



*VI. Guidelines for  
Sustainable  
Development*

## SUSTAINABLE DEVELOPMENT

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### INTRODUCTION

All new development within the Waukegan Lakefront / Downtown Master Plan must aspire to best practices of sustainable design. This will promote a reconnection to the lakefront environment as well as repair the damage caused by years of industrial pollution.

Sustainable design can be defined as architecture and engineering that establishes the conservation of natural resources and systems as a primary consideration in the planning, design, and construction process.

To achieve this goal, all proposed projects will be evaluated against the intent and spirit of the following design guidelines. This includes public as well as private development, and encompasses streets, parks, and buildings.

Further, to establish a new sustainable design standard for Waukegan, all new buildings must achieve a LEED (U.S. Green Building Council's Leadership in Energy and Environmental Design) rating of Bronze. This requires all buildings to achieve at least 50% of the available LEED credits for sustainable design. For more information on this program, please visit the U.S. Green Building Council's web site at [www.usgbc.org/leed](http://www.usgbc.org/leed).

### LEED OVERVIEW

The following text provides an overview of the LEED requirements, and is for general information only.

#### Building Materials

- Limit the Volatile Organic Compound content in architectural materials.
- Use local materials where possible, and employ post-consumer recycled content and post-industrial recycled content.
- Specify and use salvaged or refurbished materials where possible.

#### Construction Waste Management

- Develop a construction and demolition waste management plan that incorporates recycling.

#### Energy

- Utilize EPA / DOE Energy Star Building Program requirements.
- Buildings should use natural ventilation and passive energy design to accomplish all heating and cooling requirements where possible.
- Installation of a waste heat recovery system is recommended.
- Use building-integrated or directly-connected renewable energy systems.

#### Indoor Air Quality

- During construction, ventilation system components should be protected and construction contaminants should be minimized.
- Install permanent air-monitoring systems in buildings. These systems monitor supply and return air, carbon monoxide, carbon dioxide, and VOCs.
- HVAC and refrigeration equipment should not contain CFCs or HCFCs.
- Use building materials that do not use CFCs or HCFCs as foaming agents or in other parts of the manufacturing process.

#### Landscaping / Exterior Design

- Design sites in accordance with erosion and sediment control ordinances.
- Plant at least one tree on the site for every 1,000 square feet of impermeable surface on the building lot, including parking, walkways, and plazas.
- Utilize exterior plantings that are tolerant of the local climate, soils, and natural water availability.
- Use light-colored roofing materials with high reflectance.
- Use light-colored materials on parking lots, not blacktop.

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### Occupant Recycling

- In a multistory building more than four stories, a mechanical system should be installed that allows for the floor to floor transportation and sorting of recyclable materials.

### Siting

- Implement a plan that preserves topsoil and existing trees.
- Limit the construction disturbance to 50 feet beyond the building perimeter.
- Restore degraded habitat areas on the site.
- Develop “brownfield” sites using EPA guidelines.

### Transportation

- Provide suitable means for securing bicycles for at least 5% of the building occupants.
- Provide transit and pedestrian-friendly physical links to mass transit infrastructure, such as bus stops.

### Water Conservation

- Install fixtures that use 20% less water than the water usage requirements in the Energy Policy Act of 1992.
- Install a gray water system that recovers non-sewage waste water or uses roof or ground storm water collection systems, or recovers ground water from sump pumps.
- Install cooling tower systems designed with delimiters to reduce drift and evaporation.
- Utilize exterior plantings appropriate for natural water availability.

### Water Quality

- Install oil grit separators or water quality ponds for the pre-treatment of runoff from surface parking areas.
- Use pervious paving materials for non-landscaped areas on the site.

### GENERAL SUSTAINABLE DEVELOPMENT GUIDELINES

- Coordinate programmed areas that will benefit from sun exposures in appropriate zones within the building.
- Manipulate building envelopes to respond to climate and orientation.
- Utilize energy efficient building systems for insulation, vapor barriers, air infiltration, thermal lag / thermal bridges, and roofing.
- Understand the appropriate glazing systems that respond to building type, location, and orientation. These systems may include spectrally selective glass, low-E glass, electrochromic coatings, and insulated glass.
- Develop exterior and interior shading devices that minimize heat gain.
- Minimize the use of mechanical shading devices that require extensive maintenance and energy consumption.
- Minimize the use of hazardous or “off-gassing” materials and VOCs.
- Utilize native, local, and indigenous building materials.
- Incorporate recycled or salvaged materials where appropriate.
- Employ wood products harvested from certified forests.
- Specify and require biodegradable materials when appropriate.
- If possible, select materials based on life-cycle costs.
- Consider the integration of photovoltaic panels and / or fuel cells for electricity generation.
- Encourage recycled gray-water for appropriate uses.
- Utilize low-flow delivery systems to minimize water consumption.
- Develop lighting controls that manage energy consumption. These may include task lighting, daylighting, and energy efficient artificial lighting.
- Encourage operable windows that provide fresh air to interior workspaces.
- Establish a tenant recycling program.
- Encourage building systems that monitor and control excessive energy consumption.