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GREEN BUILDING SPECIALIST
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LEED GREEN ASSOCIATE EXAM
REFRESHER
ONLINE TRAINING BY KRISHNAJI PAWAR
LEED AP(BD+C),GSAS CGP,GCP,ISO 14001
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MODULE 3

Basic Concepts of Sustainable/Green Building Design

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LEED GREEN ASSOCIATE EXAM REFRESHER

Green building involves environmentally responsible and resource-efficient construction, operation, maintenance, renovation, and deconstruction processes, enhancing traditional design considerations of cost-effectiveness, functionality, durability, and comfort.

Learning Objectives

- Introduction and Course Outline
- Knowing the Process of LEED Credentialing
- Basic Concepts of Sustainable Design
- Organizational Fundamentals
- LEED Green Building Rating System
- LEED Certification Process
- Getting a LEED Green Associate Credential
- Integrative Strategies
- Location and Transportation
- Sustainable Sites

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INTRODUCTION

- Sustainability is defined as maintaining conditions for productive harmony between humans and nature.
- LEED strategies and technologies should consider sustainable design and green building concepts.
- Green building is a process that applies to buildings, their sites, interiors, operations, and communities.
- Green building strategies aim to reduce environmental impact and improve the conditions for the planet and interior environments for building occupants.
- It's a holistic approach to finding responsible solutions within the build environment.

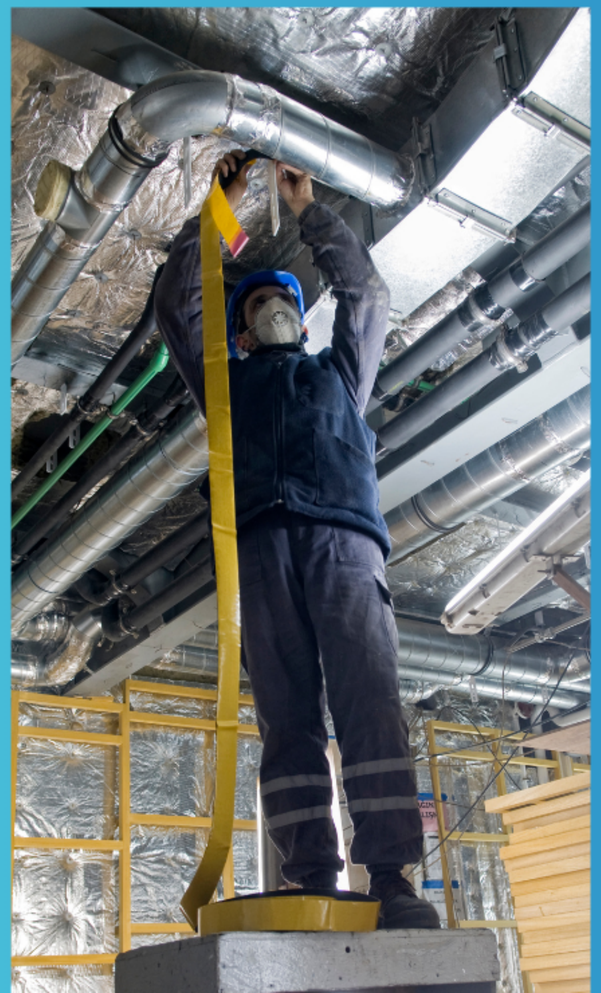
GREEN BUILDING EFFICIENCY SITE SELECTION

- Consider urban redevelopment or support for urban sprawl.
- Determine proximity to public transportation and natural breezes for ventilation and daylight.



DESIGN OF BUILDING SYSTEMS





- Evaluate the interdependence of mechanical equipment, building envelope, and lighting systems.
- Account for heat emitted from lighting fixtures and gaps in the envelope for conditioned air escape.

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CONSTRUCTION PROCESSES

- Evaluate exposure to harmful fumes and gases during construction.
- Take precautions to reduce mold growth or other contaminants



OPERATIONS OF THE BUILDING





- What kind of items are purchased to support business?
- What about cleaning procedures?

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Maintenance

- Regularly test equipment and monitor for leaks.

Waste Management

- Address construction waste and garbage generated during operations.



GREEN BUILDING BENEFITS

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- Economic: 30%-50% energy and water savings, reducing carbon footprint.
- Maintenance cost reductions: Improved system integration and performance.
- Value: Increased net operating income and better public relations.
- Tax benefits: Specific green building investments offer tax benefits.
- Productivity improvements: 3%-55% productivity improvement.
- Health benefits: Reduced absenteeism.





GREEN BUILDING BENEFITS +



- Risk management: Faster lease-up and sales, lower exposure to odors.
- Marketing and public relations: Easier recruitment and retention of key employees.
- Fund-raising incentives: Funding incentives for colleges and nonprofits.
- Demonstration of commitment to sustainability and environmental stewardship.

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TRIPLE BOTTOM LINE IN GREEN BUILDINGS

- Green buildings' values are categorized into environmental, economic, and health and community aspects.
- Conventional projects typically focus on economic prosperity.
- For LEED certification projects, goals are evaluated against triple bottom line values.
- For instance, a green roof installation would compare financial implications to environmental impacts and community benefits.





SYSTEMS THINKING



- Similar to integrated project design, focuses on viewing each project part in relation to others.
- Nested systems can represent building projects, communities, or cities.
- Aims to avoid designing solutions that result in problems in other systems.
- Systems can develop emergent properties, like 4+4=9.

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LIFE-CYCLE APPROACH IN GREEN BUILDING PROJECTS

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- Encourages questioning all phases of a project, including material, product, and service.
- Starts before site selection and continues through design, construction, operations, refurbishment, and renovation.
- Aims for a building's life cycle to avoid demolition and adaptation and reuse.
- Uses systems thinking and closing the system to evaluate environmental impacts.
- Chooses between life-cycle assessment (LCA) and life-cycle cost (LCC) methodologies.
- LCA includes purchase price, fuel, installation, operation, maintenance, disposal, finance charges, and replacement costs.





DO GREEN BUILDINGS COST MORE??????.....

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TYPES OF COSTS IN GREEN BUILDINGS



- Hard costs are fees for professional services, legal and design fees, and pre- and postconstruction-related expenses.
- USGBC promotes studies indicating that green buildings do not necessarily cost more.
- Certification as a green building is not a significant indicator of construction cost.

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BRIDGING THE GAP BETWEEN CAPITAL AND OPERATING BUDGETS

- It's important to bridge the gap between capital and operating budgets to understand the value of green building technologies and strategies.
- First costs may be higher in traditionally designed projects due to lack of integration.
- A green building also evaluates the environmental and social impacts and benefits.





TRADITIONAL APPROACH TO CONSTRUCTION PROJECTS



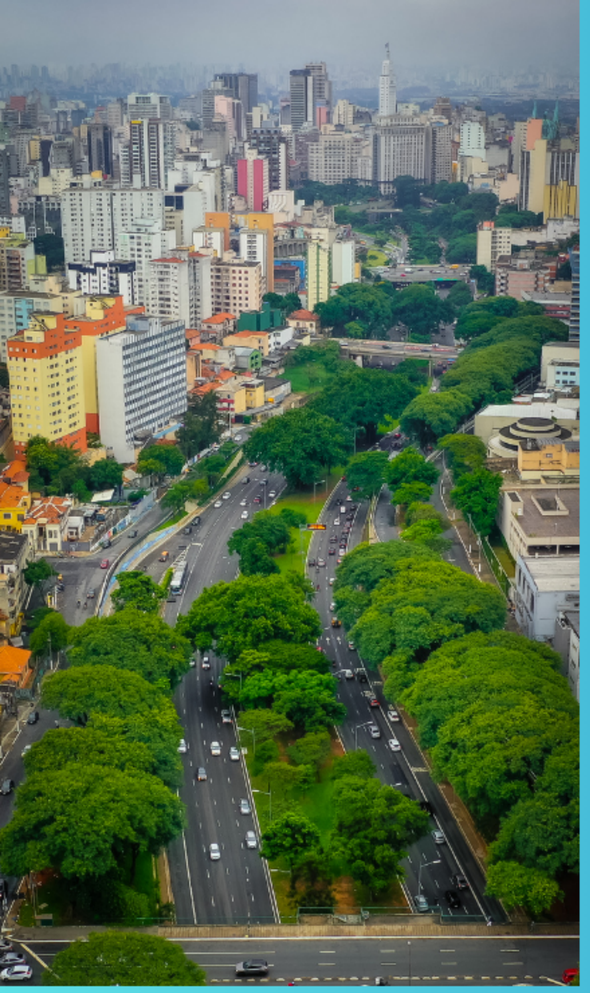
- Owner hires civil engineer or environmental team upon property selection.
- Environmental reports are completed and site plan is handed over to architect.
- Architect details program requirements and designs the building (schematic design phase).
- Engineers work independently to complete tasks (design development phase).
- Construction documents (CDs) are completed by each professional.

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TRADITIONAL APPROACH TO CONSTRUCTION PROJECTS +

- CDs are issued for permit review by the local municipality.
- CDs are sent out for bid to contractors about the same time as drawings are issued for permit review (design-bid-build project type).
- Contractors evaluate drawings and provide owner with a fee for demolition services and construction.
- Contractors submit RFIs about requirements or design elements during bidding process.





TRADITIONAL APPROACH TO CONSTRUCTION PROJECTS +



- Projects are awarded based on the lowest bid, but the implications of this are considered.
- Once permit is received, contractor is selected, and construction cost is agreed upon.
- Construction commences with little involvement from the design team.
- Substantial completion includes final inspection process and owner issues a "punch list."
- Final completion is followed by certification of occupancy.

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