

Is a green building an energy efficient building?

Not necessarily.

I. Introduction

Is a “green building” an energy efficient building? Unfortunately, the answer to that question is “not necessarily.” As the Environmental Protection Agency (“EPA”) notes, green building rating systems are flexible, and buildings with poor energy efficiency may be certified “green.”¹ Accordingly, how do green rating systems address energy efficiency and what rating system is best suited to controlling operating costs in affordable housing projects?

To answer this question, I will examine three rating systems commonly associated with green building and affordable housing. First, I will examine the U.S. Green Building Council’s (“USGBC”) Leadership in Energy and Environmental Design (“LEED”) rating system, which is arguably the industry standard for green building. Second, I will look at Enterprise Incorporated’s Green Communities program. The Green Communities program is a private sector initiative dedicated to providing funding for green affordable housing. Third and finally, I will discuss the federal government’s Energy Star program.

II. Green Building and Energy Efficiency Rating Systems

a. LEED

LEED is arguably the most common green building rating system. Some municipalities have even gone so far as to require LEED for new construction projects.² The USGBC developed the LEED rating system as part of its mission to promote buildings that are

¹ Invest in Green, http://www.energystar.gov/index.cfm?c=green_buildings.green_buildings_invest. Last visited November 20, 2007.

² See e.g., New York City Code §224.1(g) (2007) (LEED standards required for city construction and rehabilitation projects, as well as private projects funded with 50% or more city funds); Town of Babylon, New York, Construction Code §§ 89-85, 89-86, 89-87 (2007) (Private developers must incorporate LEED standards before the town will issue a building permit or certificate of occupancy for development other than single family residences).

“environmentally responsible, profitable and healthy places to live and work.”³ The USGBC designed separate LEED rating systems for New Construction, Existing Buildings, Core and Shell, Commercial Interiors, Homes, Neighborhood Development, and Schools, Retail and Healthcare facilities.⁴ In most cases, multi-unit affordable housing projects will use LEED for New Construction since it “covers the design and construction process for new construction and major reconstruction of buildings.”⁵ LEED for Existing Buildings, on the other hand, is intended for projects where “more than 50% of the building occupants will remain in the building through the upgrade process.”⁶

LEED uses a point system where a project receives basic, silver, gold, or platinum certification based on the number of points it receives for including “green” building techniques. To receive basic certification, a project must receive 26 of 69 possible points.⁷ LEED awards a building “silver” certification if it receives 33 points, “gold” certification if it receives 39 points, and “platinum” certification if it receives 52 points.⁸ In addition, LEED projects must fulfill certain pre-requisites. These prerequisites include construction activity pollution prevention, fundamental commissioning of the building energy systems, minimum energy performance, fundamental refrigerant management, storage and collection of recyclables, minimum indoor air quality performance, and environmental tobacco smoke control.⁹

³ <http://www.usgbc.org/DisplayPage.aspx?CategoryID=1>. Last visited November 21, 2007.

⁴ [LEED Rating Systems](#). U.S. Green Building Council. Last visited November 21, 2007.

⁵ [Green Building Rating System for Existing Buildings: Upgrades, Operations and Maintenance. Version 2](#), p. 8. U.S. Green Building Council. July 2005 (revised for projects registered after June 26, 2007). Available at <http://www.usgbc.org/ShowFile.aspx?DocumentID=913>. Last visited November 21, 2007.

⁶ [Id.](#)

⁷ [Green Building Rating System for New Construction & Major Renovations, Version 2.2](#), U.S. Green Building Council. October 2005 (revised for projects registered after June 26, 2007). P. 10. Available at <http://www.usgbc.org/ShowFile.aspx?DocumentID=1095>.

⁷ [Id.](#)

⁸ [Id.](#)

⁹ [Id.](#)

LEED has two prerequisites for minimum energy performance. The first “prerequisite requires verification “that the building’s energy related systems are installed, calibrated and perform according to the owner’s project requirements, basis of design, and construction documents.”¹⁰ The second prerequisite requires compliance with ASHRAE/IESNA Standard 90.1-2004. In an attempt to improve the energy performance of LEED certified new construction, the USGBC requires projects to receive at least two “Optimize Energy Performance” points as of June 26, 2007. To receive two “Optimize Energy Performance” points, a project must “demonstrate a [14%] improvement in the proposed building performance rating as compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2004 (without amendments) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard.”¹¹ A project may then receive up to eight additional points for further optimizing energy performance using this standard.¹²

In addition to the ten points for optimizing energy performance, a project may earn additional points for other “Energy & Atmosphere” improvements. For example, a project may receive up to three points by using on-site renewable energy systems.¹³ Further, LEED awards an additional point for enhanced commissioning activities aimed at reducing energy consumption, as well as a point for a “Measurement & Verification” system that provides for ongoing accountability of energy consumption.¹⁴ Nonetheless, not all of the “Energy & Atmosphere” points are related to reduced energy consumption. LEED awards a point for “Enhanced Refrigerant Management” to “reduce ozone depletion and support early compliance

¹⁰ Id. at 32.

¹¹ Id. at 36. Small offices may also receive points for compliance with the ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004.

¹² Id. at 9.

¹³ Id. at 40. LEED awards one point for buildings using 2.5% renewable energy, two points for buildings that use 7.5% renewable energy, and three points for 12.5% renewable energy.

¹⁴ Id. at 41, 45.

with the Montreal Protocol while minimizing direct contributions to global warming”¹⁵

Similarly, a project receives a point if it obtains at least 35% of its electricity from renewable sources as part of a minimum two-year renewable energy contract.¹⁶

The points available in the “Energy & Atmosphere” category are not the only points granted for reduced energy consumption. Although LEED does not have any “Water Efficiency” prerequisites, it awards one point for techniques that result in a 20% reduction in water use over the baseline calculated for the project, and an additional point if the project achieves a 30% reduction in water use. LEED also awards one point if the site reduces potable water consumption for landscaping by 50%, a point if the site eliminates the use of potable water for landscaping, and a point for a 50% reduction of potable water use for building sewage conveyance. Further, LEED awards up to four points for “Innovation in Design.”¹⁷ To obtain these points, the building must “[s]ubstantially exceed a LEED for New Construction performance credit such as energy performance or water efficiency” or “[a]pply strategies or measure that demonstrate a comprehensive approach and quantifiable environment and/or health benefits.”¹⁸

To summarize the points available for reduced energy consumption, LEED provides:

- up to ten points for optimizing energy performance (two points are required)
- up to three points for renewable energy
- one point for enhanced building commissioning
- one point for ongoing measurement and verification of a building’s energy use
- one point for a 20% reduction in water use
- one point for a 30% reduction in water use
- one point for a 50% reduction in potable water use for landscaping

¹⁵ Id. at 43.

¹⁶ Id. at 46.

¹⁷ Id. at 82.

¹⁸ Id.

- one point for elimination of potable water use for landscaping
- one point for a 50% reduction in potable water use for building sewage conveyance
- up to four points for “Innovation in Design”

Thus, the total number of points directly associated with reduced energy consumption is 21 (seventeen if you do not include the four points in the broad and vague “Innovation in Design” category). Of these 21 available points, only two are required to achieve certification once the building meets the prerequisites.

What does this mean in terms of certification? As noted, LEED awards a maximum of 69 points to a project. Out of these 69 points, only 21 relate to energy efficiency, and nineteen of these 21 points are optional. Thus, a project could still obtain a score of 50 by implementing the other “green” techniques and employing only the two required optimize energy performance points. Significantly, only 52 points are required for platinum certification, and just 39 points are required for gold certification.¹⁹ Thus, once a project fulfills the minimum requirements, it could obtain platinum certification by receiving just two additional points related to energy consumption. Similarly, a building could easily receive gold certification by employing only what LEED requires for energy efficiency.

Admittedly, a building that achieved “platinum” certification with only two additional points related to reduced energy consumption may be hard to find. Nonetheless, it is possible for a building with basic LEED certification to provide the same energy savings as a building with a silver, gold, or platinum rating. After all, the ways a project may receive points are numerous. For example, a project may receive points by virtue of its location alone, as LEED awards points

¹⁹ See *id.* at 10.

to projects located near public transportation, projects in areas with higher population densities, and for redevelopment of brownfield sites.²⁰

Further, a project may receive points for including features that may not be appropriate for the project, but that may have lower upfront costs than increasing energy efficiency. For example, if a project includes bicycle racks or fuel-efficient vehicles for building occupants, it may receive additional points under LEED.²¹ Obviously, a developer may have problems justifying bicycle racks in a project for people with special needs located in a place where bicycle travel is neither common nor appropriate. As one author noted:

“Although the LEED rating system tries to be sensitive to specific local environmental conditions and requirements, its checklist-based approach tends to bury some important differences. For example, a building in Maine could receive the same credit for water conservation as one in Arizona, where water use is obviously a more important consideration.”²²

Another potential problem with LEED is that the certification process may add significant cost to a project. The USGBC states the average LEED certification cost is \$2,000.²³ Nonetheless, certification fees vary by the size of the project and can be much higher.²⁴ Registration is the first step toward certification, and it costs \$450 for USGBC members and \$600 for non-members.²⁵ The Combined Design and Construction Review then costs \$1,750 for USGBC members or \$2,250 for non-members for projects with less than 50,000 square feet, \$.01 per square foot for members or \$.015 square foot for non-members for projects with between

²⁰ See *id.*

²¹ *Id.* at 16-17.

²² Russell Kay. *Quick Study: LEED Certification*. Computerworld. September 3, 2007. Available at <http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=299323>. Last visited November 21, 2007.

²³ *Frequently Asked Questions: LEED for New Construction*. U.S. Green Building Council. Available at <http://www.usgbc.org/ShowFile.aspx?DocumentID=3352>. Last visited November 21, 2007.

²⁴ *Registration*. U.S. Green Building Council. Available at <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=65>. Last visited November 21, 2007.

²⁵ *Id.*

50,000 and 500,000 square feet, and \$17,500 for members or \$22,500 for non-members for projects over 500,000 square feet.²⁶ The required Initial Certification review costs \$1,250 for USGBC members or \$1,500 for non-members for projects with less than 50,000 square feet, \$.025 per square for members or \$.03 square foot for non-members for projects with between 50,000 and 500,000 square feet, and \$12,500 for members or \$15,000 for non-members for projects over 500,000 square feet.²⁷ Challenging the USGBC's points determination can also be costly, as the USGBC charges \$500 per credit or prerequisite appealed.²⁸ Nonetheless, if a project receives platinum certification, the USGBC will refund all fees except registration fees, appeal review fees, and any fees paid to expedite certification.²⁹

The USGBC states that construction costs of “green buildings do not have to cost a penny more. LEED certified projects to date demonstrate that you can achieve LEED certification and reap its many benefits with a common-sense approach to design with no additional dollars.”³⁰ Nonetheless, LEED's critics disagree.³¹ A report commissioned by the American Chemistry Council stated that, “[w]hile empirical and projected data vary widely, we have determined that obtaining LEED certification adds from four to eleven percent to a project's construction costs.”³² The report found that more than half of the costs are for “greening,” but “[t]he remaining costs fall outside of the range of construction costs...and they include incremental

²⁶ Id.

²⁷ Id.

²⁸ Certification. U.S. Green Building Council. Available at <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1497>. Last visited November 21, 2007

²⁹ Id.

³⁰ Frequently Asked Questions: LEED for New Construction. U.S. Green Building Council. Available at <http://www.usgbc.org/ShowFile.aspx?DocumentID=3352>. Last visited November 21, 2007.

³¹ See e.g., Auden Schendler and Randy Udall. LEEDing Us Astray?. Grist. October 26, 2005. Available at <http://www.grist.org/comments/soapbox/2005/10/26/leed/>. Last visited November 22, 2007; Greenspirit Strategies, Ltd. The Cost of Green: A Closer Look at State of California Sustainable Building Claims. Available at http://www.apawood.org/level_b.cfm?content=pub_ewj_arch_f04_green. Last visited November 22, 2007.

³² Analyzing the Cost of Obtaining LEED Certification. P. 2. The American Chemistry Council. Arlington, VA. April 16, 2003. Available at http://www.cleanair-coolplanet.org/for_communities/LEED_links/AnalyzingtheCostofLEED.pdf. Last visited November 23, 2007.

costs for design, documenting compliance, and verifying compliance through the commissioning process.”³³ Indeed, a common criticism of LEED involves the USGBC’s certification costs. Recently, the University of Utah decided to forego LEED in favor of state standards for green building.³⁴ The university’s associate vice president of facilities management stated that “[t]he issue with LEED is it costs money to become certified.”³⁵ Similarly, Stanford University has rejected LEED altogether, as it would “prefer to put the dollars [it] would spend on certification back into the buildings to increase their high-performance potential”.³⁶

b. Green Communities

The Green Communities program may provide a solution for those who do not want to pay for LEED certification or complain that green building costs more. Green Communities is not just a green building rating system, it is a private sector initiative by Enterprise Partners, Inc., to fund projects that “promote public health, energy conservation, operational savings and sustainable building practices in affordable housing design.”³⁷ The Green Communities Criteria are aligned with LEED and were developed in partnership with organizations like the Natural Resource Defense Council, the American Association of Architects, the American Planning

³³ Id.

³⁴ Rochelle McConkie. High costs deter U from LEED certification. The Daily Utah Chronicle. June 14, 2007. Available at <http://media.www.dailyutahchronicle.com/media/storage/paper244/news/2007/06/14/Investigates/High-Costs.Deter.U.From.Leed.Certification-2914952.shtml>. Last visited November 23, 2007.

³⁵ Id.

³⁶ Raymond Carlson (quoting Jack Cleary, Stanford University associate vice president for academic projects and operations in Land, Buildings and Real Estate). ‘Sustainability’ a catch phrase among universities. Yale Daily News. October 27, 2007. Available at <http://www.yaledailynews.com/articles/printarticle/22094>. Last visited November 21, 2007.

³⁷ Green Communities. Green Communities Criteria. P. 4. Available by request from Green communities at <http://www.greencommunitiesonline.org/tools/criteria/request.asp>. Last visited November 25, 2007. Also available at <http://www.commongroundwa.org/documents/Green%20Communities%20Criteria%20V2.pdf>. Last visited November 23, 2007.

Association, and Global Green USA.³⁸ Like LEED, Green Communities projects must fulfill certain prerequisites (“mandatory provisions”) and then earn additional points from Optional Criteria.³⁹ Unlike LEED, it does not provide different levels of certification based on the number of points the project receives.⁴⁰ Instead, the project must fulfill the prerequisites and receive a specified number of points to be eligible for grants, loans and tax credit equity available as part of the initiative.⁴¹ For example, new construction must earn 25 Optional Criteria points, while moderate rehab projects must earn 20 points.⁴²

The Green Communities mandatory criteria are extensive and numerous.⁴³ The mandatory criteria include a green development plan, smart site location criteria (e.g., proximity to existing development and services, walkable neighborhoods), environmental remediation, water-conserving appliances and fixtures, efficient irrigation, ventilation, proper HVAC sizing, a building maintenance manual, and an occupant’s manual.⁴⁴ The mandatory energy efficiency provisions require the use of Energy Star appliances, high-efficiency interior and exterior lighting, and individual or sub-metered electric meters “[t]o raise residents’ awareness of the cost associated with electricity consumption[.]”⁴⁵

In addition, the Green Communities Criteria provide distinct mandatory energy efficiency criteria based on whether the project involves new construction or moderate rehab.⁴⁶ For new construction, the project must meet Energy Star standards, receive a Home Energy Rating

³⁸ Green Communities. About the Green Criteria. Available at <http://www.greencommunitiesonline.org/tools/criteria/>. Last visited November 23, 2007; Green Communities. Mission & Vision. Available at <http://www.greencommunitiesonline.org/about/mission.asp>. Last visited November 23, 2007.

³⁹ Green Communities Criteria. P. 4.

⁴⁰ Id.

⁴¹ Id.

⁴² Id.

⁴³ See id. at 7-9.

⁴⁴ Id.

⁴⁵ Id. at 25-26.

⁴⁶ Id. at 23-25.

System (“HERS”) design score of 86, or exceed ASHRAE 90.1 by 30%.⁴⁷ Nonetheless, the mandatory criteria for moderate rehab projects are more flexible.⁴⁸ Those engaging in moderate rehab must “[i]dentify an architect with green building experience, an engineer or energy auditor to conduct an energy analysis of the existing building condition and identify cost-effective energy improvements by preparing an energy improvement report.”⁴⁹ The project must then implement the energy improvements “with a 10-year or earlier payback as identified by a qualified engineer or home energy rater.”⁵⁰

Up to 22 Optional Criteria points are available in the area of energy efficiency.⁵¹ Like the mandatory criteria, the Optional Criteria provide different standards for new construction and moderate rehab projects.⁵² For new construction projects, the Green Communities Criteria award five points for each additional HERS point received, or for each five-percent increase in energy efficiency.⁵³ Similarly, moderate rehab projects receive up to ten points for each additional HERS point or for additional improvements extending the payback period to at least fourteen years.⁵⁴ Both new construction and moderate rehabs are eligible to receive points for using Photovoltaic (PV) panels or for being PV ready. The Green Communities Criteria award five points, up to a maximum of fifteen, for each ten-percent of the project’s estimated electricity demand provided by PV panels.⁵⁵ If the project does not feature PV panels, it may still receive

⁴⁷ Id. at 23-24.

⁴⁸ See id. at 24-25.

⁴⁹ Id. at 24.

⁵⁰ Id.

⁵¹ See id. at 8.

⁵² Id. at 27-28.

⁵³ Id. at 27.

⁵⁴ Id.

⁵⁵ Id.

two points if it is sited, designed, engineered and wired to accommodate PV panels in the future.⁵⁶

The Green Communities Criteria may be the most appropriate rating system for affordable housing. After all, the Green Communities Criteria were developed specifically for affordable housing. The Green Communities criteria are flexible and accommodate problems unique to affordable housing, as “[t]he Green Communities Grants Committee may waive compliance with specific criteria if the grant applicant can demonstrate that the criterion creates a hardship or is inadvisable for a specific project, and that alternative means meet the intent of the criteria.”⁵⁷ Green Communities does not provide a one-size fits all approach and accommodates the disparities between new construction and rehabilitation.

Significantly, Green Communities provides financial assistance for project developers to encourage green building. LEED, on the other hand, adds certification costs on to what may already be a tight budget. Further, by providing grants, loans and tax credit equity, Green Communities helps overcome objections that green building is more expensive. Unlike other rating systems, Green Communities has a stake in the ongoing success of the project, as it is contributing financially to its development. Thus, the Green Communities Criteria may be tailored more long-term concerns like operating costs.

Despite the many possible benefits, the Green Communities criteria may not be ideal for every affordable housing project. For example, a developer may wish to use another equity provider or feel that Green Communities is unlikely to provide project funding. After all, Green

⁵⁶ Id.

⁵⁷ Id. at 4.

Communities does not have unlimited funds, and the project may not be viable for any number of reasons.

In addition, both the Green Communities Criteria and LEED are concerned with green building in general. Energy efficiency is a part of green building, but it is not the sole or even primary concern. Like a LEED project, a Green Communities project need only fulfill the mandatory energy efficiency requirements. After fulfilling such requirements, it may obtain Optional Criteria Points in areas like indoor air quality instead of focusing on further energy efficiency. Thus, like LEED projects which exhibit varying degrees of energy efficiency, some Green Communities projects may be more energy efficient than others.

c. Energy Star

The final program I will consider is the federal government's Energy Star program. The Energy Star program is only concerned with energy consumption and is not a green building rating system like LEED or the Green Communities Criteria. Unlike LEED and Green Communities, the public is quite familiar with Energy Star. After all, it is hard to enter a big box retailer and not see the Energy Star logo on appliances and consumer electronics. Nonetheless, Energy Star does not just certify energy efficient appliances, it also provides a system for rating a building's energy efficiency.⁵⁸ Some green building rating systems even refer to the Energy Star program. As noted, the Green Communities Criteria mandate the use of Energy Star appliances and require a project to meet the Energy Star or a similar energy efficiency standard.⁵⁹

Unlike LEED or the Green Communities Criteria, Energy Star does not operate on a

⁵⁸ See <http://energystar.gov/index.cfm?c=business>. Last visited November 24, 2007

⁵⁹ Green Communities. *Green Communities Criteria*. Pgs. 24-25. Available by request from Green communities at <http://www.greencommunitiesonline.org/tools/criteria/request.asp>. Last visited November 25, 2007.

point system. Instead, it compares a building's energy efficiency to that of similar buildings nationwide. Energy Star provides numerous online tools to help those designing a project increase its energy efficiency. For example, Energy Star provides a Target Finder tool to develop an energy use target customized for a project.⁶⁰

Initially, projects may receive certification for being "Designed to Earn the Energy Star."⁶¹ For certification, the architect of record must certify that the design is intended to fulfill Energy Star requirements once it is operational.⁶² To be "Designed to Earn the Energy Star," the design must receive a score of at least 75, thus placing its energy efficiency in the top 25% of the nation's buildings.⁶³ This certification is free, but the architect of record must submit certain required documents to the EPA.⁶⁴

As noted, a project that is "Designed to Earn the Energy Star" is only *intended* to meet Energy Star requirements once operational.⁶⁵ A project cannot "Earn the Energy Star" until it is operational and can prove that its energy efficiency is in the top 25% of the nation's buildings.⁶⁶ To earn the Energy Star, one must have at least eleven months of energy consumption data and enter it into Energy Star's online portfolio manager.⁶⁷ The project must then receive a score of 75, thus placing its energy efficiency in the top 25% of the nation's buildings. Next, a professional engineer must "verify that all energy use is accounted for accurately, that the building characteristics have been properly reported (including the square footage of the

⁶⁰ Id.

⁶¹ Id.

⁶² Id.

⁶³ Id.

⁶⁴ See id.

⁶⁵ Id.

⁶⁶ See Apply for the ENERGY STAR for your Buildings. Available at http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro. Last visited November 25, 2007.

⁶⁷ See id.; Criteria for Rating Building Energy Performance. Available at http://www.energystar.gov/index.cfm?c=eligibility.bus_portfoliomanager_eligibility. Last visited November 25, 2007.

building), that the building is fully functional in accordance with industry standards, and that each of the indoor environment criteria has been met.”⁶⁸

As mentioned, a project receives its energy efficiency rating by comparison to similar buildings based on data in the Energy Information Agency’s Commercial Buildings Energy Consumption Survey.⁶⁹ Energy Star rates buildings according to their “space type.”⁷⁰ To be compared to other buildings, at least 50% of a building’s floor space must fall into one of the following categories: bank/financial institution, courthouse, hospital, hotel or motel, K-12 school, medical office, office, residence hall/dormitory, retail store, supermarket, warehouse, or wastewater treatment plant.⁷¹ Thus, no category specifically provides for multi-unit affordable housing. Accordingly, even if a multiple-resident affordable housing project is compared to a project in one of the above categories, the rating it receives may not accurately reflect how it compares to other multi-unit affordable housing projects nationwide.

In fairness, Energy Star does offer recommendations for affordable housing.⁷² Nonetheless, it tailored the recommendations to single family homes like that commonly associated with Habitat for Humanity.⁷³ Of course, developers of multiple-resident affordable housing may be able to include many of the recommendations provided by Energy Star in their projects. After all, energy efficient appliances and lighting will reduce energy costs regardless of the type of project involved.

⁶⁸ See Apply for the ENERGY STAR for your Buildings. Available at http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro.

⁶⁹ See Criteria for Rating Building Energy Performance. Available at http://www.energystar.gov/index.cfm?c=eligibility.bus_portfoliomanager_eligibility.

⁷⁰ Id.

⁷¹ Id.

⁷² ENERGY STAR for Affordable Housing: More Energy Efficient, Livable, Sustainable Communities. Available at http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.pt_affordable_housing. Last visited November 25, 2007.

⁷³ See id.

Perhaps most importantly, Energy Star provides tools and information to developers at no cost. If a project is eligible for certification, the owner will not have to pay any certification fees to Energy Star. Further, the public is likely to recognize the Energy Star seal, whereas other rating systems are probably unfamiliar to those outside the industry. Finally, the Energy Star seal coincides solely with reduced energy consumption, and does not address a myriad of environmental problems ranging from indoor air quality to waste management.

III. Conclusion

Energy efficiency is only one aspect of green building. Although green building rating systems provide minimum energy efficiency standards, most provide ways for a building to become certified by addressing environmental concerns unrelated to energy consumption. As noted, LEED provides four levels of certification, and is possible for a building to achieve the highest rating without significantly exceeding the minimum energy efficiency requirements.

An additional problem with LEED is that the certification costs are likely to discourage affordable housing providers from using the system. As mentioned, several universities recently decided not to use LEED in favor of reinvesting the certification fees in energy efficiency. Similarly, affordable housing developers may find that including additional energy efficiency measures is a better investment than paying for certification review since increased energy efficiency will help control operating costs.

Green Communities may prove to be more beneficial to affordable housing developers than LEED. After all, it does not have any certification fees. To the contrary, it provides funding for green affordable housing. Nonetheless, developers may not wish to use Green Communities funding for a variety of reasons. For example, a developer may wish to work with

another equity provider, or the developer may feel that Green Communities is unlikely to fund the project for other reasons. Thus, including the mandatory Green Communities Criteria may deplete resources needed for the most fundamental aspects of the project.

Notably, the Green Communities Criteria use the Energy Star program as means to fulfill the mandatory energy efficiency criteria. Projects that are not seeking Green Communities funding may still wish to Energy Star program as it does not add administrative costs. Further Energy Star is concerned solely with energy efficiency, and does not add costs related to other green building concerns that may not provide a return on investment like indoor tobacco smoke controls. Energy Star may provide a more accurate representation of the building's energy efficiency and a more reliable measure of the building's future operating costs than other rating systems. Further, Energy Star certification may have the best public relations value, as most people outside the industry are unfamiliar with LEED or Green Communities.

LEED, Green Communities, and Energy Star all have one thing in common: they require professionals with energy efficiency experience to design projects that meet specific energy efficiency requirements. Perhaps the best solution for those concerned with operating costs is to invest in their design team and then apply for the free Energy Star logo. When operating on a tight construction budget and even tighter operating budget in the future, expenses related to certification review may be better spent on the building itself.