



Independent Life & Fire Safety and Fire Protection Consultancy

DESCRIPTION OF THE COMPANY

Karina is a specialized, independent consultancy company providing unparalleled expertise in Fire and Life Safety since 1994. While maintaining a constant commitment to the code of ethics, our comprehensive and interdisciplinary approach offers consultancy services which extend beyond traditional fire protection methods. We recognize that fire protection requires a multifaceted approach. As such, we leverage the invaluable insights of a risk or performance-based design philosophy of fire protection engineering, alongside our wealth of knowledge in conventional fire safety methods. This allows us to provide our clients with a fully customized and bespoke consultancy service that is tailored to their specific needs and to the governing standards or regulations.

Our team of specialists are comprised of professionals who possess a wealth of industry experience and technical expertise. We pride ourselves on our ability to offer a comprehensive service within the built environment, either for a small single dwelling to a huge multi-use complex or for a technical plant room to an electric generating power plant

At Karina, we encourage our specialists to be enthusiastic to empower their clients with knowledge and insights they need while preparing fire and life safety strategies. By working with us, you can rest assured that your assets are in the hands of the most capable and experienced consultants in the industry.

Brief Company information about Karina is;

Company Name	: KARİNA Design, Consultancy and Training Services Limited Co.
Field of Involvement	: Fire Safety and Fire Protection
Field of Specialisation	: Fire Safety and Fire Protection
Date of Establishment	: Sept. 13th, 1994
Tax Registration	: Ankara Baskent 5240033567
Legal/Trade Limitations	: None
Juristic Punishments	: None
Professional Liability Insur.	: Valid from 1 Nov. 1999, coverage is defined by scope (~ 1 Million USD)
Key Personnel	: 8 Expert staff in Ankara, 6 expert staff in Istanbul (Total 25 persons)
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Fax	: +90-312-478 62 89
e-mail (corporate)	: info@karina.gen.tr
URL	: http://www.karina.gen.tr

WE ARE EVERYWHERE

Karina is a global company. Not only local regulations, every country's standards are based on our fire engineering designs. International standards such as NFPA, BS, IBC are the basis of our approach. Thus we are able to provide service on fire safety all over the world. Here are some of our serviced countries: Georgia, Azerbaijan, Algeria, Uzbekistan, Cyprus, Iraq, England, Cameroon, Bulgaria, Ukraine, Lithuania, Malta, Libya, Serbia, Greece, Albania, United Arab Emirates, Netherlands, Afghanistan, Kosovo, Hungary, Qatar, India, Kenya, Sri Lanka, Kazakhstan, Latvia, Senegal, Russia, Morocco.



20 +

Countries

~ 500

Clients

30 Years of

Experience!

OUR VISION

Total Systems Approach

Developing technology and requirements of the age has separated the fire safety engineering as a different field. Although the elements that establish fire safety are different, multidiscipline should work together with a holistic perspective. Karina provides services in all matters related to fire safety with its integrated working, thanks to its mechanical engineers, electrical engineers and architects.

BUSINESS PRINCIPLES

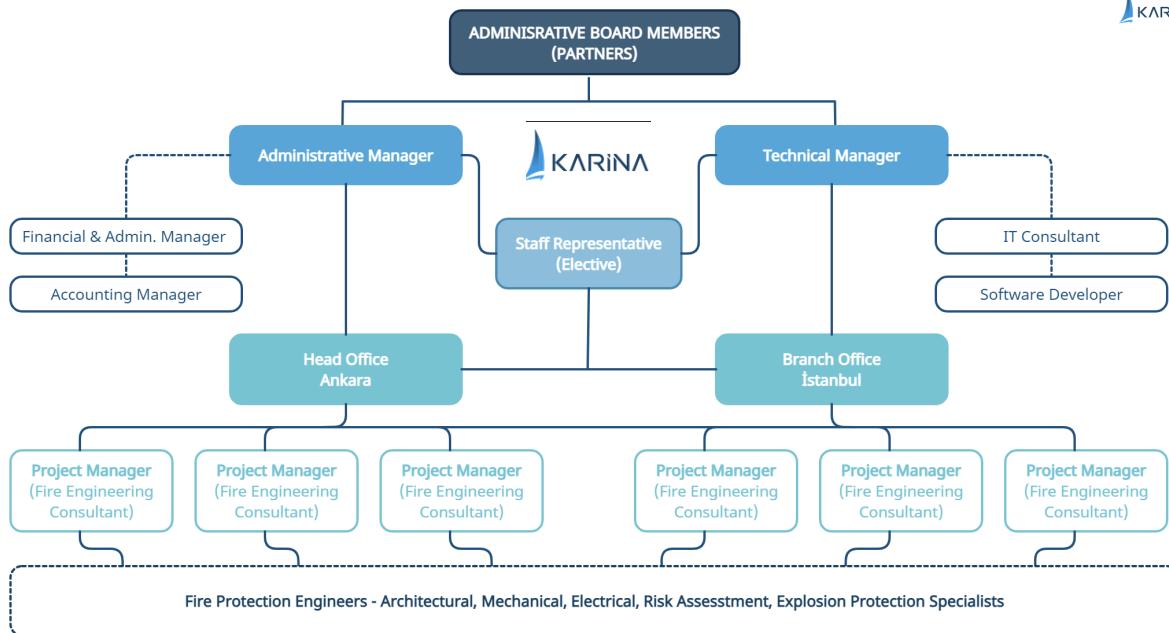
Our principle is doing the task is only worth value, if only certain business principles and moral values are respected. We are focusing the problem solution as Fire Engineering based, integrated approach for optimising design.

In this respect, Karina is;

- Working on fire safety and fire protection only, committed to its specialisation and expertise
- Totally independent
- Fully responsible, essential for the subject
- A non-trading company
- Offering full range of service within total systems approach
- Conforming international codes and standards
- Committed to the own and FIDIC ethic codes
- Committed to the internal quality assurance program
- Integrated approach, optimising design outcome, cost and safety
- Creating real and significant value in terms of optimise capital/operational expenditure
- Based on a wide range of technical resource
- Favours the national resources and interest
- Respecting disclosure and confidentiality rules
- Problem solving with “can do...” attitude
- Keeping the own records and files for five years

Organization

Karina is an expert company that sell professional advice to businesses and organizations, to help them solve problems. They do so through their in-house experts and/or external experts.



OUR FIRE PREVENTION & PROTECTION SPECIALISM

Services

Karina has multidisciplinary skills and seek to ensure all aspects of fire safety are balanced and fully coordinated in the design, construction and operation by operated quality management systems. Karina offer a broad range of professional fire engineering services through the design, build and operational cycles.

Some summary service titles are as follows;

- Risk Assessment
 - Fire and Smoke Modelling
 - Emergency Evacuation (Egress) Modelling
 - Emergency Planning
- Theoretical and practical training, on
 - System design
 - Installation
 - Maintenance and Maintenance Organisation
 - Fire awareness and readiness
 - Fire fighting (Domestic, Commercial Risks)
 - Fire management
- Code consulting
 - Concept planning
 - Basic, preliminary, application and final design
 - Performance-based system design
 - Independent technical consultancy
 - Independent commercial consultancy
 - Contract and tender documentation preparation
 - Contract and tender awarding consultancy
 - Due Diligence reporting
- Start-up and commissioning supervision

- Site existing situation inspection
- Witnessed third party acceptance and performance testing, certification
 - Performance-based System Testing
 - Fire Alarm System Testing
 - Gas Suppression System Testing
 - Water-based Fire Ext. System Testing
 - Fire Pump Performance Testing
 - Foam-water Systems Performance Testing
 - Smoke Control and Smoke Management Systems Performance Testing
- Project management (budget, CPM, manufacturing inspection, etc.)
 - Operation and maintenance management, planning
 - Information services (i.e. object software development, training aids development, etc.)
 - Product Research and Development

Risk Assessment

There are many factors that cause the fire to occur. Identifying these risks has a great importance in terms of preventing the occurrence of fire, extinguishing after the fire occurs, ensuring life safety, preventing or reducing the occurrence of property loss, and protecting business continuity.



Karina uses Risk Management as a tool to achieve cost effective and safe design for studies that is requested by clients. This service includes a wide range of different analysis types and methodologies. It could be a fire risk analysis for all problems and projects, a cost benefit analysis regarding the incorporation of fire protection system

for a building, or a comparative study to evaluate different life and fire safety design.

Risk assessment is becoming recognised by the industry and regulation, as the essential method for determining well engineered fire safety requirements. The main aim of assessing fire risk is usually for life safety, however two other areas of risk should also be considered. Property protection and business continuity are equally important specifically regarding damage to buildings causing loss of income due to interrupted service.

Karina's approach uses a scientifically based risk ranking tool to assess properties. This enables properties to be benchmarked against each other and spending prioritised to achieve the best return on investment. Karina evaluate the potential impact and probability of each risk. Decision makers can then evaluate which mitigation efforts to prioritize within the context of the organization's strategy, budget, and timelines. Karina can use all risk assessment methodologies and take several approaches to assess risks. Such as;



□ Quantitative

Quantitative methods bring analytical rigor to the process. Assets and risks receive dollar values. The resulting risk assessment can then be presented in financial terms that executives and board members easily understand. Cost-benefit analyses let decision makers prioritize mitigation options. Quantitative methods can also be quite complex. In addition, some organizations do not have the internal expertise that quantitative risk assessments require.

□ Qualitative

Where quantitative methods take a scientific approach to risk assessment, qualitative methods take a more journalistic approach. Assessors meet with people throughout the organization. Employees share how, or whether, they would get their jobs done should a system go offline. A qualitative risk assessment provides a general picture of how risks affect an organization's operations.

□ Semi-Quantitative

Some organizations will combine the previous methodologies to create semi-quantitative risk assessments. Using this approach, organizations will use a numerical scale, such as 1-10 or 1-100, to assign a numerical risk value. Risk items that score in the lower third are grouped as low risk, the middle third as medium risk, and the higher third as high risk.

□ Vulnerability / Threat Based

Vulnerability-based methodologies expand the scope of risk assessments beyond an organization's assets. This process starts with an examination of the known weaknesses and deficiencies within organizational systems or the environments those systems operate within. From there, assessors identify the possible threats that could exploit these vulnerabilities, along with the exploits' potential consequences.

Threat-based methods can supply a more complete assessment of an organization's overall risk posture. This approach evaluates the conditions that create risk. An asset audit will be part of the assessment since assets and their controls contribute to these conditions.

Choosing the Right Methodology

None of these methodologies are perfect. Each has strengths and weaknesses. Fortunately, none of them are mutually exclusive. Whether intentionally or by circumstance, organizations often perform risk assessments that combine these approaches.

Design

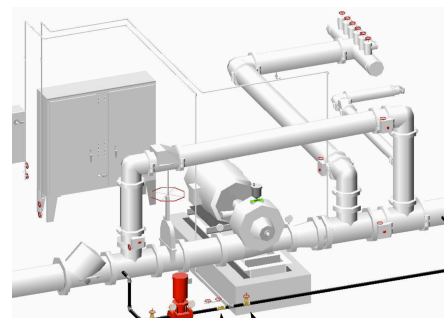
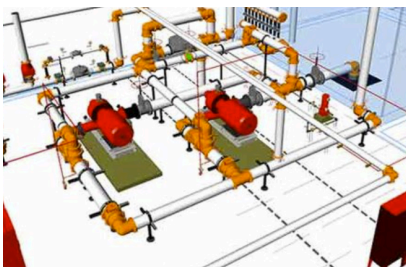
Measures taken to prevent fire are issues such as passive protection, smoke control systems and establishment of escape opportunities. We inform our employers about the places where protective stairs should be built, the width of the escape routes, the emergency lighting and directioning systems to be installed to decrease the evacuation time and make the escape safe. Separating the building into compartments with fire resistant partitions provides an advantage in preventing fire spread and keeping the fire in a small area. Manual or automatic suppression systems existence prevents the spread of the fire until the fire brigade intervenes. We also provide extinguishing design systems drawings, determination of water tank capacity and other complementary systems, hydraulic calculations, smoke exhaust system calculations.

Complete fire safety can only be achieved through an interdisciplinary system solution. Hence our system design is handled by a design team consisting of architect, civil engineer, mechanical engineer, electrical engineer, chemical engineer, last but not the least human factor analyst. While some of the disciplines are inherent to our company staff, some others are project-basis part-time contributions, depending on the problem, project.

System design service includes system solution, computer aided drafting, computer aided engineering, engineering calculations.

Design services are presented as;

- Project Identification
- Cost Estimate
- Technical Specifications
- Performance Based Design
- Preliminary Design
- Detailed Design
- Shop Drawings
- As-built Drawings

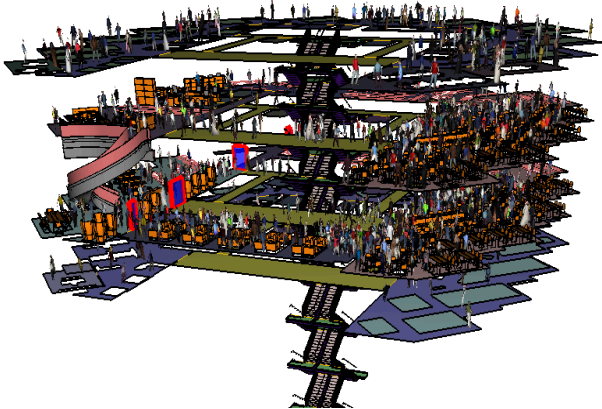
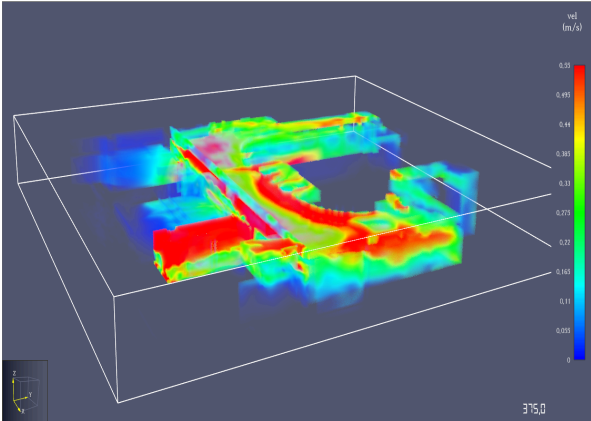


Apart from the conventional system design approach, Karina handles R&D oriented innovative design, for object-oriented protection. Within this concept, specific fire safety problems are handled with specific object-oriented solutions. For this purpose generally applicable solutions, systems are questioned, necessary modelling, simulation, full scale testing is carried out to characterise and limit the specific problem. Then specific solutions and applications are designed to meet the specific safety and protection needs of the problem. This type of design is handled both for a specific fire risk itself or for a complementary part or device as well, to improve the overall system performance.

In this respect, Karina is open and willing to cooperate or handle the fire safety solutions of a major project or of a specific fire safety problem, both for a brand new application, as well as an improvement of an existing solution.

Performance Base Design and Solutoins

All local regulations and international standards are based on our designs and we both make design with prescriptive approach and performance based. Modeling of fire and smoke spread is a performance-based method used to determine the precautions to be taken. We use Pathfinder, an escape modeling program that will allow us to predict evacuation times, in coordination with Pyrosim and FDS.



Consultancy

We provide design and application consultancy services on fire systems that should be in accordance with regulations in new, existing and historical buildings. But consulting sometimes means going beyond the regulations. For building-specific situations, we determine the appropriate systems and measures with years of experience and knowledge and design team specializing in their discipline in the fire sector.

Technical Consultancy

- Technical Consultancy
- Codes & Standards Consulting
- Project Identification
- Technical Advice
- Technical Specifications Preparation

Commercial Consultancy

- Contract and Tender Documentation Preparation
- Contract and Tender Evaluation

Project Management

- Project Management (Budget, CPM, Manufacturing Inspection, etc.)
- Construction-Installation Management
- Project and Execution Supervision
- Quality Assurance Management
- Operation and Maintenance Management, Planning

Training Services

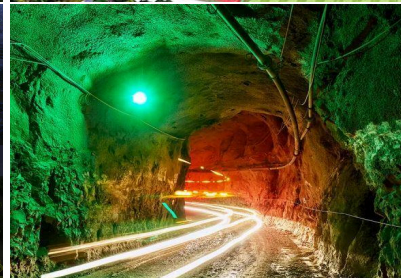
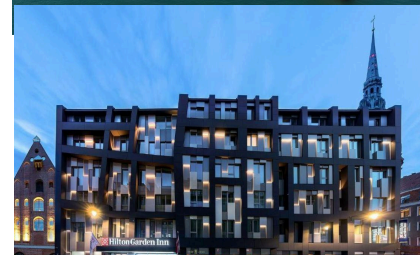
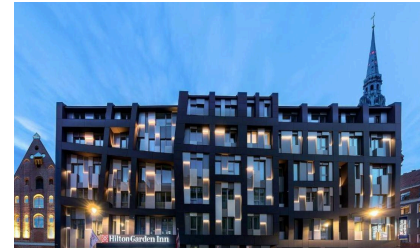
We provide trainings on fire prevention and fire protection to official institutions, companies and individuals. These trainings include fire drills based on fire scenarios determined according to the needs of the trainees and companies.

- Theoretical Training
- System design
- Installation
- Fire awareness and readiness
- Fire management

SERVICES

Karina works on all kind of building occupancy as;

- Health Care Facilities
- Industrial Facilities
 - Chemical Industries – High Risk Facilities
 - Oil&Gas Production-Refining
 - Mining and Metal Production
 - Food, Drink, Tobacco
 - Wood, Paper and Packaging
 - Medical, Drugs Conference Buildings
 - Energy Facilities and others
- Office Buildings
- Residential Buildings
- Hotels
- Military Facilities
- Assembly Purpose Buildings
 - Sport Complexes
 - Malls & Shopping Centers
 - Airports
 - Marines
 - Schools and Other Training Facilities
 - Conference Buildings
 - Underground and Open Railway Stations



SERVICE SUBJECTS

All the Life & Fire Safety and Fire Protection subjects are been working in Karina. Subjects in a Total Systems Approach including;

□ Fire Safety and Fire Protection Conceptual Studies

- Human Factor-Technology Coordination (Man-Machine Interface)
- Loss Prevention Concept
- Standards and Codes Consultancy

□ Risk Assessment

- Combustible and Ignition Source Analysis
- Loss Prevention Strategy
- Qualitative Risk Assessment
- Quantitative Risk Assessment
- Fire and Smoke Modelling
- Storage Management
- Hazardous Area Classification
- Transferable Risks Analysis

□ Human Factor Analysis

- Disabled Analysis
- Man-Machine Interface

□ Life Safety Means

- Means of Egress
- Emergency Evacuation Planning / Modelling
- Means of Ingress
- Emergency Lighting
- Labelling and Signage
- Smoke Management
- Pressurisation Systems

□ Passive Protection Means

- Structural Integrity
- Compartmentation
- Explosion Protection
- Smoke and Heat Management

□ Manual Intervention Means

- Indoor Hose Systems
- Outdoor Hose Systems
- Portable Extinguishers

□ Automatic Intervention Means

- Automatic Sprinkler Systems
- Water-Foam Systems
- Foam Suppression Systems
- Gas Suppression Systems
- Wet-Dry Chemical Suppression Systems

□ Detection and Alarm Systems

□ Complementary Systems

- Fire Water Supply
- Foam-Water Supply
- Emergency Power Supply

□ Readiness and Awareness

□ Fire Management

OFFICIAL DATA

Company Name : KARINA Tasarim, Danismanlik ve Egitim Hizmetleri Ltd.Sti.
KARINA Design, Consultancy and Training Services Limited Co.

Field of Activity : Technical Intellectual Services - Consultancy
Engineering Design, Consultancy, Training

Field of Involvement : Life & Fire Safety

Field of Specialisation : Life Safety, Fire Safety, Fire Protection

Date of Establishment : Sept. 13th, 1994

Insurance : Professional Liability Insurance (valid from 1 Nov. 1999)

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