



LEED ~ Common Sense Approach

SEA STA CONSIGNATIONS

- Common sense ideas that help planners and designers expand their thinking
- Highlights of LEED building design concepts:
 - > Reuse sites Provide access to public transportation
 - Reduce paved areas
 - Conserve and reuse water
 - > Do not use CFC-based refrigerants
 - Reuse existing buildings and materials
 Use locally manufactured building materials

 - > Enhance indoor environmental air quality > Use low-emitting VOC materials
 - > Use day lighting and energy efficient design
- LEED concepts can be applied to any design
- · LEED has become commonplace. Ideas will likely integrate into building codes

Why Make Public Buildings Green? SEA ARA DESCRIPTION OF THE OWNER. **Good Fiscal Management** Green buildings save operating costs Reduced operating costs saves tax dollars **Quality of Life Issues** Green buildings provide improved working conditions Improves worker performance Reduces employee absenteeism and turnover **Economic Development for Green Markets Environmental Stewardship**

Benefits of Green Building							
LEED Certification Cost-Effectiveness Matrix							
	Percent Change in Costs	Cost per S.F. Change in Costs					
Construction, Architectural and Engineering Costs	2% Increase in Building Costs	Increase Costs of \$3 to \$5 Per S.F.					
Energy Savings	30% Energy Savings	Savings of \$2 Per S.F. Per Year					
Worker Productivity	1% to 1.5% Increase in Worker Productivity	Savings of \$3 to \$5 Per S.F. Per Year					
Source: Green Building Costs and Financial Benefits by Gregory H. Kats							
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Who is Implementing LEED? SEA ALL DING Federal and State Initiatives Federal Initiative - 1999 Presidential Executive Order Federal government committed to building green. · Armed Services, General Services Administration (GS) and Department of Interior use LEED Rating System. Standard for renovations and new construction. MA State Initiative - Executive Order 484 (April, 2007) All State agencies buildings involved with construction and major renovation over 20,000 square feet must meet LEED certification. Must incorporate energy performance 20% better than MA Energy Code · Outdoor water reduction requirements must be verified by 3rd party authority.

Who	is	Implementing	LEED?	
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EA THE OCCUPATION

City and Town Local Initiatives

Boston

- Since 2004, requires LEED Silver rating for city-owned buildings
- LEED certification for all city supported development projects
 Boston Zoning Code requires LEED certification for all public and private
 projects over 50,000 square feet or proof that project would meet criteria
- Acton, MA

 - Zoning bylaw adopted in April, 2004
 Allows a density bonus for buildings that achieve LEED certification
- Arlington, MA
 - Since May, 2003, new Town buildings and major renovations shall achieve LEED Silver rating, unless impractical
 Upcoming Town meeting vote all major projects submit LEED checklist

Project Examples SEA ALC ADDRESS OF S E A Projects Adams Visitor Center MIT Brain and Cognitive Sciences Complex Forest City – University Park at MIT SEAOffice Utility Projects MA Municipal LEED Certified Projects Stanley Elementary School in Waltham Cambridge City Hall Annex North Adams Public Library **Green Design Project** Woburn Memorial High School

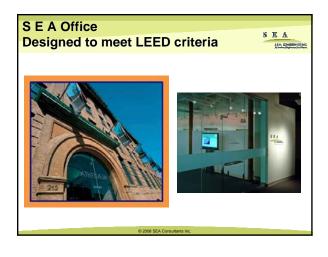
Adams Visitor Center MIT Brain and Cognitive Sciences SEA SEA Complex LEA SEMISTRUCE NO STA COMPANYATION **Received LEED Silver Rating** Heating and cooling requirements derived from geothermal energy from water extracted from a 1,500 foot well and circulated through heat pumps. Site Selection Urban Redevelopment Brownfield Redevelopment Alternative Transportation, Public Transportation Access Use of soil aggregate piers to support the building in response to the contaminated substrata (12-foot deep Alternative Transportation, Bicycle Storage & Changing Rooms piers made of gravel aggregate reinforcing the soil and minimizing Stormwater Management – excavation and treatment of Rate & Quantity contaminated material). Stormwater Management – Treatment Daylighting of all spaces from Innovative Wastewater Technologies windows and skylights. Water Use Reduction – 20% Reduction



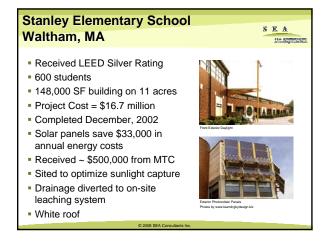
- S E A Design of the Green Roof System
- Roof top detention
 Reduces post-development 25-year runoff rates to match predevelopment 2-year runoff rates
- Roof holds up to 4-inches of rainwater during storms
 Green roof treats stormwater
- Green roof treats stormwater
 Green roof enhances views for surrounding buildings



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Cambridge City Hall Annex Cambridge, MA

- Received LEED Gold Rating
- Historic 33,200 SF building renovation
 Received \$337,500 from MA
- Renewable Energy Trust Fund
- Recycling saved \$55,000
- Recycled 80% of construction waste

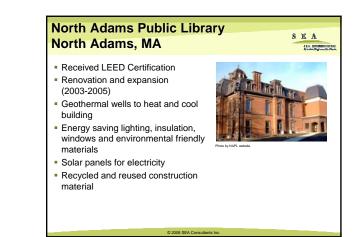




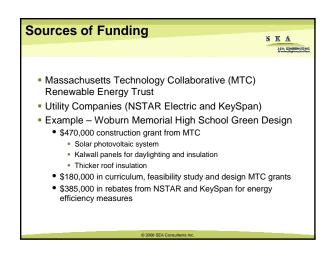
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- Photovoltaic system provides 10% of building's electricity
- Ground source heat pump system provides heating and cooling
- Maximized daylighting
- Intelligent lighting
- Pre-heats incoming air with heat from outgoing air







Questions?	SEA
Thank you.	
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