

FLS ENGINEERING



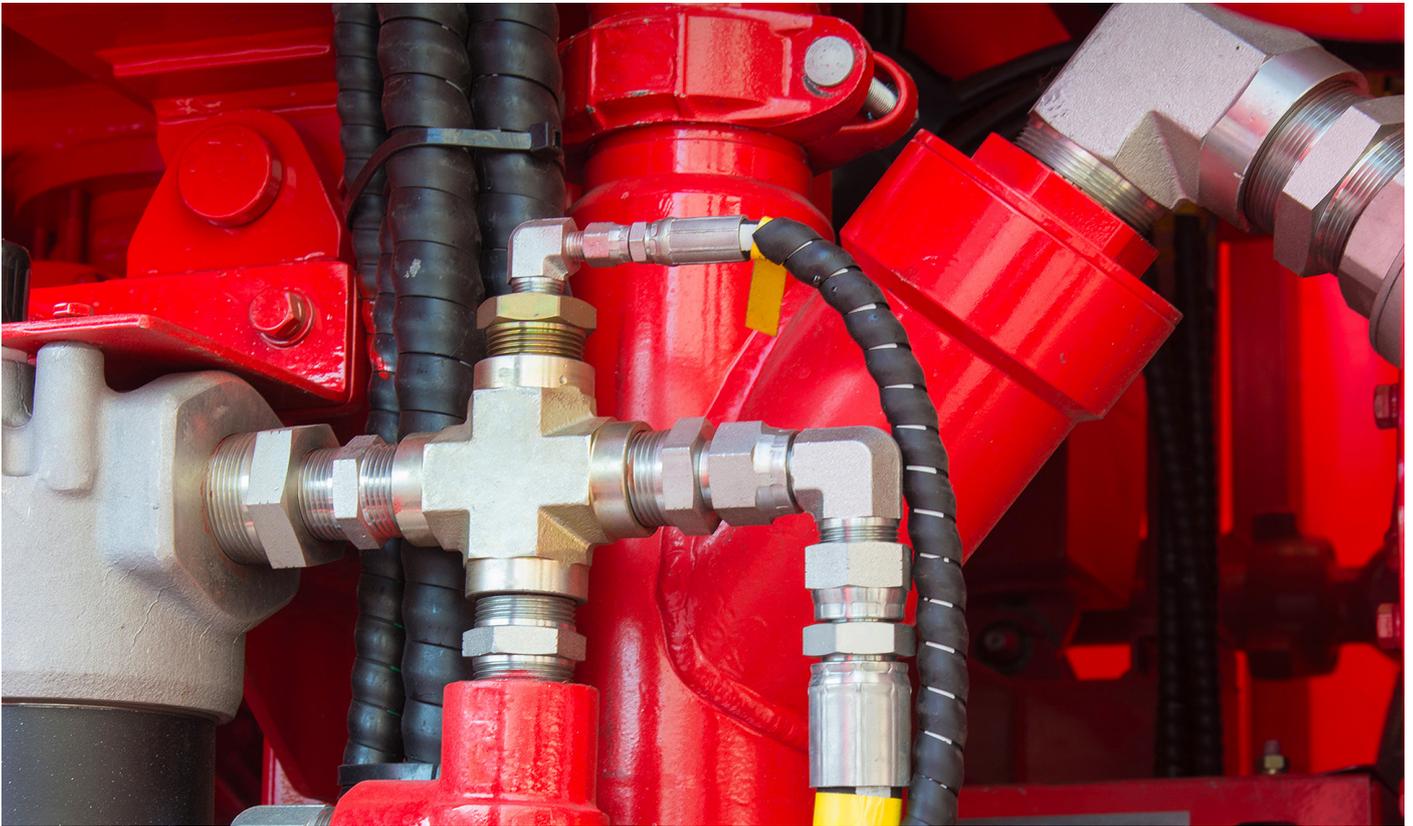
Fire and Life Safety Systems play a vital role in buildings' engineering. Well-designed they assure personal safety, property protection and must comply with the strictest codes and regulations.

In all stages of design, installation, commissioning and maintenance, ICS Arabia safety system specialists collaborate with owners, architects and construction engineers, to take stringent measures and ensure safety, minimize risks, and help prevent loss and injuries that may rise from fire, electrical, and other hazards.

We design fire and life safety systems based on comprehensive analysis and performance requirements to ensure that safety systems are efficient and reliable. Having extensive experience in fire protection works, we create accurate, long-lasting and cost-effective solutions. Our safety engineers and technicians are well trained, certified, and knowledgeable in international and local codes. ICS Arabia specialized expertise includes FLS engineering for data centers and mission critical facilities compiling to the most rigorous requirements.

Our Services:

- ◆ Fire Alarm Detection Systems
- ◆ Emergency Evacuation and Sound Systems
- ◆ Early Smoke Detection
- ◆ Emergency Lighting & CBS
- ◆ Water-Based Fire Suppression Systems
- ◆ Foam Suppression Systems
- ◆ Clean Agent Fire Suppression Systems
- ◆ Aerosol Suppression Systems
- ◆ Passive Fire Protection Systems
- ◆ Automatic & Manual Fire Extinguishers
- ◆ Wet Chemical Fire Suppression Systems
- ◆ Commercial Kitchen Hoods



AHJ KSA CIVIL DEFENSE REPRESENTATION

ICS Arabia FLS engineers are expert in AHJ KSA Civil Defense and International Codes requirements providing expert support to construction projects in the Kingdom of Saudi Arabia.

Whether the project is a renovation, addition tenant fit-out or a new construction, all facility designs are subject to compliance approval by the relevant local Authority Having Jurisdiction (AHJ). ICS Arabia Saudi Civil Defense approved engineers provides design works during the building design phase to verify life safety, fire protection and accessibility code compliance. Our local expertise and deep knowledge in international standards and industry best-practices, enable us to work closely and effectively with clients and local authorities for achieving AHJ compliance while maintaining project schedules and costs.

Our Services:

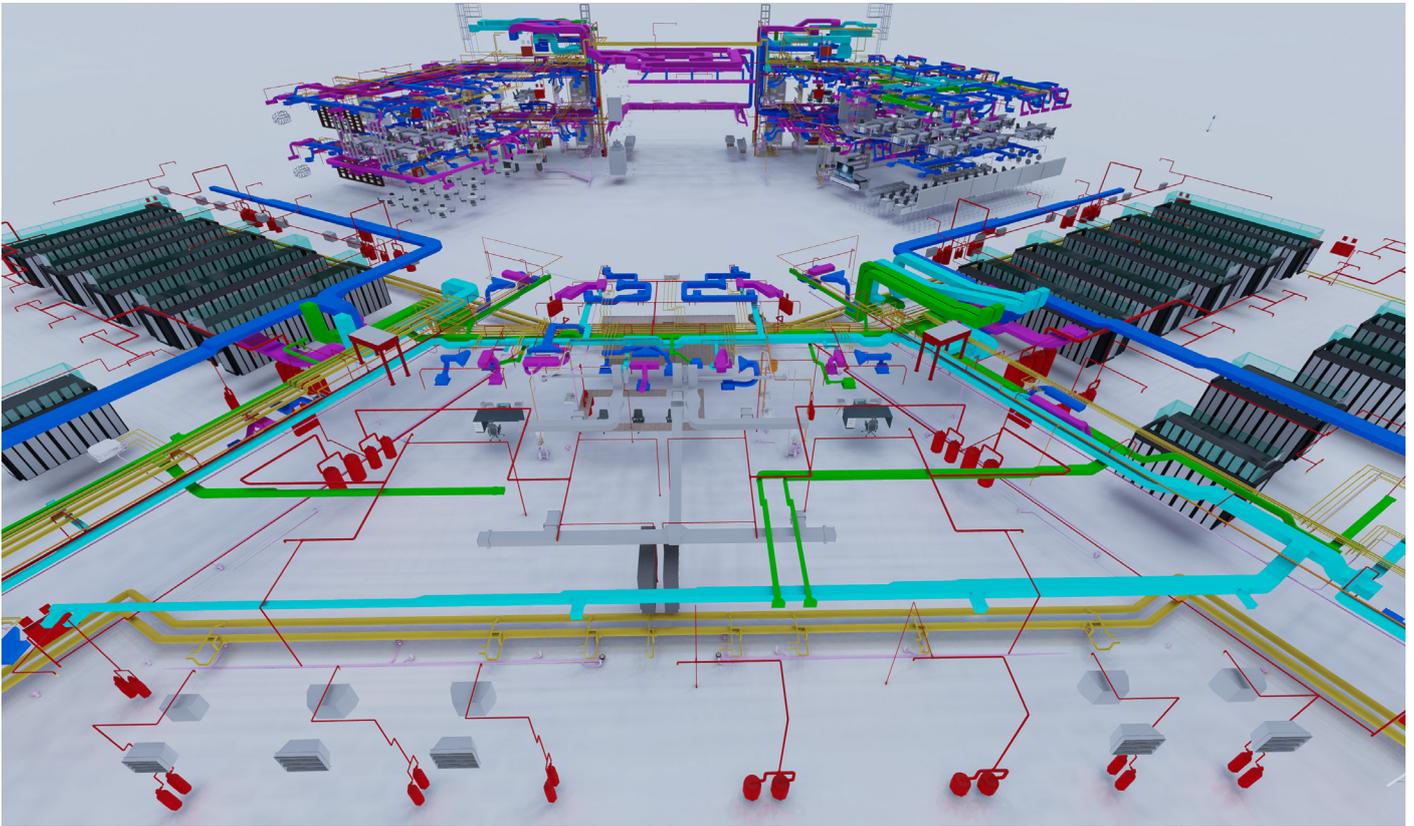
- ◆ Active Fire Safety Systems (as per NFPA, IBC, and Saudi Building Fire & Life Safety Code of Practice)
- ◆ Fire Fighting Systems
- ◆ Fire Detection and Alarm Systems
- ◆ Smoke Management Systems
- ◆ Emergency Lighting and Signage
- ◆ Passive Fire Safety Systems



In addition, we provide Third Party Active and Passive Audit and Attestation services of FLS System Installation as per AHJ Civil Defense Requirements. We undertake all inspections in accordance with the Approved Fire Strategy as well as NFPA and ASTM Standard, for commissioning and/or maintenance projects.

Certifications and Expertise

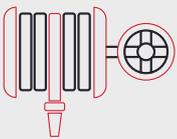




CONCEPTUAL TO IFC LEVEL DESIGN IN CAD AND BIM

Fire and Life Safety are central considerations in today's building designs. Incorporating fire alarm, fire protection, life safety and other fire protection systems into the design of all building types is essential to safety, property protection, and code compliance.

ICS Arabia's accredited specialists work with clients and building officials to demonstrate compliance using Engineering Analysis, Validation Studies, and Computational Fluid Dynamic (CFD) Studies. Our team of building code and fire safety engineering professionals has extensive knowledge in the use of fire engineering, smoke control and management, and life and fire safety principles. In addition, our team is well versed in the use of various cutting-edge fire and smoke simulation software to provide alternative solutions to the prescribed acceptable models in the Building Codes.



Performance-Based Design

Performance-Based Design approach offers an opportunity to utilize new materials and technology as well as demonstrate compliance for Sustainable Buildings. We actively utilize SFPE Engineering Guide to performance-based Design, NFPA 5000, SBC and International Fire Engineering Guidelines. Additionally, we successfully helped our clients to certify their projects for LEED Gold, and gain Tier III+ Certifications by Uptime Institute for Data Centers.



Smoke and Tunnel Modeling

Fire and Smoke Modelling provides a means to validate and test the performance of Smoke Control and Management Systems in atria and smoke spread in a building. Objective-Based and Performance-Based Codes allow for innovative designs and design flexibility. ICS Arabia experts provides designs that demonstrate the performance criteria of the respective standards such as NFPA 101 Life Safety Code, NFPA 92 Standard for Smoke Control Systems, and SBC Fire and Life Safety Code of Practice.

FLS CONSULTING



Fire Safety Reports

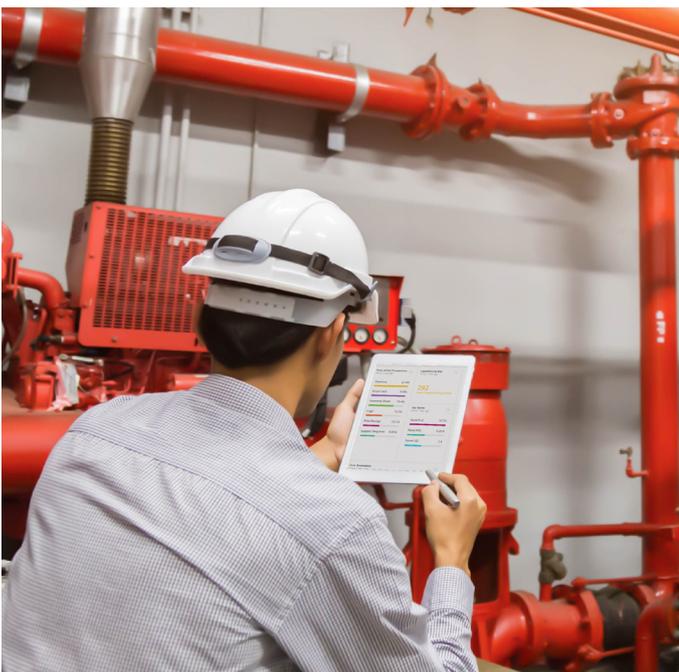
ICS Arabia provides an appropriate level of Fire and Life Safety Reporting into the design of any building, structure or facility, whereas an optimal approach to building code compliance is critical. Our FLS strategy helps to prevent non-compliance, abortive work and over design, which can be detrimental to any project.

We provide an overarching FLS document setting out the fundamental requirements that provide the focus for subsequent, more detailed specifications. This provides building owners, occupants, and facility managers with relevant information, which allows to develop and implement effective prevention and protection solutions.

Fire Safety and Evacuation Plan

Most buildings are required to have an approved Fire Safety Plan including procedures for reporting emergencies, evacuation procedures, requirement for fire drills, etc. ICS Arabia Fire Safety team has developed Fire Safety Plans for healthcare, hospitality, offices, residential facilities, schools, industrial, and commercial buildings. A building specific Fire Safety Plan helps to ensure the building's occupants are prepared for any emergency.

- ◆ Emergency Procedures for Occupants
- ◆ List of Persons Requiring Assistance
- ◆ Fire Safety Drawings
- ◆ Maintenance Schedules of Fire Safety Systems
- ◆ Procedures for Planned Shutdown of Fire Safety Systems



FLS Commissioning

Operating a regular fire system and integrated testing approach to life and safety systems help you document, verify and maintain the performance of facility assets that are critical to your business. We provide third party review and commissioning services for any size and complexity FLS systems to ensure quality delivery.

Our Services:

- ◆ Inspection and Testing
- ◆ Fire Alarm Commissioning
- ◆ Smoke Control Commissioning
- ◆ Fire Suppression System
- ◆ Commissioning Integrated Testing
- ◆ Documentation and Reports