

WINDOWS

A Factsheet from Austin Energy's Green Building Program

We all love lots of windows. We love the natural light, the views, and the fresh air we get from them. There are so many kinds of windows available these days that choosing the best one for your needs can be difficult. We want windows to be attractive, let in plenty of light, and be energy-efficient. We don't want them to feel drafty or have condensation problems. And we want all this for an affordable price. Here are some common questions about windows, which can help you make a smarter choice.

I live in an older house and often feel uncomfortable near the windows. Should I replace them or add storm windows? Replacing windows or adding storms is very costly and probably won't have a reasonable pay back. Try these measures to improve comfort and reduce energy bills. Caulk around all trim and stationary parts, and weatherstrip the movable parts, to cut down on air leaks. Install insulated drapes or shades to reduce heat loss in winter and install solar screens or awnings to reduce solar heat gain in summer. If you are having a problem with condensation on the inside of the glass in cold weather, try to reduce indoor sources of moisture. Install exhaust fans, which vent to the outside in bathrooms, the laundry and kitchen.

I'm building a new house and the price my builder quoted for double-pane insulated windows is higher than single pane. Are double-pane windows worth the price? A typical window is almost like a hole in the wall. Modern window technology combines many features that go a long way to overcome the "hole effect", but at a higher price. If you know what a given feature can do for you, what it will cost you, and whether there is a cheaper measure to achieve the same result, you can make an informed decision.

Most people get double-pane windows because they think that it will save them a lot of money on their heating and cooling bills. They will reduce heat loss and therefore save on winter bills, but since we don't have much cold weather in Central Texas this potential for savings is lessened.

A standard double-pane helps even less in summer. But, unlike single pane, a double-pane window can have a special coating applied to it, which greatly reduces heat gain from the hot summer sun. This coating is called low-e (short for emissivity). To work well in the south, it must be applied to the *outside* pane of glass to keep the sun's heat out. In the north, the low-e coat is applied to the *inside* pane of glass to keep heat inside. (In both cases the coating faces the air space between the panes, where it is protected.) Be sure an uninformed sales person doesn't order the wrong kind!

Double-pane windows have other advantages as well. They reduce noise and condensation, and make you feel more comfortable. Because insulated glass is closer in temperature to the inside air, there is less air movement around it (which you perceive as a draft) and less condensation to fog up the window and rot out the sill. On a cold winter day, you will have less of a feeling that the window is sucking all the heat out of your body.

The main traditional drawback of double-pane windows was that, over time, the seals often failed and the glass became cloudy. Window technology has improved a lot in recent years and the possibility of this happening has been reduced significantly. Compare warranties carefully and look for windows with long warranties.

Besides checking the warranty, is there any other way I can compare one window brand with another? Yes. Looking for the NFRC label. That stands for the National Fenestration Rating Council. (Fenestration is the architectural term for windows.) First, look at the *U-Factor*, which serves as a good measure of heat loss in winter; the lower the U-Factor, the better. The NFRC rating considers the whole window as a unit, including glazing, the sealing method and the frame material. Next, look at the *Shading Coefficient (SC)* and the *Solar Heat Gain Coefficient (SHGC)*. In our hot climate, the lower the better (Austin City

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energy code requires 0.5 SC or 0.44 SHGC or less). Finally, look at the *Visible Light Transmittance*. This number should be as high as possible. In summary, look for the best possible combination of numbers - the most light for the least solar gain and the least heat loss.

Don't skimp on your window budget. They are a permanent part of your house and should never have to be replaced. A high quality window has so many benefits - lower energy bills; less maintenance; reduced fading of furniture and carpets; and improved security, beauty, and comfort - it pays to make a good window investment.

Resources

Efficient Windows Collaborative
Alliance to Save Energy
1200 18th Street N.W., Suite 900
Washington, D.C. 20036
(202) 857-0666, www.efficientwindows.org

Energy Star®
Department of Energy
(888) STAR-YES, www.energystar.gov

National Fenestration Rating Council, Inc.
1300 Spring St., Suite 500
Silver Spring, MD 20910
(301) 589-6372, www.nfrc.org

Sealed Insulating Glass Manufacturers
Association (SIGMA)
401 North Michigan Ave.
Chicago, IL 60611
(312) 644-6610, www.sigmaonline.org/sigma/

National Wood Window and Door Association
1400 East Touhy Avenue, Suite G-54
Des Plaines, IL 60018
(847) 299-5200, www.nwwda.org

American Architectural Manufacturers Association
827 Walden Office Square, Suite 104, Schaumburg, IL 60173-4628
(847) 303-5664, www.AAMAnet.org

Recommended Reading

Residential Windows: A Guide to New Technologies and Energy Performance, John Carmody, Stephen Selkowitz, and Lisa Heshong, W.W. Norton & Co., 1996, www.wwnorton.com/catalog/spring96/073004.htm

Window Manufacturers

see "*Windows*", "*Doors*", "*Building Materials - Retail*" in *Yellow Pages*

Habitat for Humanity REStore 310 Comal Austin, TX 78702 (512) 478-2165 <i>recycled building materials, some new</i>	Austin Demolition (512) 243-2294 <i>salvage materials</i>
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Construction Cleanup & Demolition
6 Kay Lane
Austin, TX 78666(512) 251-3460
salvage materials