CONCEPT

Modular Construction and Offsite Manufacturing: MMC Systems, Logistics and Options Appraisal

23 – 27 May 2027
Dammam - Eastern Province five-star



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Ref: 643_18323 **Date:** 23 – 27 May 2027 **Location:** Dammam - Eastern Province five-star **Fees:** 19500 SAR

Introduction:

Housing and hotel developers adopt modular construction and offsite manufacturing, then discover late that module sizes exceed road limits, factory slots were never secured, inter-module joints leak sound or fire, and the promised programme saving disappears on site. This Core Concept course equips developers, project managers, design engineers and contractors to classify modern methods of construction MMC, match volumetric, panelised, precast and hybrid systems to a scheme, plan factory, transport and crane logistics, and compare cost, programme and embodied carbon. Participants produce an MMC Options Appraisal for a case housing or hotel scheme.

Course Objectives:

- Classify a building scheme's structure, envelope and fit-out against the seven MMC categories and estimate its pre-manufactured value
- Select between volumetric modules, panelised frames, precast elements, mass timber, light-gauge steel and printed walls for a given building type and site
- Freeze a repeatable module or panel grid early enough for factory production, applying manufacture-and-assembly rules to rooms, cores and service risers
- Plan factory inspection, module transport, crane lifts and inter-module connections so units arrive undamaged and are set, sealed and tied in sequence
- Check fire compartmentation, cavity barriers, acoustic separation, moisture and durability detailing at module and panel interfaces
- Compare offsite and conventional build on cost, programme, site labour and embodied carbon and recommend a preferred MMC route

Target Audience:

- Development managers who decide the build method and funding case for residential, hospitality and student accommodation schemes
- Project managers who integrate factory production windows into design, approvals and site programmes
- Structural, architectural and building services design leads who adapt layouts to module and panel grids
- Contractor and package managers who procure offsite suppliers and run module installation and follow-on trades
- Cost planners and commercial managers who price offsite packages against in-situ alternatives

Course Outline:

Day 1: Offsite Construction Landscape and the MMC Classification

- Seven-Category MMC Classification From Volumetric Units to Site Process Improvements
- Pre-Manufactured Value PMV Calculation for a Residential Block
- Offsite Adoption Drivers: Labour Scarcity, Programme Certainty and Housing Delivery Targets
- Market Perception, Lender Acceptance and Warranty Barriers to Factory-Built Homes
- Current-State Scan of a Participant Scheme Against MMC Suitability Criteria

Day 2: Volumetric, Panelised, Precast and Hybrid Building Systems

- Volumetric Module Types: Steel-Framed, Concrete and Timber Boxes With Corner Posts
- Panelised Wall and Floor Cassettes: Open Panel Versus Closed Panel Build-Ups
- Precast Concrete Frames, Hollowcore Planks and Twin-Wall Hybrid Systems
- Light-Gauge Steel Framing and Cross-Laminated Timber Mass Timber Overview
- Printed Concrete Walls: Extrusion Gantries, Layer Bonding and Current Limits

Day 3: Designing Buildings for Factory Production and Site Assembly

- Module and Panel Grid Planning: Room Widths, Ceiling Heights and Stacking Rules
- Manufacture-and-Assembly Rules for Bathroom Pods, Kitchen Pods and Plant Skids
- Service Riser, Corridor and Core Interfaces Between Factory Units and In-Situ Cores
- Factory Quality Plan: Hold Points, Pre-Delivery Inspection and Module Passport Records
- Design Freeze Gate and Factory Slot Booking Aligned to the Site Programme

Day 4: Logistics, Connections, Fire, Acoustics and Supply Chain Risk

- Road Transport Envelope, Escort Routing and Temporary Weather Protection of Units
- Crane Selection, Lifting Frames and Module Setting Sequence on Podium Slabs
- Inter-Module Connections, Tie Plates, Stitching Details and Tolerance Accumulation
- Fire Compartmentation, Cavity Barriers, Acoustic Separation and Moisture Durability at Joints
- Offsite Procurement Routes, Supplier Insolvency Exposure and Payment for Materials Off Site

Day 5: MMC Options Appraisal Case Study for a Housing or Hotel Scheme

- Case Brief: Mid-Rise Hotel and Affordable Housing Block With Site and Access Constraints
- Cost, Programme and Site-Labour Comparison Model: Offsite Versus Conventional Build
- Embodied Carbon and Construction Waste Comparison Across Shortlisted MMC Routes
- Weighted Options Scoring Matrix and Risk Register for the Preferred Build Method
- MMC Options Appraisal Presentation and Investment Committee Challenge

Skills You Will Gain:

- MMC Category Classification
- Pre-Manufactured Value Estimation
- Offsite Building System Selection
- Module Grid Planning
- Factory Inspection Planning
- Module Lifting and Logistics Planning
- Interface Fire and Acoustic Detailing
- Build-Method Cost and Carbon Comparison

Why Attend This Course:

- Return with an MMC Options Appraisal that ranks offsite routes for a housing or hotel scheme on cost, programme, carbon and risk
- Avoid late redesign by fixing module grids, riser locations and factory slots before planning approval drawings are issued
- Challenge supplier claims on speed and savings with evidence from transport limits, crane capacity and interface detailing
- Compare offsite practice with developers, designers and contractors working on residential, hospitality and mixed-use buildings

Conclusion:

Offsite manufacturing delivers its programme and quality benefits only when the building system, the grid, the factory slot and the site logistics are decided together and early. The course moves from the MMC classification and pre-manufactured value, through volumetric, panelised, precast, timber, steel and printed systems, to factory-ready design, quality hold points, transport, lifting, connections, fire and acoustic interfaces and supply chain risk. The final day brings these together in a case study that produces an MMC Options Appraisal ready for an investment or design decision.