



tenos

performance statement

THE INDEPENDENT FIRE SAFETY ENGINEERING CONSULTANTS

▀ A statement of quality

Tenos provides fire safety consultancy to design professionals, commercial organisations and government bodies; our core services are fire engineering, code consultancy, risk assessment and research.

From initial feasibility studies and fire strategy development, through value engineering and construction advice, to operational risk assessment and fire safety management, Tenos delivers practical solutions across all sectors of the built environment.

We are proud of our commitment to providing independent, professional advice of the highest standard, and to delivering results on time – clearly demonstrated by our high percentage of repeat business and referrals.

We deliver cost effective, safe solutions that integrate all aspects of design without compromising on form or function. Our broad experience on some of the world's most prestigious projects ensures this is achieved through a tried and tested balance of innovative engineering and common sense design.

With no holding company and no multi-disciplinary association, Tenos provides truly independent advice with no potential for conflicts of interest in respect of the testing or design and supply of fire protection systems.

The difference is in the detail

- ▀ proven success with a broad range of large and complex developments.
- ▀ international code experience (including British and NFPA standards).
- ▀ project teams headed by Chartered Engineers.
- ▀ in-house computer modelling.

Tenos is able to deliver quick turnarounds, integration of fire safety with other requirements and cost-effective solutions – our teams are efficient, effective and professional, exactly what you need to get the job done.



▸ Proactive and personal attention by Tenos means that early agreement with clients and approval bodies can be achieved. ▸



Our broad range of services

Fire safety design:

- code consultancy.
- fire engineering.

Fire risk assessment:

- workplace risk assessment.
- business continuity assessments.

Fire safety management:

- fire management plans.
- training.
- strategic management reviews.

Fire litigation:

- fire investigation.
- expert witness.
- third party review.

Fire research:

- code drafting and development.
- strategic research.



Designed with efficiency in mind

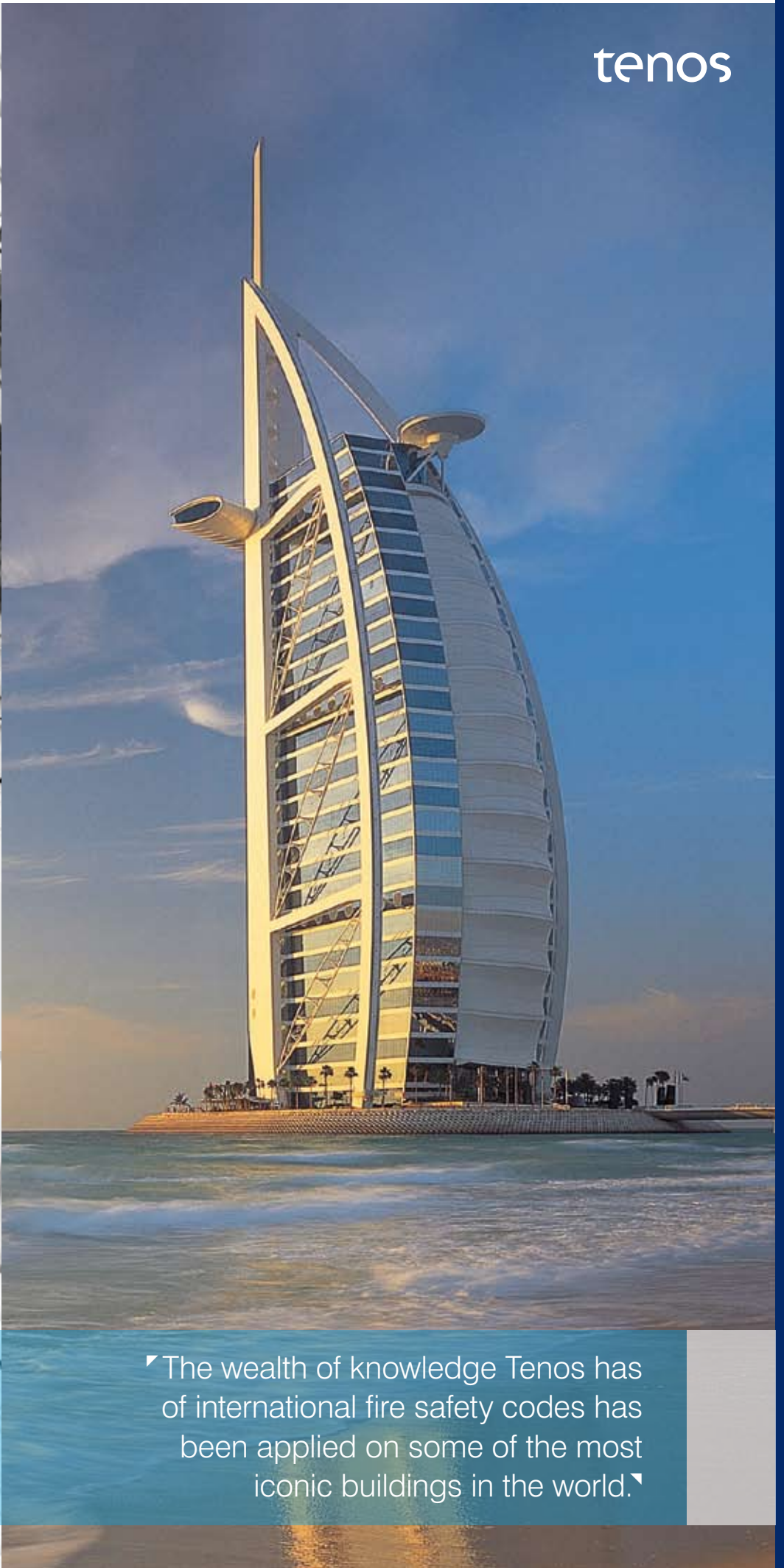
Standard guidance documents (such as Approved Documents, British Standards and International codes) generally form the starting point for design because they often provide the simplest route to approval. Our in-depth knowledge of fire safety codes and their underlying principles allow us to provide early advice on:

- areas of non-compliance.
- potential cost savings.
- opportunities for design optimisation.
- benefits of alternative “fire engineered” solutions.

But no two projects are the same and off-the-shelf, code solutions do not suit all needs. Tenos understands that aesthetics, operability, buildability and sustainability can be as important to our clients as cost. Fire safety engineering offers an alternative to codes. By looking at how fires develop and how people are likely to respond, solutions can be tailored to suit the risk, focussing on the issues important to the client, and eliminating unnecessary or over-complex design.

Following an initial code appraisal we will review the fire engineering options with the client. We will provide an open and realistic assessment of the potential opportunities taking into account other important factors such as project timescales and regulatory approvals.

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▣ The wealth of knowledge Tenos has of international fire safety codes has been applied on some of the most iconic buildings in the world. ▣

Fire safety engineering

Fire safety engineering satisfies statutory, insurance and operational safety requirements based on reason rather than prescription. We have used it successfully on all building types for:

- ▀ evacuation analysis;
- ▀ assessment of structural performance;
- ▀ simulation of smoke movement;
- ▀ fire protection system design;
- ▀ evaluation of fire spread between buildings (unprotected areas).

Some examples of the benefits are outlined below:



Increase lettable floor areas by:

- ▀ reducing the number of stair cores;
- ▀ decreasing the width of stairs.

Reduce or eliminate structural fire protection using:

- ▀ fire severity analyses;
- ▀ structural response analyses.

Increase glazed areas close to a site boundary using:

- ▀ fire severity calculations;
- ▀ fire spread simulations.

Support the design of open-sided atria using:

- ▀ ASET and RSET evaluations;
- ▀ smoke development simulations;
- ▀ evacuation analyses.

Increase compartment sizes by:

- ▀ assessment of fire fighting procedures;
- ▀ fire growth analysis;
- ▀ evacuation simulation;
- ▀ probabilistic risk assessment.

Omit sprinklers in single storey buildings through:

- ▀ probabilistic risk assessment;
- ▀ cost benefit analysis.

Extend escape travel distances utilising:

- ▀ ASET and RSET evaluations;
- ▀ smoke development simulations;
- ▀ evacuation analyses.





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▾ Tenos understand that technology cannot replace experience or sound judgement. We have been commissioned by BSI and Government departments to prepare guides for fire safety engineering standards as well as playing an active role within the development of fire safety codes and standards. ▾



Experience counts

With Tenos you can be confident of years of knowledge and experience in the field of independent design for fire safety on some of the world's largest and most prestigious building projects. These are some examples of our highly regarded work.

Paradise Street Development, Liverpool, England

Fire safety strategy for Europe's largest retail and leisure development covering an area of 42 acres with a construction cost of £900 million.

Burj Al Arab Hotel, Dubai

Fire safety strategy and advice on fire protection and fire safety management procedures for the world's tallest and most luxurious atrium hotel.

University Hospital, Birmingham, England

Fire safety strategy for £500 million new hospital and the retained estate.

Doha City Shopping, Qatar

Design of smoke control system for new 270,000m² leisure and commercial centre.


Al Mas Tower, Dubai

Fire safety strategy and detailed design information for 62 storey commercial development.

Manchester Joint Hospitals, England

Fire safety strategy for £600 million new hospital development.





▸ Tenos is committed to maintaining premier technical standards – all our work is carried out in accordance with quality assurance procedures based on ISO recommendations. ▸

▸ **Manchester United FC, England**

Fire safety strategy for stadium expansion, comprising both east and west stands and quadrant infills. The innovative development combines seating and hospitality facilities, a 1,800m² megastore, two levels of offices and a four-storey atrium.

▸ **St Georges Hall, Liverpool, England**

Development of fire safety strategy for one of the finest neo-classical buildings in the world to enable this Grade 1 listed to be brought back into public use.

▸ **Taiwan High Speed Railway**

Fire safety review of the designs of major sub-surface stations on the 350 km high-speed rail link between Taipei and the southern city of Kaohsiung.

▸ **Terminal 3, Abu Dhabi International Airport**

Development and implementation of fire safety strategy for new terminal.

▸ **Piccadilly Station, Manchester and Kings Cross, London, England**

Fire safety strategy for the rebuilding of rail terminus and transport interchanges.

▸ **South Quay Square, London Docklands, England**

Preparation of fire safety strategies for new waterfront residential, office, hotel with associated leisure, restaurant and retail buildings.

Further information on the range of our work can be found on our web site at www.tenos.com

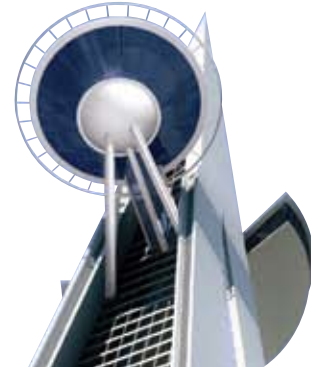
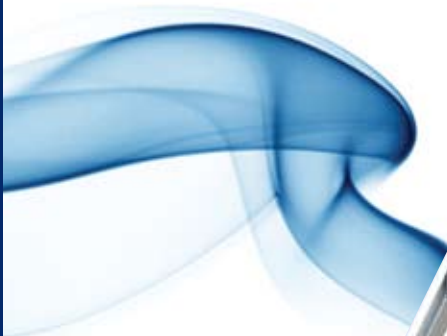
Tenos – your team of experts

Founded in 1996 and operating from offices in London, Manchester and Abu Dhabi we are a company owned wholly by its directors, who are all chartered engineers.

We are truly independent, which means we can offer clients the best possible advice and solutions for the widest range of building projects. Employing one of the country's best teams of qualified fire safety engineers means we've worked on the broadest range of projects.

At Tenos, it's about every member of the team – the flair and expertise of the fire safety engineers assigned to the project are vital to its success. This is why each project team includes a professionally registered engineer acting as Project Director and other fire engineering staff with specialist skills and experience to meet the customer's needs.

All our senior engineers are Chartered Fire Engineers or have equivalent skills, qualifications and experience. Our junior technical staff are supported in achieving Chartered Engineer status through the Institution of Fire Engineers.



Typical projects

Further examples of our projects and other information regarding the services provided by Tenos can be found on our website at www.tenos.com

Examples of projects include:

Education:

- Greenwich Schools
BSF, UK
- Barnsley Schools
BSF, UK
- Libya University
Campuses

Healthcare:

- Manchester Joint
Hospitals, UK
- Birmingham University
Hospital, UK
- Queen's Hospital,
UK

Hotels:

- Burj Al Arab (Arabian
Tower Hotel), Dubai
- Madejski Stadium
Hotel, Reading, UK
- Burj Dubai Lake
Hotel, Dubai

Leisure and Entertainment:

- Odyssey Project,
Belfast, UK
- National Exhibition
Centre Extension, UK
- St. Georges Hall,
Liverpool, UK

Retail:

- City Centre Mall,
Doha, Qatar
- Gloucester Quays, UK
- Paradise Street
Development,
Liverpool, UK

Sports Stadia:

- Liverpool Football
Club, UK
- Chelsea Football
Club, UK
- Manchester United
Football Club, UK

Transportation:

- Abu Dhabi
International Airport
- Piccadilly Railway
Station, Manchester,
UK
- Kings Cross Railway
Station, London, UK

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