URBAN SUSTAINABILITY

Through

Green Building

A. Anzalone  V. Sawyer  R. Woolsey
Why Do Cities Pursue Green Building?
Defining the Problem

Current building trends pose an immediate threat to the environmental, social and economic health of municipal government.
In the US, buildings (private & public) account for:

- 39 percent of total energy use
- 12 percent of the total water consumption
- 68 percent of total electricity consumption
- 38 percent of the carbon dioxide emissions
What is Green Building?

- Practice of creating structures
- Using processes that are environmentally responsible and resource-efficient
- Life-cycle focus from siting to design, construction, operation, maintenance, renovation and deconstruction.
- Also known as sustainable or high performance building
Green Building Certification

- LEED - The Leadership in Energy and Environmental Design, Green Building Rating System™
- LEED is a third party certification program
- LEED promotes a whole-building approach to sustainability
- There are four levels of LEED certification
**LEED Point System**

Leadership in Energy and Environmental Design (LEED Certification)

<table>
<thead>
<tr>
<th>Category</th>
<th>Points Available</th>
<th>Certified</th>
<th>Silver</th>
<th>Gold</th>
<th>Platinum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Points</td>
<td>69</td>
<td>26-32</td>
<td>33-38</td>
<td>39-51</td>
<td>52-69</td>
</tr>
<tr>
<td>Sustainable Sites (1)*</td>
<td>14</td>
<td>1 to 14</td>
<td>1 to 14</td>
<td>1 to 14</td>
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<tr>
<td>Water Efficiency</td>
<td>5</td>
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<tr>
<td>Energy and Atmosphere (3)*</td>
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<tr>
<td>Materials and Resources (1)*</td>
<td>13</td>
<td>1 to 13</td>
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<td>1 to 13</td>
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<tr>
<td>Indoor Environment Quality (2)*</td>
<td>15</td>
<td>2 to 15</td>
<td>2 to 15</td>
<td>2 to 15</td>
<td>15</td>
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<tr>
<td>LEED Innovation Credits</td>
<td>5</td>
<td>1 to 5</td>
<td>1 to 5</td>
<td>1 to 5</td>
<td>5</td>
</tr>
</tbody>
</table>

*Prerequisite (Required) category must have the minimum number of points.
Benefits of Green Building

- **Environmental benefits**
  - Improve air and water quality
  - Conserve and restore natural resources

- **Economic benefits**
  - Reduce operating costs
  - Optimize life-cycle economic performance

- **Social benefits**
  - Enhance occupant comfort and health
  - Improve overall quality of life
We examined what cities are doing to contribute in sustaining our environment. Particularly focusing on the top five LEED (Green) Building cities nationwide and compare them to the City of Las Vegas.

#27 Las Vegas, Nevada

- City Commuting
- Metro Public Transit
- Metro Congestion
- Air Quality
- Tap Water Quality
- Solid Waste Diversion
- Planning/Land Use
- City Innovation
- Housing Affordability
- Natural Disaster Risk
- Energy/Climate Change Policy
- Local Food and Agriculture
- Green Economy
- Knowledge Base
- LEED (Green) Buildings

Sustainability Leader | Sustainability Advances | Mixed Results | Sustainability Challenged | Sustainability in Danger
---|---|---|---|---
27 | 14 | 32 | 42 | 11
26 | 25 | 24 | 33 | 15
26 | 26 | 26 | 11 | 11

Note: The numbers represent the sustainability ratings for each category.
Green Building Analysis

Compare Las Vegas with the top 5 LEED certified cities

1. Chicago, IL
2. Washington, DC
3. New York, NY
4. Portland, OR
5. Seattle, WA
Methodology

- Literature/Website review
- Questionnaire/ Interview
  - Structured questions
Questionnaire

1. When did your city start green building?
2. Does your city have a budget for green building? If so, how much?
3. Does your city have a specific policy or law to govern green building?
4. What are the numbers for city built green buildings?
5. What are the numbers for green buildings in the city?
6. Has the city’s Mayor signed the US Conference of Mayors Climate Protection Agreement?
7. What is the city’s definition of sustainability?
8. What are some of the barriers that the city is facing?
Alternative Policies

1. City of Las Vegas providing/increasing offered incentives

2. City of Las Vegas retro fitting existing buildings to “Green Building; LEED Certified”

3. City of Las Vegas mandating green building training – LEED Accredited Professional Training
Selected Criteria

- Cost Analysis
- Time Analysis
- Social Benefit
Providing/Increasing Incentives

- Providing financial incentive to developers through tax breaks
- Federal Redevelopment money distributed to green projects first
- Capital improvement funding
- Utility credits
#1

Providing/Increasing Incentives

**PROS:**
- Offsetting costs to builder (cost)
- Increase buy-in by developers (social)

**CONS:**
- Loss of funding due to tax breaks (cost)
- Insufficient funding sources (cost)
#2

Sustainable Design/Retrofitting

- Current policy – new buildings LEED certified
- Requiring mandatory policy to address the retrofitting of existing buildings to LEED standards
Sustainable Design/Retrofitting

**PROS:**
- Prioritize Capital Improvement money for green building projects (cost)
- Increases building life expectancy while decreasing operating costs (time & cost)
- It reduces the negative impact on all occupants; especially work environment related illnesses (social)

**CONS:**
- Initial cost: short term increase in building materials & supplies (cost)
The training will provide information regarding sustainable building industry, current market trends, and specific opportunities for incorporating LEED into an organization's design, construction, and marketing practices.

The City of Las Vegas currently has two LEED APs

Applicable Professionals
- Redevelopment Agencies
- Builders
- Planners
- Architects
- Inspectors
#3

**LEED Accredited Professional Training**

**PROS:**
- Increased buy-in (social)
- Training may be accepted for continuing education requirements in many professions (social)
- Increased public awareness (social)

**CONS:**
- Cost of training (cost)
- Time away from regular duties to complete training (time)
- Limited availability of training workshops (time & social)
Proposal

Retrofitting Recommendation

Retrofitting will and does reduce energy consumption, including utilities and water. Making sure that a building is working efficiently benefits both employers and employees. It reduces the negative impact on all occupants; especially work environment related illnesses.

Makes sense to us.

Actually, it makes green sense.
Questions

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