

ABBASS DARWISH

MEP Design Engineer | Plumbing & Water Systems | HVAC Design | Revit MEP

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PROFESSIONAL SUMMARY

MEP Design Engineer (M.Sc., Mechanical Engineering) specializing in plumbing/water systems and HVAC, with full-scope ownership from load and demand calculation through Revit MEP documentation. Delivered code-compliant design across domestic water supply, RO treatment, wastewater systems, and hydronic heating for multi-story residential buildings, reinforced by field experience across active construction sites, including a hospital project. Brings calculation-led design judgment — not just BIM modeling — to complex, multi-system MEP projects.

CORE SKILLS

- Plumbing & Water Systems:** RO Plant & Pretreatment Design · Domestic Water Distribution (UPC) · Wastewater & Sewage Treatment · Demand & Equipment Sizing
- HVAC Design:** Load Calculations (HAP/ASHRAE) · Ductwork & Pipe Sizing · Equipment Selection
- BIM & CAD:** Revit MEP · AutoCAD · BIM Coordination · Clash Detection
- Field & QA:** Site Inspection · MEP Documentation · Code Compliance

NOTABLE PROJECTS

- Residential Water Systems Design — 32-Unit, 8-Floor Building** · Revit MEP Aug 2026
- Independently designed and modeled the complete domestic water, RO treatment, and wastewater infrastructure for a 32-unit, 8-floor residential building (128 occupants) — full ownership from calculation through Revit MEP documentation.
 - Sized domestic distribution piping to Uniform Plumbing Code fixture-unit demand, distinguishing code-governed distribution sizing from process-driven equipment sizing across the treatment train.
 - Engineered the RO plant and 3-stage pretreatment train (chlorination, filtration, UV post-treatment) on a fixed 6-hour batch cycle sized to meet full daily demand, feeding a ground-level buffer tank with rooftop booster distribution to decouple batch production from continuous demand.
 - Designed independent sewage (activated sludge) and wastewater (aeration) treatment trains, each sized to full building occupancy load.
- Underfloor Heating System Design — 3-Story Villa** · Revit MEP Sep 2026
- Performed room-by-room heat loss calculations (U-value method) for a 3-story villa, applying room-specific indoor design temperatures (18–22°C) against a 2°C outdoor design condition to size each zone.
 - Designed underfloor heating layout and zoning across 4 manifolds (single- and dual-room zones), with manifold placement coordinated per floor.
 - Sized the mechanical room: boiler sized to combined space-heating load and calorifier (domestic hot water) demand with safety margin; circulation pumps sized from calculated flow rate and friction-loss pressure drop per loop.
 - Designed boiler and domestic hot water supply/return piping, integrating both loops within the mechanical room layout.
- Villa MEP Design — HVAC & Plumbing** · Revit MEP 2025
- Designed complete HVAC and plumbing systems for a 3-floor, 200 m² villa in Revit MEP — equipment selection, routing, and material schedules.

PROFESSIONAL EXPERIENCE

- HVAC Design & Field Engineering Intern** · Modern Energy Company (MEC), Beirut Oct 2023 – Jun 2024
- Executed end-to-end HVAC and plumbing design for a 10-floor mixed-use development (apartments & villas), producing HAP load reports, ductwork layouts, and water supply schematics in full compliance with mechanical codes.
 - Conducted systematic weekly site inspections across four active projects (one hospital, three residential sites), verifying installation quality against approved design drawings.
- Mechanical Engineering Intern** · Association of Energy Engineers, Beirut Jul 2023 – Sep 2023
- Performed complete HVAC load analysis for a residential villa using HAP software and ASHRAE standards, producing equipment specifications and ductwork sizing in line with code requirements.
- Engineering Intern — Steel Fabrication** · MOST Group, Beirut Jun 2023 – Aug 2023
- Operated industrial fabrication equipment (CNC, shearing, lathe, bending); performed dimensional QA inspections against drawing tolerances.

EDUCATION

- M.Sc. Mechanical Engineering** · Lebanese International University, Beirut Jun 2025
- GPA: 3.27/4.0 · Thesis: FEM topology optimization of a 3D-printed prosthetic leg pylon (ANSYS Workbench)
- B.Sc. Mechanical Engineering** · Lebanese International University, Beirut Jun 2023
- GPA: 3.30/4.0

CERTIFICATIONS & COURSES

- Advanced Water Systems (Revit Plumbing)** — Autodesk-certified course, completed Aug 2026 (certification pending)
- Heating Systems Design (Revit)** — Autodesk-certified course, completed Sep 2026 (certification pending)
- Revit MEP Fundamentals** — Quest Construction, 2025

LANGUAGES

English — Fluent | Arabic — Native