



LEED IMPLEMENTATION GUIDE

FOR DESIGN PROFESSIONALS

KRISHNAJI PAWAR, LEED AP BD+C, LEED CGP, ISO 14001:2015, GCP

SUSTAINABILITY SPECIALIST ONLINE CURRICULUM COURSE










INTRODUCTION AND COURSE OUTLINE

KRISHNAJI PAWAR, LEED AP BD+C, LEED CGP, ISO 14001:2015, GCP

SUSTAINABILITY SPECIALIST ONLINE CURRICULUM COURSE






KRISHNAJI PAWAR

LEED CGP, LEED CGP-CM, LEED AP (BD+C),
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CEO & FOUNDER, BEYOND SMART CITIES

ONLINE COURSE

**LEED IMPLEMENTATION GUIDE
FOR DESIGN PROFESSIONALS**

SUSTAINABILITY SPECIALIST CURRICULUM

WWW.KRISHNAJIPAWAR.IN

LEARNING OBJECTIVES



Identify the intent, requirements, and strategies for success with LEED v4 credits in the Building Design and Construction rating systems

Learn more about LEED Implementation During Design & Construction.

Integrative Process- Charrettes and Team Workshops : Tools for facilitating the integrative processes throughout a project

Learn about Feasibility Study and Economic Assessment in LEED Projects

Learn the LEED Prerequisites / Credit Categories with respect to Design Perspective along with strategies: (Location & Transportation ,Sustainable Sites,Water Efficiency,Energy and Atmosphere,Materials and Resources,Indoor Environmental Quality,Innovation and Regional Priority)



WHO IS THIS COURSE FOR?

Engineers who are working in LEED BD+C Projects and wants to understand more about LEED Implementation During Design and Construction Supervision.

Individuals with "Engineering" background and with experience in Design or Construction.

Architects as well as Civil, Mechanical and Electrical Engineers, whose background and experience are in Building Design and Construction, will fit well within the required qualifications.

General Contractors, Construction Managers, and Engineers can use the LEED Implementation Guide as a reference for managing their LEED Certification Process OR LEED or Green Building Projects.



BENEFITS OF THE COURSE

Identify the intent, requirements, and strategies for success with LEED

LEED Implementation During Design & Construction

Integrative Process- Charrettes and Team Workshops

Feasibility Study and Economic Assessment

LEED Prerequisites / Credit Categories with respect to Design

Requirements for LEED documentation



LEARNING OBJECTIVES

What is Sustainability? Benefits

What is Green Building Rating System?

U.S. GREEN BUILDING COUNCIL & LEED

LEED Certification Management Plan

Development & Implementation LEED Manual



Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their needs.

Three core elements: economic growth, social inclusion and environmental protection.

WHAT IS SUSTAINABLE BUILDING?

To build and develop sustainably, one must:

- Protect and integrate building with the natural environment
- Increase energy efficiency
- Reduce water consumption
- Promote the reuse and regional use of building materials
- Reduce building waste and pollution
- Protect occupant health and increase wellbeing

These principles are integrated into the design and construction process by regional and community planners, real estate developers, funding agencies, architects, engineers, contractors, and facility managers to create buildings and communities that benefit all of the stakeholders, including end users, and the environment.



... "a series of great opportunities disguised as insoluble problems"
Thomas Friedman

5 BASIC GLOBAL PROBLEMS

- Climate Change
- Population Growth
- Energy & Water Supply & Demand
- Bio-Diversity Loss
- Geo-Politics/Wars and Conflicts



...**"AFFLUENZA: an unsustainable addition to economic growth"**

Public Broadcasting System

CLIMATE CHANGE

1. Increases in CO2:

- 280 PPM 1950
- 384 PPM 2007
- 450-550 PPM 2050

2. The 3rd Degree

- Rise in global average temp to date: 1 Degree
- Function of 384 PPM

GA 2 Degree rise = 450 PPM

Possibly exceeding climate change "tipping point"

GA 3 Degree rise = 550 PPM

Certain intolerable climatic changes

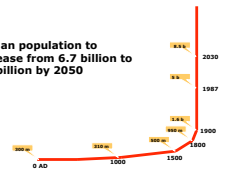


...**"AFFLUENZA: an unsustainable addition to economic growth"**

Public Broadcasting System

POPULATION GROWTH

Human population to increase from 6.7 billion to 9.2 billion by 2050

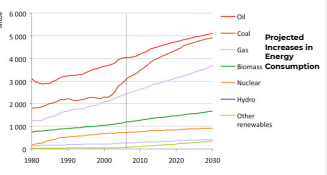


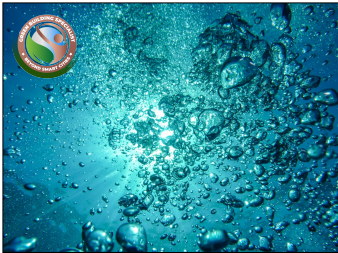


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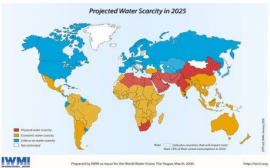
Public Broadcasting System

ENERGY SUPPLY & DEMAND





WATER SUPPLY & DEMAND



Projected Water Scarcity in 2025

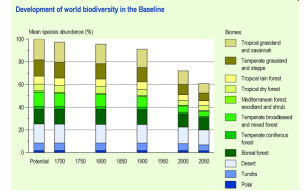
Projected Increases in Water Consumption

...**"AFFLUENZA: an unsustainable addiction to economic growth"**

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BIO-DIVERSITY LOSS



Development of world biodiversity in the Baseline

Mean species abundance (%)

"Biodiversity is the sum total of all of the life on earth, including behaviors, interactions and ecological processes forming one great, interdependent system, the biosphere."

Biology Reference



GEO-POLITICAL WAR & CONFLICTS



The United States spends \$8,000 US /second On warfare...

What if that money was being used for Climate Change Mitigation?

"War! Uh-huh .. What is it good for? Absolutely nothing!"

Edwin Starr

WE'RE AT A CROSSROADS



"Destiny is not a matter of chance... It is a matter of choice."
William Jennings Bryan



ECONOMIC BENEFITS OF SUSTAINABLE DEVELOPMENT:

To build and develop sustainably, one must:

- ✓ Increased asset Value
- ✓ Tenant retention and satisfaction
- ✓ Reduce water consumption
- ✓ Shareholder value
- ✓ Employee satisfaction and morale
- ✓ Stakeholder relations
- ✓ Higher return on investment
- ✓ Net operating income (NOI) via lower operating
- ✓ Productivity improvements

Sustainability is an increasingly important issue for many people, especially in the business world. Climate change continues to affect our lives as well as the fate of all other species around the planet



WHAT IS A GREEN BUILDING RATING SYSTEM?



✓ A Quantitative System to evaluate and measure the environmental impact of a building on the environment.

- ✓ Site
- ✓ Water
- ✓ Materials
- ✓ Energy
- ✓ Indoor Environment

✓ It evaluates the "whole building"
Integration of systems is crucial to achieving Green

✓ The Most Widely Used Rating System is LEED





GREEN BUILDING RATING SYSTEMS

- ✓ Reduce energy consumption
- ✓ Reduce water consumption
- ✓ Reduce materials waste
- ✓ Reduce heat island effect
- ✓ Improve indoor air quality
- ✓ Reduce absenteeism
- ✓ Reduce Toxins in environment
- ✓ Improve productivity
- ✓ Preserve open space
- ✓ Preserve species habitat
- ✓ Improve asset value
- ✓ Increase infrastructure vitality

LEED GREEN BUILDING RATING SYSTEM

LEED (Leadership in Energy and Environmental Design) is the most widely used green building rating system in the world.

Developed by the U.S. Green Building Council

www.usgbc.org





U.S. GREEN BUILDING COUNCIL

The U.S. Green Building Council (USGBC), co-founded by Mike Italiano, David Gottfried and Rick Fedrizzi in 1993, is a private 501(c)3, membership-based non-profit organization that promotes sustainability in building design, construction, and operation.

- ✓ Non-profit organization with 6,000+ members.
- ✓ Voluntary, diverse membership that operates on consensus principles
- ✓ Developer and administrative authority of the LEED Green Building Rating System

LEED PRINCIPALS

LEED Primary Objective

"Transform existing building markets so that sustainable design, construction, and operations practices are mainstreamed."

- ✓ Consensus process involving many stakeholders in the building industry
- ✓ To define, promote, and standardize green design
- ✓ To promote a whole-building integrated design process



LEED SCORECARD

	LOCATION AND TRANSPORTATION (0PR/7C/16P)
	SUSTAINABLE SITES (1PR/6C/10P)
	WATER EFFICIENCY (3PR/4C/11P)
	ENERGY AND ATMOSPHERE (4PR/6C/33P)
	MATERIALS AND RESOURCES (1PR/5C/13P)
	INDOOR ENVIRONMENTAL QUALITY (2PR/9C/16P)
	INTEGRATIVE PROCESS(0PR/1C/1P)
	INNOVATION (0PR/2C/6P)
	REGIONAL PRIORITY (0PR/1C/4P)
	TOTAL (11 PRE REQUISITE / 44 CREDIT /110 POINT)



BENEFITS OF LEED ACCREDITATION



Give your business the competitive advantage.
Attract more customers with energy-saving benefits.
Stay informed on the latest green building techniques.
You'll be connected to an international network of sustainability advocates.
Green jobs are in demand.



LEED AP BD+C ROLES & RESPONSIBILITIES



Strategy Development - Develop actionable strategies that fit their LEED goals and responsibilities.

Reporting Environmental Data

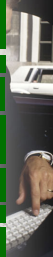
Energy Efficiency and Facilities Management

Develop Sustainability Management Plan and Implement During Detailed Design & Construction Supervision.

Develop & Implement LEED Project Manual During Construction Supervision

Leading a Cross-functional Committee

LEED Certification Management Plan & LEED Project Manual - Implementation



CONTRACTOR ROLES & RESPONSIBILITIES



The role of the General Contractor is fundamental to obtain the Leadership in Energy and Environmental Design (LEED) certification of a sustainable green building.

The single most important aspect of the construction phase of a LEED project involves preparation and strict adherence to a site-specific LEED action plan(LEED Certification Management Plan) and LEED Documentation & each LEED Credits.

Development and Implementation of LEED Certification Management Plan and LEED Project Manual During Construction

In the LEED certification, the general contractor must not only use ecofriendly building materials, but he must also arrange a jobsite that minimally impacts on environmental matrices (water, air, soil and subsoil).

Development and Implementation of Construction Environment Management Plan - CEMP(Middle East Only)



LEED CERTIFICATION MANAGEMENT PLAN

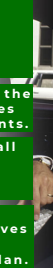


The LEED Certification Management Plan shall define and explain the project sustainability requirements and the methodology followed to achieve the project's sustainability objectives.

The plan should analyze, illustrate, define the strategies and reflect all the design choices that enhance the sustainability requirements.

A live and dynamic document throughout all the project stages, the SMP shall be continuously updated with the agreed amendments by project stakeholders.

The single most important aspect of the construction phase of a LEED project involves preparation and strict adherence to a site-specific LEED Construction Management Plan.



LEED PROJECT MANUAL



General contractors, construction managers, and engineers can use the LEED Project Manual as a reference for managing their LEED certification process.

The LEED Manual represents an implementation guide and shall define and explain the contractor responsibilities in terms of project sustainability requirements and the methodology that shall be followed and adopted to implement the Detailed Engineering Design strategies during the construction stage to achieve the targeted LEED certification level as required by clients.

Describe in detail the guidelines with narratives for each LEED credits targeted for the Project, materials action plan with methodology of selection and tracking data to monitor the contractor performance; using a set of tools including LEED forms and submittal in addition to sample forms for materials tagging, approvals process.