



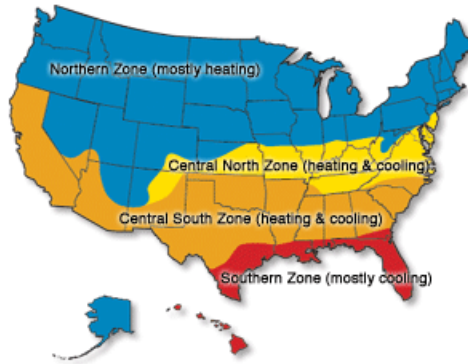
Efficient Windows Receive Credit in LEED® for Homes

After years of work on a pilot home rating system, the U.S. Green Building Council (USGBC) finalized LEED for Homes in January 2008. The USGBC is a non-profit group working to spread sustainable design practices through its voluntary Leadership in Energy and Environmental Design® (LEED) rating program for buildings. LEED for Homes is the most recent addition to the program, joining different rating systems for non-residential buildings. It provides a third party certification tool for rating homes according to various environmental categories like material usage, site location, water efficiency, energy and atmosphere, etc. Among the energy efficiency practices credited in the rating, efficient windows are an important feature.

LEED for Homes offers two paths to credits in its Energy and Atmosphere section:

A. Prescriptive path. Gain points for individual home features (insulation, windows, water heater, etc.) that exceed the performance levels set for these features by the ENERGY STAR® Homes program. Windows can contribute 2 or 3 points if their NFRC-rated energy performance values meet the levels shown below:

B. Performance path. Points are gained for a home energy rating (HERS) index showing that the home as a whole exceeds the minimum performance of an ENERGY STAR Home. Windows influence this score through different variables such as their U-factor and SHGC, orientation, and size.



The climate zones used for window credits in LEED® for Homes are the same as those used in the ENERGY STAR® for windows program.

Builders using the Energy and Atmosphere section's performance path must have a home energy rating analysis conducted that estimates the energy use for heating, cooling, lighting and water heating based on the home's design.

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Whither Federal Tax Credits for Energy Efficiency?

As of June 2008, it is unclear whether the federal tax credit for home energy efficiency improvements, including ENERGY STAR® windows, doors and skylights, will be reintroduced anytime soon after it expired at the end of 2007. Related tax incentives, such as the credit for high-performance new homes and the tax deduction for energy-efficient commercial buildings, are also awaiting a decision on whether they will be extended past their scheduled expiration at the end of 2008.

The tax credit for energy efficiency improvements in existing homes was in effect throughout 2006 and 2007 and allowed homeowners to reduce their income tax burden by 10 percent of the purchase price of energy-efficient products including exterior windows, doors, skylights, and window film. A total of up to \$500 could be claimed through this credit, of which \$200 could be for windows and skylights. This credit, originally created by the Energy Policy Act of 2005, has not yet been renewed since its expiration on December 31, 2007.

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Credits	Metric	Climate Zone			
		Northern	N. Central	S. Central	Southern
Prerequisite	U-factor	0.35	0.40	0.40	0.55
	SHGC	Any	0.45	0.40	0.35
2 Points	U-factor	0.31	0.35	0.35	0.55
	SHGC	Any	0.40	0.35	0.33
3 Points	U-factor	0.28	0.32	0.32	0.55
	SHGC	Any	0.40	0.30	0.30

Source: LEED® for Homes Rating System. January 2008

The maximum number of available points in the Energy and Atmosphere section of the rating system is 38. For LEED certification of a medium-sized home, 45 points are required.

Federal Tax Credits for Energy Efficiency

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Multiple efforts have been made to renew the expired energy efficiency credits and extend the incentives for energy-efficient commercial buildings and new homes, which are due to expire at the end of this year. For the past six months, both chambers of Congress have passed different bills without reconciliation. Among other proposals, there was a failed attempt to include the credits with the Economic Stimulus Package passed earlier this year.

The latest proposal passed by the House of Representatives is H.R. 6049, the Energy and Tax Extenders Act of 2008, which includes a one-year extension of the tax credit for existing home energy efficiency improvements, a five-year extension of the energy-efficient

commercial building tax credit, and a three-year extension of the energy-efficient appliance credit. This proposal will be considered by the Senate before the July 4th holiday.

The status of the proposed legislation could change at any time. To stay up to date through energy efficiency newsletters and to see how you can get involved, check the Alliance to Save Energy's web site www.ase.org (click "Act Now!" in the lower left corner of the home page for the Alliance's Energy Action Center).



Spring 2008 Industry Update Available for Free Download

Jordan, Knauff & Company, a Chicago-based investment bank, has made available a free download of its Spring 2008 Window & Door Industry Update webinar. The webinar was hosted by Michael E. Collins, who leads the firm's efforts in the window and door industry, and has recently been promoted to Vice President of the company's Building Products Group. The topics of the webinar included an overview of the window and door industry, including transactions, expansions and plant closings. The webinar also held a discussion of current industry trends, the state of the residential and commercial real estate markets, industry growth drivers and a review of the capital markets. A complimentary copy of the presentation can be requested at: www.jordanknauff.com/webinar-request



Sustainable Design Soon to Be Mandatory in AIA Continuing Education

The American Institute of Architects (AIA) is making sustainable design a mandatory part of the continuing education requirements for AIA architects. By doing so, AIA is following up on its commitment to sustainability stated in the "2030 Challenge". The 2030 Challenge is a position statement that calls for the immediate reduction of energy use in all new and renovated buildings, with the ultimate goal of eliminating the contribution to climate change from buildings designed by 2030. It is a call on the architectural community to help mitigate the causes of global warming and world resource depletion.

To enable the design community to meet the sustainability challenges of the future, the AIA is seeking to ensure that architects understand how to provide sustainable design. Starting January 1, 2009, all AIA architects will be required to take four continuing education units of sustainable design coursework to retain AIA membership. Learning units qualify for the sustainable design requirement if at least 75 percent of the course content is related to this topic. In particular, this includes course content on carbon emissions reduction and energy efficiency.



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Vacuum Glazing Developments across the Globe

For many years, researchers around the world have been pursuing the development of vacuum glazing – insulating glass units in which the space between the panes is evacuated. The promise of this research is to develop the glazing equivalent of the thermos bottle: insulated glass units with a vacuum that allows no conductive or convective heat transfer between the panes. This leaves only radiative heat transfer and conduction along the edges. Great strides have recently been made in vacuum glazing developments internationally, but technical reliability issues still need to be overcome, and the commercialization of technologies that capture the full potential of the concept has yet to happen.

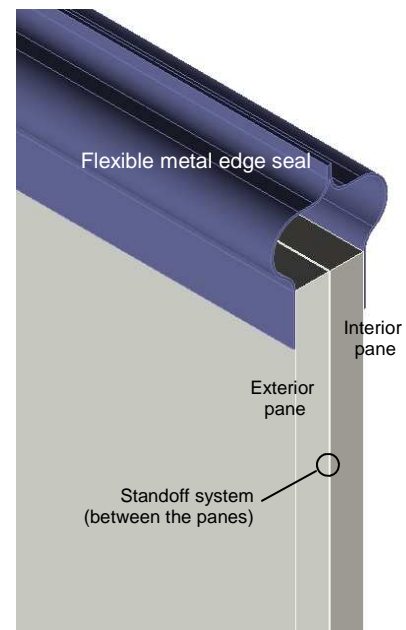
In the mid-1990s, vacuum glazing became commercially available in Japan. In collaboration with the University of Sidney, the Japanese company Nippon Sheet Glass developed evacuated glazing that is thin enough to be retrofitted in the sashes of single-pane windows. This presents a great opportunity for improving the insulating value of the existing Japanese window stock. Despite a gap of less than a millimeter between the panes, the Nippon Sheet Glass product has a center-of-glass insulating value similar to that of gas-filled low-E glazing with optimum gap width. However, this vacuum glazing has the disadvantage of larger heat transfer at its edges and may face structural challenges due to thermal stress if inside and outside temperatures differ greatly.

Researchers in Europe and the United States are presently working on the development of vacuum glazing that surpasses the performance of the Japanese product as well as that of similar vacuum glazing by the Chinese Qingdao Hengda Glass Group. The goal is a superior insulating value and the structural integrity to withstand strong air pressure, thermal stress and vibration. To this end, the European Union is

sponsoring ProVIG, a project seeking production methods for vacuum insulating glass (www.vig-info.de). ProVIG aims to develop evacuated glazing with a U-factor that can compete with gas-filled low-E triple glazing. By 2009, the Europeans intend to have a processing line in place to produce vacuum glazing of up to 5' by 8' in size. In the U.S., the Department of Energy (DOE) is sponsoring the development of vacuum glazing through the R&D company EverSealed™ Windows Inc (www.eversealedwindows.com). EverSealed has created a flexible gas-tight metal edge seal that allows the individual panes of an I.G. unit to expand and contract independently – an important consideration for the stability of vacuum glazing under thermal stress. Supported by leading DOE facilities and by some of the largest U.S. window manufacturers, EverSealed is planning to develop products that perform without failure for more than 25 years. Ken Bettger of EverSealed Windows recently announced that such products might become available as soon as 2009. The U.S. glass manufacturer Guardian Industries has already released plans for commercializing a vacuum glazing product before the end of the decade. A challenge that all prototypes of evacuated glazing have to address is the negative pressure from the vacuum. Glass pillars can maintain the separation of the panes, but despite their small size, these pillars may still be visible from a close distance. Another challenge is the maintenance of a near-perfect vacuum: The air density must be kept to less than one millionth of its normal value and the seal must remain intact through manufacture, transportation, installation, and weathering. Special seals, such as solder glass seals, are required for this demanding task. However, the solder glass process with its high temperatures requires special care so that low-E coatings remain undamaged. Manufacturers must also avoid that any material

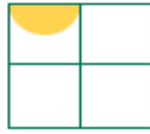
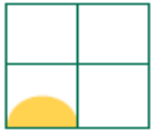
inside the unit outgases, as this could obscure the glass surfaces and would negate the insulating properties of the vacuum.

Several technical and financial challenges will have to be overcome for vacuum glazing to become more reliable and better performing, yet the growing demand for energy-saving products and the retrofit potential of the technology present strong incentives for tackling these problems. With the research and development of vacuum glazing progressing in Asia, Australia, Europe and North America, evacuated windows can be expected to hit the U.S. market within the coming years.



How narrow the evacuated gap between the panes can be, is illustrated by this sketch of EverSealed's vacuum glazing concept.

Courtesy of EverSealed™ Windows, Inc.



Federal Grant Opportunity for Production of Residential Highly Insulating Windows

The U.S. Department of Energy has issued a funding opportunity for industry to develop, manufacture, and commercialize cost effective residential R-5 windows. Through this project, DOE intends to accelerate market development of highly-insulating windows in the 2010 to 2012 timeframe with a consumer price premium of no more than \$3-\$4 per square foot above conventional double glazed, low-e, argon gas filled units. The performance values to be achieved are a maximum U-factor of 0.19 for fixed windows and of 0.22 for operable windows as well as a SHGC of 0.30 or higher.

Cost-effective R-5 windows are expected to be achieved through a combination of technology development, production engineering, and supply chain improvements that enhance economical mass production. These windows should be fully compatible with conventional installation practices and meet consumer expectations for visibility, durability, and comfort.

This funding opportunity is one component of a multi-faceted windows market transformation effort and will also serve as an interim step to achieving DOE's long-term windows R&D goal of deve-

loping windows with dynamic solar control and a U-value as low as 0.10.

The award ceiling is \$2,000,000 and cost sharing is required. The closing date for applications is July 8, 2008.

For more information on the grant opportunity, see www07.grants.gov. The Funding Opportunity Number is DE-PS26-08NT00318.

Efficient Windows Receive Credit in LEED® for Homes

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With windows typically accounting for about one quarter to one third of heating and cooling energy use, selection of more energy-efficient windows can greatly reduce the expected energy use and gain LEED points accordingly.

In addition to points for energy efficiency, windows can also gain points toward certification in other categories if they are made with recycled or reclaimed content, if (in the case of wood windows) their material is certified by the Forest Stewardship Council (FSC), and/or if the

windows and their material are extracted, processed and manufactured within 500 miles of the home.

LEED for Homes is designed as a certification system for the top tier of green homebuilding across the country. Nevertheless, affordability is not left out of the equation. To encourage affordable, efficient, and healthy homes, USGBC will waive the registration fees for nonprofits building qualified affordable housing, and a grant from the Home Depot Foundation will cover verification costs. In addition, energy-efficiency measures such as high-performance

windows result in lower utility bills, securing long term affordability.

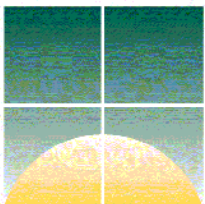
For more information on LEED for Homes, view the U.S. Green Building Council's site at www.usgbc.org/leed/homes.

Word on Windows will report about another certification system for green homes, the National Green Building Standard by the National Home Builders Association, once it has been published.

Do You Have News You'd Like to Share?

We're always interested in reporting on new developments in the residential and commercial fenestration markets. If you have something you would like to share with us, please contact Nils Petermann at ewc@ase.org.

Efficient Windows



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