Technical Safety

Our Technical Safety Engineering team brings deep expertise across both brownfield upgrades and greenfield developments, supporting safe and compliant design from concept to execution.

Our Engineers and Designers are skilled in a broad range of engineering tools, enabling the accurate, efficient, and compliant delivery of all piping engineering and design activities.

Engineering Expertise from Concept to Completion

At EMC, we combine technical safety expertise with innovative thinking to deliver digital engineering solutions, from conceptual safety studies to detailed design and implementation.

Our highly experienced team, with decades of success in risk-informed, cost-effective, and schedule-driven delivery, solves complex safety and operational challenges with a proven record of consistent, high-quality results.

Whether supporting greenfield projects, brownfield modifications, or asset life extension, we deliver fit-for-purpose safety solutions tailored to your operational and regulatory needs.

Our technology-agnostic approach ensures the use of the latest safety standards, tools, and methodologies, without compromising on performance, compliance, or quality.

AVEVA Partner Ecosystem | System Integrator | MEMBER

Engineering Services

Technical Safety Engineering Capabilities

Our technical safety team has extensive experience delivering brownfield and greenfield solutions across both onshore and offshore environments.

Smarter Delivery with Advanced Engineering Tools

Driving Accuracy and Assurance in Technical Safety

At EMC, we utilise a robust set of industry recognised tools and methodologies to ensure effective technical safety engineering. Our approach integrates safety from the earliest concept stages through design, construction, and operation, supporting regulatory compliance, risk reduction, and the protection of people, assets, and the environment.

Key Tools and Methods We Use:

- PHA-Pro / BowTieXP – For qualitative risk assessments, hazard identification (HAZID), HAZOP, and barrier analysis.
- DNV Phast / ALOHA – Consequence modelling and dispersion analysis for flammable, toxic, and explosive substances.
- PIPENET – Transient and steady-state flow calculations for firewater, vent, and blowdown systems.
- AVEVA Everything3D (E3D) – 3D modelling for safety layout validation, escape route analysis, and hazardous area zoning.

Why It Matters:

- ✔ Early hazard identification and risk reduction
- ✔ Seamless integration with process, layout, and engineering teams
- ✔ Improved compliance with international safety standards (e.g. IEC, API, OSHA)
- ✔ Optimised spatial planning for safety systems and emergency response

With EMC, you gain a technical safety partner committed to delivering robust, compliant, and practical safety solutions—ensuring every project is built with protection and performance in mind.

Commitment to Quality and Compliance

At EMC, the technical quality of our work is underpinned by our robust Quality Management System, Health, Safety & the Environment to the latest industry codes and standards.

Our structured approach, featuring Discipline Engineers, Technical Authorities, and Discipline Management, ensures all designs go through project multi-discipline reviews and approvals by qualified and experienced professionals, maintaining the highest standards of engineering integrity.

Aveva Systems Integration Partner

EMC Supports the full Engineering suite embracing EPC4.0 and ENG4.0 roadmaps with the release of EMC4.0™

- PRO/II Simulation
- Electrical
- Instrumentation
- Engineering for Process and Mechanical
- P&IDs
- ERM
- ISM/AIM-A
- PCM

Capabilities Snapshot

- Offshore and onshore oil & gas safety engineering and compliance design
- Brownfield modifications and updates to safety systems and layouts
- FPSO design including hazardous area classification, EERA, and escape route analysis
- Integration of safety requirements into AVEVA E3D models for spatial validation and layout coordination
- Consequence modelling and risk assessments (fire, explosion, toxic release)
- Safety integrity level (SIL) determination and verification
- Point cloud integration for safety layout validation and clash-free placement of safety-critical equipment
- Conceptual safety studies, feasibility assessments, and detailed safety engineering
- Support during construction and commissioning phases
- Onshore and offshore safety audits, assessments, and risk reviews
- On-site support for implementation and verification of safety-critical systems

Let's Engineer, Design & Build something exceptional together.

Contact us today to learn how our engineering expertise can bring your project to life.

Contact EMC today! Email colin.fairweather@emcserv.com or gary.patterson@emcserv.com or call us on 020 363 363 03 (Option 2), and let's get started.