Climate Change Adaptation in Buildings Training Course

Professional Development Training Course Outline

Category	Architectural Engineering	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Climate change is rapidly reshaping the built environment, demanding urgent integration of climate resilience, sustainable design, and adaptive building technologies into modern construction practices. Increasing risks such as urban heat stress, flooding, extreme weather events, sea-level rise, and infrastructure vulnerability are challenging architects, engineers, planners, and facility managers to rethink how buildings are designed, constructed, and maintained. Climate Change Adaptation in Buildings Training Course provides a comprehensive understanding of how the built environment can be transformed into a resilient system capable of withstanding climate shocks while ensuring safety, comfort, and sustainability.

The course focuses on advanced concepts such as green infrastructure, climate-responsive architecture, low-carbon materials, disaster-resilient construction, and energy-efficient retrofitting strategies. Participants will gain practical insights into global best practices, climate risk assessment tools, and adaptive design frameworks that align with ESG standards, net-zero targets, and sustainable urban development goals (SDGs). By combining theory with real-world case studies, the program equips professionals to lead climate-smart transformation in the construction and infrastructure sectors.

Programme Curriculum

Climate Change Adaptation in Buildings Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand climate change impacts on the built environment
2. Apply climate risk assessment and vulnerability mapping
3. Design climate-resilient and adaptive buildings
4. Integrate green building technologies and sustainable materials
5. Develop heat stress mitigation strategies in urban buildings
6. Implement flood-resistant and water-sensitive design systems
7. Promote energy efficiency and low-carbon building design
8. Apply nature-based solutions (NBS) in construction
9. Strengthen disaster risk reduction (DRR) in infrastructure planning
10. Retrofit existing buildings for climate adaptation and resilience
11. Utilize building information modeling (BIM) for climate adaptation
12. Align building projects with net-zero carbon and ESG compliance
13. Enhance decision-making using climate data analytics and forecasting tools

Target Audience

1. Architects and Urban Designers
2. Civil and Structural Engineers
3. Construction Project Managers
4. Urban Planners and Policy Makers
5. Environmental and Sustainability Consultants
6. Facility and Property Managers
7. Government Housing and Infrastructure Officers
8. Real Estate Developers and Investors

Course Modules

Module 1: Fundamentals of Climate Change & Built Environment

- Climate science and global warming trends
- Impacts on infrastructure and urban systems
- Climate risk terminology and frameworks
- Introduction to adaptation vs mitigation
- Policy frameworks (UN SDGs, Paris Agreement)

- **Case Study:** Analysis of urban flooding impacts in coastal cities and adaptive planning responses.

Module 2: Climate Risk Assessment & Vulnerability Analysis

- Hazard identification and exposure mapping
- Building vulnerability assessment tools
- GIS-based climate risk modeling
- Scenario planning techniques
- Risk prioritization methods
- **Case Study:** Climate vulnerability mapping of a metropolitan residential district.

Module 3: Climate-Resilient Building Design

- Passive cooling and ventilation strategies
- Heat-resistant architectural design
- Storm and wind-resistant structures
- Adaptive façade systems
- Building orientation and microclimate design
- **Case Study:** Heat-resilient housing design in tropical urban environments.

Module 4: Green Building Materials & Sustainable Construction

- Low-carbon construction materials
- Recycled and bio-based materials
- Embodied carbon reduction techniques
- Sustainable procurement strategies
- Circular construction economy
- **Case Study:** Green-certified commercial building using recycled materials.

Module 5: Water Management & Flood-Resilient Infrastructure

- Sustainable Urban Drainage Systems (SUDS)
- Rainwater harvesting integration
- Flood-proof building design
- Permeable surfaces and landscaping
- Coastal protection strategies
- **Case Study:** Flood-resilient infrastructure adaptation in a coastal settlement.

Module 6: Energy Efficiency & Net-Zero Buildings

- High-performance building envelopes
- Renewable energy integration (solar, wind)
- Smart energy management systems
- Net-zero building certification standards
- Energy modeling tools
- **Case Study:** Net-zero energy office building implementation.

Module 7: Retrofitting Existing Buildings for Climate Adaptation

- Structural upgrading techniques
- Thermal insulation improvements
- Climate-smart HVAC systems

- Retrofitting cost-benefit analysis
- Urban regeneration approaches
- **Case Study:** Retrofitting public schools for heat reduction and energy efficiency.

Module 8: Smart Technologies & Climate Data Integration

- Smart sensors for building performance
- AI and IoT in climate adaptation
- Climate data analytics and forecasting
- Digital twins for infrastructure resilience
- Smart city integration
- **Case Study:** Smart building system optimizing energy and climate response in real time.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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