What makes it green?

There's a lot to look for when looking at a home. So when someone says a home is green, what do they mean exactly?

Is the home Energy Star® Rated?

Energy Star homes are 15% more energy efficient than homes built to code (the International Residential Code, 2004). These homes typically include energy-saving features that make them 20-30% more efficient than standard homes.

Make sure that the home has been verified by a third party verification service. And ask the seller for a copy of the Energy Star certificate.

Here are some sample questions to consider asking before buying a green home:

1. **Effective insulation**
   - Is the insulation in contact with the air barrier behind it? (What, no air barrier behind it?)
   - Are the baffles at top plate properly installed to prevent air from seeping in?
   - Are the window and door openings properly sealed with foam or backer rod?
   - Is there insulation and rigid backing behind tubs placed on an exterior wall?
   - Is there rigid backing behind fireplaces, under stairs, behind attic knee walls, exterior chases and in skylight shafts?
   - Are the cantilevers properly blocked and insulated?
   - Are the plumbing and electrical penetrations sealed?
   - Does the insulation extend over the top plate of all the exterior walls?
   - Are the recessed lights rated air-tight?
2. **High-performance windows**
   - Do the windows and doors have low-E glass?
   - Do they have protective coatings?
3. **Tight construction and ducts**
   - Is the bottom plate sealed with caulk?
   - Is there an air-tight seal between the garage and living space?
4. **Efficient heating and cooling equipment**
   - Are the HVAC systems properly sized for the home?
   - Is there mastic on the HVAC unit and at the supply/return locations?
   - Is the duct work in attic installed at least one foot off attic floor?
   - Do all bedrooms have properly sized jumper ducts or air returns?

5. **Efficient products**
    - Is there at least one Energy Star appliance in the kitchen?
    - Are the lighting fixtures energy efficient?
    - Are Energy Star exhaust fans installed in the bathrooms?
6. **Third-party verification**
    - Has the home been inspected and tested by a third-party verification company?

Is the home GBI (Green Building Initiative) certified?

GBI certified green homes are already Energy Star© rated. The GBI process is more involved and results in a "greener" home. If you've heard the expression "shades of green" related to green building, this is where it comes from.

For a home to be GBI certified it must earn a minimum number of points in these six categories plus additional points of the builder's or homeowner's choosing:

- Lot design, preparation and development
- Resource efficiency
- Energy efficiency
- Water efficiency
- Indoor environmental quality
- Operation, maintenance, and homeowner education

GBI is the verification system adopted by the National Association of Home Builders. Look for the GBI logo, and ask the seller for a copy of the GBI certificate.

Here are some sample questions to consider asking before buying a GBI certified green home:

1. **Lot design, preparation and development**
    - Was the site selected to avoid environmentally sensitive areas? Is it an infill site? A greyfield site? A brownfield site?
    - When preparing the lot, were natural resources conserved?
    - Is the home sited to optimize solar resources?
    - When the home was built, was it done so to minimize slope disturbance? Does the driveway align with the topography?
    - Is storm water managed properly?
    - Does the landscaping include only native plants? Does the landscaping require low water use?
    - When being built, was there an on-site supervisor to ensure green practices were implemented?
    - Were sediment and erosion control plans implemented?
2. **Resource efficiency**
    - Is the floor efficient and will it maintain the homes functionality over time? (Homes that become functionally obsolete are eventually torn down. Not green.)

- Were advanced framing techniques, like 19.2" or 24" on center floor systems and bearing walls, used to reduce the amount of materials?
- Was there a detailed framing plan with cut lists to reduce the amount of wasted lumber?
- Are there any pre-cut or pre-assembled building components in the home?
- Does the building design minimize degradation and weathering, like a covered entry and wide roof overhangs? Were termite resistant materials used?
- Were any materials from pre-existing buildings or any salvaged materials used?
- Is there any recycled content in the home?
- Are there renewable materials in the home, like bamboo floor, cotton insulation products, or certified wood products?

3. **Energy efficiency**
    - Has the HVAC system been properly sized using the Manual J load calculation?
    - Is there continuous insulation along all outside walls?
    - Was an air sealing package implemented?
    - Are the windows Energy Star rated?
    - Was the HVAC design and installation verified by a third party verification service?
    - Are the ducts and plenums sealed with mastic?
    - Is there an Energy Star exhaust in all bathrooms?
    - Did the water heater design, equipment and installation must meet minimum requirements according to the third party verifier?
4. **Water efficiency**
    - Is there on-demand hot water delivery or control-activated hot water recirculation?
    - Is there a water heater within 30 feet of all bathrooms and kitchens?
    - How many Energy Star appliances are there?
    - Are the shower heads water-efficient?
    - Are all the toilets low-flow toilets (≤ 1.6 gpm/flush)?
    - If there is an irrigation system, is it a low-volume system using drippers and soaker hoses and not spray irrigation?
    - Does the irrigation system utilize different zones for yard and beds?
    - Is rain water collected and used?
    - Is there any innovative waste water technology?
5. **Indoor environmental quality**
    - Are the heating and water heating equipment direct vented?
    - Is there a tightly sealed door between living space and garage?
    - Were the particleboard, MDF and plywood products certified to have low formaldehyde emissions?
    - Are "green label" carpets and rugs installed?

- Were the HVAC ducts masked during construction? Were they vacuumed before the system was turned on?
- Were low-VOC paints and wallpaper used?
- Is the kitchen range exhausted to the outside?
- Is a humidistat installed to control the whole-house humidifier?
- Moisture management
    - Is there a timer on the bath exhaust fans?
    - Is a moisture-resistant backerboard installed under the tile in wet areas?
    - Are the cold water pipes in unconditioned spaces insulated with ½" insulation?
    - Are the ducts and plenums in unconditioned spaces insulated?

6. **Operation maintenance and homeowner education**
    - Is there a manual available to the owners on the use and care of the home?