnesota College of Architecture and author of "Residential Windows: A Guide to New Technology and Energy Performance." The article stresses that while high-performance windows are not necessarily an immediate payback item, they are one of the best values in terms of comfort, aesthetics, quality and durability.

In May, CBS News Saturday morning show did a 9 minute segment on windows that sent consumers flying to the EWC Web Site, mentioned in the show. One quote: "Windows—windows are an investment. You're gonna pay now or pay later so you want to make sure that you get the best windows that you can afford so that you won't be spending all your free time maintaining the windows or paying for high energy bills." Viewers were advised to check for NFRC and Energy Star labels when shopping for windows.

The July 1999 issue of Builder Magazine touted the new, user-friendly Resfen 3.1 computer software developed by Lawrence Berkeley National Laboratories as part of the Efficient Windows Collaborative.

And keep an eye out for a forthcoming issue of Woman's Day magazine, which is slated to carry a column where con-

sumers ask the experts about efficient windows.

KUDOS TO OUR MEMBERS

Andersen Corporation was named Energy Star National Window Partner at the U.S. Department of Energy's (DOE) and the U.S. Environmental Protection Agency's (EPA) annual Energy Star Awards Ceremony in Washington, DC. The company was honored for its outstanding contributions to pollution prevention through energy efficiency.

Windowmaster Products and Soft-Lite L.L.C. were named Regional Window Partners at the same event.

For further information on the Partner of the Year selection procedure and other opportunities for recognition, contact the Energy Star Hotline at 1-888-STAR-YES.



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Austin Green Building Program Serves as National Model

Austin, Texas was the first program in the nation to give market recognition to environmentally-conscious builders. Now there are at least six similar programs in cities such as Denver, Atlanta, Seattle, Albuquerque and others. The green building business has gained credibility to the point that Fannie Mae, the nation's largest supplier of home mortgage funds, is researching an experimental mortgage that recognizes the benefits of resource-efficient construction.

Austin's residential Green Building program rates new homes and remodels using "green" guidelines on a scale of one to five—the more stars, the more green features in the home. Homes are evaluated in five areas: energy efficiency, water efficiency, materials efficiency, health and safety and community.

Builders and architects can join the Green Builder Program by making a commitment to build "green." The Austin Green Building staff provides a full range of consulting services and the program has publications to assist construction professionals as well as the public. Monthly training seminars are offered for building professionals on a wide variety of topics. Topics scheduled for summer/fall of 1999 include: What's New in Active Solar Technology, Indoor Air Quality Issues, Green Building Basics, and On-Site Waste Water.

More efficient windows have always been important to the Green Builder program. "We are mainly interested in the spectrally-selective glass component of high-performance windows," said Project Manager Mary McLeod. The municipal Energy Code includes a requirement that windows facing any direction but north have a shading coefficient of .5 or better. This can be met with solar screens, properly-sized overhangs, or glass.

"Many local builders of upper-end homes are installing the requisite low-e windows to avoid solar screens. Some production builders are considering this

as well, and we are encouraging them to look at this option," said McLeod.

"In many upper-end homes, it is the architect who specifies the window product and introduces the high performance window," said Peter L. Pfeiffer, AIA. Pfeiffer, a principal with Barley & Pfeiffer Architects in Austin, studied energy in buildings while in graduate school and believes "very strongly" in using good glass and good windows in the homes he designs.

"The economics of using better windows in Austin has improved dramatically over the last five years," said Pfeiffer. The high performance product is now only a minimal up-charge. Pfeiffer says

his clients appreciate that their windows are clearly better looking without solar screens and he likes the fact that he can specify an odd-shaped window and still get top performance. Even so, it is important to design with sensitivity for the local site, he notes. Proper orientation of the home, limiting west-facing glass area and thoughtful use of overhangs and shading must all be considered with the selection of windows.

Production builders in Austin are starting to specify efficient windows also, but from the point of view that it is easier to require one kind of window than to try to require certain window treatments for certain sides of the home.

SO, HOW MANY EXECUTIVES DOES IT TAKE TO INSTALL A WINDOW?

Actually, it took a team of 20 Pella Corporation employees only one day to install 67 casement windows and 5 doors . . . and they were all volunteers! The client was a special family—Bobbi and Kenny McCaughey, parents of the famous sextuplets in Carlisle, IO.

Windows and doors for the McCaughey family's new home were donated by Pella and its Des Moines distributor, Prairie Pella.

The installation team consisted of Pella Product Planning staff responsible for designing and specifying new products. "We build great windows, but we don't necessarily have an opportunity to install them," said Marketing Manager Jerry Dow. "I've got the same windows in my house and I've got triplets. The McCaugheys are going to be busy, but the windows will be one thing they won't have to worry about."

The high-performance windows are Pella's Designer Series SmartSash, which allow homeowners to manage energy, light, noise and fading through blinds, shades and muntins that are tucked between two panes of glass—away from

curious toddler fingers.

One of the prominent features of the home is the ten-foot tall, triple-stacked window that is the centerpiece for the stairwell and overlooks the front yard. The unique window set allows for a customized stained glass overlay.

The windows used were NFRC-labeled were a variety of products, including the Pella Smart Sash III and Pella ProLine window series. For a typical window used (24 x 48 casement), the total unit U-value was .28; center of glass U-value was .15 and fading damage coefficient was .27.