



INSTITUTE FOR APPLIED FIRE SAFETY RESEARCH

■ RAIL



ASKING.
ANALYSING.
ANSWERING.

RAIL

IFAB is one of the most experienced fire protection consultancy and testing companies for rail applications in Europe. IFAB's experienced engineers are the right partners for considering the fire safety aspects for all kinds of rolling stock, such as locomotives, light rail vehicles, double deck coaches and special rail vehicles. IFAB's team has been involved in fire protection for over 1000 rail vehicles.

IFAB uses tools and methods that comply with rail requirements and standards. IFAB has the advantage of experience and knowledge of fire behaviour gained from a huge number of experimental tests. This ensures that the services it provides lead to effective rail applications, and not only in terms of cost. Many of IFAB's team members have acquired their knowledge from working in the railway industry over many years, which again results in a better understanding of fire safety from the viewpoint of operations and maintenance. IFAB services are not limited only to rolling stock but also cover the interfaces with infrastructure. This enables IFAB to provide comprehensive fire safety solutions that lead to high safety with low costs.



Fire risk analysis for Wengeneralpbahn

IFAB – OUR SERVICES

IFAB provides services ranging from fire risk analyses and feasibility studies to the commissioning of different fire protection systems and solutions. IFAB's background is in fire testing and research. This ensures that the design methods used and solutions provided are technically and commercially optimised, providing the best value for clients.

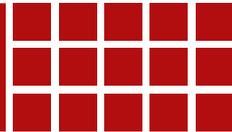
» FIRE RISK ANALYSIS

Fire risk comprises the probability of fire and its expected damage 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

IFAB provides fire safety concepts for rolling stock that include fire risk analysis and measures against identified risks. A holistic fire safety concept also includes evacuation aspects. The objective for fire safety concepts is to have a comprehensive solution that provides the best technical value for the clients. IFAB has specialised experimental knowledge from fire tests that leads to a more realistic assessment of different fire safety technologies than with theoretically based approaches.

IFAB is also able to optimise fire protection arrangements in relation to operational aspects. Cost-effective compliance with regulations and requirements is an essential element in IFAB's integrated fire safety concepts. IFAB's aim is to achieve the required level of safety with reasonable costs and moderate impact on vehicle design.



» FIRE INVESTIGATIONS

IFAB's engineers are qualified to conduct fire investigations for rolling stock. Their background in fire testing gives IFAB personnel an advantage in carrying out fire investigations. In addition, IFAB models fire and its dynamics using CFD tools or even conducting laboratory scale fire tests as part of investigations.

» FIRE AND SMOKE TESTS

Conducting fire and smoke tests is a key business for IFAB. IFAB's experienced team has already carried out over 1800 full scale fire tests in total. IFAB is constantly conducting approval tests for different manufacturers of fire safety systems for rolling stock. IFAB also carries out smoke tests. These are often related to the commissioning of fire detection systems in rail vehicles.

» CONSULTING ON STANDARDS

Covering all relevant standards, norms, guidelines and directives is an essential part of fire safety design for rolling stock. There is often also uncertainty about which fire protection measures apply, due to the range of fire safety requirements for rolling stock and developments in them. IFAB offers consultancy on using and implementing fire safety systems in accordance with current legislation such as TSI's, EN 45545, ARGE Guidelines and other relevant fire safety standards for rolling stock.

» RELIABILITY ENGINEERING (RAM+S, LCC)

IFAB offers reliability engineering services for rolling stock. IFAB's certified engineers can support clients in their product development and in the approval process for rolling stock. Alternatively, they can analyse complete fire protection systems using RAM+S or LCC tools.

» TRAINING SESSIONS AND SEMINARS

IFAB organises training sessions and seminars on rail fire safety. Certain training sessions are designed for the public, while others are tailored to customer needs. Training sessions can be held at IFAB's or the customer's premises. The experts conducting the training sessions 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



Smoke tests in over 50 different rail vehicles



Demonstration train fire tests in Shanghai



Fire risk analysis and testing for Stadler Flirt

■ 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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