35956

TESTIMONY SIGN-UP 9:30 AM

#15 GREEN BUILDING POLICY/RATING SYSTEM

IF YOU WISH TO **SPEAK** TO CITY COUNCIL, **PRINT** YOUR **NAME & ADDRESS**

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Date: 01/10/2001

Exhibit C: US Green Building Council Leadership in Energy Environmental Design (LEED) Rating System Overview

LEED is a voluntary; consensus based building rating system. It evaluates environmental performance from a "whole building" perspective over a building's life cycle, providing a definitive standard for what constitutes a "green building". LEED is a self- assessing system for rating new and existing commercial, institutional and high rise residential buildings. Credits are earned for satisfying criteria listed below. Different levels of certification are award based on the total credits earned. The system is designed to be comprehensive in scope, yet simple in application.

Listed below are the rating categories for LEED, point totals and certification levels. There are 64 core points available plus 5 extra to recognize technical and design innovations. Four certification levels range from bronze, up through, silver, gold and platinum.

Rating Categories

1. **Sustainable Sites** (14 points possible)

Prerequisite: Erosion and Sedimentation Control

Credits: Site Selection
Urban Redevelopment
Brownfield Redevelopment
Alternative Transportation
Reduced Site Disturbance
Stormwater Management
Light Pollution Reduction
Landscape and Exterior Design to Reduce Heat Islands

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2. **Water Efficiency** (5 points possible)

Credits: Water Efficient Landscaping
Innovative Wastewater Technologies
Water Use Reduction

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3. **Energy and Atmosphere** (17 points possible)

Prerequisite 1: Fundamental Building Systems Commissioning
Prerequisite 2: Minimum Energy Performance
Prerequisite 3: CFC Reduction in HVAC & R Equipment

Credits: Optimize Energy Performance
Additional Commissioning
Measurement and Verification
Renewable Energy
Elimination of HCFC's and Halons
Green Power

4. **Materials and Resources** (13 points possible)

Prerequisite: Storage & Collection of Recyclable

Credits:

- Building Reuse
- Construction Waste Management
- Resource Reuse
- Recycled Content
- Local/Regional Materials
- Rapidly Renewable Materials
- Certified Wood

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5. **Indoor Environmental Quality** (15 points possible)

Prerequisite 1: Minimum IAQ Performance
Prerequisite 2: Environmental Tobacco Smoke (ETS) Control

Credits:

- Carbon Dioxide (CO2) Monitoring
- Increase Ventilation Effectiveness
- Construction IAQ Management Plan
- Low-Emitting Materials
- Daylight and Views
- Source Control
- Controllability of Systems
- Thermal Comfort
- Indoor Chemical and Pollutant Source Control

Points

64 Core Points Available
5 Innovation Points Available
- (LEED Innovation Credits)
- (LEED Accredited Professional)

69 Total Points Possible

LEED Green Building Certification Levels

LEED Certified	= 26 - 32 Points
LEED Certified Silver Level	= 33 - 38 Points
LEED Certified Gold Level	= 39 - 51 Points
LEED Certified Platinum Level	= 52+

D. INDOOR ENVIRONMENTAL QUALITY

Innovation Credit 6: Low-emitting Furnishings — 1 point

INTENT

Reduce the quality of indoor air contaminants that are odorous or potentially irritating to provide installer and occupant health and comfort.

REQUIREMENT

Office furnishings, such as workstations, will be selected to reduce VOC emissions.

TECHNOLOGIES/STRATEGIES

Select low-emitting office workstations. To classify as a low-emitter, a complete workstation must emit less than 5.68 mg/WS. hr for TVOC and less than 0.68 mg/WS .hr of formaldehyde (HCHO). The unit, mg/WS. hr, corresponds to milligrams of chemical (mg) emitted per workstation (WS) per hour (hr).

Emission Ranking Of Workstations in mg/WS hr

	Low	Moderate	High
TVOC	<5.68	5.68 - 22.70	>22.70
HCHO	<0.68	0.68 - 1.86	>1.86

DOCUMENTATION/SUBMITTALS

Submit documentation from workstation manufacturer or supplier that shows compliance with the low category of VOC emissions.

DOCUMENTATION/SUBMITTALS

- Show planting plan/list on site plan. Plantings must be from the Portland Plant List.
- Submit Form MIT from the Bureau of Environmental Services "Stormwater Manual". Show mitigation measures on site plan and submit operation and maintenance manuals as applicable. Refer to Chapter 8.0 of "Stormwater Manual".

B. WATER EFFICIENCY

Innovation Credit 4: Sub metering for irrigation — 1 point

INTENT

Limit or eliminate the use of potable water for landscape irrigation.

REQUIREMENTS

Sub-meter all landscape irrigation systems.

TECHNOLOGIES/STRATEGIES

Sub-metering of irrigation system helps identify leaks and encourages efficient operation.

DOCUMENTATION/SUBMITTALS

Provide an irrigation plan showing source of water, line locations, and controls.

C. MATERIALS AND RESOURCES

Innovation Credit 5: Construction Waste Management — 1 point

INTENT

Divert construction demolition and land clearing debris from landfill disposal. Redirect recyclable material back to the manufacturing process.

REQUIREMENTS

Recycle and/or salvage at least 90% (by weight) of construction, demolition and land clearing debris.

TECHNOLOGIES/STRATEGIES

Develop and specify a waste management plan that identifies licensed haulers and processors of recyclables; identifies markets for salvaged materials; employs deconstruction, salvage, and recycling strategies and processes, includes waste auditing; and documents the cost of recycling; salvaging, and reusing materials. Source reduction on the job site should be an integral part of the plan.

The plan should address recycling of corrugated cardboard, metals, concrete brick, asphalt, land clearing debris (if applicable), beverage containers, clean dimensional wood, plastic, glass, gypsum board, and carpet, and evaluates the cost-effectiveness of recycling rigid insulation, engineered wood products and other materials. Refer to the LEED Reference Guide for guidelines and references that provide waste management plan development and implementation support including model bid specifications.

DOCUMENTATION/SUBMITTALS

- Provide a copy of the Construction Waste Management plan for the project highlighting recycling and salvage requirements.
- Provide calculations on end-of-project deconstruction and material recovery, recycling rates, salvage rates, and landfill rates demonstrating that 90% of construction wastes were recycled or salvaged.

During the site selection process, give preference to sites that support mixed-use commercial and housing occupancy located within ½ mile to public transit.

DOCUMENTATION/SUBMITTALS
Provide a project site plan illustrating total area of the site and floor plans illustrating the mixed-use occupancies and the number of proposed housing units.

Innovation Credit 2: Alternative Transportation — up to 4 points

INTENT
Reduce pollution and land development impacts from automobile use.

REQUIREMENT
- Provide 75% of City of Portland Title 33 zoning minimum parking spaces (must be negotiated based upon project location) or 40% of maximum allowed per Title 33, whichever provides fewer parking places. (1 point)
- Provide 50% of City of Portland Title 33 zoning minimum parking spaces (must be negotiated based upon project location) or 30% of maximum allowed per Title 33, whichever provides fewer parking spaces. (1 additional point)
- Provide 25% of City of Portland Title 33 zoning minimum parking spaces (must be negotiated based upon project location) or 10% of maximum allowed per Title 33, whichever provides fewer parking spaces. (1 additional point)
- Provide no parking for new construction projects beyond meeting the American Disabilities Act (ADA) requirements. (1 additional point, maximum of 4 points for this innovation credit)

TECHNOLOGIES/STRATEGIES
Select sites with good access to public transit systems (rail, bus lines, streetcar and identified bicycle paths) that are also served by safe, convenient pedestrian pathways.

DOCUMENTATION/SUBMITALS
- Provide a copy of the site's zoning requirements, highlighting the criteria for minimum and/or maximum capacity.
- Provide a parking plan highlighting the total parking capacity.

Innovation Credit 3: Stormwater Management — up to 3 points

INTENT
Limit disruption of natural water flows by minimizing storm water runoff, increasing on-site infiltration and reducing contaminants.

REQUIREMENT
- Provide 100% native low-water planting on-site and in storm water facilities. (1 point)
- Provide 100% mitigation per Bureau of Environmental Services "Stormwater Manual" for surface-level impervious surfaces. (1 additional point)
- Provide 100% mitigation per Bureau of Environmental Services "Stormwater Manual" for impervious roof surfaces. (1 additional point)

TECHNOLOGIES/STRATEGIES
Follow Bureau of Environmental Services "Stormwater Manual" guidelines for storm water facilities. Consider porous pavements; retain existing trees on-site and new tree planting. Consider roof gardens, eco-roofs, and storm water planter boxes.

In addition, the principal designer shall select and specify indoor building materials that meet the following criteria:

- Materials with minimal VOC-producing compounds or no-VOC mechanical attachment methods.
- Products and systems that resist moisture or inhibit the growth of biological contaminants.
- Materials, components, and systems that require only simple, non toxic or low-VOC methods of cleaning.

DOCUMENTATION/SUBMITTALS (add following)

Contract documents shall include specifications showing IAQ goals and requirements and the means of documenting communications to general contractor, subcontractors and suppliers of IAQ requirements, as well as the following requirements:

1. Suppliers and subcontractors provide Material Safety Data Sheets (MSDS) on all indoor construction materials and products. Contractors and suppliers shall disclose in writing and prior to installation information on the VOCs emitted by the materials and products known to be carcinogens, mutagens, or reproductive toxins.
2. When possible, dry porous furnishing materials such as carpet, acoustical tile or textiles shall not be installed until wet materials such as paint and adhesives have been applied and allowed to dry.
3. All indoor construction materials and products shall be protected from contamination by construction dust, debris, fumes and moisture during all phases of construction, both before and after installation.

IEQ Credit 6: Controllability of Systems — 1-2 points

Modify language

INTENT

Provide a high level of occupant control of thermal, ventilation and lighting systems to support optimum health, productivity and comfort conditions.

REQUIREMENT (add following)

- Provide a minimum of one operable window and one lighting control zone per 200 s.f. for all occupied areas within 15 feet of the perimeter wall. Operable windows are deemed to be consistent with IEQ Credit 7, Thermal Comfort. Installation and use of operable windows shall not be considered to conflict with other measures to meet Credit 7. (1 point)
- Provide controls for each individual for airflow, temperature, and lighting for 50% of the non perimeter, regularly occupied areas. (1 point)

VI. LEED Innovation Credits (all new)

A. SUSTAINABLE SITES

Innovation Credit 1: Mixed Use Development — 1 point

INTENT

Encourage development to urban areas with existing infrastructure, protecting greenfields and preserving habitat and natural resources, as well as providing housing near commercial facilities.

REQUIREMENT

Project is mixed-use occupancy, located within ¼ mile of existing or planned public transit (light rail or bus route), and combines housing with commercial occupancies at a minimum of 1 dwelling unit for each 2000 square feet of total project site area. (1 point)

TECHNOLOGIES/STRATEGIES

Ventilation design shall utilize ASHRAE 62-99, Section 6.1, Ventilation Rate Procedure and ventilation air quantities as given in Table 2 for 100% outside air, except as provided for intermittent or variable occupancy. Recirculated air may be used to offset outdoor air if:
1. IEQ Credits 4.1, 4.2, 4.3, 4.4 and Credit 5 are met
2. Particulate filtration equivalent to MERV 13 with a minimum efficiency in Range E2 of 90% (particulates of 1 - 3 m) is provided.

Provide ventilation by operable windows in occupied spaces, unless designer demonstrates practical barriers such as excessive cost, code compliance or system design complexity. If not considered feasible, the reasons should be recorded.

Independently ventilate spaces housing equipment or processes that generate air pollutants such as VOCs and particulates to prevent pollutant transport to occupied spaces. Examples would include printing equipment, chemical storage, high-moisture areas such as showers, and food preparation areas.

TECHNOLOGIES/STRATEGIES (add following)
ASHRAE 62-99 is the design standard used by architects and mechanical engineers in planning ventilation for commercial buildings. Standard 62-99 provides for two basic design options. The Ventilation Rate Procedure, Section 6.1, sets forth prescriptive outdoor air requirements to be provided for occupied spaces, based on the type of space. For example, the air flow capacity for office space is 20 cfm per occupant.

Standard 62-99 further allows the use of recirculated air to meet part of the outdoor air requirement, provided that the recirculated air is cleansed. This credit specifically allows use of recirculated air provided that indoor pollutant sources are controlled per Credits 4 and 5 and particulate pollutants are removed by filtration.

DOCUMENTATION/SUBMITTALS (add following)
Provide letter from mechanical engineer stating compliance with ASHRAE 62-99. Provide construction documents or commissioning records showing installation of:

1. Air filtration per standard
2. Operable windows, or narrative rationale for exclusion
3. Local exhaust in high-pollutant source spaces.

IEQ Credit 4: Low-Emitting Materials — 1-4 points

Modify language

INTENT
Reduce the quantity of indoor air contaminants that are odorous or potentially irritating to provide installer and occupant health and comfort.

REQUIREMENTS (add following)
Meet or exceed VOC limits for adhesives, sealants, paints, composite wood products, and carpet systems as follows:

- Adhesives must meet or exceed the VOC limits of South Coast Air Quality Management District Rule #1168 by, AND all sealants used as a filler must meet or exceed Bay Area Air Resources Board Reg. 8, Rule 51. (1 point)
- Paints and coatings must meet or exceed the VOC and chemical component limits of Green Seal requirements. (1 point)
- Carpet systems must meet or exceed the Carpet and Rug Institute Green Label Indoor Air Quality Test Program. (1 point)
- Composite wood or agrifiber products must contain no added urea-formaldehyde resins. (1 point)

Regulated energy components include HVAC systems, building envelope, service hot water systems, lighting and other regulated systems as defined by Chapter 53 "ENERGY CONSERVATION" of the 1998 Oregon Structural Specialty Code.

TECHNOLOGIES/STRATEGIES (add following)
Develop and use building modeling and analysis techniques to establish a base case that meets the minimum prerequisite standards. Chapter 53 "ENERGY CONSERVATION" of the 1998 Oregon Structural Specialty Code provides guidance for establishing building base case development and analysis. Perform interactive energy use analysis for selected design elements that affect energy performance and document compliance.

DOCUMENTATION/SUBMITTALS (add following)

- Provide a narrative highlighting energy saving measures incorporated in the building design, including isometric of the building showing the basic floor plate shape and external projections.
- Demonstrate that the design energy cost is 20-60% lower (depending on number of points seeking) for new buildings or 10-50% lower (depending on number of points seeking) for existing buildings than the energy cost budget as defined in. Provide a completed and signed copy of the Oregon Energy Code Compliance form.

IV. MATERIALS AND RESOURCES

Materials Credit 3: Resource Reuse — 1-2 points

Modify language

INTENT (add following)
Extend the life cycle of targeted building materials and furnishings, reducing environmental impacts related to materials manufacturing and transport.

REQUIREMENT (add following)
Specify salvaged or refurbished materials for 5% of building materials. In owner-occupied buildings, salvaged, remanufactured and refurbished furnishings may be included in building materials. Furnishings with more than 75% recycled content also qualify.

DOCUMENTATION/SUBMITTALS (add following)
Provide specifications and contractor submittals highlighting salvaged and refurbished materials used on the project. Provide calculations demonstrating that 5% of cost of building materials were salvaged materials. Include the origin and cost for salvage materials and the total cost for building materials.

V. INDOOR ENVIRONMENTAL QUALITY

IEQ Prerequisite 1: Minimum IAQ Performance — Required

Modify language

INTENT
Establish minimum IAQ performance to prevent the development of indoor air quality problems in buildings, maintaining the health and well being of the occupants.

REQUIREMENTS (add following)
Meet the minimum requirements of voluntary consensus standard ASHRAE 62-1999, Ventilation for Acceptable Indoor Air Quality and approved Addenda.

- Submit Form MIT from the Bureau of Environmental Services "Stormwater Manual". Show mitigation measures on site plan and submit operation and maintenance manuals as applicable. Refer to Chapter 8.0 of "Stormwater Manual".

II. WATER EFFICIENCY (no changes)

III. ENERGY AND ATMOSPHERE

Energy Prerequisite 2: Minimum Energy Performance — Required

Modify language

INTENT
Establish the minimum level of energy efficiency for the base building and systems.

REQUIREMENT (add following)
Design to meet building energy efficiency and performance as required Chapter 53 "ENERGY CONSERVATION" of the 1998 Oregon Structural Specialty Code. Analyze expected baseline building performance using the System/Component Method.

TECHNOLOGIES/STRATEGIES (add following)
Use building modeling and analysis techniques to establish and document compliance. Chapter 53 "ENERGY CONSERVATION" of the 1998 Oregon Structural Specialty Code provides guidance for establishing building base case development and analysis. Refer to the LEED Reference Guide for a wide variety of energy efficiency strategy resources.

DOCUMENTATION/SUBMITTALS (add following)

- Provide a summary table of design features that minimally comply with applicable mandatory and prescriptive requirements in Chapter 53 "ENERGY CONSERVATION" of the 1998 Oregon Structural Specialty Code OR a copy of the Oregon Energy Code Compliance form or Code Comp software.

Energy Credit 1: Optimize Energy Performance — 2-10 points (2 points required)

Modify language – add prerequisite

REQUIREMENT (add following)
Reduce design energy cost compared to the energy cost budget for regulated energy components described in the requirements of Chapter 53 "ENERGY CONSERVATION" of the 1998 Oregon Structural Specialty Code, as demonstrated by a whole building simulation using the code's Energy Cost Budget Method.

All projects shall achieve a minimum of two points in Energy Credit 1. The baseline shall be the entire energy consumption of the building and associated systems. Calculations shall be performed in accordance with State's procedures for the energy analysis compliance option.

New Buildings	Existing Buildings	Points
20%	10%	2 - required
30%	20%	4
40%	30%	6
50%	40%	8
60%	50%	10

Site Credit 1: Site Selection — 1 point

Modify language

INTENT
Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.

REQUIREMENT (add following)
Submit a site plan which locates the new building on the site, defines access and surface parking areas, and shows the building's relationship to all adjacent sites and buildings, including the zoning of adjacent parcels or known development proposals for adjacent parcels.

Site Credit 2: Urban Redevelopment — 1 point

Modify language

REQUIREMENT (add following)
Increase localized density to conform to existing or desired density goals by utilizing sites that are located within an existing minimum development density of 60,000 square feet per acre (two story downtown development) **in the Central City and developing projects at a minimum floor area ratio (FAR) of one to one (1:1) in all other commercial zones in the City of Portland.**

Site Credit 4: Alternative Transportation — 1 point

Modify language

REQUIREMENT (add following)
Size parking capacity not to exceed **City of Portland Title 33 zoning minimums or not to exceed 50% of the maximum allowed, whichever provides fewer parking spaces, or not to exceed 50% of maximum allowed if there is no minimum,** AND provide preferred parking for carpools or van pools, **equal to 5% of the total number of parking spaces,** OR, add no new parking for rehabilitation projects AND provide preferred parking for carpools or van pools **equal to 5% of the total number of parking spaces.**

Site Credit 6: Stormwater Management — 1-2 points

Modify language

INTENT
Limit disruption of natural water flows by minimizing stormwater runoff, increasing on-site filtration and reducing contaminants.

REQUIREMENT (add following)
Implement a stormwater management plan that results in:

- **No net increase in the rate or quantity of stormwater runoff from existing to developed conditions; OR, if existing imperviousness is greater than 50%, implement a stormwater management plan) as required in the City of Portland's *Stormwater Manual* that results in a 25% decrease in the rate and quantity of stormwater runoff. (1 point)**
- **Treatment systems designed to remove the percentage of annual post development total suspended solids (TSS) and average annual post development total phosphorus (TP) as required in the City of Portland's *Stormwater Manual.* (1 point)**

DOCUMENTATION/SUBMITTALS (add following)
For Site credit 6.2 provide the following:

Exhibit B: Proposed Portland LEED Prerequisites, Modifications & Innovation Credits

Bold indicates changes to USGBC LEED™ Green Building Rating System, version 2.0 (March 2000).

I. SUSTAINABLE SITES

Site Prerequisite 1: Erosion and Sedimentation Control — Required

Modify language

REQUIREMENT (add following)
Design to a site sediment and erosion control plan that conforms to **Title 10, Erosion and Sedimentation Control, Section 10.30.020, and best management practices outlined in the City of Portland's *Erosion Control Manual.*** The plan shall meet the following objectives:

- Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil.
- Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter.

TECHNOLOGIES/STRATEGIES (add following)
The City of Portland's *Erosion Control Manual* lists numerous measures such as silt fencing, sediment traps, construction phasing, stabilization of steep slopes, maintaining vegetated ground cover, and providing ground cover that will meet this prerequisite.

Site Prerequisite 2: Alternative Transportation — Required

New prerequisite

INTENT
Reduce transportation energy use and resultant air pollution in Portland.

REQUIREMENT (add following)
For projects with 25 or more employees, provide a Transportation Management Plan (TMP) which provides on-going available transportation alternatives for employees and reduces the amount of individual automobile commuting trips per employee.

TECHNOLOGIES/STRATEGIES (add following)
Provide a variety of mitigation opportunities for reducing commuting trips, which may include but not be limited to: bicycle and shower facilities for employees who bike or walk to work, METRO vouchers for public transit systems commuting, car pooling networks, van pools, company-owned car share vehicles, working from home, and electric fueling stations.

DOCUMENTATION/SUBMITTALS (add following)
Submit a Transportation Management Plan (TMP) which describes the number of building occupants and the projected reduction of individual commuting trips facilitated by the TMP. Provide annual verification to the Office of Sustainable Development illustrating the TMP effectively integrates with the operation of the completed project and provide the name of the employee Transportation Coordinator responsible for management of the TMP for the project.

7. Reduction or elimination of toxic and harmful substances within buildings and their surrounding environments.
8. Improvements to interior and exterior environments leading to increased productivity and better health.
9. Efficiency in resource and materials utilization, especially water conservation techniques.
10. Selection of materials and products based on their life-cycle environmental impacts and use of materials and products with recycled content.
11. Extensive recycling of construction waste and building materials after demolition.
12. Reduction in harmful waste products produced during construction.
13. Facility maintenance and operational practices that reduce or eliminate harmful effects on people and the natural environment during building occupancy.
14. Specification documentation illustrating communication of environmental design goals and requirements to contractors, subcontractors, suppliers and on-site workers.

a) assembling and providing access to technical expertise and information about green building in the residential, commercial, and institutional building sectors;
b) resolving code and other regulatory conflicts with green building practices;
c) conducting workshops and training targeted at specific building-industry sectors;
d) developing building type specific, green building resource guides; and
e) expand market demand by educating Portland area residents and businesses.

Appendix A. Suggested Evaluation Factors for Determining A-E's Knowledge and Experience in Green Building Design

- Preference should be given to A-E design teams with an in-house LEED Accredited Professional after the accreditation is available.
- A-Es should explain their expertise with environmentally responsible or sustainable facility design, and their specific expertise in applying "Integrated Design" concepts and methodologies.
- In their application, the A-E should discuss opportunities for integrated design within team disciplines and how to effectively execute within industry standards. For example, firms that specify daylighting or energy efficient lighting but don't incorporate energy efficient building "skins" (exteriors) or mechanical systems have not accomplished "Integrated Design."
- The A-E should demonstrate experience with completed projects that use less heating and cooling energy than Oregon Energy Code.
- A-Es should indicate any projects they designed that met Portland General Electric's Earth Smart Program, Energy Star, USGBC's LEED™ (Leadership in Energy and Environmental Design), BREEAM (Building Research Establishment Environmental Assessment Method) or another green building rating system requirements.
- The A-E should demonstrate knowledge of the EPA Comprehensive Procurement Guidelines for recycled-content building materials or other industry sources and have written specifications requiring the use of recycled-content materials. If the A-E has developed a database of suppliers, extra credit should be given in recognition of the resources required to research the possible materials, determine their technical feasibility, and compare their costs with virgin-material products.
- The A-E should demonstrate experience using environmental life-cycle cost analysis techniques to select building materials and equipment that minimize environmental impacts throughout their life cycle (especially maintenance and ultimate disposal).
- The A-E's submittal should provide a list of client references for green building.
- The A-E's submittal should include a résumé of the Architect/Engineer who will be in charge of this project. Include the person's experience with green building projects, including whether or not they are a LEED™ Accredited Professional.
- The A-E's green design experience should either reside within the firm or be accommodated by means of a consultant with whom the A-E has had extensive sustainable design experience on previous projects.
- The A-E's submittal should detail a sample sustainable project previously designed by the A-E. This information may include size of project and measures taken for:
    1. Site planning measures that are sensitive to the natural environment.
    2. Maximize building orientation for energy efficiency.
    3. Effective use of natural daylighting and ventilation.
    4. Strategies used to minimize stormwater runoff.
    5. Strategies used to enhance energy conservation and efficiency.
    6. Effective use of renewable energy resources.

Description
For all PDC program areas - including nine current urban renewal areas and development loan and grant fund programs - PDC shall work with stakeholders to promote green building practices and shall adopt the *Portland LEED™ Green Building Rating System* by September 30, 2001. Projects and program areas shall adhere to these standards unless identified as exceptions. The PDC Board shall approve exemption criteria for such projects or areas by September 30, 2001. Commission staff shall work with staff from the Office of Sustainable Development to develop strategies and tools for promoting green building techniques in Commission program areas. Standards adopted in each program area shall apply to projects accomplished both in-house and through architect/engineer (A-E) contracts (see Appendix A.); and shall apply to design associated with all procurement methods, including design-build. Where life-cycle cost analysis indicates that energy and resource-efficient practices, materials, and equipment are cost effective, project managers will be encouraged to employ such practices.

Affordable Housing
In consultation with the Office of Sustainable Development's Green Building Division, PDC shall issue mandatory *Affordable Housing Green Building Guidelines* to be considered in its evaluation of requests for proposals and developer negotiations for all affordable housing projects receiving PDC funding.

Policy Strategy #3

The construction, operation, and maintenance of public infrastructure that serves building development shall be examined in order to determine the opportunity and need for a sustainability rating system for infrastructure similar to *Portland LEED™ Green Building Rating System*.

Description
Initially, each of the City's primary infrastructure bureaus shall document its previous and ongoing efforts to improve practices that minimize the use of energy, water, and other natural resources and provide a healthy, productive environment. Opportunities for additional changes in construction, operation, and maintenance practices shall be reviewed. The primary infrastructure bureaus shall work with the Office of Sustainable Development to determine the need for a sustainability rating system and/or the development of a set of guidelines that would provide for green practices for infrastructure improvements. A report to Council shall be provided regarding these findings.

Report Development
Lead: Office of Transportation
Partners: Bureau of Environmental Services, Water Bureau, Office of Sustainable Development
Timeline: December 2001

Policy Strategy #4

The City shall promote the voluntary application of the Green Building Guidelines in private sector building design, construction, and operations.

Implementation
The Office of Sustainable Development's Green Building Division will facilitate the adoption of green building practices in the private sector by:

Lead: Bureau of General Services
Partners: Bureau of Parks and Recreation, Bureau of Environmental Services, Bureau of Fire and Rescue, Office of Sustainable Development - Green Building Division
Timeline: September 2001

Implementation

The Office of Sustainable Development Green Building Division will coordinate the activities of all City agencies to develop, implement, and enforce the actions as described in the City of Portland Green Building Policy. An inter-bureau *Green Building Advisory Group* shall help develop and periodically update all City of Portland green building guidelines as described above. The Directors of all City bureaus shall be responsible for ensuring that the facilities they construct, manage or occupy meet these guidelines.

Exemptions

The City will develop an ***exemptions process*** to review any project where meeting the City's required green building guidelines is not appropriate. Such projects must submit documentation in accordance with exemption process to the Office of Sustainable Development for review during the project's schematic design and cost estimating.

City facility construction projects that are unoccupied or serve specialized functions (e.g. pump station, garage, storage building, etc.) are not subject to the City's green building guidelines and do not need to go through the exemption process.

All exempt projects must still incorporate and document appropriate green building measures to the maximum extent practicable. The exemption process shall be developed by the Office of Sustainable Development no later than March 2001. Exemption criteria will address conflicts related to project size, siting, building and zoning regulations, city policies, USGBC certification, and project costs (based on life cycle analysis).

Exception Criteria Development
Lead: Office of Sustainable Development - Green Building Division
Partners: Bureau of General Services, Bureau of Parks and Recreation, Bureau of Fire and Rescue, Bureau of Environmental Services, Water Bureau, Planning Bureau, Office of Planning and Development Review
Timeline: March 2001

Evaluation

The Office of Management and Finance and the Portland Development Commission will work with the Office of Sustainable Development Green Building Division to collect buildings data and issue a report to City Council reviewing the City's progress in meeting the City of Portland Green Building Policy as part of the City budget review process.

Policy Strategy #2

The Portland Development Commission (PDC) shall adopt *Portland LEED™ Green Building Rating System*, City of Portland Green Building Policy goals and incorporate green building practices into each of its ongoing and future program areas.

II. Policy Descriptions

Policy Strategy #1

The City of Portland shall incorporate green building practices into all facilities projects constructed, owned, managed or financed by the City.[1]

Building Types

1. **New Construction and Major Retrofits**
   New construction and major retrofit projects undertaken by the City or its contractors shall meet the "Certified" level of *Portland LEED™ Green Building Rating System.* In addition, projects are encouraged to obtain the highest Portland LEED rating (Silver, Gold, or Platinum) possible. All projects must be registered and certified by the USGBC in accordance to its rules and procedures. This applies to projects regardless of funding source or amount; applies to projects accomplished both in-house or through architect/engineer (A-E) contracts (see Appendix A.); and applies to design associated with all procurement methods, including design-build. *Portland LEED™ Green Building Rating System* shall be adopted no later than February 2001.

   Guidelines Development
   Lead: Office of Sustainable Development - Green Building Division
   Partners: Bureau of General Services, Bureau of Parks and Recreation, Bureau of Fire and Rescue, Bureau of Environmental Services, Water Bureau, Planning Bureau, Office of Planning and Development Review, Portland Development Commission
   Timeline: February 2001

2. **Interior-Tenant Improvements (T/I)**
   Interior-tenant improvement projects undertaken by the City or its contractors shall apply the *Portland Interior - T/I Green Building Guidelines.* This applies to projects regardless of funding source or amount; applies to projects accomplished both in-house or through architect/engineer (A-E) contracts (see Appendix A.); and applies to design associated with all procurement methods, including design-build. *Portland Interior - T/I Green Building Guidelines* shall be adopted no later than March 2001.

   Guidelines Development
   Lead: Bureau of General Services
   Partners: Office of Sustainable Development – Green Buildings Division, Bureau of Parks and Recreation, Bureau of Fire and Rescue, Bureau of Environmental Services, Water Bureau, Office of Planning and Development Review
   Timeline: March 2001

3. **Operations and Maintenance (O & M)**
   All City operations and maintenance practices undertaken by the City or its contractors shall apply *Portland Green Building Operations and Maintenance Guidelines.* This applies to all facilities, regardless of size and contract type (e.g. either in-house or outsourcing contracts). *Portland Green Building Operations and Maintenance Guidelines* shall be adopted no later than September 2001.

   Guidelines Development

[1] This policy shall not apply to projects funded prior to the adoption of this policy. However, these projects shall still implement green building strategies to the maximum extent practicable.

Definitions

Green building: an integrated framework of design, construction, and operations practices that encompasses the environmental, economic, and social impacts of buildings. Green building practices recognize the interdependence of the natural and built environments and seek to minimize the use of energy, water, and other natural resources and provide a healthy, productive indoor environment.

Portland LEED™ Green Building Rating System: City performance-oriented green building certification system designed for rating new and existing commercial, institutional, and high-rise residential buildings based on the US Green Building Council's LEED™ Rating System. Guidelines will reflect existing local standards, evolving national and international guidelines, and the priorities of the City of Portland and its residents.

Integrated design: A holistic process that considers the many disparate parts of a building project, and examines the interaction between design, construction, and operations to optimize the energy and environmental performance of the project.

LEED™: Leadership in Energy and Environmental Design™ rating system is a third party certification system designed for rating new and existing commercial, institutional, and high-rise residential buildings developed by the US Green Building Council.

LEED™ Certification: Different levels of green building certification – certified, silver, gold, and platinum - are awarded based on the total credits earned in each of several categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.

Life-cycle: The consecutive, inter-linked stages of a product - beginning with raw materials acquisition and manufacture, the product's fabrication, construction, use, and ultimate waste management (recovery, recycle or disposal).

Life-cycle analysis: an evaluation tool that assesses the net present value of the design, construction, operation, maintenance, and disassembly of a facility as well as the health and productivity of its occupants, the costs of measurable external environmental impacts, and the cost of measurable and relevant social impacts.

Operations and maintenance: costs directly related to the operation, maintenance, repair, and management of a property and the utilities that service it. These include insurance, property taxes, utilities, maintenance, and management expenses.

Sustainable development: "Meeting the needs of the present without compromising the ability of future generations to meet their own needs" - *The World Commission on Environment and Development, The Brundland Commission, 1987.* Sustainable development seeks to balance human development, growth, and equity with ecological stewardship.

Whole-systems thinking: a process through which the interconnections of systems are actively considered, and solutions are sought to address multiple problems at the same time.

Integrated Design and Life Cycle Analysis

Successful green buildings depend on applying whole-systems strategies to rigorous life cycle analysis. Effective integrated design strategies consider and solve a variety of relevant issues simultaneously. Life cycle analysis helps assess the net present value of the design, construction, operation, maintenance, and disassembly of a facility as well as the health and productivity of its occupants. When integrated design and life cycle analysis are combined, better and more affordable building strategies emerge. Currently, design and construction budgets for City-owned facilities are established using square-foot formulas based on industry standards (facility type, land value, and other factors affecting cost prior to design). In addition, construction and operations budgeting occurs separately – making it difficult to invest in green building practices that may have higher upfront costs. In order to develop green building strategies that have the most beneficial economic and environmental benefits, the City needs to apply 20 to 30 year life cycle costing that integrates construction and operations and maintenance budgets into all building related capital improvements.

The Office of Management and Finance will lead a workgroup to include the Bureau of General Services, Office of Sustainable Development, Fire Bureau, Bureau of Environmental Services, Bureau of Parks and Recreation, Portland Department of Transportation, and Water Bureau to develop a life cycle analysis tool for estimating the design, construction, and operations and maintenance budgets for all City Capital Improvement Projects (CIP).

Why The LEED™ Rating System?

The City of Portland Green Building Policy is tied, in part, to the Leadership in Energy and Environmental Design™ (LEED™) rating system developed by the US Green Building Council (USGBC). The USGBC was formed in 1993 to accelerate the adoption of green building practices, technologies, policies, and standards. The USGBC developed LEED™ to help stimulate green building market transformation. USGBC membership consists of more than 400 organizations including product manufacturers, environmental non profit organizations, building and design professionals, building owners, and local and state governments. The City of Portland joined the USGBC in 1999.

LEED™ is a third party certification system designed for rating new and existing commercial, institutional, and high-rise residential buildings. The use of LEED™ helps to establish minimum performance levels, create a common design and construction practices framework, and allows Portland to measure its sustainable building performance relative to other jurisdictions using LEED™. In addition, USGBC provides technical rulings, training, networking and marketing to members.

Public Infrastructure Improvements

City-provided public infrastructure that supports development (such as streets, sewers, and water facilities) needs to constructed, operated and maintained in such a way that is consistent with the goals and objectives defined in this policy for City buildings. Over the years, the City's primary infrastructure bureaus have made significant changes in their construction, operation and maintenance practices in order to conserve natural resources, reduce pollution, and minimize health hazards. Where the *Portland LEED™ Green Building Rating System* provides an established rating and certification system for new and major retrofit construction projects, there is currently no known comparable rating system for sustainability with respect to infrastructure improvements. The development of such a rating system shall be considered.

Exhibit A: City of Portland Green Building Policy

I. Policy Statement

The City of Portland shall incorporate green building principles and practices into the design, construction, and operations of all City facilities, City-funded projects, and infrastructure projects to the fullest extent possible. Furthermore, the City will provide leadership and guidance to encourage the application of green building practices in private sector development. This policy is expected to yield long-term cost savings to the City's taxpayers due to substantial improvements in life-cycle performance and reduced life-cycle costs.

In addition, the City shall evaluate all land purchases for future development on the basis of reducing environmental impacts that include but are not limited to transit and bicycle accessibility, urban and brownfields redevelopment, solar access, on-site stormwater mitigation capacity, and vegetation and habitat restoration.

Background

Development and construction practices are main contributors to the depletion of natural resources and a major cause of air and water pollution, solid waste, deforestation, toxic wastes, health hazards, global warming, and other negative consequences. Buildings use one-quarter of all the world's wood harvest. Buildings consume two-fifths of all material and energy flows. Fifty-four percent of U.S. energy consumption is directly or indirectly related to buildings and their construction. Building construction and operations account for 35 percent of U.S. CO_2 emissions.

As Portland grows, so does the need to create additional strategies to counter the negative impacts of rapid growth – degradation to air and water quality, natural resource depletion, and inefficient land use practices. The built environment represents a major opportunity for the City, along with local designers, engineers, developers, builders, lenders, appraisers, and other sectors of the building trades, to address local and global environmental degradation. Promoting energy and resource efficient building practices is one such strategy.

Green building practices provide the framework and tools to build in an efficient, healthy, and ecologically responsible manner. Encouraging green building practices is in the public's interest because these techniques:

- Promote Portland's energy, land use, environmental and growth-management policies.
- Conserve energy, water and other natural resources.
- Strengthen established goals related to increased density, mixed use and transit-oriented development, stormwater and erosion control; brownfield redevelopment, and increased bicycle and pedestrian access.
- Save building owners and tenants money through increased operation and maintenance efficiencies.
- Improve indoor air quality and the health, well being, and productivity of occupants.
- Help reduce public infrastructure costs related to development.
- Minimize local ecological degradation (habitat, air, soil, and water) through efficient site and building design, sustainable construction practices, and low impact building materials and operational practices.
- Keeps money in the local economy and creates new local industries and jobs.

Resolution No. 35956
As Amended

Adopt City of Portland Green Building Policy and *Portland LEED™ Green Building Rating System* for implementation by all City Bureaus and Portland Development Commission. (Resolution)

WHEREAS, development and construction practices are significant contributors to the depletion of natural resources and a major cause of air and water pollution, solid waste, deforestation, toxic wastes, health hazards, global warming, and other negative consequences; and

WHEREAS, buildings use one-quarter of all the world's wood harvest, consume two-fifths of all material and energy flows, and account for more than one-third of U. S. CO_2 emissions; and

WHEREAS, the City Council has given the Office of Sustainable Development the role of encouraging City bureaus and agencies to adopt approaches that support sustainability as reflected in the *Sustainable City Principles*; and

WHEREAS, the City Council recognizes that green building complements existing policies related to development and natural resource conservation; including the 1990 Energy Policy, CO_2 Reduction Strategy, Comprehensive Plan, and Metro 2040 Framework Plan; and

WHEREAS, the City of Portland recognizes and accepts its responsibility to implement and promote building practices that protect the quality of the air, water, and other natural resources; reduce construction practices that impact native fish, vegetation, wildlife habitat and other ecosystems; and minimizes human impact on local and worldwide ecosystems; and

WHEREAS, in 1999 the City Council accepted the *Green Building Options Study* and *Green Building Initiative* to develop an inter-bureau initiative to implement green building standards for all City design, construction, operation, and maintenance practices; and

WHEREAS, the United States Green Building Council has, in a national collaborative process, created a standard (LEED™ version 2.0) that identifies a range of actions that define green buildings and established a certification process for such buildings; and

WHEREAS, the Office of Sustainable Development; Office of Planning and Development Review; Bureaus of Environmental Services, Planning, Parks and Recreation, Housing and Community Development, Water, and General Services; Portland Development Commission; and related bureaus formed inter-bureau working groups to develop a Portland version of the LEED green building standard and a city Green Building Policy; and

WHEREAS, the City bureaus should take a leadership role by identifying actions that demonstrate the City's commitment to green buildings in its own building practices and policies; and

WHEREAS, the City Council and City bureaus support the coordinated and efficient delivery of innovative and cost effective green building technical and outreach services that promote energy and water conservation; on-site energy production; efficient transportation alternatives; the use of healthy building materials; reduced stormwater runoff and erosion; construction site deconstruction, reuse, recycling practices; and minimal site disturbance; and

WHEREAS, the City of Portland Green Building Policy contains the strategies of: 1) incorporating green building practices into all facilities projects constructed, owned or managed by the City, 2) incorporating green building goals and practices into Portland Development Commission ongoing and future program areas, and 3) promoting the voluntary applications of green building guideline in private sector building design, construction, and operations; and

WHEREAS, City Council and City bureaus should incorporate life-cycle and total cost (including external costs) accounting in the design, construction, operation, and maintenance of all city-owned and financed buildings; and

WHEREAS, City Council and City bureaus support sustainable economic development by encouraging the expansion of the environmental services and products sector, that includes green building practices, products, and technologies;

NOW THEREFORE, BE IT RESOLVED that the Portland City Council directs all City Bureaus and agencies to adopt and implement the *Portland LEED™ Green Building Rating System* and other approaches identified in the City of Portland Green Building Policy (Exhibit A) for the design and construction of new, retrofit, and interior/tenant City facility and City-funded facility projects and their ongoing operation and maintenance;

BE IT FURTHER RESOLVED that the Portland Development Commission shall adopt and implement the *Portland LEED™ Green Building Rating System* and other approaches identified in the City of Portland Green Building Policy for the design and construction of new, retrofit, and interior/tenant facility projects through all of the agency's program areas by September 30, 2001; and

BE IT FURTHER RESOLVED that the City of Portland Green Building Policy shall not apply to projects funded prior to the adoption of this policy. However, these projects shall still implement green building strategies to the maximum extent practicable; and

BE IT FURTHER RESOLVED that the Office of Sustainable Development will conduct cost benefit (using life cycle costing) analyses of the *Portland LEED™ Green Building Rating System, Affordable Housing Green Building Guidelines* and other standards identified in the City of Portland Green Building Policy to develop the most cost effective standards possible; and

BE IT FURTHER RESOLVED that the Office of Management and Finance and the Portland Development Commission will work with the Office of Sustainable Development Green Building Division to report annually on progress toward the implementation of the City of Portland Green Building Policy in the City budget review process; and

BE IT FURTHER RESOLVED that the Office of Sustainable Development will provide technical and organizational assistance in helping all City bureaus meet the requirements of the City of Portland Green Building Policy.

BE IT FURTHER RESOLVED that the Office of Planning and Development Review and other city bureaus will identify and implement changes needed to remove or streamline administrative obstacles to green activities, practices and technologies that require permitting.

BE IT FURTHER RESOLVED that the Office of Planning and Development Review and other city bureaus will identify City Code and City Council policy obstacles to green activities, practices and technologies that require permitting. The Office of Planning and Development Review will report to Council on the City Code and Council policy obstacles 12 months after enactment of this resolution.

BE IT FURTHER RESOLVED that an Office of Planning and Development Review process manager will assist in expediting private sector projects that are designed to meet the City of Portland's LEED Green Building Standards.

COMMISSIONER DAN SALTZMAN
January 10, 2001
S. Anderson/cn

Gary Blackmer
Auditor of the City of Portland
By _____ Deputy

ADOPTED by the Council: JAN 10 2001

9:30TC

=15=

Agenda No.

RESOLUTION NO. 35956

As Amended

Title

Adopt City of Portland Green Building Policy and *Portland LEED Green Building Rating System* for implementation by all City Bureaus and Portland Development Commission (Resolution)

INTRODUCED BY	DATE FILED: JAN 05 2001
Commissioner Dan Saltzman	Gary Blackmer Auditor of the City of Portland
NOTED BY COMMISSIONER	By: _____ Deputy
Affairs Dan Saltzman	For Meeting of: _____
Finance and Administration	**ACTION TAKEN:**
Safety	
Utilities	
Works	
BUREAU APPROVAL	
Bureau: Office of Sustainable Development	
Prepared by Rob Bennett Date 1/4/01	
Budget Impact Review: ___ Completed X Not Required	
Bureau Head: Susan Anderson	

AGENDA		FOUR-FIFTHS AGENDA	COMMISSIONERS VOTED AS FOLLOWS:		
				YEAS	NAYS
Consent	Regular X	Francesconi	Francesconi	✓	
NOTED BY		Hales	Hales	✓	
City Attorney		Saltzman	Saltzman	✓	
City Auditor		Sten	Sten	—	
City Engineer		Katz	Katz	✓	