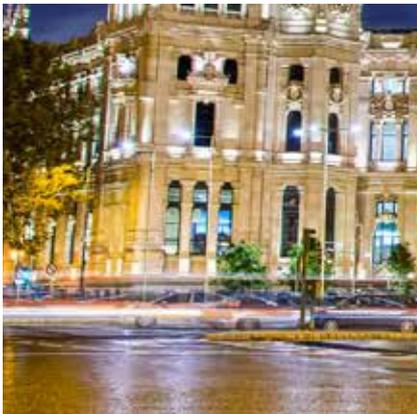




INSTITUTE FOR APPLIED FIRE SAFETY RESEARCH

## ■ BUILDINGS & INDUSTRIAL



ASKING.  
ANALYSING.  
ANSWERING.

## **BUILDINGS & INDUSTRIAL**

IFAB building services cover normal and high risk buildings and buildings with various architectural requirements. Normal buildings refer to applications that are well covered by fire standards and normal designs, which make fire safety design easier. High risk buildings are applications that have at least one part that is not covered by fire standards. Alternatively, buildings may contain elements that need higher protection than that offered by fire standards. Architectural requirements often set design objectives that require non-standard solutions. Buildings like this with their high demands are a speciality of IFAB. IFAB's knowledge, gained from over 1800 fire tests, is the key to providing efficient and cost-effective fire protection solutions. Concert halls, theatres, high-rise buildings, shopping malls, hospitals, laboratories, storage facilities and in particular cherished heritage buildings are typical examples of the sphere of competence of IFAB's building services.

Industrial applications are not covered by standards but typically have specific fire hazards. These can range from expensive and hazardous production machines to whole factories that require special protection. Such non-standard applications are a particular field of IFAB expertise. IFAB uses modern tools such as CFD and carries out laboratory scale fire tests to help select the optimum fire protection concept for each individual industrial application.

## **IFAB – OUR SERVICES**

IFAB provides services ranging from fire risk analyses and feasibility studies to the commissioning of different fire protection systems and solutions in building and industrial applications.

### **» FIRE RISK ANALYSIS**

Fire risk comprises the probability of fire and its expected damage either to life, business or property. Fire risk analysis is the starting point for effective fire safety designs, and it can include different methods such as semi-quantitative index methods, quantitative event tree analysis, and quantitative system reliability analysis. The risks and especially the different levels of consequence are defined in close co-operation with the client.

### **» FIRE SAFETY CONCEPTS**

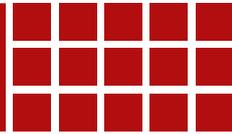
Fire safety concepts are implemented to mitigate and reduce fire risks and consequences as identified in the fire risk analysis. IFAB has specific experimental knowledge gained from fire tests, resulting in a fuller understanding of the performance of different fire fighting and mitigation methods. This makes the services provided more realistic and effective than those based solely on a theoretical approach. This is essential for optimising costs and the performance of systems.

### **» FIRE SAFETY PLANNING**

Implementing non-standard fire safety concepts requires coordinated planning of all the design topics for constructional, technical and organisational fire safety. IFAB offers support and consultancy throughout this planning process. IFAB's product portfolio includes architectonic and creative aspects, logistical requirements, life cycle costs and the technical reliability of fire safety solutions.

### **» FIRE SAFETY DEMONSTRATION**

Demonstrating the effectiveness of non-standard fire safety solutions requires experience of different fire safety measures and building law. IFAB offers verification and demonstration of special fire safety concepts using a balanced combination of well accepted analytical and simulation methods and fire tests.



## » FIRE AND SMOKE TESTS

Fire and smoke tests form a key area in IFAB's services. IFAB's experienced team has carried out more than 1800 full scale fire tests for various applications. These cover both standardised tests (e.g. IMO, FM, CEN, DIN, VdS) and ad-hoc fire tests. IFAB offers all fire test services from a single source, which eliminates the need for any lengthy and costly discussions with third parties. IFAB also carries out smoke tests for different infrastructure and rail applications. IFAB has specialised equipment for carrying out smoke tests with either hot or cold smoke, giving experimental proof of the effectiveness of smoke management systems.

## » FIRE INVESTIGATIONS

IFAB's engineers are qualified to conduct fire investigations. Their background in experimental fire engineering is a major asset for IFAB personnel in post fire investigations. In addition, IFAB can model fire and its dynamics using CFD or even with laboratory scale fire tests as part of investigations.

## » COMPUTATIONAL FLUID DYNAMICS (CFD)

Computational Fluid Dynamics (CFD) has developed during the last decade and has become a standard tool in fire safety engineering. IFAB also provides various services that utilise CFD. IFAB has a massive fire test data base available from full scale tests, so it can in most cases verify the CFD models against experimental data. This sets IFAB apart from organisations that use CFD without validation. CFD services cover ventilation, evacuation, FFFS, temperature and heat transfer modeling.

## » EXPERTISE SERVICE

IFAB can serve as an independent expert on behalf of third parties and offers third party reviews of fire safety concepts, planning for technical fire safety, approval tests and compensatory fire safety measures.

## » TRAINING SESSIONS AND SEMINARS

IFAB organises training sessions and seminars on tunnel and metro fire safety. Some training sessions are designed for the wider public, others are tailored to customer needs. Training sessions can be held at IFAB's or the customer's premises. The experts conducting the training are either IFAB personnel or from a pool of IFAB network contacts.

## ■ REFERENCES AND MORE INFORMATION

See the most up-to-date reference lists and other information at

[www.ifab-fire.com](http://www.ifab-fire.com)



Fire-fighting concept for Munich Olympic Tower



Fire safety concept and tests for Hamburg Elbphilharmonie concert hall



OH1 fire tests with VdS

## ■ FIRE SAFETY SERVICES

CONSULTING

CONCEPTS

FEASIBILITY STUDIES

RISK ANALYSIS

CFD (FIRE, SMOKE, EVACUATION, VENTILATION, SUPPRESSION)

PERFORMANCE BASED DESIGNS (FIXED FIRE FIGHTING SYSTEMS)

TENDER PREPARATION AND EVALUATION

FIRE TESTING (LABORATORY OR FULL SCALE)

SMOKE TESTING

APPROVAL SERVICES

FIRE INVESTIGATIONS

SEMINARS, TRAINING

RELIABILITY ENGINEERING

## ■ FOR

TUNNELS & METRO

RAIL

BUILDINGS & INDUSTRY

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