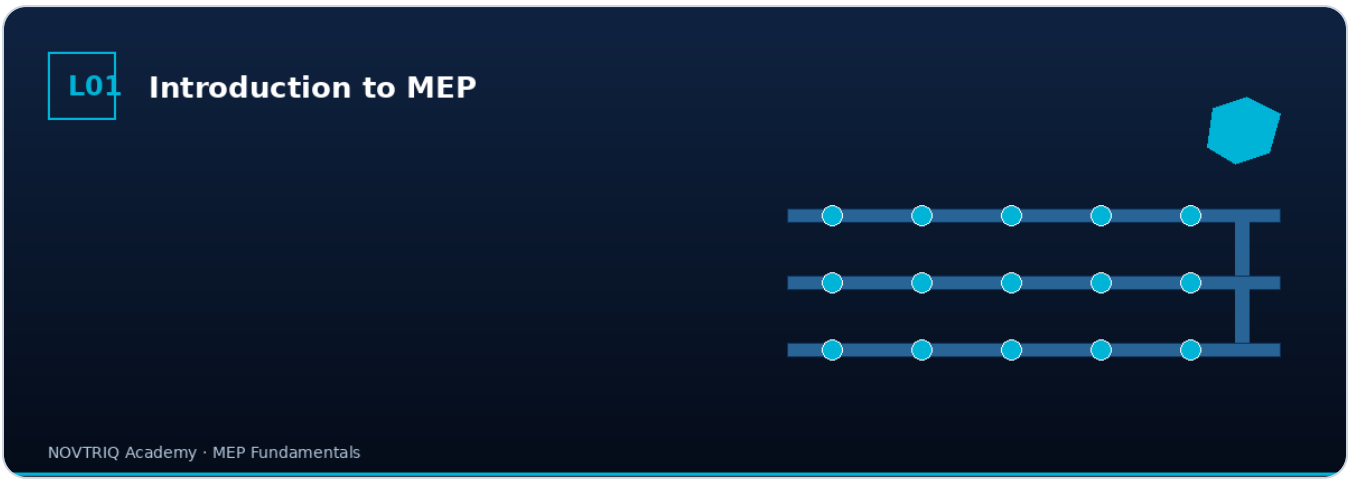
FREE

MEP FUNDAMENTALS

Introduction to MEP — Who Does What and Why It Matters

What MEP means, who does what, and why coordination is the core engineering skill.



· **MEP Fundamentals** Lesson 1 of 15

Walk into any building project. Architecture sets the form. Structure makes it stand. **MEP** — Mechanical, Electrical and Public Health engineering — makes it habitable. The lighting, the heating, the lift, the water, the cabling.

This first lesson is the map of the territory. Disciplines, scope, terminology, and the coordination challenge that defines real-world MEP work.

Learning objectives

Remember	The three MEP disciplines and what each typically covers.
Understand	How MEP scope splits between consultant and contractor.
Understand	Why MEP coordination is the most common project failure point.
Apply	Identify which discipline owns a given system on a real project.

1 · The three disciplines

Mechanical (M) — heating, ventilation, air-conditioning (HVAC), refrigeration, sometimes BMS. Owner of the plant rooms.

Electrical (E) — power distribution, lighting, small power, fire alarm, security, IT containment, sometimes EV charging. Owner of switchroom.

Public Health (P) — domestic water (cold/hot), drainage (foul/surface), gas, sometimes specialist gases. Often shortened to just "PH" or absorbed under M in smaller schemes.

Together: MEP. In the US: M&E. In some EU markets: HLS / TGA. Same discipline group, different naming.

2 · Scope split — design vs build

Most MEP work has two parties: the **consultant** (designer, e.g. a Building Services Engineer) and the **contractor** (M&E sub-contractor or specialist who installs and commissions).

Consultant deliverables: schematic drawings, specifications, calculations (load, sizing), BIM model. Contractor deliverables: fabrication drawings, builder's work openings, commissioning data, O&M manual.

Common procurement routes: traditional (consultant-led, separate contractor) · D&B (design responsibility shifts to contractor) · two-stage (early contractor engagement). Each shifts MEP risk differently.

3 · Why coordination dominates

The plenum above a typical office ceiling is congested. Ductwork, pipework, cable tray, sprinklers, lighting, primary structure, secondary support — all competing for vertical space. MEP coordination means resolving clashes *before* the contractor gets to site.

Tools: BIM clash detection (Navisworks, Solibri, Revizto), 3D coordination meetings, BSRIA BG6 (Building Services Coordination guide). Failure mode: clashes discovered on site = rework cost = programme delay.

4 · Standards landscape

UK: CIBSE Guides A–M, BS 7671 (electrical), BS EN 12056 (drainage). Europe: EN ISO 52000 series (energy), EN 16798 (IEQ), EN 15232 (BACS). UAE: ASHRAE 90.1 / 189.1 referenced in Abu Dhabi IBC; Dubai Municipality Green Building Regs. International: ISO standards via national mirror committees (BSI, DIN, AFNOR, ASRO).

5 · What this looks like on a real project

UK 8-storey London office MEP

Typical brief: M consultant sizes plant; E consultant sizes switchroom and IT room cooling load; PH coordinates booster set and rainwater harvesting. Coordination weekly during Stage 4. Contractor takes over commissioning at Stage 5.

EU · DE TGA in German practice

In Germany the discipline is "Technische Gebäudeausrüstung" (TGA) — slightly different scope split from UK MEP, with separate "Heizung-Lüftung-Sanitär" (HLS) and "Elektro" (ELT) traditions. Same engineering substance.

UAE Dubai high-rise MEP

Cooling-dominated design changes priorities — chilled water plant, BTU metering for tenant billing, district cooling connection where available. ASHRAE 90.1-2019 and Dubai Municipality DM-PH9 set the technical baseline.

6 · Why this matters

MEP isn’t one discipline — it’s three (mechanical, electrical, public health) that meet at every interface and break down most projects. You now know how the disciplines split work, where they overlap, and why coordination matters. That awareness alone changes how you read drawings, run meetings, and spot problems before they reach site.

Quiz

Your score 0 / 5

1. Which discipline typically owns the chilled water plant?

a) Electrical

b) Mechanical

c) Public Health

d) Architectural

2. BSRIA BG6 covers:

a) Fire safety design

b) Building services coordination

c) Commissioning ductwork

d) Electrical earthing

3. In a Design & Build (D&B) procurement route, design responsibility for MEP rests with:

a) The architect

b) The client

c) The contractor

d) The local authority

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4. CIBSE Guide F covers:

a) Energy efficiency in buildings

b) Lift design

c) Plumbing engineering

d) Fire safety engineering

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5. In German practice, "TGA" stands for:

a) Total Gas Allowance

b) Technische Gebäudeausrüstung

c) Thermal Gradient Analysis

d) Test Generator Application

Answers (for print): 1b · 2b · 3c · 4a · 5b

Resources

PRIMARY SOURCES

- CIBSE Guide A (Environmental Design), Guide B (Heating, Ventilation, AC), Guide G (Public Health Engineering).

- BS 7671 (IET Wiring Regulations).
- BSRIA BG6 — Building Services Coordination Guide.

STANDARDS AND GUIDANCE

- EN ISO 52000-1:2017 — Building energy performance framework.
- EN 16798 — IEQ parameters for building energy assessment.
- ASHRAE 90.1 / 189.1 (international reference).

INDEPENDENT COMMENTARY

- CIBSE Knowledge Series 22 — Capacity check for net zero retrofits.
- BSRIA Soft Landings Framework.
- Designing Buildings Wiki (free reference resource).

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