

2011 UAC: Proposed Green Building Section

This proposal gives applicants the option of either choosing green building features from a list to reach a maximum of X points, or choosing a green certification program for a higher number of points.

Some of the construction features that were previously in the Energy Conservation and Green Building Options sections of the Universal Application have been moved to **Construction Features and Amenities, Required for New Construction**. They are:

- **Energy Star New Homes certification** for new construction, qualifying developments—based on number of stories and central/individual HVAC and water heating. Equivalent standard will be provided for developments that are not eligible for Energy Star (i.e., over 5 stories or over 3 stories when using central HVAC and water heating). Equivalent standard is being developed.
- **Low-VOC paint for all interior walls** (50 grams per liter or less for flat paint; 150 grams per liter or less for non-flat paint)
- **Water Sense certified showerheads, faucets, and toilets in all bathrooms** (for new construction; and for rehabilitation, if replacing)
- **Air conditioning with a minimum SEER rating of 14** (excluding buildings with central AC; excluding SRO units)

Section III.B.3 Green Building

Applicant commits to choosing options from the following list that add up to **X points** (items would be chosen in credit underwriting). *[Point values in parentheses are not final, but are meant to show the relative weight of each option based on its cost to implement and value to overall sustainability.]*

- Energy Star rating for all windows (3)
- Install daylight sensors, timers, or motion detectors on all outdoor lighting attached to buildings (1)
- Programmable thermostats in each unit (1)
- Rainwater harvesting system (reuse for irrigation and/or toilets) (4)
- Water Sense certified dual flush toilets in all bathrooms (1)
- Florida Yards and Neighborhoods certification on all landscaping (1)
- Light colored concrete pavement instead of or on top of asphalt to reduce the heat-island effect (1)
- Energy Star certified roof coating (1) **OR**
- Energy Star certified roofing materials (metal, shingles, tiles) (2)¹

¹ Applicant may only choose one option related to Energy Star roofing

- Solar hot water heater (with at least 70% solar fraction) (4)
- Eco-friendly cabinets—formaldehyde free, material certified by the Forest Stewardship Council (2)
- Eco-friendly flooring for entire unit—Carpet and Rug Institute Green Label certified carpet and pad, bamboo, cork, 100% recycled content tile, and/or natural linoleum (3)

--OR--

Applicant commits to achieve green building certification from one of the following programs for a higher number of points:

- U.S. Green Building Council's LEED
- Florida Green Building Coalition*
- National Association of Home Builder's National Green Building Standard*

*FHFC will require Energy Star certification in conjunction with FGBC and NAHB, since it is not a requirement of those programs.

Background Information on Green Building Certification

Background information on green building certification includes an overview of the green building certification programs, plus WaterSense; a summary of the processes Florida Housing proposes to implement; and some information of the soft and hard costs of green building.

Summary of Green Building Certification Programs

Energy Star

Energy Star is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy. Entire homes can be certified as Energy Star Qualified Homes if they follow specific requirements for efficiency, including a maximum HERS (Home Energy Rating System) index of 77 (for Florida), a successful thermal bypass inspection, properly sealed ducts, and Energy Star rated products and appliances. The HERS index of a home is a measure of its efficiency, ranging from 0-100; homes with greater efficiency earn a lower HERS index.

There are five key features necessary to qualify for Energy Star:

- Effective insulation;
- High-performance windows;
- Tight construction and ducts;
- Efficient heating and cooling equipment; and
- Efficient products (lighting fixtures, appliances).

Performance testing is done by a third party rater during construction and once construction is completed to ensure that the home meets Energy Star standards.

Florida Green Building Coalition

Florida Green Building Coalition (FGBC) is a membership based nonprofit with the mission to provide a statewide Green Building certification program with environmental and economic benefits.

FGBC has a tiered rating system based on the number of points a building achieves. There are four certification tiers: bronze, silver, gold, and platinum. Points are earned in the following categories:

- Energy;
- Water;
- Lot choice;
- Site;
- Health;
- Materials;
- Disaster mitigation; and
- General.

A third-party verifier, called the *FGBC Certifying Agent*, may advise the builder in the design phase, but at a minimum must conduct an on-site mid-point inspection and a final inspection.

National Green Building Standard

The National Green Building Standard was developed by the National Association of Home Builders (NAHB) as a green building rating system for single family and multifamily housing. There is not a separate rating system for multifamily; however, there are notes specifically for multifamily units, specifying different requirements in some areas. There is no story limit for multifamily housing.

The NAHB Standard has four different certification levels: bronze, silver, gold, and emerald, and is divided into six categories:

- Lot design, preparation, and development;
- Resource efficiency;
- Energy efficiency;
- Water efficiency;
- Indoor environmental quality; and
- Operation, maintenance, and building owner education.

The verification process begins before construction, with the builder using NAHB's online Green Scoring Tool to score the project. The tool evaluates the building plans and creates the "Final Designer's Report." The builder selects a *third-party verifier*, to review the report and conduct a midpoint and final inspection.

Leadership in Energy and Environmental Design (LEED)

LEED is a third-party certification program developed by the nonprofit U.S. Green Building Council (USGBC).

LEED has four levels of certification: certified, silver, gold, and platinum. The rating system uses eight different resource categories to measure the performance of a development:

- Innovation and design;
- Location and linkages;
- Sustainable sites;
- Water efficiency;
- Energy and atmosphere;
- Materials and resources;
- Indoor environmental quality; and
- Awareness and education.

A developer's first point of contact with LEED is a LEED for Home Provider. The provider and the development team work together to give a preliminary rating of the project before it is built based on the design. The provider then designates a third-party verifier (called a *Green Rater* by LEED) to be on-site at specific phases of construction to conduct interim inspections. Once construction is complete,

the Green Rater must conduct an on-site inspection of each of the green measures originally selected, as well as the performance testing required for certification.

Water Sense

Water Sense is a program sponsored by the U.S. Environmental Protection Agency that certifies and labels water-efficient products. For showerheads and faucets, Water Sense has standards for gallons per minute that are more efficient than standard fixtures. The standards also include criteria for water coverage and spray intensity. Water Sense toilets meet a standard of 1.28 gallons per flush or less, as well as performance standards.

Green Certification – FHFC Processes

A key element of any green building certification program is third party verification. Third-party verifiers from each of the green certification programs work with developers during the design phase to discuss what construction features they should include in order to become certified. Each program has built-in processes designed to test the building at two or more key points of the construction process to ensure that certification will be achieved. The following checkpoints are proposed to make sure that the developer is going through the correct steps to achieve certification.

Notice of Commencement: With the Notice of Commencement, FHFC will require a **certification form signed by the third-party verifier** who has reviewed the applicable green certification program checklist with the developer and reviewed and approved architectural plans related to the green building measures being taken. For developers who choose NAHB and FGBC, a **second certification form** will be required for the Energy Star third party verifier. (Some NAHB and FGBC verifiers are also Energy Star raters, and some are not. Two forms will be required, but the same person will be allowed to sign them *if* they are qualified for both.)

During construction: FHFC will require a copy of the **certified thermal bypass checklist** for all units, provided upon completion of the thermal bypass inspection conducted by the third party verifier. This inspection must be completed before drywall is put up.

On or Before Place in Service Deadline: FHFC will require a copy of the **official certification documentation** from the chosen program(s) on or before the Placed in Service deadline. Depending on the green program(s) selected, the following documentation will be required:

- Final LEED for Homes Certification; or
- FGBC Green Home Designation Certification **and** Energy Star Certificate; or
- NAHB Certified Green Home Certificate **and** Energy Star Certificate.

Soft and Hard Costs of Green Building

Soft Costs

Getting green certified involves the soft costs of paying a third party verifier to ensure that a developer has completed the requirements of certification, as well as registration and certification costs paid to the certifying organization (except Energy Star, which only has fees to the verifier).

- **Third party verifier fees are market-based.** Estimates listed below are from talking with a few different verifiers about what they charge. Some third party verifiers may offer discounts for inspecting multiple units, but this is market-based.
- Registration and certification costs are fixed based on the number of units, number of buildings, and building square footage.

The following chart summarizes soft costs for the different certification programs using a median cost of third party verification to estimate the cost for a 100-unit development.

Green Building Verification and Certification Costs for a 100-unit Development										
	3rd Party Verification ¹		Registration		Certification*		Total For 100 Units		Total Per Unit	
	Per Unit	For 100 Units	Members	Non-members	Members	Non-members	Members	Non-members	Members	Non-members
LEED**	\$650	\$65,000	\$1,800	\$2,400	\$3,000	\$4,000	\$69,800	\$71,400	\$698	\$714
FGBC***	\$550	\$55,000	\$7,500	\$10,000	n/a	n/a	\$62,500	\$65,000	\$625	\$650
NAHB	\$800	\$80,000	\$2,800	\$4,000	n/a	n/a	\$82,800	\$84,000	\$828	\$840
Energy Star	\$400	\$40,000	n/a	n/a	n/a	n/a	\$40,000	\$40,000	\$400	\$400
*LEED is the only program that has separate registration and certification costs. This calculation assumes 100 units at 1,000 square feet each.										
**LEED registration costs are based on the number of buildings; this calculation assumes 4 buildings w/ 25 units each.										
***This registration cost is for the home standard, which is based on the number of units.										
Energy Star certification is incorporated into LEED, but not FGBC and NAHB. Thus, FHFC proposes that developers obtain Energy Star certification in addition to either FGBC or NAHB. A verifier for FGBC and NAHB may or may not be certified to do the energy inspections necessary to achieve Energy Star. If they are not, the developer will have to pay a separate verifier to conduct the Energy Star inspections.										

Hard Costs

The additional construction costs of green building versus conventional building range from 2-5% of the total development cost. In a study by New Ecology Inc. of 11 affordable housing projects, the average total cost per unit was approximately \$178,000. The average additional cost of building green, or the “green premium,” was \$5,653, or **3.91%**. In a similar study by Enterprise of 27 projects, the average green premium was **3.52%**.

For developments funded in 2009 by Florida Housing, the average estimated total development cost per unit was \$149,195. Florida Housing already requires that developers incorporate some energy conservation and green building measures, so it is difficult to determine how much extra they will have to spend on construction costs to achieve certification. Based on this reasoning, the additional cost for achieving certification would be lower than the 2-5% typical green premium, because our developers are part way there with the current requirements. That being said, 2% of \$149,195 is **\$2,984**; 5% of \$149,195 is **\$7,460** (hard costs only).