Adopted 11-13-06

CITY OF AUBURN HILLS

Green Building Policy

Encouraging LEED Certification

The City of Auburn Hills seeks to encourage the voluntary achievement of LEED certification for all applicable municipal and private development projects.

What is LEED Certification?

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is a voluntary rating system recognized nationally as the benchmark for sustainable building design. The program was created by the U.S. Green Building Council to provide a definitive standard for what constitutes a "green building." Project rating is based on a point-based system with four certification levels, which include Certified, Silver, Gold, and Platinum. Projects that satisfy requirements for at least 26 points (out of a possible 69) earn basic certification.

Why Build Green?

Green building design presents an opportunity to reduce the impact that development has on the natural environment. While green building principles are based on sound environmental policies, they are also grounded in economics. Studies have shown that this design approach offers many economic advantages, such as:

- Command for higher rents due to green features, including low emission materials and natural daylighting, as well as systems that offset increasing energy and water costs.
- Project lifecycle savings as the result of lower electricity, heating, cooling, water, and waste disposal costs along with reduced operations and maintenance costs.
- Increased staff productivity and reduced absenteeism due to better lighting, improved indoor air quality, and enhanced thermal comfort.

Sample Green Building Practices

	Simple Actions Smaller Commitment	→	**Complex Actions** Larger Commitment
Site Planning	Design project to limit impact on site	Preserve and relocate trees	Pursue brownfield redevelopment opportunities
Stormwater Management	Design functional landscaping such as rain gardens and native plants	Reduce impervious surfaces, use porous pavements	Install green roofs and stormwater cisterns
Energy Consumption	Install energy efficient fixtures and appliances	Buy "green power" or use passive solar design	Generate renewable energy on-site
Heating and Air Conditioning	Install energy efficient HVAC unit, additional insulation, and/or a white roof	Install a Energy Recovery Ventilator	Install a geothermal system
Materials Use	Use low-VOC paints, carpets, and adhesives	Use Insulated Concrete Forms for exterior walls	Reuse part of existing structure or interior materials
Construction and Design Processes	Manage demolition waste streams	Orient and design building to optimize daylight	Protect natural areas and create permanent easements
Water Consumption	Install low-flow sinks and showers	Install dual flush toilets and waterless urinals	Install greywater systems

Source: University of Michigan. Building Green for the Future: Case Studies of Sustainable Development in Michigan (June 2005)

For Additional Information:

U.S. Green Building Council

website: http://www.usgbc.org

Contacts:

City of Auburn Hills

Steve Cohen, City Planner – 248-364-6941

Shawn Keenan, Water Resources Coordinator – 248-364-6926

U.S. GREEN BUILDING COUNCIL MEMBER

LEED
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

CITY OF AUBURN HILLS

Green Building Policy
Encouraging LEED Certification

Checklist for New Construction* – *Page 1

E Ecological **P** Productivity* **S** Operational Savings
* *Strategies that promote health and comfort of building occupants*

Site Planning		Points	Benefits
1	**Construction Activity Pollution Prevention** o Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse. o Prevent sedimentation of storm sewer or receiving streams. o Prevent polluting the air with dust and particulate matter.	Required	**E**
2	**Site Selection** o Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site (e.g., stay out of floodplain, wetland setback, etc.).	1	**E**
3	**Site Development, Protect or Restore Habitat** o OPTION 1 - On greenfield sites, limit all site disturbance to 40 feet beyond the building perimeter; 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields) that require additional staging areas in order to limit compaction in the constructed area. OR o OPTION 2 - On previously developed or graded sites, restore or protect a minimum of 50% of the site area (excluding the building footprint) with native or adapted vegetation. Native/adapted plants are plants indigenous to a locality or cultivars of native plants that are adapted to the local climate and are not considered invasive species or noxious weeds. Projects using vegetated roof surfaces may apply the vegetated roof surface to this calculation if the plants meet the definition of native/adapted.	1	**E**
4	**Site Development, Maximize Open Space** o Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary to exceed the local zoning's open space requirement for the site by 25%. Wetlands or naturally designed ponds may count as open space if the side slope gradients average 1:4 (vertical: horizontal) or less and are vegetated.	1	**E / P**
5	**Light Pollution Reduction** o Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.	1	**E / S**
6	**Development Density & Community Connectivity** o Channel development to urban areas with existing infrastructure, protect greenfields, or preserve habitat and natural resources.	1	**E**
7	**Brownfield Redevelopment** o Rehabilitate damaged sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.	1	**E**
8	**Alternative Transportation, Public Transportation Access** o Locate project within 1/4 mile of one or more stops for two or more public or campus bus lines usable by building occupants.	1	**E / P**
9	**Alternative Transportation, Bicycle Storage & Changing Rooms** o Provide secure bicycle racks and/or storage (within 200 yards of a building entrance) for 5% or more of all building users (measured at peak periods), AND, provide shower and changing facilities in the building, or within 200 yards of a building entrance, for 0.5% of Full-Time Equivalent (FTE) occupants.	1	**E / P**
10	**Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles** o Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site.	1	**E / P**
11	**Alternative Transportation, Parking Capacity** o Size parking capacity to meet, but not exceed, minimum local zoning requirements, AND, provide preferred parking for carpools or vanpools for 5% of the total provided parking spaces OR …Provide preferred parking for carpools or vanpools, marked as such, for 5% of total provided parking spaces.	1	**E**
12	**Heat Island Effect, Non-Roof** o Provide any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots): 1) shade (within 5 years of occupancy); 2) solar reflecting paving materials; and 3) open grid pavement system OR … Place a minimum of 50% of parking spaces under cover (defined as under ground, under deck, under roof, or under a building).	1	**E / S**
13	**Heat Island Effect, Reflective or Vegetated Roof** o Use solar reflecting roofing materials for a minimum of 75% of the roof surface. OR … Install a vegetated roof for at least 50% of the roof area.	1	**E / S**

Checklist for New Construction*– *Page 2

E Ecological **P** Productivity* **S** Operational Savings

* *Strategies that promote health and comfort of building occupants*

	Stormwater Management	Points	Benefits
14	**Stormwater Design, Quantity Control** o Limit disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff, and eliminating contaminants.	1	**E**
15	**Stormwater Design, Quality Control** o Implement a stormwater management plan that reduces impervious cover, promotes infiltration, and captures and treats the stormwater runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). o Use alternative surfaces (e.g., vegetated roofs, pervious pavement or grid pavers) and nonstructural techniques (e.g., rain gardens, vegetated swales, disconnection of imperviousness, rainwater recycling) to reduce imperviousness and promote infiltration thereby reducing pollutant loadings. o Use sustainable design strategies to design integrated natural and mechanical treatment systems (e.g., constructed wetlands, vegetated filters, and open channels) to treat stormwater runoff.	1	**E / P / S**
	Water Consumption	**Points**	**Benefits**
16	**Water Efficient Landscaping, Reduce by 50%** o Reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case. Reductions shall be attributed to any combination of the following items: 1) plant species factor; 2) irrigation efficiency; 3) use of captured rainwater; and 4) use of recycled wastewater	1	**E / S**
17	**Water Efficient Landscaping, No Potable Use or No Irrigation** o Use only captured rainwater, recycled wastewater, or recycled greywater. OR … Install landscaping that does not require permanent irrigation systems.	1	**E / S**
18	**Innovative Wastewater Technologies** o Reduce potable water use for building sewage conveyance by 50% through the use of water conserving fixtures (water closets, urinals) or non-potable water (captured rainwater, recycled greywater, and on-site wastewater). OR … Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.	1	**E / S**
19	**Water Use Reduction, 20% Reduction.** o Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems. Calculations are based on estimated occupant usage and shall include only the following fixtures (as applicable to the building): water closets, urinals, lavatory faucets, showers and kitchen sinks.	1	**E / S**
20	**Water Use Reduction, 30% Reduction** (see above)	1	**E / S**
	Energy Consumption / Heating and Air Conditioning	**Points**	**Benefits**
21	**Fundamental Commissioning of the Building Energy Systems** o Verify 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.	Required	**P / S**
22	**Minimum Energy Performance** o Establish the minimum level of energy efficiency for the proposed building and systems.	Required	**E / S**
23	**Fundamental Refrigerant Management** o Reduce ozone depletion. Zero use of CFC-based refrigerants in new base building HVAC&R systems. When reusing existing base building HVAC equipment, complete a comprehensive CFC phase-out conversion prior to project completion. Phase-out plans extending beyond the project completion date will be considered on their merits.	Required	**E**
24	**Optimize Energy Performance** o Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.	1 to 10	**E / P / S**
25	**On-Site Renewable Energy** o Use on-site renewable energy systems to offset building energy cost.	1 to 3	**E / S**
26	**Enhanced Commissioning** o Begin the commissioning process early during the design process and execute additional activities after systems performance verification is completed.	1	**P / S**
27	**Enhanced Refrigerant Management** o Reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to global warming.	1	**E**
28	**Measurement & Verification** o Provide for the ongoing accountability of building energy consumption over time.	1	**E / S**
29	**Green Power** o Provide at least 35% of the building's electricity from renewable sources.	1	**E**

Checklist for New Construction*– *Page 3

E Ecological **P** Productivity* **S** Operational Savings
* *Strategies that promote health and comfort of building occupants*

	Materials Use / Construction Design Processes	Points	Benefits
30	**Storage & Collection of Recyclables** o Provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals.	Required	**E**
31	**Building Reuse**, **Maintain 75% of Existing Walls, Floors & Roof** o Maintain at least 75% (based on surface area) of existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.	1	**E**
32	**Building Reuse**, **Maintain 95% of Existing Walls, Floors & Roof** (see above)	1	**E**
33	**Building Reuse**, **Maintain 50% of Interior Non-Structural Elements** o Use existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building (including additions). If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building**.**	1	**E**
34	**Construction Waste Management**, **Divert 50% from Disposal** o Recycle and/or salvage at least 50% of non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit.	1	**E**
35	**Construction Waste Management**, **Divert 75% from Disposal** (see above)	1	**E**
36	**Materials Reuse**, **5%** o Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5%, based on cost, of the total value of materials on the project. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included.	1	**E**
37	**Materials Reuse**,**10%** (see above)	1	**E**
38	**Recycled Content**, **10% (post-consumer + ½ pre-consumer)** o Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. o Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.	1	**E**
39	**Recycled Content**, **20% (post-consumer + ½ pre-consumer)** (see above)	1	**E**
40	**Regional Materials**, **10% Extracted, Processed & Manufactured Regionally** o Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% (based on cost) of the total materials value. If only a fraction of a product or material is extracted/harvested/recovered and manufactured locally, then only that percentage (by weight) shall contribute to the regional value.	1	**E**
41	**Regional Materials**, **20% Extracted, Processed & Manufactured Regionally** (see above)	1	**E**
42	**Rapidly Renewable Materials** o Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project, based on cost.	1	**E**
43	**Certified Wood** o Use a minimum of 50% of wood-based materials and products, which are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes, and furniture.	1	**E**

Checklist for New Construction *– Page 4*

E Ecological **P** Productivity* **S** Operational Savings
* *Strategies that promote health and comfort of building occupants*

	Indoor Environmental Quality	Points	Benefits
44	**Minimum Indoor Air Quality Performance**	Required	**P**
45	**Environmental Tobacco Smoke (ETS) Control** o Minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to tobacco smoke. Prohibit in the building or create designated smoking areas.	Required	**P**
46	**Outdoor Air Delivery Monitoring** o Install permanent monitoring systems that provide feedback on ventilation system performance to ensure that ventilation systems maintain design minimum ventilation requirements.	1	**P**
47	**Increased Ventilation** o Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum code rates	1	**P / S**
48	**Construction IAQ Management Plan**, **During Construction** o Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.	1	**P**
49	**Construction IAQ Management Plan**, **Before Occupancy** o Develop and implement an Indoor Air Quality (IAQ) Management Plan for the pre-occupancy. Flush out by injecting outdoor air or conduct air testing.	1	**P**
50	**Low-Emitting Materials**, **Adhesives & Sealants** o All adhesives and sealants used on the interior of the building shall comply with LEED standards.	1	**E / P**
51	**Low-Emitting Materials**, **Paints & Coatings** o Paints and coatings used on the interior of the building shall comply with LEED standards.	1	**E / P**
52	**Low-Emitting Materials**, **Carpet Systems** o All carpet and pad installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program.	1	**E / P**
53	**Low-Emitting Materials**, **Composite Wood & Agrifiber Products** o Composite wood and agrifiber products used on the interior of the building shall contain no added urea-formaldehyde resins (e.g., particleboard, medium density fiberboard, plywood, wheatboard, strawboard, panel substrates, and door cores).	1	**E / P**
54	**Indoor Chemical & Pollutant Source Control** o Design to minimize and control pollutant entry into buildings and later cross-contamination of regularly occupied areas.	1	**P**
55	**Controllability of Systems**, **Lighting** o Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces (e.g., classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.	1	**E / S**
56	**Controllability of Systems**, **Thermal Comfort** o Provide a high level of thermal comfort system control by individual occupants or by specific groups in multi-occupant spaces (e.g. classrooms or conference areas) to promote the productivity, comfort and well-being of building occupants.	1	**E / S**
57	**Thermal Comfort**, **Design** o Design HVAC systems per ASHRAE Standard 55-2004 to provide a comfortable thermal environment that supports the productivity and well-being of building occupants.	1	**P**
58	**Thermal Comfort**, **Verification** o Agree to implement a thermal comfort survey of building occupants within a period of six to 18 months after occupancy.	1	**P**
59	**Daylight & Views**, **Daylight 75% of Spaces** o Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.	1	**P / S**
60	**Daylight & Views**, **Views for 90% of Spaces**	1	**P**
	Innovation & Design Process	**Points**	**Benefits**
61	**Innovation in Design**: _____	1-4	--
62	**LEED® Accredited Professional**	1	--
	Project Totals (pre-certification estimates)	**69** Points	

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

GREEN BUILDING, USGBC AND LEED
October 2006

The U.S. Green Building Council is the nation's foremost coalition of leaders from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. Green buildings increase productivity, improve health, conserve the Earth's resources, and cost less to operate and maintain. They are becoming highly prized assets for companies, communities and people across the country.

USGBC is the acknowledged leader in green building and development. USGBC's LEED® (Leadership in Energy and Environmental Design) Green Building Rating System™ has provided the reliable building design and performance measurement systems that building owners and operators need. Founded in 1993, USGBC is a 501(c)(3) non-profit organization. The organization is governed by a 22-member Board of Directors elected by the full USGBC membership. USGBC is a dues-based membership organization representing over 6,300 companies from 12 membership categories.

A staff of more than 70 professionals administers an extensive program of education, information and advocacy that is anchored by the LEED Green Building Rating System. LEED is a voluntary standards and certification program that defines high-performance green buildings and encompasses all building types including New Construction, Existing Buildings, Commercial Interiors, Core & Shell, Homes, and Neighborhoods. USGBC's LEED accreditation, education workshops, chapter programs in more than 60 communities, and the annual Greenbuild conference provide a strong foundation for green building education.

LEED provides a complete framework for meeting sustainability goals and assessing building performance in six categories: Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; Innovation and Design Process. Four progressive levels of LEED certification – Certified, Silver, Gold and Platinum – can be achieved based on the number of points awarded to a building project. Certain prerequisites must be achieved in order to qualify for certification.

With more than 623 certified buildings and over 4,000 registered buildings, USGBC has extensive experience in assessing, documenting and administering what has become the leading green building rating system in the United States. Consensus-based and scientifically driven, LEED provides well-defined processes for incorporating constantly evolving practices and technologies,

A current example of LEED's constant evolution is the process by which USGBC is addressing wood and wood certification issues. The Council convened a meeting of forest industry stakeholders in September 2005 to solicit their perspectives on wood and wood certification in the context of the LEED. Subsequently, USGBC's Board of Directors directed the LEED Steering Committee (LSC) to address bio-based materials (including wood) within LEED via USGBC's fair, open and transparent consensus process. The LSC in turn directed the Materials and Resources Technical Advisory Group (MR-TAG) to review and provide recommendations and a rationale for how to improve the intent and technical content of the bio-based credits in the LEED system.

As a third-party certification system, LEED validates achievement and establishes leadership in the green building sector. LEED provides a clear roadmap for sustainable design and then ensures its performance by documenting that the building is constructed as designed.

As the following statistics make abundantly clear, LEED stands alone as the pre-eminent green building rating system in the United States:

$7 billion: The annual market for green building in products and services

563 million: Square feet of commercial building space registered or certified under the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System™ developed and administered by the U.S. Green Building Council

34,336: Professionals trained through LEED workshops

25,700: LEED Accredited Professionals

6,300: USGBC member organizations, including corporations, governmental agencies, and nonprofits

623: Total LEED certified projects
4,000+: Total LEED registered projects

3425: Building projects are LEED-NC registered and an additional 485 building projects have completed LEED-NC certification

360: Building projects have registered with LEED-CI and an additional 83 have completed certification

207: Building projects have registered with LEED-EB and an additional 34 have completed certification

219: Building projects have registered with LEED-CS and an additional 21 have completed certification

46: Percent of LEED projects owned by federal, state and local governments

International:
12: Countries with LEED projects

States:
50: States with LEED projects
17: States have adopted LEED

Local:
56: Local governments have adopted LEED

90: Percent reduction in employee relocation costs in buildings with flexible design features

40: Percent increase in sales in stores with skylights
(from a study for the California Board for Energy Efficiency Third Party Program)

30: Percent cut in energy use can save tenants 50 cents per square foot per year *(according to U.S. Environmental Protection Agency research)*

20: Percent savings in O&M costs for LEED buildings over their life
(from The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force)

7: Percent increase in employee productivity in buildings with increased lighting control *(from a Carnegie Mellon University study)*

Friday, November 17, 2006

Auburn Hills makes it easier to be green

City Council adopts policy encouraging environmentally friendly building practices.

Joe Menard / The Detroit News

AUBURN HILLS -- Things are going to start getting a little greener in Auburn Hills.

The City Council this week adopted a policy that will encourage developers to incorporate environmentally friendly building practices -- including optimizing daylight to save energy, reducing water use and building rain gardens to absorb storm water runoff to protect local waterways -- in future developments in the city.

The policy asks developers to voluntarily incorporate the "green" building practices to achieve the United States Green Building Council's Leadership in Energy and Environmental Design, or LEED, certification. There are four levels of certification -- certified, silver, gold and platinum -- dependent on how many "green" elements are incorporated in the development.

By adopting the policy, Auburn Hills joins other communities promoting environmentally friendly building practices. At least 48 cities, eight counties, 17 states, 33 school districts and 10 federal agencies in the United States and Canada have some sort of LEED initiative. Michigan requires LEED certification for all state-supported projects over $1 million.

City leaders say "green" buildings are the wave of the future and they are working with the building council to hold workshops in the city early next year for city leaders and area developers to learn more about the certification process.

"We can help guide businesses in this direction," said Shawn Keenan, the city's water resources coordinator.

The proposed high-rise Auburn Financial Center near Interstate 75 would be the city's first LEED certified building, said City Planner Steve Cohen. That project is still in the planning phases.

*You can reach Joe Menard at (248) 647-7429 or **jmenard@detnews.com**.*

More Metro/State Headlines

- Trail of death: 2 dead, 3 hurt in 10-minute shooting spree; suspect held
- Confused by Medicare drug choices? You can try again
- Accused pedophile refereed
- WSU law professor candidate protested
- Detroiter claims $75M
- Stingray victim is medical miracle
- Ford II optimistic about plan to revive Metro area
- Medicare drug plan: Questions and answers
- Shooting victim was tough, kindhearted woman
- Parents want truth on park pollution
- Lapham Park plans debated
- Garden City school board members avoid recall