



## LEED for Homes: Program and Process Overview

### Problem

The environmental impact of the residential housing sector is significant. There are more than 120 million homes in the United States, and about 2 million new homes are constructed each year (because of the recession, we are down to around ½ million/year). The residential sector accounts for 22% of the total energy consumed in the U.S. and 7% of the water. Levels of indoor air pollutants can often be four to five times higher than outdoor levels. The residential sector also contributes 21% of the U.S. carbon dioxide emissions. The recognition of the considerable impact on the environment due to housing has given rise to various rating and certification programs.

### Programs:

Here in Colorado, most of us are familiar with several programs that promote Green Buildings:

- 1) **Built Green Colorado**, sponsored by the Home Building Association of Denver
- 2) **Energy Star**, sponsored by the Environmental Protection Agency and the U.S. Department of Energy
- 3) **LEED for Homes**, sponsored by the U.S. Green Building Council

### Why LEED for Homes?

Each of the programs listed above promotes the design and construction of Green buildings, buildings that are healthier, more comfortable, durable, energy efficient and that have a smaller environmental footprint. However, the LEED for Homes program is now the nationally accepted benchmark for the design, construction and operation of high-performance green building. It is all encompassing, incorporating the energy efficiency components of the Energy Star program and the “built better” components of the Built Green Colorado program. The LEED for Homes program takes green building to the next level, including considerations such as 1) sustainable site development, 2) water savings, 3) energy efficiency, 4) material selection, 5) indoor air quality and 6) design innovation. LEED evaluates environmental performance from a holistic perspective, a whole-building perspective that considers and provides measurements for a building’s total life cycle.

### LEED for Homes: Overview and Process

The LEED for Homes Rating System is a **tool** used by designers and builders to set targets and track progress during the design and construction of a green home. It is a **scorecard**, used by homeowners to give a clear, concise picture of all the ways a green home performs at a higher level. And, it is a “**seal of quality**,” providing verification that a house was designed and built to strict green building standards.

### **Rating and Certification:**

All LEED homes must meet stringent prerequisites listed in the LEED for Homes Rating System. This requires independent third-party verification, administered by LEED for Homes Certification Providers. These are local and regional organizations, affiliated with the U.S. Green Building Council. A Provider manages a team of Green Raters and works under contract with the USGBC. They conduct inspections and performance testing in the field, and they review all documentation collected by the builder during construction.

### **Credit Categories; What Does LEED measure?**

LEED certification is based on 18 prerequisites and 67 credits. The prerequisites are basic performance standards, mandatory for every project. To achieve certification, builders earn credit points by exceeding the minimum standards. Prerequisites and points are classified in eight credit categories:

- 1) **Innovation in Design:** Special design methods, unique regional credits, exemplary performance levels and measures not currently considered in the rating system.
- 2) **Location and Linkages:** The placement of homes in socially and environmentally responsible ways in relation to the larger community.
- 3) **Sustainable Sites:** The use of the entire property so as to minimize the project's impact on the site.
- 4) **Water Efficiency:** Water conservation practices, both indoor and outdoor.
- 5) **Energy & Atmosphere:** Energy efficiency, particularly in the building envelope and heating and cooling design.
- 6) **Materials & Resources:** Efficient utilization of materials, selection of environmentally preferable materials, and minimization of waste during construction.
- 7) **Indoor Environmental Quality:** Improvement of indoor air quality by reducing the creation of and exposure to pollutants.
- 8) **Awareness & Education:** The education of homeowners, tenant, or building manager about the operations and maintenance of the green features of a LEED Home.

Depending on the number of points the project earns, a house meets different Certification Levels: Certified (lowest), Silver, Gold and Platinum.

### **How to Participate in LEED for Home program**

**Step 1: Contact a participating Designer/Architect or Builder.** The professional will then select a Provider. Once the professional and Provider have agreed to work together, the project will be registered with the USGBC.

**Step 2: Identify a project team.** The professional will identify a project team that will plan, design, and build the home. The team should include someone knowledgeable with the LEED for Homes program. At least one preliminary meeting will occur to review goals and complete the preliminary project checklist.

**Step 3: Build the home.** The program provides project teams with guidance on both design and construction techniques. The Provider and Green Rater work with the construction team and trades to schedule and complete the inspections.

**Step 4: Certify the home.** The certification process for the completed new home involves three components: visual verification, supporting documentation/calculation review, and performance testing. The Green Rater conducts a final inspection of the green measures on the project's LEED for Homes checklist, visually verifying that everything listed on the checklist is installed.

Any calculations or supporting documentation from the project team will also be reviewed. Supporting verification materials are not formal submittals. They consist of product specifications, contractor calculations, dump receipts, invoices, etc. The verification documents are collected by the builder during construction and submitted to the Provider as supporting documentation. Then the Green Rater completes the list of performance tests as required for the certification requested.

Once the Provider reviews the documentation package and affirms that it is complete, they submit it to the USGBC for certification.

### **Conclusion**

The LEED for Homes program is still evolving --- adapting to regional differences and unforeseen situations. However, it is the best program I am aware of. It does a great job of measuring and mitigating environmental issues related to home construction. As a result, houses require less maintenance, are more comfortable, durable, energy efficient, and have a much smaller environmental footprint.

I hope that this Design Process Overview has been helpful. If you still have any questions, please ask; there is no such thing as a silly question.

Sincerely,

Tom Pokorny