

Word On Windows

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AAMA Takes On Challenge: Installation Standards and Training

Members of the fenestration industry are gratefully doffing their collective hats to AAMA, the American Architectural Manufacturers Association, for volunteering to develop standards for correct installation of windows, doors and other products. AAMA interest in the subject should be no surprise. After all, when significant effort has been made to produce, test, and market a quality product, it only makes sense to follow through and see that it is installed so that it can perform as specified.

But tackling the installation issue—as AAMA is well aware—is something like taking on a hydra-headed monster. First, there is defining the market. “There is no standard practice even as to who installs windows,” notes Steve Sullivan, executive vice president of AAMA, and a champion of the project. “It can be the lead carpenter on the job, it could be the company who sold the window, or even the window manufacturer’s service rep.”

Furthermore, regional building practice varies widely, making it difficult to set national procedures. “We’ll probably end up adapting to regional building practice, perhaps producing manuals that reflect prevailing practice,” says Larry Livermore, AAMA installation program manager. With no one else stepping up to train workers in the field, AAMA is dealing with questions as fundamental as, “How much training can field people actually absorb?” One of the ideas to

keep the installation procedures fresh in the minds of the installers is to develop checklists and reference points, which can be laminated for use in the field.

AAMA’s focus is on individual training and certification, rather than on company certification. “Our field information tells us that otherwise we can’t be sure of reaching the actual person doing the work,” says Sullivan. An initial AAMA pilot program involving residential/light commercial windows and doors is planned to start in California by October. Eventually, AAMA intends to fold in other construction types: commercial/heavy commercial, storefront/entrance doors and high-rise curtain wall. Training will focus on all materials—wood framing, brick cavity wall, stucco, and more.

“Certified installers will have the opportunity to distinguish themselves from their competitors.”

Right now, installers in a two day training course would probably spend the first day getting familiar with product features, developing an understanding of relevant codes and standards, and discussing safety issues. Day two would cover installation techniques, with lots of hands-on exercises.

Once an installer has completed the training, he or she may take a final exam in order to achieve certification. Installer certification will expire after a specific duration, in order to insure that installers stay up-to-date on current practice.

AAMA has also decided to monitor

the program. Both the training and the testing process will be evaluated and installers’ work in the field will be

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WINDOW WISE PROGRAM KICKS OFF IN CANADA

Proper installation of windows is a concern that crosses national borders. The Siding and Window Dealers Association of Canada (SAWDAC) has developed a program that provides a guaranteed service package to consumers installing new windows. Window manufacturers provide an all-inclusive warranty on the cost of replacement or repair of defective window components. Dealers in the program also provide a five year warranty covering the cost of repair of installation defects.

Should either party default on the warranty, SAWDAC will fulfill the warranty terms. Participating contractors in the Window Wise program are trained and certified in installation procedures and they also agree to use energy efficient windows. A portion of the proceeds of every sale goes into an insurance pool that covers the cost of addressing problems.

While the Canadian government and some utilities are supporting the program, the insurance pool is self-financed through the surcharges on product sales. The program was pilot tested in a small town last year and is now being expanded throughout the country.

For more information, contact David Mitten (519) 651-2812.

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PG&E Primes the Market For Efficient Windows in California

With California setting the pace in deregulation of the electric power industry, observers have speculated about the future of demand-side management programs in the state. What, for example, would happen to Pacific Gas & Electric Company's Comfort Home program, which has encouraged the building of over 42,000 energy efficient homes since 1990?

The answer appears to be: take a successful state initiative and build it into a nationally recognized program, while maintaining the innovative features of the existing program.

PG&E Corporation, headquartered in San Francisco, CA, is collaborating with the Environmental Protection Agency (EPA) to bring the national Energy Star Homes program to customers throughout its service territory. The new program, called PG&E Comfort Home Plus, will require builders to construct homes that are 30% more efficient than Model Energy Code, as determined by a credentialed third party rater. PG&E will contribute \$150 towards a California Home Energy Efficiency Rating (CHEERS).

"Comfort Home buyers will get a bonus for installing efficient windows"

For many builders currently participating in PG&E's Comfort Homes program, the higher requirements of Comfort Homes Plus can be met with a combination of measures that could include: reduced duct leakage, high efficiency HVAC systems, added insulation and better windows. Comfort Homes must comply with Title 24 (state energy code) window efficiency standard without the use of non-permanent window-shading devices (including, but not limited to, awnings, roller shades,

blinds and shade screens.)

Customers in the regular program will also receive a bonus incentive towards the installation of windows that meet Energy Star performance requirements for all three national climate zones. PG&E will provide a \$150-\$200 bonus to builders for windows with maximum values of .4 U-factor and .4 solar heat gain coefficient. Title 24 compliance minimum values for windows range from .5 to .65 U-factor and have a shading coefficient of .87.

"We're definitely going to see growing builder interest in advanced-performance, spectrally-selective products," predicts Steve Easley, a construction consultant who specializes in energy efficiency. "PG&E should get a lot of credit for pushing the envelope...I mean, the window."

"We're taking a successful program that was targeted to home builders and consumers within California's Central Valley where PG&E customers need air conditioning the most and expanding it to all climate zones and areas within our service territory," says Cece Barros, who directs the program. "It is going to be a busy year."

PG&E's program providing financial incentives to participating builders for installation of efficient technology dovetails nicely into the broader mission of the California Windows Initiative, or CWI (see article in last issue of WoW). CWI seeks to transform the California market to high-performance windows by education and training of window specifiers, remodelers, retailers and dealers, as well as builders. "We will show them that a .4 U factor and .4 SHGC is their least-cost, best option," says Easley.



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checked. Random field visits will be made to jobs without notice. Customers will be surveyed to determine whether they were satisfied with the work performed.

Livermore's job itself is direct evidence of AAMA's seriousness in undertaking this project. Hired from industry, Livermore meets with AAMA committees responsible for developing the standards and the training outlines. "Putting a full-time committed professional like Larry on the job certainly helps to move a consensus process along more quickly," states Sullivan.

For AAMA members, the ultimate objective is to increase customer satisfaction with the choice and performance of their windows. Manufacturers will have the opportunity to work with a select group of installers who have achieved a consistent level of training, while certified installers will have the opportunity to distinguish themselves from their competitors. "It's fair to say that anyone who decides to take a proactive stance with this program stands to win from it," says Sullivan, summing it all up.

Lakeland FL Builder Tests Cool Construction Methods for Hot Climate

Lakeland, Florida home builder Rick Strawbridge is descended from several generations of well-respected local builders, but he is clearly a man who is open to new ideas. When approached by the Florida Solar Energy Center with an idea for constructing the most efficient home possible using current, off-the-shelf technology, Strawbridge barely hesitated before saying, "Yes."

Always interested in energy efficiency, Strawbridge agreed to include two of his standard design homes in a special field test. One, constructed to his current practice, would serve as the control home. The other, identical in design and orientation, would be as efficient as possible. It would also incorporate a roof-top photovoltaic array that was designed to eliminate the need for utility power during peak periods.

Sponsors of the project were Sandia National Laboratories, the Florida Energy Office and Lakeland Electric & Water System. Strawbridge broke ground for the homes in July 1997 and they were completed this Spring. A major press event, with representatives from the Governor's office and other officials, took place in late May.

EIGHTY-FOUR PERCENT SAVINGS

The two homes were monitored for one month while still unoccupied. The experimental home (known as PVRES) used only 16% of the energy for air conditioning relative to its standard counterpart. (The control home, itself, is more efficient than typical Florida construction, because Strawbridge was already more energy conscious than most builders in the state.)

Although more expensive, the PVRES efficient home sold while it was still under construction, while the standard home is still on the market.

Why did the experimental house perform so well? The answer, according to Danny Parker, lead scientist at the Florida

Solar Energy Center, may be the synergy from a number of innovations. These ranged from a white tile roof, to wider overhangs to shade the windows, to a high-performance air conditioner.

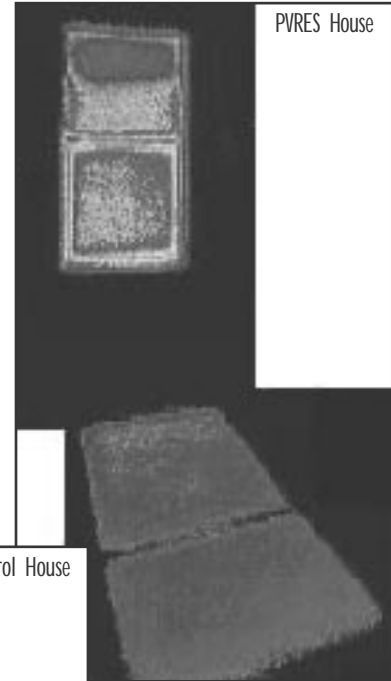
Windows, of course, were a major factor in the sizable savings, perhaps as much as 20 percent or more, estimates Parker. The project leaders asked PPG for their best current product. They used PPG's Sungate 1000, a spectrally selective, argon-filled, low-e glass product. Windows were fabricated by PGT/Vinyl-Tech, of Nokomis, FL.

Using Manual J sizing methods approved by ACCA, the project team estimated that the high-performance

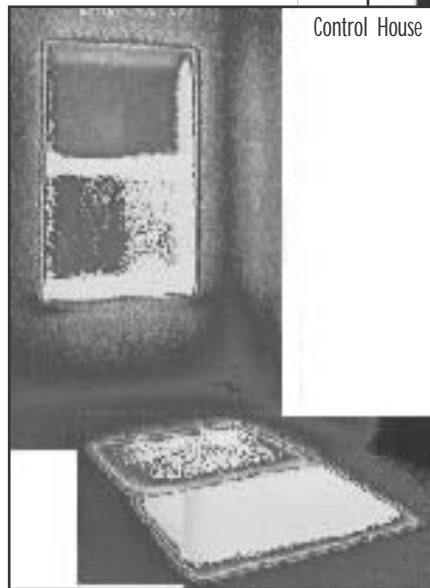
windows saved more than one ton (12,000 Btu per hour) in the size of the air conditioning system, worth about \$500 in reduced equipment cost. Furthermore, a flatter load profile means better dehumidification performance, so homeowners are more comfortable. And, of course, there is the advantage of less area over-heating.

While Strawbridge was enthusiastic about the project, he had never worked with high performance windows before. The current practice in Florida is to use thermally unimproved, single pane, aluminum framed windows.

One concern, shared by many Florida builders, was the choice of insulated vinyl frames. The fear was that vinyl windows, exposed to the brutal Florida sun, would eventually become brittle and would fail.



PVRES House



Control House

Infrared photos of PVRES (above) and control house (at left). Light area shows heat gain through window and on floor.

PGT's windows are AA-MA certified which includes weatherability testing. In addition, the PVC used has been fully tested by the supplier. High quality vinyl windows have been in the Florida market for over two years and have not experienced any problems with warping, fading or brittleness, according to Julie Heinsman, marketing director at Vinyl-Tech.

How does the PV system perform? So far, during coincident peak periods (hot afternoons), the unoccupied control house is drawing four kW from the grid, while PVRES is generating one kW. In Florida, seasonal peaks occur during winter, so the Lakeland homes are going to be carefully watched to see what performance they show in winter as well as during the cooling season.

Wisconsin Consumers Get a Great Deal On Financing of Efficient Windows

POPULAR PROGRAM TO EXPAND NATIONWIDE BY SUMMER

Wisconsin Energy Conservation Corporation's (WECC) residential financing program for Wisconsin homeowners has been in place for less than two years, but already \$2-3 million has gone out the door for energy efficiency home improvements. Of that total, over 50 percent of the loans were used to finance efficient replacement windows.

WECC is one of just two non-utility companies approved nationwide by Fannie Mae to originate and service nonrecourse energy efficiency consumer loans. Nonrecourse lending means the loans do not have to be secured by a lien on the house. WECC is the only firm authorized to provide efficiency loans directly to contractors. Loans can be from \$1,000 to \$15,000 for up to 10 years for home improvements that meet efficiency requirements set forth by the program. Loans are available to customers living in owner-occupied single-family homes and multi-family homes of four or less units.

The program has been so successful that WECC plans to expand; working with Energy Rated Homes of America with members in 14 states; and with other organizations and utilities located in California, Iowa, Washington, Idaho, Oregon, Ohio, Virginia, Pennsylvania, Missouri and Illinois.

That's the good news. The bad news is that the file drawer of WECC's Residential Financing Administrator Cheryl Cooper is bulging with consumer complaints, and most of them have the word "window" in them. "Windows are my biggest headache," sighs Cooper. "It is not the product—it's that we've had all kinds of trouble with contractors."

Some contractors, in express disregard of WECC marketing rules, implied that they were solely authorized to offer fi-

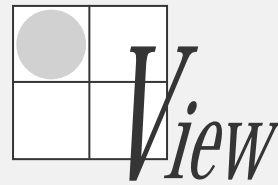
ancing under the program, while others have misused the host utility's logo. Other complaints have come in about strong-armed sales tactics that leave consumers bewildered and suspicious.

In response, WECC has tightened up program rules so that problematic contractors can be dropped any time. "One legitimate complaint may be all that we need," says Cooper. Cooper is pleased to hear of AAMA's (American Architectural Manufacturers Association) window installer certification and training and interested in tightening up the specifications of products that will be accepted for financing.

Another strategy of WECC is to develop an alliance with Equiguard. The national home contracting warranty company, headquartered in Illinois, maintains its own network of contractors, whose performance is carefully monitored.

As AAMA develops its certification program for installers (see story this issue), WECC will be taking a close look at requiring installers in its program to be certified under the AAMA standards.

So far, contractor response to the program has been extremely favorable, reports Cooper. The paperwork is minimal and the nonrecourse aspect of the financing appeals to homeowners. Procedures are straightforward. After being invoiced by a contractor and competing a quality assurance inspection on the job, WECC issues a one-party check directly to the contractor.



by C.R. WAGUS

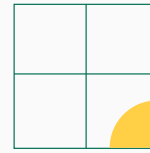
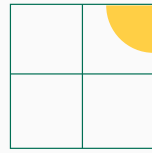
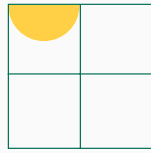
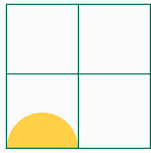
HOW LONG THE HONEYMOON?

Long term performance of efficient windows may not be the first concern of the window-shopping consumer, but it had better be our concern if we want to sell that consumer an efficient product the next time around. We know honeymoons don't last forever. Efficiency also degrades eventually, and the issue becomes: over what period?

Member of NFRC are well aware of this important issue. The Long Term Energy Performance Task Group (LEPT) at NFRC has been wrestling with the issue for several years. How can we quantify long-term performance in terms meaningful to the consumer? What are the factors likely to cause a decline in energy efficiency? What overall effect will this have on product performance?

The LEPT task force has developed an extensive testing protocol to provide answers to these questions. Using thermal cycling, IR and UV exposure, pressure tests, product operation cycling and other exposures, we are attempting to quantify how much impact these effects have on various styles of windows and doors. During 1999 we will be testing 24 doors and windows and recording the affects on air leakage, U Factor and SHGC as the products are cycled. At the end of the testing, we hope we can determine a "degeneration factor" that will give consumers a more accurate evaluation of product performance than is now possible.

C.R. WAGUS is Chairman of the NFRC Long Term Energy Performance Task Group and Technical Director of the American Architectural Manufacturers Association. He has worked for almost thirty years in the fenestration industry both as a product designer and currently as AAMA's Technical Director.



Collaborative NEWS

Spreading the Word

ALECIA WARD of the Efficient Windows Collaborative has been out and around the country this Spring, attending and making presentations at a number of gatherings. These included: the NFRM meeting in San Francisco in January, GREENPRINTS conference in Atlanta in February, meetings at the Florida Solar Energy Center in March, Affordable Comfort Conference in Madison, WI in May, a weeklong session of window-related meetings in Florida also in May and the BETEC symposium on windows in June.

Future Scheduled Events:

- ★ **June 23-27**
PCBC Western Buildings Show, San Francisco, CA
- ★ **July 9-10**
NFRM Meeting, Reno, NV
- ★ **Aug. 14-17**
Southeast Builders Conference, Orlando, FL
- ★ **Aug. 20-21**
AAMA meeting, Jacksonville, FL
- ★ **Aug 23-28**
ACEEE Summer Study, Asilomar, CA
- ★ **Sept. 24-26**
Glass Show '98, Boston MA
- ★ **Oct 14-15**
NWDA Training, Philadelphia & Pittsburgh, PA
- ★ **Oct 28-31**
Energy Efficient Builders 1998 Conference, Washington, DC
- ★ **Nov, 4-5**
Mid-American training, Des Moines, IA

Give us a call if you are going to be at one of these events as well-or if there is another event we should know about.

New and Notable

FOX INVESTIGATIVE NEWS Report on insulated glass failure in Georgia.

What good are insulated windows if they cloud up? For a loan copy, contact Alecia Ward (202) 530-2245. Also available from Alecia, the classic *Residential Windows: A Guide to New Technologies and Energy Performance*.

CHHECK OUT THE ANSWER GUYS in Pacific Gas and Electric Company's new video, "High Performance Windows with the Answer Guys". Teenagers will groan heartily, but how many teens buy windows? The rest of us loved it. For information, call Cece Barros (415) 973-4757

Austin's Green Builders Embrace Efficient Windows

THE EDUCATIONAL PROCESS has taken a few years, but builders in Austin, TX have turned into enthusiastic supporters of high-technology energy-efficient windows.

"Basically, it was availability of these advanced products at lower cost that opened the builders' eyes," says Doug Garrett, conservation representative with the City of Austin's Green Building Program.

"If you run MECcheck computer analysis on a new home in Austin, glazing typically accounts for half or more of the total heat gain," Garrett explains. "Builders were struggling to find a way to meet the energy code."

One builder came in to the office with a design where 42% of the wall was glass (Garrett calls these 'golf course' models). The builder had struggled to meet code by heavy insulation of the wall section, but simply wasn't getting the results he wanted, even with massive amounts of insulation. Garrett entered the house specifications on his computer and showed the builder how easy it was to comply just by improving the quality of the west-facing windows.

Austin has been an energy conscious city for some time. Five or six years ago,

staff at the city's Energy Services Department began working with builders to encourage development of more efficient and sustainable buildings. Starting with the high-end homes, market transformation has taken place gradually over the years, until now there remains only one "holdout" production builder who still uses single paned glazing.

The city's solar shading coefficient requirement has been in existence for ten years. Builders can also meet the requirement with products having Solar Heat Gain Coefficients of .44. The 0.5 shading coefficient can be met with screens, film or roof overhangs.

Interestingly, as Austin moves toward more efficiency, it sees prices of high energy-saving performance products falling. "When we promoted higher efficiency air conditioners with our rebates, the price differential between SEER 12 units and SEER 10 continued to drop due to the volume of sales. Right now, in Austin, you can buy a SEER 12 unit for only \$30 more than SEER 10—a truly great deal for consumers," says Green Building Program Manager Marc Richmond-Powers.



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SPOTLIGHT *On Collaborative Members*

MIKRON INDUSTRIES, headquartered in Kent, Washington, has grown to become the largest high quality vinyl window and door profile extrusion manufacturer in the



US. Ron Sandwith, current CEO, and partner Mike Ritter established the company in 1969, manufacturing vinyl extrusions for industries as diverse as aerospace, electronics, communications and construction. 1994 saw a major expansion of the Kent plant to 250,000 square feet and expansion to serve the East Coast market with a manufacturing facility in Richmond, Kentucky. Facilities at Kent include one of the largest extru-

sion tool and die departments in the world, a state-of-the-art computerized blending and compounding station and state-of-the-art vinyl extrusion lines.

New products for Mikron include an innovative technique for painting that permanently adheres to vinyl, a new retrofit window series specifically designed for the retrofit/remodeler market, a new heavy-duty, reinforced patio door, and Window Executive, a publication by Mikron for its customers that reaches the largest builders and remodelers. ■

DAYTON TECHNOLOGIES, supplier today of more than 12 million window and door systems for home remodeling and new construction, was founded in 1969 by two tool and die makers. In 1995, the company moved into a new \$20 million facility in Monroe, OH. In early 1997, Dayton became a member of one of Europe's leading designers and extruders of vinyl building products, Decuninck Plastics Industries of Belgium. Dayton Technologies offers window manufactur-



ers an integrated approach, providing in-house design services, extrusion tooling engineering and manufacturing, and profile extrusion. The company formulates its own life-time warrantied vinyl compound.

The company promotes high efficiency fenestration products via the "Test Advantage Program", which offers fabricators expert assistance in obtaining NFRC ratings and certification, as well as guidance on how to become Energy Star partners. It is a member of NFRC, EWC and an Energy Star component supplier partner.

Dayton Technologies maintains a fully equipped fenestration structural performance testing facility to provide the fabricator with tests and reports to meet industry specifications. The expert and professional staff have over 25 years combined experience in fenestration testing and are involved with various specification writing organizations.

Two Surveys on Efficiency Attitudes

New homebuyers report they want energy efficient upgrades, according to a survey commissioned by Johns Manville Corporation. The study, conducted in 1997 by National Family Opinion Research, questioned consumers in 36 regions of the nation who had purchased a new home in the past 36 months. The survey found 89% of homebuyers wanted energy efficient upgrade options; 83% were more likely to use a builder who offered those options and 71% were willing to forego other amenities to get a more efficient home. Homeowners said they would spend between \$1,000 and \$2,000 to improve the energy thermal performance of their home.

How do consumers make decisions about window purchases? A consumer survey conducted for the National Fenestration Rating Council (NFRC) as part of its research on label development found that consumers say they are the key decision makers in selecting windows. They consult multiple sources for window information (builders/contractors, home center/lumberyards, product literature, window manufacturers, etc), but they tend to find builders and contractors most helpful. Between new home buyers and builders, energy efficiency is the most discussed window feature, but 1 in 6 buyers said their builder never discussed window features and 65% of new home buyers said their builders offered no window upgrade option. NFRC concluded that consumers want "better, not more" information. Consumers scored energy performance as the most important window attribute. For more information on the NFRC survey, contact Susan Douglas at NFRC (301) 588-9387.