

**CITY OF SPRINGFIELD  
DEPARTMENT OF PLANNING AND DEVELOPMENT  
MEMORANDUM**

**TO:** City Council Community Involvement Committee

**FROM:** Ralph Rognstad Jr., AICP  
Director of Planning and Development

**DATE:** January 31, 2008

**SUBJECT:** Green Building Policy

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The Community Involvement Committee will meet on February 8, 2008. The purpose of the meeting is: a) for staff to provide additional information and recommendations regarding the proposed green building policy and b) for the committee to provide further direction to staff regarding the scope of the green building policy. Attached is the proposed Green Building Policy that is being considered by City Council (Attachment A). There are four basic issues that the committee needs to address:

1. requiring US Green Building Council (USGBC) LEED-NC (New Construction) Silver Certification;
2. the return on investment time period;
3. ensuring energy efficiency; and
4. endorsement of only one green building standard.

The recommended revisions to the proposed policy are shown on Attachment B. The LEED-NC rating system is available from USGBC at:

<http://www.usgbc.org/ShowFile.aspx?DocumentID=1095>

This is a 78 page PDF file. A summary of the LEED-NC Project Checklist (from the rating system) is included with this report as Attachment E.

### **USGBC LEED-NC Silver Certification**

To analyze the cost of the LEED-NC Silver certification level, staff had the architect for the new Fire Station No. 12 review the plans to estimate the costs of achieving LEED-NC Silver (Attachment C). It was determined that the project as designed would have qualified for about 14 points and an additional 10-15 could have been achieved if the architect had known the original intent was to design a building to achieve LEED certification. Basic LEED certification requires a total of 26 to 32 points, however Silver certification requires 33 to 38 points, which could increase the cost of the project by as much as five percent.

Staff talked to the several architects about the additional costs for construction. The range seems

to be an increase of zero to 12 percent depending on the level of certification. One architect provided the following estimates from his experience.

- LEED Certified 3% increase
- LEED Silver 6% increase
- LEED Gold 9% increase
- LEED Platinum 12% increase

It is expected that these costs will decline over time as designers and contractors become more familiar with green building practices. Also if the entire life-cycle cost of the building is considered, there should be a cost savings, particularly as energy costs continue to increase.

The proposed policy currently does not require USGBC certification. The policy only requires that buildings be certifiable to the LEED Silver Certification standard. The argument for certification is that it provides independent verification the green building prerequisites and performance benchmarks have actually been achieved. The argument against certification is the administration and application costs.

Staff talked to the same architects about the costs of certification. Administration cost estimates ranged from 1/3% to 1% of the overall construction budget. The size of the project has an impact because there is not much difference in administrative costs between small and large projects, so the percentage will be higher for smaller projects. One architect provided actual cost estimates as follows.

- \$10,000-\$15,000 in additional cost for energy modeling and engineering (particularly for the higher ratings)
- \$10,000-\$15,000 in additional cost for project management
- \$10,000-\$20,000 in additional contractor fees for added time (e.g. tracking down and reporting building material origins such as documenting that certain materials were purchased within 500 miles of the project site)

A related issue, if we only require a building to be certifiable, is what should be required for a building to be considered certifiable? Does it just mean going through the checklist during the design or is it also providing all the documentation and going through the commissioning process? If it is the latter, it appears most of the additional administrative costs will have already been spent. The only remaining costs are the registration and application fees, which are a maximum of \$3,000 and \$7,000, respectively, depending on the size of the building. This is not a large cost considering it provides independent verification that the building was designed and constructed to the standard.

***Recommendation:*** Require USGBC certification at the LEED-NC Silver level.

### **Return on Investment Time Period**

We have received a number of comments that the proposed return on investment time period (five years) is too short because many of the energy efficiency paybacks take up to ten years.

Based on limited research, we have found a web site related to the payback for residential energy efficiency. The data from the web page ([http://hes.lbl.gov/hes/profitable\\_dat.html](http://hes.lbl.gov/hes/profitable_dat.html)) is shown on Attachment D. There are some elements that require more than five years to achieve a return on investment. It appears no new City buildings would be constructed at the Silver level if the time period is less than 5 years.

**Recommendation:** Require a 10-year operational cost savings payback period.

A related issue is the project life cycle cost analysis. Does the cost analysis just include hard savings such as the value of energy and water conservation, or does it also include soft savings such as improved health and productivity of employees in the green buildings? This is not a question that needs to be answered now, but it needs to be resolved before the first green building is designed.

**Recommendation:** Direct staff to develop a project life cycle cost analysis that would come back to the committee for review and approval.

## **Energy Efficiency**

We have heard that a building can be certified and not be very energy efficient. USGBC recently addressed this issue by increasing the number of points required for energy savings. I attended a presentation on October 22 by a representative from the Green Building Initiative (GBI) who emphasized that the GBI system, Green Globes, gives more consideration to energy efficiency. The Home Builders Association of Greater Springfield (HBA) and Springfield Contractors Association (SCA) sponsored the presentation.

To ensure energy efficiency is addressed, an alternative is to establish a separate energy standard such as Energy Star or Architecture 2030 to supplement the LEED standards. Energy Star is the rating system established by the Environmental Protection Agency (EPA). The fossil fuel reductions are based on the region of the country and the type of building being constructed. The EPA's Target Finder is used to determine the reductions necessary to achieve an Energy Star rating. The fossil fuel reductions are based on the region of the country and the type of building being constructed. For more information go to:

[http://www.energystar.gov/index.cfm?c=new\\_bldg\\_design.bus\\_target\\_finder](http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder)

Architecture 2030, a non-profit, non-partisan and independent organization, was established in response to the global-warming crisis by architect Edward Mazria in 2002. 2030's mission is to rapidly transform the US and global Building Sector from the major contributor of greenhouse gas emissions to a central part of the solution to the global-warming crisis. Their goal is straightforward: to achieve a dramatic reduction in the global-warming-causing greenhouse gas (GHG) emissions of the Building Sector by changing the way buildings and developments are planned, designed and constructed. Adopters, supporters and collaborators of Architecture 2030 include: US Conference of Mayors, The American Institute of Architects (AIA) and USGBC.

Architecture 2030 has issued The 2030 Challenge asking the global architecture and building community to adopt the following targets:

- All new buildings, developments and major renovations shall be designed to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
- At a minimum, an equal amount of existing building area shall be renovated annually to meet a fossil fuel, GHG-emitting, energy consumption performance standard of 50% of the regional (or country) average for that building type.
- The fossil fuel reduction standard for all new buildings shall be increased to:
  - 60% in 2010
  - 70% in 2015
  - 80% in 2020
  - 90% in 2025
  - Carbon-neutral in 2030 (using no fossil fuel GHG emitting energy to operate).

These targets may be accomplished by implementing innovative sustainable design strategies, generating on-site renewable power and/or purchasing (20% maximum) renewable energy and/or certified renewable energy credits.

The data for the Architecture 2030 fuel reduction also comes from the EPA’s Target Finder. For more information go to:

<http://www.architecture2030.org/home.html>

Energy supply is becoming a critical issue. Worldwide oil production is near or at peak. Increased coal use is a concern because of environmental issues. While alternative energy sources are being developed, it does not appear, at least over the short term, that they will contribute significantly to our energy needs. These problems will result in significant energy costs in the future. The City needs to be conserving energy, and promoting conservation, to the maximum extent possible. To achieve energy savings within the LEED-NC standards, the policy can require a certain number of points for Optimize Energy Performance (EA Credit 1). There are 10 points available. A 31.5% energy cost savings can be achieved by requiring seven points. The minimum energy cost savings percentage for each point threshold is as follows:

| New Buildings | Points |
|---------------|--------|
| 10.5%         | 1      |
| 14%           | 2      |
| 17.5%         | 3      |
| 21%           | 4      |
| 24.5%         | 5      |
| 28%           | 6      |
| 31.5%         | 7      |
| 35%           | 8      |
| 38.5%         | 9      |
| 42%           | 10     |

**Recommendation:** Require at least seven points for energy performance in new buildings

We also need to be addressing renovation of existing buildings. Staff is currently working with City Utilities on energy audits of all City buildings to develop a strategy to reduce energy use. For renovations of existing buildings, we should, at a minimum, require the use of Energy Star equipment, if available.

**Recommendation:** Require the use of Energy Star equipment, if available, for building renovations.

### **Other Green Building Standards**

Green Globes is the only other certification system that really competes with LEED. Energy Star only addresses energy efficiency. Green Globes is being promoted by the HBA because they are promoting the National Association of Home Builders (NAHB) Model Green Home Building Guidelines, which was developed from Green Globes. At this time, Green Globes does not have much of a track record because it is much newer than LEED. The HBA has been the only organization that has criticized the policy because the policy only requires the LEED standard. I proposed to the HBA that Section 6 be modified, as shown below, to clarify that we are not encouraging only the LEED standard.

Section 6-That the City of Springfield will encourage private residential and commercial developers to use, whenever feasible, green building design, construction and operation, including but not limited to LEED, Energy Star and the National Association of Home Builders (NAHB) Model Green Home Building Guidelines.

This has not satisfied the HBA concerns; they believe the City should also use multiple standards, as appropriate, for public buildings. This could add an unnecessary additional cost if the departments have to evaluate a construction project against two or more different standards to determine which one is more appropriate. If we want to include this option, a statement could be included in the policy to allow the Green Globes standard if the design professional retained by the City demonstrates that Green Globes is more appropriate. If Green Globes is used, the project should be designed to be certified for two Green Globes, which is comparable to the LEED Silver standard.

**Recommendation:** Encourage the use of all green building guidelines within the community.

### **Other Issues**

Protecting and conserving our water resources is an issue in the Ozarks. The USGBC standards include a section on Water Efficiency, and it is possible to score a maximum of five points. There should be some minimum requirement

**Recommendation:** Require one point for water efficiency.

Green building standards are rapidly evolving. The City should not adopt a policy and consider it done. There should be periodic review of the policy. There has also been some discussion in the community that we should develop our own standards. While this would be possible, it would

make sense to gain some experience with the USGBC standards that have had input from professionals throughout the design and construction industry. After we have that experience, we may want to create our own standard or emphasis certain areas within the USGBC standards or add standards on top of the USGBC standards. To ensure we are gaining the experience we need and achieving the design standards that have been established for each building, the policy should also require all projects include development and implementation of a Measurement & Verification Plan consistent with EA Credit 5, which will result in an additional point for energy efficiency (Attachment E).

**Recommendation:** Require all projects develop and implement a Measurement & Verification Plan consistent with EA Credit 5.

**Recommendation:** Require the policy be reviewed within two years of adoption.

### **Summary of Recommendations**

1. Require certification at the LEED-NC Silver level.
2. Require a 10-year operational cost savings payback period.
3. Direct staff to develop a project life cycle cost analysis that would come back to the committee for review and approval.
4. Require at least seven points for energy performance in new buildings.
5. Require the use of Energy Star equipment, if available, for building renovations.
6. Encourage the use of all green building guidelines within the community.
7. Require one point for water efficiency.
8. Require all projects develop and implement a Measurement & Verification Plan consistent with EA Credit 5.
9. Require the policy be reviewed within two years of adoption.

cc: Mayor and City Council  
Bob Cumley, City Manager  
Evelyn Honea, Deputy City Manager  
Collin Quigley, Assistant City Manager  
Dan Wichmer, City Attorney  
Brenda Cirtin, City Clerk

Attachment A  
Original Resolution considered by City Council

A RESOLUTION

ADOPTING the City of Springfield, Missouri, Green Building Policy.

WHEREAS, the Springfield/Greene Vision 20/20 Comprehensive Plan sets forth goals for preserving and improving the natural and built environment of the City, protecting the health of its residents and visitors, and fostering its economy; and

WHEREAS, the City of Springfield is an acknowledged environmental leader in the State of Missouri; and

WHEREAS, the City of Springfield recognizes and accepts its responsibility to implement and promote building practices that protect Springfield's natural and built environment; and

WHEREAS, green building is a whole systems approach to the design, construction and operation of buildings that employs materials and methods that promote natural resource conservation, energy efficiency and good indoor air quality; and

WHEREAS, some conventional design and construction methods can produce buildings that negatively impact the environment; these buildings may be unnecessarily expensive to operate and contribute to excessive resource consumption, waste generation, and pollution due to unnecessary landfilling of wasted materials, and inefficient use of energy and water; and

WHEREAS, emissions from some conventional construction materials, including paints, carpets, and particleboard may contribute to a host of health problems associated with poor indoor air quality; these health impacts may be exacerbated by conventional ventilation technology and may result in lost productivity and increased costs for maintenance, waste disposal and health care; and

WHEREAS, green building design, construction, and operation can minimize or avoid these types of adverse impacts in a variety of ways: by incorporating energy and water efficient technologies and landscaping, using recycled content materials, reducing construction and demolition waste, improving indoor air quality and promoting long-term economic efficiency; and

WHEREAS, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System and Certification is a nationally recognized standard for excellence in facility design and has multiple levels of certification; and

WHEREAS, the Springfield City Council finds that green design and construction decisions made by the City in the construction and remodeling of City buildings can result in significant cost savings to the City over the life of the buildings; and

WHEREAS, the benefits of green building design, construction, and operation should be enjoyed by the residents, workers, and visitors of the City.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SPRINGFIELD, MISSOURI, the following:

Section 1-That green building design, construction and operation furthers the goals set forth in the Springfield/Greene County Vision 20/20 Comprehensive Plan.

Section 2-That the City Council hereby adopts the “City of Springfield Green Building Policy.” This policy reflects the City's commitment to encouraging environmentally sensitive construction practices in the City of Springfield by utilizing, for City-owned buildings, construction practices that meet the prerequisites and performance benchmarks of the Leadership in Energy and Environmental Design (LEED) certification process.

Section 3-That the City Council hereby declares that all new City-owned buildings, of any size and intended for human occupation, will be designed, contracted and built to meet the prerequisites and performance benchmarks at the LEED Silver certification level, and to strive to meet the prerequisites and performance benchmarks at higher certification levels (Gold or Platinum) whenever project resources and conditions permit. Actual certification of buildings by the U.S. Green Building Council is not required.

Section 4-That the City Council hereby declares that all future renovations and City buildings not intended for human occupation will be designed, contracted and built to include as many prerequisites and performance benchmarks of the LEED program as possible. Buildings not intended for human occupation include utility and material and equipment storage type structures; structures where occupancy is typically intermittent, or structures not designed to have heating and/or air conditioning equipment installed, i.e. open sided structures.

Section 5-That the City Council, to maintain tight control over the cost of City building projects, qualifies the above Section 3 of this Green Building Policy to require a cost/benefit ratio that reflects a return on investment of no more than five (5) years for each “Green Building” design element for projects designed to the LEED Silver Standard. Where the return on investment is anticipated to be more than five (5) years, the City Manager is directed to approve the level of LEED certification appropriate for that particular project. If no level of LEED certification is feasible, the project under consideration shall include as many prerequisites and performance benchmarks of the LEED program that are feasible.

Section 6-That the City of Springfield will encourage private residential and commercial developers to use green building design, construction and operation whenever feasible.

Section 7-The City Council may grant exceptions to this Policy when it deems appropriate.

Attachment B  
DRAFT 1-28-08

A RESOLUTION

ADOPTING the City of Springfield, Missouri, Green Building Policy.

WHEREAS, the Springfield/Greene Vision 20/20 Comprehensive Plan sets forth goals for preserving and improving the natural and built environment of the City, protecting the health of its residents and visitors, and fostering its economy; and

WHEREAS, the City of Springfield is an acknowledged environmental leader in the State of Missouri; and

WHEREAS, the City of Springfield recognizes and accepts its responsibility to implement and promote building practices that protect Springfield's natural and built environment; and

WHEREAS, green building is a whole systems approach to the design, construction and operation of buildings that employs materials and methods that promote natural resource conservation, energy efficiency and good indoor air quality; and

WHEREAS, some conventional design and construction methods can produce buildings that negatively impact the environment; these buildings may be unnecessarily expensive to operate and contribute to excessive resource consumption, waste generation, and pollution due to unnecessary landfilling of wasted materials, and inefficient use of energy and water; and

WHEREAS, emissions from some conventional construction materials, including paints, carpets, and particleboard may contribute to a host of health problems associated with poor indoor air quality; these health impacts may be exacerbated by conventional ventilation technology and may result in lost productivity and increased costs for maintenance, waste disposal and health care; and

WHEREAS, green building design, construction, and operation can minimize or avoid these types of adverse impacts in a variety of ways: by incorporating energy and water efficient technologies and landscaping, using recycled content materials, reducing construction and demolition waste, improving indoor air quality and promoting long-term economic efficiency; and

WHEREAS, the Leadership in Energy and Environmental Design (LEED) Green Building Rating System and Certification is a nationally recognized standard for excellence in facility design and has multiple levels of certification; and

WHEREAS, the Springfield City Council finds that green design and construction decisions made by the City in the construction and remodeling of City buildings can result in significant cost savings to the City over the life of the buildings; and

WHEREAS, the benefits of green building design, construction, and operation should be enjoyed by the residents, workers, and visitors of the City.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SPRINGFIELD, MISSOURI, the following:

Section 1-That green building design, construction and operation furthers the goals set forth in the Springfield/Greene County Vision 20/20 Comprehensive Plan.

Section 2-That the City Council hereby adopts the “City of Springfield Green Building Policy.” This policy reflects the City's commitment to encouraging environmentally sensitive construction practices in the City of Springfield by utilizing, for City-owned buildings, construction practices that meet the prerequisites and performance benchmarks of the Leadership in Energy and Environmental Design (LEED) certification process.

Section 3-That the City Council hereby declares that all new City-owned buildings, of any size and intended for human occupation, will be designed, contracted and built to ~~meet the prerequisites and performance benchmarks at the~~ LEED Silver certification for new construct (LEED-NC) level, and to strive to ~~meet the prerequisites and performance benchmarks at~~ achieve higher certification levels (Gold or Platinum) whenever project resources and conditions permit. ~~Actual certification of buildings by the U.S. Green Building Council is not required. Regardless of the level of certification, at a minimum, seven (7) of the total LEED points achieved will be for energy performance and one (1) of the total LEED points achieved will be water efficiency. All projects will also develop and implement a Measurement & Verification Plan consistent with EA Credit 5, which will result in an additional point for energy efficiency. All new City buildings not intended for human occupation will be designed, contracted and built to include as many prerequisites and performance benchmarks of the LEED-NC program as possible. Buildings not intended for human occupation include utility and material and equipment storage type structures; structures where occupancy is typically intermittent, or structures not designed to have heating and/or air conditioning equipment installed, i.e. open sided structures.~~

Section 4-That the City Council hereby declares that all future renovations ~~and~~ of City buildings ~~not intended for human occupation~~ will be designed, contracted and built to include as many prerequisites and performance benchmarks of the LEED-EB program as possible. If a building renovation involves replacement of appliances, heating and/or air conditioning equipment, or other systems that use energy, the new equipment shall be Energy Star qualified, if qualified equipment is available. Buildings not intended for human occupation include utility and material and equipment storage type structures; structures where occupancy is typically intermittent, or structures not designed to have heating and/or air conditioning equipment installed, i.e. open sided structures.

Section 5-That the City Council, to maintain tight control over the cost of City building projects, qualifies the above Section 3 of this Green Building Policy to require ~~a cost/benefit ratio that reflects a return on investment of no more than five (5) years for each “Green Building” design element for projects designed to the LEED Silver Standard~~ the total LEED project life cycle cost analysis demonstrate an operational cost savings payback within ten (10) years for any premium above the industry standard. Where the return on investment operational cost savings payback is anticipated to be more than five (5) ten (10) years, the City Manager is directed to approve the level of LEED certification appropriate for that particular project. If no

level of LEED certification is feasible, the project under consideration shall include as many prerequisites and performance benchmarks of the LEED program that are feasible and, at a minimum all equipment installed in the building shall be Energy Star qualified, if qualified equipment is available.

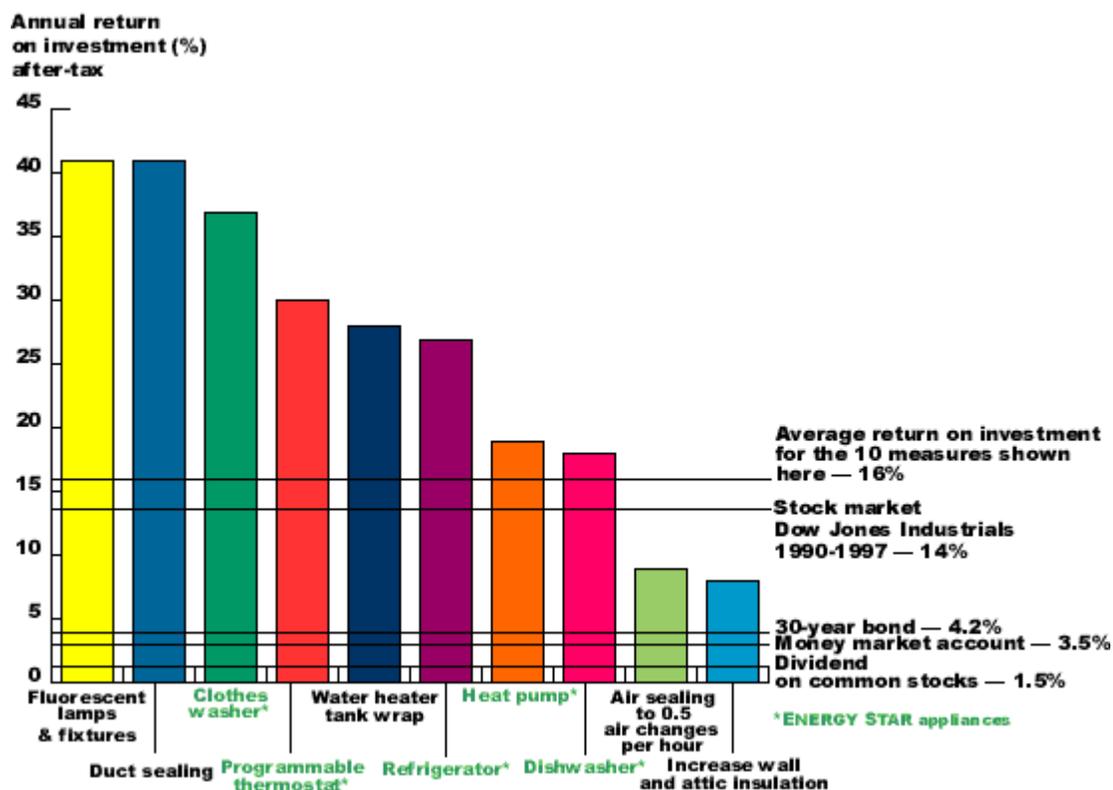
Section 6-That the City of Springfield will encourage private residential and commercial developers to use ~~green building design, construction and operation~~ whenever feasible, green building design, construction and operation, including but not limited to LEED, Energy Star and the National Association of Home Builders (NAHB) Model Green Home Building Guidelines.

Section 7-The City Council may grant exceptions to this Policy when it deems appropriate.

Section 8-The City Council directs the City Manager to perform a review of this policy within two (2) years after the policy is adopted and to provide a report to the City Council's Community Involvement Committee regarding any recommended changes to the policy.

## The Profitability of Energy Efficiency Upgrades

Application of these 10 energy efficiency measures in a typical home yields nearly \$600 in annual bill savings, and an impressive 16% overall return on investment. [More...](#)



This diagram provides a representative view of the high profitability of energy efficiency upgrades. Note that the home evaluated here is located in an average U.S. climate and has a heat pump, electric water heater, clothes washer, clothes dryer, and dishwasher.

The example cost-effectively surpasses the 30% savings target for existing homes under PATH (The Partnership for Advancing Technology in Housing). In fact, all of these measures yield a higher return on investment than an ordinary bank account, and most are as or even more profitable than the stock market has been in recent years! The efficiency savings shown above include the effect of income taxes. This makes the savings even more attractive, because you can keep all the money you save on your energy bills, but have to pay hefty taxes on most ordinary investment income.

| Energy Efficiency Upgrade    | Purchase Price <sup>1</sup> | Annual Bill Savings <sup>2</sup> | Simple Payback (yrs) | Rate of Return |
|------------------------------|-----------------------------|----------------------------------|----------------------|----------------|
| Fluorescent Lamps & Fixtures | \$200                       | \$80                             | 2.5                  | 41%            |
| Duct sealing                 | \$250                       | \$95                             | 2.6                  | 41%            |
| ENERGY STAR Clothes washer   | \$194                       | \$66                             | 2.9                  | 37%            |

|                                                       |         |       |      |     |
|-------------------------------------------------------|---------|-------|------|-----|
| ENERGY STAR Programmable Thermostat                   | \$107   | \$29  | 3.7  | 30% |
| Water Heater Tank Wrap (R-12)                         | \$85    | \$23  | 3.7  | 28% |
| ENERGY STAR Refrigerator                              | \$97    | \$23  | 4.2  | 27% |
| ENERGY STAR Heat Pump                                 | \$692   | \$126 | 5.5  | 19% |
| ENERGY STAR Dishwasher                                | \$29    | \$5   | 5.5  | 18% |
| Air sealing to 0.5 air changes per hour               | \$522   | \$38  | 13.7 | 9%  |
| Increase wall and attic insulation                    | \$1,784 | \$111 | 16.1 | 8%  |
| Total                                                 | \$3,960 | \$597 | 6.6  | 16% |
| Total bill savings as % of baseline bill <sup>3</sup> |         | 36%   |      |     |

NOTES:

Assumes typical house with air-source heat pump, electric water heating, clotheswasher, clothes dryer, dishwasher. Purchase prices and annual bill savings for efficiency measures are in nominal 1997 dollars. The rate of return assumes 3% annual inflation in residential electricity prices. After-tax rates of return assume a 28% marginal income tax rate.

<sup>1</sup>Purchase price of clotheswasher, dishwasher, thermostat, and heat pump measures is incremental to the price of existing "NAECA" appliance standards. All other prices reflect the full cost of the measure, including installation.

<sup>2</sup> Bill savings assume average electricity cost of 8.8¢ per kilowatt-hour. Bill savings of equipment measures are relative to a NAECA standard unit.

<sup>3</sup> Heating and cooling consumption values are from LBNL energy modeling using DOE-2; other enduse consumptions are from the U.S. Department of Energy's Residential Energy Consumption Survey (RECS).

# Project Checklist

| <b>Sustainable Sites</b> |                                                                            | <b>14 Possible Points</b> |
|--------------------------|----------------------------------------------------------------------------|---------------------------|
| Prereq 1                 | <b>Construction Activity Pollution Prevention</b>                          | Required                  |
| Credit 1                 | <b>Site Selection</b>                                                      | 1                         |
| Credit 2                 | <b>Development Density &amp; Community Connectivity</b>                    | 1                         |
| Credit 3                 | <b>Brownfield Redevelopment</b>                                            | 1                         |
| Credit 4.1               | <b>Alternative Transportation</b> , Public Transportation Access           | 1                         |
| Credit 4.2               | <b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms       | 1                         |
| Credit 4.3               | <b>Alternative Transportation</b> , Low Emitting & Fuel Efficient Vehicles | 1                         |
| Credit 4.4               | <b>Alternative Transportation</b> , Parking Capacity                       | 1                         |
| Credit 5.1               | <b>Site Development</b> , Protect or Restore Habitat                       | 1                         |
| Credit 5.2               | <b>Site Development</b> , Maximize Open Space                              | 1                         |
| Credit 6.1               | <b>Stormwater Design</b> , Quantity Control                                | 1                         |
| Credit 6.2               | <b>Stormwater Design</b> , Quality Control                                 | 1                         |
| Credit 7.1               | <b>Heat Island Effect</b> , Non-Roof                                       | 1                         |
| Credit 7.2               | <b>Heat Island Effect</b> , Roof                                           | 1                         |
| Credit 8                 | <b>Light Pollution Reduction</b>                                           | 1                         |

| <b>Water Efficiency</b> |                                                                      | <b>5 Possible Points</b> |
|-------------------------|----------------------------------------------------------------------|--------------------------|
| Credit 1.1              | <b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation | 1                        |
| Credit 2                | <b>Innovative Wastewater Technologies</b>                            | 1                        |
| Credit 3.1              | <b>Water Use Reduction</b> , 20% Reduction                           | 1                        |
| Credit 3.2              | <b>Water Use Reduction</b> , 30% Reduction                           | 1                        |

| <b>Energy &amp; Atmosphere 17 Possible Points</b> |                                                                 |          |
|---------------------------------------------------|-----------------------------------------------------------------|----------|
| Prereq 1                                          | <b>Fundamental Commissioning of the Building Energy Systems</b> | Required |
| Prereq 2                                          | <b>Minimum Energy Performance</b>                               | Required |
| Prereq 3                                          | <b>Fundamental Refrigerant Management</b>                       | Required |
| Credit 1                                          | <b>Optimize Energy Performance</b>                              | 1–10     |
| Credit 2                                          | <b>On-Site Renewable Energy</b>                                 | 1–3      |
| Credit 3                                          | <b>Enhanced Commissioning</b>                                   | 1        |
| Credit 4                                          | <b>Enhanced Refrigerant Management</b>                          | 1        |
| Credit 5                                          | <b>Measurement &amp; Verification</b>                           | 1        |
| Credit 6                                          | <b>Green Power</b>                                              | 1        |

| <b>Materials &amp; Resources 13 Possible Points</b> |                                                                                |          |
|-----------------------------------------------------|--------------------------------------------------------------------------------|----------|
| Prereq 1                                            | <b>Storage &amp; Collection of Recyclables</b>                                 | Required |
| Credit 1.1                                          | <b>Building Reuse</b> , Maintain 75% of Existing Walls, Floors & Roof          | 1        |
| Credit 1.2                                          | <b>Building Reuse</b> , Maintain 95% of Existing Walls, Floors & Roof          | 1        |
| Credit 1.3                                          | <b>Building Reuse</b> , Maintain 50% of Interior Non-Structural Elements       | 1        |
| Credit 2.1                                          | <b>Construction Waste Management</b> , Divert 50% from Disposal                | 1        |
| Credit 2.2                                          | <b>Construction Waste Management</b> , Divert 75% from Disposal                | 1        |
| Credit 3.1                                          | <b>Materials Reuse</b> , 5%                                                    | 1        |
| Credit 3.2                                          | <b>Materials Reuse</b> , 10%                                                   | 1        |
| Credit 4.1                                          | <b>Recycled Content</b> , 10% (post-consumer + 1/2 pre-consumer)               | 1        |
| Credit 4.2                                          | <b>Recycled Content</b> , 20% (post-consumer + 1/2 pre-consumer)               | 1        |
| Credit 5.1                                          | <b>Regional Materials</b> , 10% Extracted, Processed & Manufactured Regionally | 1        |
| Credit 5.2                                          | <b>Regional Materials</b> , 20% Extracted, Processed & Manufactured Regionally | 1        |
| Credit 6                                            | <b>Rapidly Renewable Materials</b>                                             | 1        |
| Credit 7                                            | <b>Certified Wood</b>                                                          | 1        |

## Indoor Environmental Quality 15 Possible Points

|            |                                                             |          |
|------------|-------------------------------------------------------------|----------|
| Prereq 1   | Minimum IAQ Performance                                     | Required |
| Prereq 2   | Environmental Tobacco Smoke (ETS) Control                   | Required |
| Credit 1   | Outdoor Air Delivery Monitoring                             | 1        |
| Credit 2   | Increased Ventilation                                       | 1        |
| Credit 3.1 | Construction IAQ Management Plan, During Construction       | 1        |
| Credit 3.2 | Construction IAQ Management Plan, Before Occupancy          | 1        |
| Credit 4.1 | Low-Emitting Materials, Adhesives & Sealants                | 1        |
| Credit 4.2 | Low-Emitting Materials, Paints & Coatings                   | 1        |
| Credit 4.3 | Low-Emitting Materials, Carpet Systems                      | 1        |
| Credit 4.4 | Low-Emitting Materials, Composite Wood & Agrifiber Products | 1        |
| Credit 5   | Indoor Chemical & Pollutant Source Control                  | 1        |
| Credit 6.1 | Controllability of Systems, Lighting                        | 1        |
| Credit 6.2 | Controllability of Systems, Thermal Comfort                 | 1        |
| Credit 7.1 | Thermal Comfort, Design                                     | 1        |
| Credit 7.2 | Thermal Comfort, Verification                               | 1        |
| Credit 8.1 | Daylight & Views, Daylight 75% of Spaces                    | 1        |
| Credit 8.2 | Daylight & Views, Views for 90% of Spaces                   | 1        |

## Innovation & Design Process

**5 Possible Points**

|            |                              |   |
|------------|------------------------------|---|
| Credit 1.1 | Innovation in Design         | 1 |
| Credit 1.2 | Innovation in Design         | 1 |
| Credit 1.3 | Innovation in Design         | 1 |
| Credit 1.4 | Innovation in Design         | 1 |
| Credit 2   | LEED Accredited Professional | 1 |

## Project Totals

**69 Possible Points**

**Certified** 26–32 points    **Silver** 33–38 points    **Gold** 39–51 points    **Platinum** 52–69 points