



DEPARTMENT OF COMMUNITY DEVELOPMENT SERVICES

Building Safety Division

m e m o r a n d u m

TO: Bruce K. Walden, Chief Administrative Officer

FROM: Elizabeth H. Tyler, AICP, Community Development Director / City Planner

DATE: April 5, 2007

SUBJECT: **Green Building/Energy Conservation Code Update**

Introduction

The Mayor and City Council have expressed interest in finding out more about energy conservation measures that are currently required by the City of Urbana, as well as any suggested improvements or expansions to these measures. In addition, interest has been expressed in the concept of Green Building as it might be applied in the City of Urbana.

Conservation of energy in new and existing buildings is an important means of promoting more environmentally sustainable development and in helping to control maintenance and operation costs for purposes of housing affordability and fiscal responsibility. Green Buildings are buildings which incorporate energy conserving features – such as geothermal energy or passive solar equipment – as well environmentally friendly construction materials and methods. These include the use of such concepts as green roofs, bioswales, permeable pavement, use of recycled building materials, use of energy conserving appliances, and avoidance of environmentally harmful adhesives and off-gassings. Public entities can be leaders in developing green buildings, and many communities have promoted the use of Leadership in Energy and Environmental Design (LEED) certified public buildings.

Background

The City's commitment to Energy Conservation and Green Buildings are reflected in the following Comprehensive Plan Goals:

Goal 5.0 Ensure that land use patterns conserve energy.

Objectives

- 5.1 Encourage development patterns that help reduce dependence on automobiles and promote different modes of transportation.*
- 5.2 Promote building construction and site design that incorporates innovative and effective techniques in energy conservation.*

A relevant Implementation Strategy of the Comprehensive Plan is as follows:

Consider a program of zoning and development incentives for new development that incorporates a high level of energy efficiency in building designs such as “green buildings.” Promote use of the Leadership in Energy and Environmental Design (LEED) system for public buildings.

The Council Goals, adopted in 2005, include the following:

- 6) *Reduce Urbana’s Environmental Footprint and Waste Stream/Expand Recycling*
 - a. *Study and implement green building guidelines, incentives, energy conservation improvements, and environmentally friendly public works.*
- 7) *Increase Affordable Housing*
 - a. *Develop nationally recognized, model neighborhood that is affordable and uses 10% of standard energy consumption.*

In response to the affordable housing goal, the City has retained Farr Associates, leaders in “green architecture,” to prepare site plans for the City owned Kerr Street property. Farr has initiated their work with a market study and has scheduled a charette in May to kick off the design process. The goal is to develop the Kerr Street property with affordable, energy efficient homes in such a manner as to provide a model for other communities with green building goals. This project is included in the City’s Annual Action Plan for 2006-2007.

Through the Annual Action Plan process, the City has also helped to fund operations and projects for Eco Lab, a local Community Housing Development Organization. EcoLab has completed one passive solar house on Fairview Avenue for an income qualifying buyer. A second project, also on Fairview Avenue, is underway and a third project is proposed as part of the 2007-2008 Annual Action Plan.

Energy conservation is also a key focus for the Crystal View Townhomes which are proposed for the location of the former Lakeside Terrace public housing project. The Crystal View Townhomes will incorporate geothermal energy. Funding for this project will be provided in part through CDBG and HOME funds allocated through the Annual Action Plans of previous, current, and upcoming years.

The City’s recently amended Planned Unit Development regulations (part of the Zoning Ordinance) encourage green building in its Recommended Design Features, which include pedestrian connectivity, permeable parking areas, landscaping, greenways and trails, and energy efficient construction. The Energy Efficient Construction feature description is as follows:

“Whenever possible, a development should utilize building construction and site design that incorporate innovative and effective techniques in energy conservation. A development that achieves at least enough points to attain LEED “Certified” status is highly recommended.”

Energy Conservation Codes

In February 2007, the City of Urbana adopted a new building code series, known as the 2003 International Code Series, which became effective on March 15, 2007. The 2003 building code series includes Energy Code provisions as part of both the International Building Code and the International

Residential Code. In addition, the City's adopting ordinance included by reference the recently mandated Illinois Energy Conservation Code. This code covers new construction and major additions or remodeling of commercial buildings and multi-family residential buildings over three stories. Recent amendments to this Code have expanded it to cover one- and two-family residential as well as multi-family buildings three stories and under. These amendments automatically apply to Urbana by reference in our adopting ordinance.

Background on the Illinois Energy Conservation Code

- Prior to August 2004, Illinois had implemented the adoption of ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) requirements for limited state funded facilities. Commercial construction was not addressed.
- In 2004, new legislation was approved to extend applicability of energy standards to commercial facilities. The Capital Development Board was designated as the administrator of the program and the Department of Commerce and Economic Opportunity was to provide training.
- In March of 2005, the Capital Development Board formally adopted the International Energy Conservation Code, to be effective April 8, 2006. By this date, all local governments, including home rule units were required to regulate energy efficient building standards at least as stringently as the Illinois Energy Conservation Code for commercial buildings. At that time, the referenced code consisted of the 2000 International Energy Conservation Code, the ASHRAE 90.1-1999 standard, which is included within the Conservation Code, and the adoptions to the Conservation Code that had been made by the Capital Development Board. Residential buildings, such as one-family, two-family or multiple-family units three stories and under, were not covered by this legislation.
- Prior to the April 8, 2006 effective date, Building Safety Division Staff took part in training provided by the Department of Commerce and Economic Opportunity. Urbana Building Safety then started implementing the provisions. Implementation of the new Code has been a learning experience for both staff and the design professionals that we work with to learn the provisions.
- As part of the training given by the DCEO, staff learned that the 2000 International Energy Conservation Code which was adopted for use had been superseded by the 2003 International Energy Code and the 2003 supplement to the International Energy Code. This update covers the residential buildings that are not covered by the 2000 Code.
- In International Building Code 2003, the Chapter that provides for the 2003 International Energy Conservation Code was modified as part of our adopting ordinance to require that the Illinois Energy Conservation Code be followed in Urbana. The adopting ordinance allows us to be on the most current edition of the International Energy Conservation Code, as currently adopted for use by the Capital Development Board. Recent conversations with CDB staff indicate that the 2006 International Energy Conservation Code is at the Joint Committee on Administrative Rules (JCAR) for review and should be made law in three to six months. This anticipated change will automatically place us at the most current code used throughout Illinois and will bring us on board with the design professionals throughout the state.
- The recently adopted 2003 International Residential Code which covers one and two family residential buildings has an entire chapter on Energy Conservation which mandates the use of the newest standards of energy conservation. Building Safety Staff is now able to ask that efficient use of energy conservation be incorporated in new construction.

Objectives of the Energy Conservation Code

The goals of the Illinois Energy Conservation Code are to help protect the environment and reduce energy consumption. By following an energy conservation code, property owners can reduce air pollution, moderate energy demand and stabilize energy costs and electric, oil, and gas supplies. Objectives of the Illinois Energy Conservation Code are to enable the effective and efficient use of energy in the construction of new buildings and additions and alterations to existing buildings by regulating the following:

- Building envelope – energy conservation measure focus on air sealing, minimum insulation levels, and efficient glazing.
- Mechanical systems – energy usage of the mechanical systems is addressed through equipment efficiency, the effective use of HVAC controls and the optimization of heating and cooling distribution systems.
- Electrical systems – features include the interior lighting wattage limits, exterior lighting efficiency thresholds and controls for the efficient use of lighting.
- Service water heating systems – energy usage of the service water heating system is addressed through water heating efficiency and hot water distribution systems.

Specific topics covered by the International Energy Conservation Code include the following:

- Energy analysis
- Heating and cooling controls
- Moisture control
- Electrical power and lighting
- Conservation of hot water
- Mechanical systems
- HVAC system controls
- Building orientation
- Building envelope requirements
- Air leakage
- Fenestration
- Thermal performance criteria
- Service water heating
- Total Building Performance

Historic Building Exemption

The Energy Conservation Codes provides the following exemption:

Any building or structure that is listed in the State or National Registry of Historic Places; designated as a historic property under local or state designation law or survey; certified as a contributing resource with a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State Registers of Historic Places either individually or as a contributing building to a historic district by the State Historic Preservation Office or the Keeper of the National Register of Historic Places, is exempt from this code.

Green Buildings

Information on green buildings and the LEED certification system is provided by organizations, such as the Green Building Council (<http://www.usgbc.org/>). This website includes introductory material and presentations.

In 2005, City officials attended a Green Building Tour in Chicago which showcased a LEED platinum

certified building (Farr Associates were architects) and the Prairie Crossings Conservation Subdivision.

The City has encouraged and assisted in the use of green building techniques in a number of development projects where the City has an interest, including the Urbana Free Library, Kerr Street project, EcoLab homes, and Crystal View Townhomes. As part of our site planning review process, we promote community friendly green site design approaches for major projects, such as WalMart, Meijer's, and Menards. We recently worked with students at the University of Illinois, Department of Urban and Regional Planning on a studio that looked at both the Kerr and Lakeside Terrace sites and evaluated their potential for LEED certification under the housing and neighborhood pilot systems.

The University of Illinois is also keenly interested in promoting additional Green buildings on campus and now have a green building coordinator on staff. This effort is encompassed by an initiative known as BLUE, Building a Lasting University Environment. Information about this initiative can be found at: http://www.fs.uiuc.edu/blue/index_main.htm Among the achievements of this University initiative is the community's first LEED certified building – the Business School's Instructional Facility, which attained LEED Gold status. BLUE has a goal to attain LEED Silver status on all University buildings with construction costs of over \$1,000,000.

Future Steps

Through implementation of the new International Code Series, the Building Safety Division looks forward to learning the provisions of the Energy Codes that are now in place and helping to implement those provisions for the benefit of the community.

The City should continue to look for additional opportunities to promote green building in the community through educational efforts, support of City sponsored projects, and encouragement of the private sector.

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Attachments:

Illinois Energy Conservation Code Summary from DCEO Website

U.S. Green Building Council Website Information

Blue Illinois Website Information