CONCEPT

Green Building Design and Rating: Passive Cooling, Embodied Carbon and Credit Planning

7 – 11 November 2027
Dammam - Eastern Province five-star



Green Building Design and Rating: Passive Cooling, Embodied Carbon and Credit Planning

Ref: 644_18334 **Date:** 7 – 11 November 2027 **Location:** Dammam - Eastern Province five-star **Fees:** 19500 SAR

Introduction:

Green building targets are often set late, after the massing, glazing and plant choices that decide energy, water and carbon performance are already fixed, so projects chase rating credits with costly add-ons and hand over buildings that underperform. This Core Concept course equips architects, MEP engineers, developers, facility and sustainability staff to apply green building design from site analysis to operation: passive cooling for hot climates, envelope and daylighting, efficient services, water reuse, embodied carbon and indoor environmental quality, and to plan credits under a rating system. Participants produce a Green Building Strategy and Rating Credit Plan.

Course Objectives:

- Run an integrated design charrette that fixes green building goals, climate responses and team responsibilities before concept design is frozen
- Interpret how a green building rating system is structured and map prerequisites, credits, documentation and certification stages to project milestones
- Specify passive cooling, envelope, glazing and daylighting measures suited to hot-arid and hot-humid sites
- Select efficient HVAC, lighting, on-site solar and water reuse measures and quantify their effect with an energy model brief and a water balance
- Reduce embodied carbon and protect indoor environmental quality through material selection, life cycle assessment and ventilation and finish specifications
- Prepare a green building strategy and rating credit plan for a hotel or office with target tier, credit owners and verification steps

Target Audience:

- Architects and design managers responsible for massing, facade and interior specifications on new and refurbished buildings
- MEP and building services engineers responsible for HVAC, lighting, plumbing and renewable energy design
- Developers and owner-side project managers responsible for sustainability targets, budgets and consultant briefs
- Facility and operations managers responsible for running rated buildings and verifying their performance
- Sustainability and ESG managers responsible for green building policy and portfolio certification targets
- Hospitality asset and engineering managers responsible for resort and hotel refurbishment programmes

Course Outline:

Day 1: Green Building Principles, Climate Response and Baseline Review

- Green Building Definition: Whole-Life Resource, Carbon and Occupant Health Outcomes
- Integrated Design Charrette: Owner Goals, Design Team Roles and Decision Log
- Climate Analysis for Hot-Arid and Hot-Humid Sites: Sun Path, Wind Rose and Diurnal Swing
- Site Layout Measures: Heat Island Mitigation, Native Landscaping and Stormwater Retention
- Green Building Baseline Scorecard for an Existing Asset or Concept Design

Day 2: Green Building Rating Systems, Credit Structure and Evidence

- Rating System Anatomy: Categories, Prerequisites, Optional Credits and Achievement Tiers
- Certification Process Map: Registration, Design Submission, Construction Submission and Award
- Credit Documentation Templates: Calculations, Drawings, Product Data and Signed Declarations
- Energy Modelling Overview: Baseline Building, Proposed Design and Improvement Calculation
- Rating Scheme Selection Matrix for New Build, Interiors, Existing Operations and Communities

Day 3: Passive Design, Envelope, Building Services and Water Strategies

- Passive Cooling Toolkit: Shading, Orientation, Thermal Mass, Night Flushing and Evaporative Cooling
- Envelope and Glazing Specification: Insulation Levels, Solar Heat Gain and Airtightness
- Daylighting Design: Window-to-Wall Ratio, Light Shelves and Glare Control
- High-Efficiency HVAC, LED Lighting Controls and Rooftop Solar PV Integration
- Water Balance Calculation: Low-Flow Fixtures, Greywater Reuse, Condensate Recovery and Rainwater Harvesting

Day 4: Embodied Carbon, Indoor Environment, Operations and Hospitality Buildings

- Embodied Carbon Life Cycle Assessment: Product, Construction, Use and End-of-Life Stages
- Low-Carbon Material Substitution: Recycled Aggregates, Slag Cement, Regional and Bio-Based Products
- Indoor Environmental Quality Plan: Low-VOC Finishes, Fresh Air Rates, Thermal and Acoustic Comfort
- Performance Verification in Operation: Sub-Metering, Energy Use Intensity Tracking and Occupant Surveys
- Green Resorts and Hotels: Guest-Room Controls, Laundry Water, Pool Heat Recovery and Food Waste

Day 5: Case Work: Green Building Strategy and Rating Credit Plan

- Case Brief Review: Coastal Resort Hotel and Grade-A Office Tower Design Packages
- Target Tier Setting and Credit Feasibility Scoring by Category
- Green Measure Cost-Benefit Screening: Capital Premium, Utility Savings and Payback
- Green Building Strategy and Rating Credit Plan Drafting with Evidence Owners
- Plan Presentation and Challenge by a Mock Certification Assessor Panel

Skills You Will Gain:

- Integrated Design Facilitation
- Hot-Climate Passive Design
- Rating Credit Mapping
- Energy Model Briefing
- Building Water Balancing
- Embodied Carbon Assessment
- Indoor Environmental Quality Specification
- Green Performance Verification

Why Attend This Course:

- Return with a Green Building Strategy and Rating Credit Plan built on a hotel or office case close to your own projects
- Set green building targets early enough to avoid late, expensive add-ons chasing credits
- Challenge consultant and contractor submissions on energy, water, material and indoor air claims with evidence checklists
- Compare green building practice with architects, engineers, developers and operators from hospitality, office, education and healthcare projects

Conclusion:

Green buildings perform when climate, envelope, services, water and materials decisions are made together and verified after handover. The course moves from green building principles, integrated design and hot-climate site analysis, through the structure and documentation of rating systems and energy modelling, to passive cooling, envelope, daylighting, efficient services and water reuse. It then covers embodied carbon, indoor environmental quality, performance verification and hospitality buildings, before case work produces a Green Building Strategy and Rating Credit Plan ready for a live project.