Training course on Waste Management and Resource Recovery in Construction

Professional Development Training Course Outline

Category	Civil Engineering and Infrastructure Management	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The construction industry is a major global consumer of raw materials and a significant producer of waste, with construction and demolition waste (CDW) accounting for a substantial portion of total waste generated worldwide. This linear "take-make-dispose" approach to construction is unsustainable, leading to rapid resource depletion, increased landfill burden, and considerable environmental pollution, including greenhouse gas emissions. As the global imperative for sustainable development intensifies, there is an urgent need for the construction sector to transition towards more circular practices, prioritizing waste prevention, reuse, and high-value recycling. Effective waste management and resource recovery are no longer merely regulatory requirements but essential components of responsible business practices, offering substantial environmental benefits, economic opportunities, and enhanced project sustainability. Training Course on Waste Management and Resource Recovery in Construction is meticulously designed to equip civil engineering, construction management, and environmental professionals with the advanced knowledge and practical skills required to implement cutting-edge waste management strategies and maximize resource recovery in diverse construction projects. Participants in this course will gain a comprehensive understanding of the entire waste hierarchy, from prevention and minimization at the design stage to advanced recycling and valorization techniques at end-of-life. The curriculum will delve into methodologies for waste auditing, material flow analysis, and the development of robust waste management plans tailored to specific project needs. Through a blend of theoretical instruction, hands-on exercises, and in-depth case studies of successful waste reduction and resource recovery initiatives, attendees will develop the expertise to identify waste hotspots, implement circular material flows, and navigate the complex regulatory and technological landscapes associated with construction waste. This course is indispensable for engineers, project managers, sustainability consultants, and policy makers committed to driving sustainability in the construction sector. By mastering the principles and practices of waste management and resource recovery, professionals can lead their organizations towards more efficient, environmentally responsible, and economically viable construction practices, contributing directly to a circular economy and a more sustainable built environment.

Programme Curriculum

Training Course on Waste Management and Resource Recovery in Construction

Introduction

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Course Objectives

Upon completion of this course, participants will be able to:

1. Understand the current landscape of construction and demolition waste (CDW) generation and its environmental impact.
2. Apply the waste hierarchy principles (reduce, reuse, recycle, recover) to construction projects.
3. Conduct comprehensive waste audits and material flow analyses for construction sites.
4. Develop effective waste management plans for various types of construction projects.
5. Identify strategies for waste prevention and minimization at the design and planning stages.
6. Explore innovative techniques for the reuse of construction materials and components.
7. Understand advanced recycling technologies for concrete, asphalt, timber, metals, and plastics.
8. Assess the economic viability and market opportunities for recovered construction materials.
9. Navigate relevant legislation, policies, and incentives related to CDW management and resource recovery.

10. Implement on-site waste segregation, collection, and logistics for efficient recovery.
11. Utilize digital tools and technologies for waste tracking, reporting, and optimization.
12. Analyze case studies of successful waste reduction and resource recovery projects globally.
13. Foster a culture of waste minimization and resource efficiency within construction teams.

Target Audience

This course is essential for professionals seeking to enhance waste management and resource recovery in construction:

1. Civil Engineers: Involved in project design, planning, and execution.
2. Construction Managers: Responsible for site operations and waste logistics.
3. Environmental Consultants: Specializing in waste management and sustainability.
4. Project Developers: Seeking to implement sustainable and circular construction.
5. Waste Management Professionals: Focusing on CDW processing and valorization.
6. Quantity Surveyors & Cost Estimators: Assessing costs and benefits of waste strategies.
7. Policy Makers & Regulators: Developing waste management policies and incentives.
8. Architects & Designers: Integrating waste prevention and material reuse into designs.

Course Duration

10 Days

Course Modules

Module 1: Introduction to Construction Waste and Resource Challenges

- Define construction and demolition waste (CDW) and its categories.
- Analyze the global and local scale of CDW generation and its environmental impacts.
- Discuss the linear economy model in construction and the need for change.
- Introduce the concept of the waste hierarchy and its application to construction.
- Overview of drivers for improved waste management: regulatory, economic, environmental.

Module 2: Waste Auditing and Material Flow Analysis

- Learn methodologies for conducting comprehensive waste audits on construction sites.
- Identify common waste streams and their composition in different project types.
- Understand material flow analysis (MFA) to track resources from cradle to grave.
- Discuss data collection techniques and tools for waste quantification.
- Apply waste auditing results to identify hotspots and set reduction targets.

Module 3: Waste Prevention and Minimization Strategies

- Explore design for deconstruction and adaptability to facilitate future reuse.
- Discuss material optimization through efficient design and prefabrication.
- Learn about lean construction principles for reducing waste on site.
- Implement strategies for accurate material ordering and inventory management.
- Understand the role of Building Information Modeling (BIM) in waste prevention.

Module 4: On-Site Waste Management and Logistics

- Develop effective on-site waste segregation and storage systems.
- Discuss best practices for waste collection, handling, and transportation.

- Learn about compacting, baling, and other volume reduction techniques.
- Understand the importance of clear signage and training for site personnel.
- Explore logistics planning for off-site recycling and disposal facilities.

Module 5: Reuse of Construction Materials and Components

- Identify opportunities for direct reuse of materials (e.g., bricks, timber, fixtures).
- Discuss the assessment and preparation of materials for reuse.
- Explore material banks and online platforms for connecting supply and demand for reused materials.
- Understand the structural and aesthetic considerations for incorporating reused components.
- Analyze case studies of successful material reuse in construction projects.

Module 6: Recycling Technologies for Concrete and Masonry

- Learn about the processes for recycling concrete into recycled concrete aggregates (RCA).
- Discuss the use of RCA in new concrete, road bases, and fill materials.
- Explore recycling techniques for bricks, tiles, and other masonry waste.
- Understand quality control and testing requirements for recycled aggregates.
- Examine the environmental and economic benefits of concrete and masonry recycling.

Module 7: Recycling Technologies for Metals, Plastics, and Glass

- Discuss the high recycling rates and value of metals (steel, aluminum) in construction.
- Explore challenges and solutions for recycling construction plastics (e.g., PVC, HDPE).
- Understand the recycling processes for glass from demolition and renovation.
- Examine innovative applications for recycled plastics and glass in new products.
- Analyze the energy savings and GHG reductions from recycling these materials.

Module 8: Timber and Organic Waste Management

- Identify opportunities for reusing and recycling timber from demolition.
- Discuss methods for processing timber waste into engineered wood products or biomass.
- Explore composting and anaerobic digestion for organic construction waste (e.g., landscaping debris).
- Understand the potential for bioenergy generation from timber and organic waste.
- Learn about sustainable forestry practices for new timber procurement.

Module 9: Valorization of Difficult-to-Recycle Materials

- Discuss strategies for managing mixed CDW and hazardous waste.
- Explore thermal treatment (e.g., waste-to-energy) for non-recyclable fractions.
- Understand the potential for industrial symbiosis and co-processing.
- Examine emerging technologies for processing complex waste streams.
- Analyze the regulatory requirements for handling and disposing of challenging wastes.

Module 10: Economic and Financial Aspects of Waste Management

- Conduct cost-benefit analysis for implementing waste reduction and recycling programs.
- Discuss the economic value of recovered materials and potential revenue streams.
- Explore financial incentives, grants, and levies related to waste management.
- Understand the impact of landfill taxes and disposal costs on project budgets.
- Develop business cases for investing in on-site waste processing or off-site facilities.

Module 11: Policy, Regulations, and Certifications

- Review national and international policies on CDW management and circular economy.
- Understand relevant waste legislation, permits, and reporting requirements.
- Discuss green building certifications (e.g., LEED, BREEAM) and their waste credits.
- Explore Extended Producer Responsibility (EPR) schemes for construction products.
- Analyze the role of public procurement in driving demand for recycled content.

Module 12: Case Studies and Future Trends in Resource Recovery

- Analyze successful global case studies of integrated waste management and resource recovery in construction.
- Discuss emerging technologies: AI for waste sorting, robotics in deconstruction, blockchain for material tracking.
- Explore the concept of "urban mining" for recovering resources from existing infrastructure.
- Examine the role of digital platforms and material marketplaces for circularity.
- Identify future challenges and opportunities for achieving zero-waste construction.

Training Methodology

- **Interactive Workshops:** Facilitated discussions, group exercises, and problem-solving activities.
- **Case Studies:** Real-world examples to illustrate successful community-based surveillance practices.
- **Role-Playing and Simulations:** Practice engaging communities in surveillance activities.
- **Expert Presentations:** Insights from experienced public health professionals and community leaders.
- **Group Projects:** Collaborative development of community surveillance plans.
- **Action Planning:** Development of personalized action plans for implementing community-based surveillance.
- **Digital Tools and Resources:** Utilization of online platforms for collaboration and learning.
- **Peer-to-Peer Learning:** Sharing experiences and insights on community engagement.
- **Post-Training Support:** Access to online forums, mentorship, and continued learning resources.

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

- Participants must be conversant in English.
- Upon completion of training, participants will receive an Authorized Training Certificate.
- The course duration is flexible and can be modified to fit any number of days.
- Course fee includes facilitation, training materials, 2 coffee breaks, buffet lunch, and a Certificate upon successful completion.

- One-year post-training support, consultation, and coaching provided after the course.
- Payment should be made at least a week before the training commencement to Fineskill Training Center account, as indicated in the invoice, to enable better preparation.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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