Raging Inexorable Thunderlizard for Change

House-Buying Primer
BE PREPARED!

by Brian Yeoman
NAEP

So, you are about to buy a new house. Maybe this is your first house, or your first house since green became something other than a cool color, and you are wondering what you should look for in a house intended to be as climate-neutral as possible. And by the way, I understand that cost is a consideration. Both purchase price and ongoing costs definitely matter.

If you evaluate potential houses based on construction quality rather than cost per square foot, you are much more likely to buy a house that is both more energy-efficient and less expensive to own. The house is likely to be a more comfortable place to live in and will probably prove to be a superior investment long term.

The three most important considerations may well be location, location, and location, but in this case we are talking about buying a house suited to its location in terms of the weather likely to be encountered. A house well-suited for Panama City, Florida, will not fare well in Durham, New Hampshire.

Find a "buildable" lot. In this case, I'm not concerned about local zoning, minimum lot size requirements, or a clear title. You need a lot that will allow the long axis of the house to be oriented along an east-west axis to minimize solar radiation heating in the southern summer and maximize heat gain in the northern winter.

The glazed-window-to-wall-area ratio, quality of the glazing, and provisions for shade all matter. You don't want to live in a green house in Panama City or in a cave in Durham. Quality double-glazed windows and shading from trees, roof overhang, and awnings on windows facing south or west all will reduce heating and cooling costs.

Roof quality is very important. A huge variety of roofing materials is available, and none are ideal for all locations. Select a roof material and design that suit your geographic location. Much the same can be said for insulation. How much, what type, and how well installed all matter. The Department of Energy has booklets that will help you decide what approach is best for your house.

Obviously you should look for high-efficiency HVAC and hot water heating equipment. And just as important are the computerized controls that allow you to avoid unnecessary heating and cooling costs without sacrificing comfort. A tankless hot water system and well-sealed AC ducting (mastic and duct tape) are indications of quality construction. Efficiency in this area has a direct effect on the long-term cost of owning the house. Half the energy you buy will go for heating and cooling. However, appliances are major energy-users too, and like HVAC equipment, each one in your house should carry the EnergyStar® label.

Let your Realtor® know that energy-efficiency is a key consideration for you, a deal-breaker. If the one you have encountered can't answer many of the questions suggested below, you might want to find one who can.

- Is the house EnergyStar-certified?
- Is the house certified by any green building program such as LEED for Homes or GBI (The Green Building Initiative NAHB)?
- Are the materials used throughout the house safe, e.g., non off-gassing and contain no formaldehyde or phenol?
- Do the paints, varnishes, and stains contain low or no volatile organic compounds (VOCs)?
- Are the water fixtures low-flow?
- Are native plantings evident which require less watering?
- What are the floor coverings? Avoid carpet at all cost.
- If you can avoid the use of PVC in its entirety, do it.
- What is the AFUE rating of the furnace?
- What is the SEER rating of the air conditioner?
- Is every light fixture a fluorescent? (Either a CFL or T-5?)
- Is the roofing membrane one that has high emissivity and high reflectance?
- What is the recycled content of any steel or aluminum used in the structure?
- Is the wood Forest Stewardship Council (FSC)-certified?
- What is the lightning protection?
- Are the windows low-e, double-paned, and possessed with a shading coefficient of .27 or lower?

The entire much more detailed article with sources of information is available on the NAEP Web site.

Be Prepared! NAEP

Brian K. Yeoman, Director of Education and Development at NAEP, is the retired Associate Vice President for Facilities Planning and Campus Development at the University Texas Health Science Center at Houston.
e-Mail: byeoman@naepnet.org.