



ACE Global Engineering Network  
Real Estate/Offices/  
Financial Institutions



# ACE Global Engineering Network

## Real Estate / Offices / Financial Institutions

---

### Contents

<b>Occupancy Overview</b>	1
<b>Special Hazards</b>	1
Site security	1
Flood, Heavy Precipitation, Hail, Sewage backup	1 - 2
High rise buildings (buildings exceeding 6 stories)	2
Fire spread from adjacent property	2
Heating/air conditioning systems	2
Cooking equipment/heating/laundry dryer	3
Parking areas	3
<b>BI and Contingent BI considerations</b>	3
<b>Industry trends</b>	3
<b>Requirements</b>	4
Maintenance	4
Fire and Safety Equipment	4
Security	4
Electrical Installation Inspections	4
Cutting & Welding Controls	5
Self Inspection Procedures	5
Fire Protection Training	5
Automatic Detection Systems	5
Portable Fire Extinguishers	5
Fire Cut-Offs	5
Earthquake	5
<b>Inspection Frequency</b>	6
<b>Industry Benchmarking</b>	6
<b>Industry Loss Information</b>	7
<b>ACE Contacts</b>	9
<b>Reference Sources</b>	9

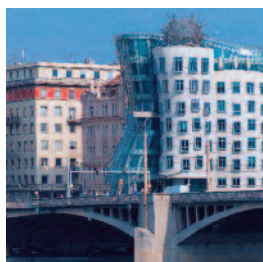
---

## Occupancy Overview

Within this occupancy typical office activities are carried out supported by computer equipment including copier machines and printers. Although the primary purpose of an office building is to provide a workplace for administrative and management activities, other areas will often be found within the building, related, for instance, to file storage or kitchen facilities. In the file-storage rooms, large amounts of combustible loading can be found. These areas are now significantly reduced as a result of the major use of IT technology, but there are still some buildings where the use of large file-storage areas is common practice. Most kitchen facilities are equipped with microwaves and other small appliances but some offices buildings, provided with dining areas, have fully equipped kitchens with large cooking appliances.

Many office buildings have to be equipped for regular visitors and dwellings, apartment houses and condominiums are part of this occupancy class. Usually, these areas are occupied by single or multiple persons living in the buildings all day or during some hours the day.

The buildings are either owned by the occupant or the floor area is rented by one or multiple tenants. As a result some floor areas might stay vacant over a period of time.



In the majority of rented buildings the maintenance of the utilities is the responsibility of the building's owner. This includes electrical installation and Heating, Ventilating and Air Conditioning systems.

Car parks and garages, usually located at basement levels, might form a part of the building. These may include parking structures with the use of ramps for the vehicle circulation. The vehicles may be parked by the driver or by an attendant but mechanical forms of parking could also be provided. These areas are not generally used for dispensing fuel or motor vehicle repairs.

Operations are carried out in single-floor buildings as well as multi-floor and high-rise buildings. Within larger building complexes some areas may be occupied as shops. However, shops are not covered within this segment. Usually, these buildings are located either in conurbations or their outskirts.

Note: Electronic-data operations and retail trade activities are not covered in this fact sheet. Please see the appropriate industry fact sheet for detailed information.

ICC	NAIC	SIC	Class
6010	522110	Series 6000	10
6610	561110	Series 6500	10
6513	531110	Series 6500	8
8811	814110	Series 6500	5

## Special Hazards

### Site security

Arson and burglary are the major risks to be considered because computers and other IT equipment is usually found throughout office locations. In low income/high crime areas or areas with a history of riots or located close to political targets, the potential for arson needs to be evaluated.

Outside combustible storage needs to be kept away from outside walls particularly if the walls contain combustible cladding or glazing might be damaged by a fire.

Higher levels of physical security are particularly important for offices keeping valuables on site including: automatic intruder alarms, consisting of door contacts and motion detectors and connection to an approved alarm receiving station. Intruder alarms should be installed at the entrances of buildings and in office areas with unprotected windows located at ground floor level or windows adjacent to nearby structures providing access.

Exterior lighting should be provided. As a minimum, building entrances and areas of easy accessibility (windows installed at the ground level) should be lit.

A CCTV system with full coverage of the outside areas and access points to the buildings should be provided.

In the case of financial institutions, special interest should be focussed on cash storage and cash carrying arrangements. Access areas and vault rooms should be included in the electronic supervision, consisting of a camera system and an automatic intruder alarm detection system.

There should be a reliable and monitored signalling method to alert the police.

### Flood, heavy precipitation, hail and sewage back-up

Heavy precipitation may cause flooding of basement areas, resulting in damage to utilities located on basement floors and to contents. Buildings located in areas considered to be exposed to severe hailstorm could suffer damage to roofs or roof-mounted equipment, such as air-conditioner units. These should be designed as hail resistant or, if not, roof-mounted equipment and skylights should be protected with guards or hail screens.

Access roads to basement parking areas and elevated yards may contribute in funnelling water to lower levels. Similarly there may be potential for sewage back-up at lower levels, though usually this only needs to be considered where there is a connection to the public sewage system and lower floors are below street level. Manhole and inspection covers should be sealed and mechanically secured to prevent them lifting from back-up pressure. Consideration should be given to the provision of flood barriers to protect door openings.

In basements the fitting of critical electric installations or storage is not recommended. If this cannot be prevented water detection with alarm transmission to a permanently occupied location is recommended. Automatic activated pumping equipment should also be provided.

Heavy rainfall can overwhelm guttering and downpipes. Regular inspection and clearance of debris should be a standard part of any maintenance programme. Where guttering is formed within the roof valleys, or behind vertical facades, as in many modern structures, overflow weirs should be provided at the end of the gutters to allow excess water to discharge outside the building.



#### **High-rise buildings (exceeding six storeys)**

Access of the fire brigade to these buildings is a major consideration as people need to evacuate the building via the staircases. Fire fighting from the outside is limited to the lower floors only as the higher floors are not within the range. To support fire fighting inside the building risers which can be accessed by the fire brigade are recommended. Positive pressure on the access stairways should be ensured for good visibility.

The potential for vertical fire spread has to be considered. Fire is often assisted by outside glazing with no relevant fire resistance rating and vertical ducts in the building which are not properly cut off. For external glazing, the space between the panels and the floor slabs should be filled with fire-stopping material, rated for a minimum of two hours. Aluminium as construction material weakens the glazing due to its melting point and the hazard of ignition, so should not be used.

Protection of the steel structure components of the building is required in order to prevent early collapse. The building should be constructed with a minimum of two hours' fire resistant rating relating to its structure and floors.

Fire doors to stairways, atriums and lift areas are required. It is recommended that vertical ducts should be cut off. A fire-resistance rating of two hours is recommended. The lifts should be provided within enclosures with a minimum of two hours fire-resistance rating. The elevator should be configured in such a way that, in case of an alarm, it will be default directly to the first floor or lobby.

Some buildings may house diesel fuel and piping for emergency generators. The tanks and piping should be designed with double walls and the tank should be located in a dyked fire cut off room. Where the pipes penetrate floors they must be properly sealed to the same rating as the floor.

The emergency generator room, diesel tank room, transformer room, fire-pump room or other areas that could create a fire exposure to the offices, should be cut off.

No combustible building insulation is acceptable because it may cause immediate fire spread throughout all building areas. Ceilings and raised floors should be of a non-combustible type. Interior finishing should be non combustible or of limited combustibility. This includes carpets, doors, doors frames, etc.

Automatic sprinkler protection, covering all areas, offers the best possible protection. As a minimum automatic smoke detection is required with full coverage including concealed spaces. Large-file storage rooms should be preferably protected by an automatic extinguishing system.

A dry standpipe should be provided in stairwell enclosures. The standpipe will consists of 2 x 2 1/2" outlets installed at each floor and it will be used only by the fire department. If two or more standpipe systems are installed, each one shall be clearly identified. Also, 1 1/2" or 1" hose stations should be provided at each storey for manual fire fighting. Where applicable pressure-reducing valves on standpipe systems are recommended; the pressure settings must be reviewed to make sure they are proper and tested regularly.

#### **Fire spread from an adjacent property**

If another property is close by a fire may spread to the office building. This can be prevented by fire walls, with no opening raised above ceiling level. In areas where premises are exposed to potential dry-vegetation fires, adequate distance is recommended to prevent damage to the property.

#### **Heating/air-conditioning systems**

Usually air-ventilation systems are provided as part of the air-conditioning system. This creates the risk of fire or smoke distribution within the building via the connected ventilation ducts. To prevent this, automatic smoke detection should be provided in the return air ducts. These should be interlocked to shut down the air supply and go to exhaust, as approved by the local fire department or building code.

Also, air conditioning ducts may contribute to the spread of fire. In order to reduce this possibility, air conditioning systems should be constructed of non-combustible materials. This includes ducts insulations, ducts linings and air filters. Ducts should also be cleaned on a regular basis. Ducts that pass through fire resistant partitions should be provided with fire dampers that will close automatically.



### Cooking equipment/heating/laundry dryer

In apartment houses, condominiums and dwellings the fire hazard resulting from cooking, heating and laundry equipment needs to be considered. Self ignition has occurred while this equipment has been in operation, caused by electrical failure, overheating or lack of maintenance. Frequently equipment is not operated by the insured. The general operating environment should be checked and the installation of automatic smoke detection should be recommended, as applicable.

For professional operations fixed wet-chemical extinguishing systems, provided for fat fryers, rotary cookers and exhaust hoods, are recommended.

Periodical inspection and cleaning of dryer exhaust ducts by a qualified contractor should be carried out where applicable.

### Parking areas

Parking areas installed at basement level, should comply with the following:

- They should be separated from office areas by fire-resistant partitions, with a minimum fire resistant rating of two hours. Openings should be protected with fire resistant doors rated for not less than one-and-a-half hours
- Floors should be of non-combustible material and equipped with drains
- Vertical openings through floors and ramps should be enclosed with fire resistant rating of not less than two hours (four storey parking areas or more) or not less than one hour (less than four storeys)
- Automatic sprinkler protection should be provided.

---

## Business Interruption (BI) and Contingent BI considerations

Usually in this segment, a critical impact concerning production equipment is not considered. Consequently, disaster recovery planning and business continuity planning is not normally available and it is not expected that it would significantly contribute to reduce the BI loss.

The major focus should be to analyse the business process. Where critical areas are identified, adequate preventive measures need to be developed.

For instance:

- Utilities located at basement level (susceptible to water damage)
- Lack of floor area which might be rented on a short term basis
- All kind of documentation in paper only form.

A possible response option might be the adequate cut off of the critical area to prevent the access of smoke and heat. Copies of critical data should be made and preferably stored at a remote location. External storage should be checked.

As already mentioned the business interruption potential of computer equipment is not covered as part of this fact sheet.

---

## Industry Trends

More exposed locations have to be considered where the insured relocates to save costs or for other corporate reasons. Change of climatic conditions may also have an impact on the risk, particularly in the case of natural hazards, such as:

- Flood (location close to rivers)
- Earthquake
- Avalanche.

Changes in architecture and materials sometimes results in greater volumes of glass, increasing the hazard of vertical fire spread and the loss potential due to hail.

## Requirements

### Maintenance

It is mandatory that the lease contract, especially for multi-tenant sites, contains an agreement that the landlord or the party renting the floor area should be responsible for carrying out the maintenance.

Fire protection, security and safety equipment and site services should be kept in good condition, safe and free from defect. Periodical maintenance is therefore essential.

Building maintenance is a very important area and lack of attention to housekeeping in relation to drains and rainwater gutters may lead to water damage. Frequency of both inspection and maintenance should be documented.

### Fire and safety equipment

A procedure of maintenance and testing documentation should be in place for all equipment, whether automatic or manual. Results of the regular tests of fire alarms, sprinkler systems, hose reels, extinguishers and private hydrants should be recorded in as much detail as possible. A site plan detailing the location of equipment is very useful. Maintenance of fire-protection equipment should at minimum comply with local regulations. If not locally regulated, the following minimum intervals should be followed.

Maintenance once a year for:

- Automatic fire doors/cut offs
- Hose reels
- Hydrants
- Sprinklers, (including associated fire pumps/drivers and tanks)
- Smoke vents
- Fire alarms (smoke, heat and call points)
- Other mobile/fixed extinguishing systems.

Maintenance once every two years for:

- Extinguishers
- Exhaust ducts from kitchen equipment.

### Security

Perimeter fences/gates, lighting, CCTV, doors, locking devices, intruder alarms, clocking points should all be considered. Checks should be carried out only by approved contractors. A check every three months by an approved agency should be effected and records should be kept.

### Electrical installation inspections

To minimise the possibility of a loss resulting from the failure of electrical equipment the following steps should be considered.

- Every two years carry out a check of the entire electrical installation certified by an approved inspection agency, to meet local standards. The same frequency is also recommended for mobile electric equipment. All checks have to be documented
- Consider a thermo graphic test carried out on the electrical switchgear. Carried out by expert contractors, this is a means of using infrared techniques to identify hot spots or overloads before they can cause a problem
- Electrical transformers to be installed according to local regulations. If installation is not locally regulated, the following considerations should be considered:
  - Dry-type transformers, or less flammable liquid insulated transformers (flash point above 300°C), installed in indoor areas should be located in a transformer room, with a fire resistant rating of not less than one hour.
  - Dry-type transformers, or less flammable liquid insulated transformers (flash point above 300°C), installed in outdoors areas should be separated from the building by a minimum distance of 30 cm. The transformer shall have a water-proof enclosure.
  - Oil-insulated transformers located indoors, should be installed in a transformer room with a fire resistant rating of not less than three hours.
  - Oil-insulated transformers located outdoors, should be installed at not less than 1.5m (fire resistant building walls) or 7.6m (combustible building walls) to the building walls. Containment, ventilation, or drainage should be provided were required.
- The building should be protected with a lighting system. The lighting system should be installed and maintained according to local regulations
- In file-storage areas, a minimum clearance of 0.5m should be provided between the lamps and the files. Lamps should be provided with non combustible enclosures or guards.





### **Cutting and welding controls**

It is essential that anybody carrying out hot-work operations is fully aware that a permit must be obtained prior to the commencement of such operations. At multi-tenant sites it is mandatory as part of the lease contract, that it is clarified who is responsible to carry out the hot works and who will provide the permit. Permits need to be issued before the commencement of work. The issued permit should be kept at the place of work, ready for examination by the area manager, chief engineer or any other interested party.

### **Self inspection procedures**

A regular inspection of the premises by a responsible employee or the landlord who is familiar with the overall conditions on site is considered important. The inspection should take the form of a walk-through of all parts of the buildings and yards to check for any abnormalities or unusual conditions. The inspection should preferably be fully documented.

The following checks are recommended:

#### **HOSE REELS**

Clear? In good condition?

#### **FIRE ALARMS**

Bells/sirens working? Mains power supply healthy? Indicator board lamps all working? Fire brigade or central station connections in order?

#### **EXTINGUISHERS**

All present and correct? Not obstructed? In good order?

#### **MAINTENANCE**

Any temporary wiring? Any damaged electrical fittings?

#### **FIRE DOORS**

Not obstructed? All self closing devices working?

#### **HOUSEKEEPING**

Any accumulations of rubbish in buildings or yard? Any area untidy or congested? Any sprinkler heads obstructed? Any combustibles adjacent to switchgear or heaters? Inspect all electricity sub-stations/switch rooms to ensure that they are not being used for the storage of combustible material. Are the rooms kept locked at all times, with authorised access only?

#### **FENCES**

Visual check for damage

#### **EXTERIOR LIGHTING**

#### **ENTRANCE DOORS**

#### **WINDOWS**

### **Fire-protection training**

A practical training on how to use available manual fire-fighting equipment should be carried out once every two years. The objective is that 5 – 10 % of all personnel on site will follow these training sessions.

### **Automatic detection systems**

Corridors, utility rooms, kitchens and major computer equipment are to be supervised by automatic smoke detection as a minimum. The volume inside suspended ceilings and raised floors is also recommended to be included. Alarms are to be transmitted to a permanently occupied location.

### **Portable fire extinguishers**

For manual fire fighting purposes portable extinguishers are to be provided. The extinguishing agent should be suitable for the type of occupancy. The extinguisher should be easily accessible and a sufficient number available on all floors. The location should be indicated by a sign.

### **Fire cut-offs**

Adequate fire separation should be provided within, or between, buildings in order to:

- Subdivide areas occupied by different parties/occupancies
- Isolate severe hazards
- Separate protected areas from non-protected areas.

Openings in fire walls should be protected by fire doors of a type that has been tested and listed by an approved testing laboratory. All fire doors and shutters should automatically close upon activation of smoke detectors situated either side of the wall opening.

Where pipework and services penetrate fire walls, the holes around them should be made up using concrete or an approved sealing material.

Fire dampers should be installed in ducting passing through fire walls and should be operated by smoke detectors.

In multi-storey buildings, unprotected vertical openings have been responsible for fire spread in many major fires. Vertical fire separation can be achieved by providing concrete floors with closing penetrations with adequate fire-retardant material.

The partitions should be built from floor to roof level, or in the case of storied buildings to ceiling level. Where large voids are present, such as over false ceilings, effective fire separation should be provided therein.

### **Earthquake**

Adequate building codes are to be followed to reduce the hazard of damage to buildings in exposed areas.

## Inspection Frequency

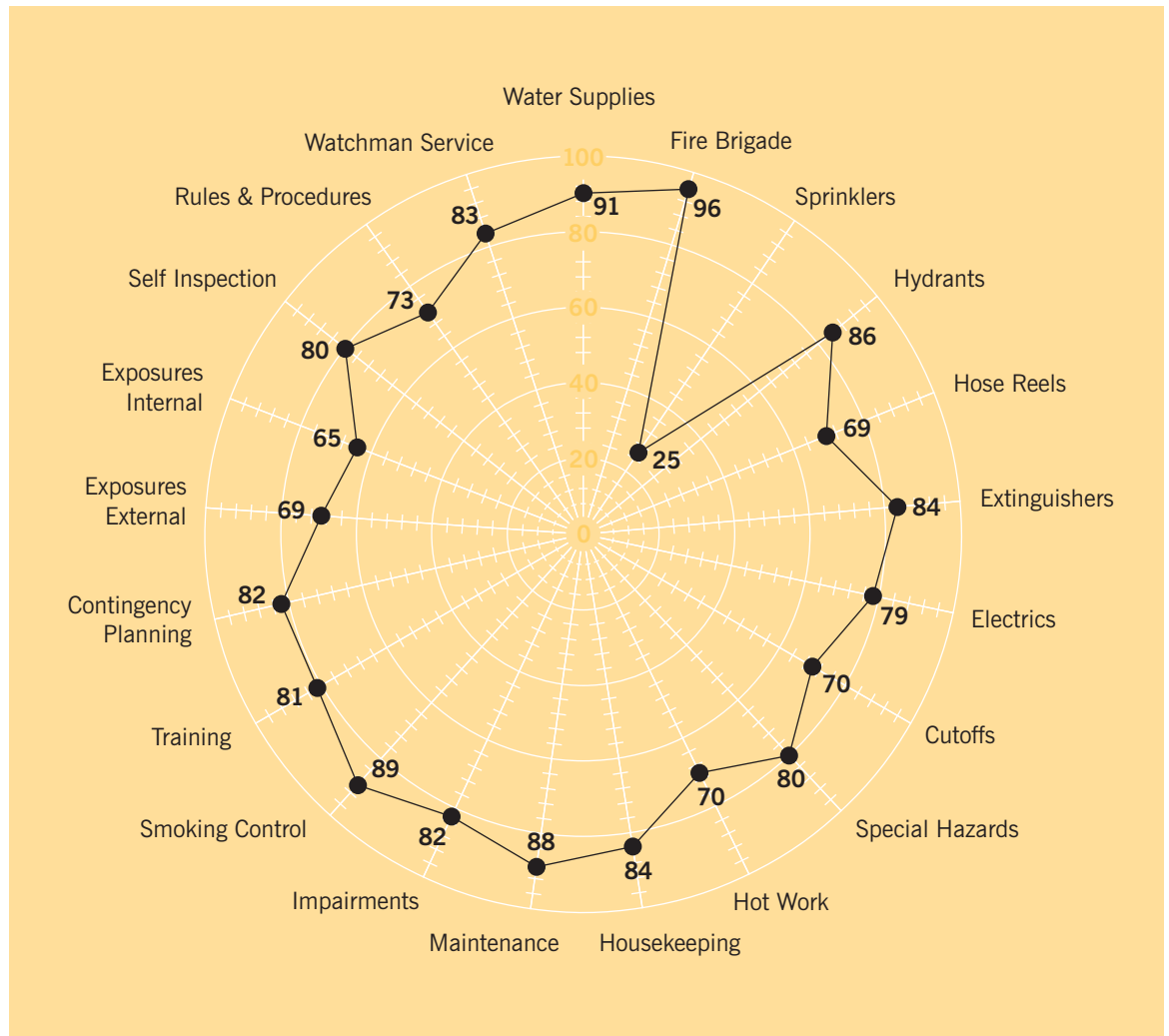
Please refer to the ACE Fire Underwriting Guidelines



## Industry Benchmarking

**Outer circle** represents best industry practice.

**Black line** represents the global average of ACE inspected real estate, office and financial institutions during a period of five years.



## Industry Loss Information

Date	Company	Loss Estimate	Loss
August 04, 2006	INOVA TOP GmbH, Germany	€ 5,300,000	F/FBI loss in office and expedition area due to arson.
February 12, 2005	Madrid office building	Total loss, sum insured of about € 83,000,000	Fire loss during construction process of high rise building, electric failure might be the cause of loss. The building was without sprinkler protection.
October 2004	Park Central Building, Caracas	\$ 250,000,000	The fire started on the 34th floor and burned to the 50th floor of the 56 story office building. The provided sprinkler protection was inoperable.
February 23, 1991	One Meridian Plaza, Philadelphia, PA, USA	\$100 million direct fire loss and or greater amount of BI loss and over \$4 Billion in civil damage claims	3 firefighters died in this 38 story building started by spontaneous combustion of paint rags. Issues contributing to the loss were delayed alarm, no sprinkler system, improperly set PRV's, unprotected vertical openings and failure of emergency pumps and electrical equipment.

## Leading Causes of Structure Fires in One and Two Family Dwellings and Apartments

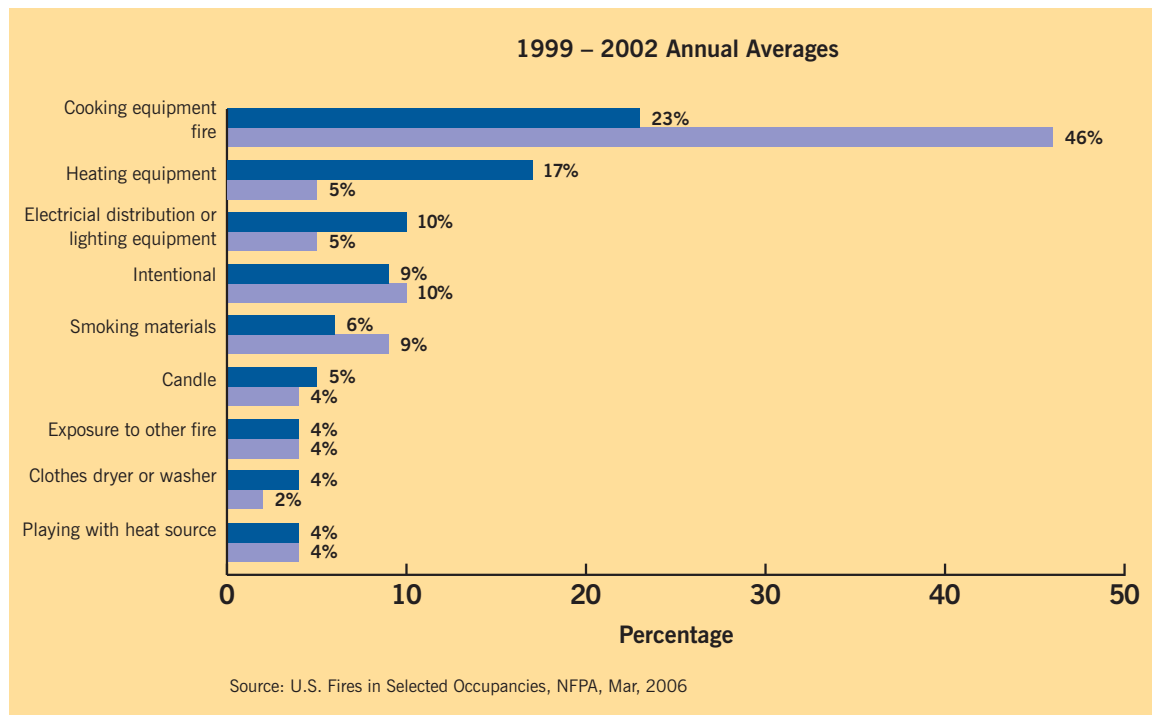


Table 21: Accidental fires in dwellings<sup>1</sup> by source of ignition and cause, 2005

United Kingdom Source of Ignition	Total	Faulty fuel supplies	Faulty appliances and leads	Misuse of equipment or appliances	Chip/fat pan fires	Playing with fire	Careless handling of fire or other hot substance	Person too close/fell on fire	Placing articles too close to heat	Other accidental	Unspecified
<b>Total</b>	<b>47,340</b>	<b>1,963</b>	<b>7,130</b>	<b>16,708</b>	<b>6,948</b>	<b>504</b>	<b>4,347</b>	<b>41</b>	<b>4,215</b>	<b>4,790</b>	<b>694</b>
Smoking related items	3,939	4	8	203	–	385	2,971	1	237	94	36
Smokers materials	3,113	–	1	149	–	3	2,763	1	1	118	59
Cigarette lighters	436	2	6	23	–	250	76	–	60	16	3
Matches	390	2	1	31	–	132	132	–	59	19	14
<b>Cooking appliances</b>	<b>26,903</b>	<b>51</b>	<b>990</b>	<b>15,206</b>	<b>6,926</b>	<b>43</b>	<b>684</b>	<b>18</b>	<b>1,828</b>	<b>1,105</b>	<b>52</b>
Electric cookers	17,275	14	332	9,669	4,904	27	456	8	1,226	607	32
Gas cookers	6,132	14	176	3,281	1,736	9	131	9	473	292	11
Liquid petroleum gas cooker	58	3	5	24	19	–	4	–	2	1	–
Other cooker	211	9	25	107	36	–	3	–	10	18	3
Microwave cooker	1,609	3	193	1,269	10	2	41	1	15	72	3
Other electric cooking appliance	1,431	2	237	796	164	5	36	–	82	107	2
Other non-electric cooking appliance	187	6	22	60	57	–	13	–	20	8	1
<b>Space heating appliances</b>	<b>1,657</b>	<b>26</b>	<b>360</b>	<b>150</b>	<b>–</b>	<b>15</b>	<b>48</b>	<b>15</b>	<b>719</b>	<b>317</b>	<b>8</b>
Electric	752	10	188	74	–	3	38	6	385	48	–
Gas	355	6	74	26	–	12	4	6	188	35	4
Liquid petroleum gas	49	6	21	3	–	–	1	–	14	4	–
Solid fuel: Fire in grate	242	–	24	22	–	–	3	3	55	135	–
Slow combustion stove	148	1	34	14	–	–	1	–	51	47	–
Oil and petroleum	35	2	15	4	–	–	1	–	4	6	3
<b>Central heating appliances</b>	<b>863</b>	<b>27</b>	<b>538</b>	<b>29</b>	<b>–</b>	<b>1</b>	<b>10</b>	<b>–</b>	<b>127</b>	<b>119</b>	<b>12</b>
Electric	279	11	203	9	–	–	2	–	25	25	4
Gas	460	9	279	13	–	1	6	–	81	66	5
Oil and petroleum	81	5	47	4	–	–	1	–	13	10	1
Other and specified fuel	41	2	9	3	–	–	1	–	8	18	2
<b>Water heating appliances</b>	<b>433</b>	<b>12</b>	<b>371</b>	<b>6</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>13</b>	<b>29</b>	<b>2</b>
Electric water heating	390	12	341	5	–	–	–	–	7	23	2
Gas water heating	39	–	30	1	–	–	–	–	3	5	–
Other and unspecified fuel water heating	4	–	–	–	–	–	–	–	3	1	–
<b>Welding and cutting appliances</b>	<b>42</b>	<b>–</b>	<b>–</b>	<b>34</b>	<b>–</b>	<b>–</b>	<b>5</b>	<b>–</b>	<b>–</b>	<b>–</b>	<b>3</b>
Electric	12	–	–	8	–	–	2	–	–	2	–
Acetylene	7	–	–	7	–	–	–	–	–	–	–
Other	23	–	–	19	–	–	3	–	–	1	–
<b>Blowlamps</b>	<b>462</b>	<b>1</b>	<b>4</b>	<b>385</b>	<b>–</b>	<b>–</b>	<b>35</b>	<b>–</b>	<b>29</b>	<b>8</b>	<b>–</b>
Electric	73	1	–	55	–	–	8	–	7	2	–
Gas	–	–	–	–	–	–	–	–	–	–	–
Liquid petroleum	72	–	–	68	–	–	3	–	1	–	–
Other	33	–	–	27	–	–	4	–	2	–	–
<b>Vehicle related</b>											
Motor vehicle related	118	48	17	6	–	–	1	–	–	42	4
Non-motor vehicle related	13	6	4	1	–	–	–	–	–	2	–
<b>Electrical distribution</b>	<b>3,048</b>	<b>1,660</b>	<b>979</b>	<b>97</b>	<b>11</b>	<b>–</b>	<b>5</b>	<b>–</b>	<b>20</b>	<b>229</b>	<b>40</b>
Plugs	67	29	27	3	–	–	–	–	–	8	–
Sockets and switches	287	159	90	12	–	–	–	–	2	21	9
Leads to appliances	314	16	230	35	–	–	1	–	8	20	2
Other wiring	2,380	1,456	632	47	11	–	4	–	10	180	27
<b>Other electrical</b>	<b>5,444</b>	<b>97</b>	<b>3,744</b>	<b>324</b>	<b>2</b>	<b>3</b>	<b>46</b>	<b>2</b>	<b>528</b>	<b>644</b>	<b>44</b>
Washing machine	1,082	18	948	9	–	–	–	–	2	96	18
Dishwater	336	9	284	4	–	–	–	–	8	26	6
Refrigerator	376	7	320	4	–	–	–	–	5	36	2
Tumble and spin driers	869	12	558	39	–	–	–	–	10	242	7
Lighting	979	20	318	66	–	3	30	–	440	94	3
Blanket, bedwarmer	216	8	156	35	–	–	–	–	3	15	–
Television	488	5	429	13	–	–	–	–	2	29	4
Iron	75	–	24	34	–	–	4	–	9	4	–
Audio visual	88	4	79	2	–	–	–	–	2	5	–
Computer/VDU	58	1	47	1	–	–	–	–	3	5	–
Kettle,Um,etc	65	–	45	10	–	–	–	–	4	4	–
Other	812	13	543	107	2	–	11	2	40	88	3
<b>Other appliances fuelled by:</b>	<b>169</b>	<b>14</b>	<b>46</b>	<b>46</b>	<b>1</b>	<b>–</b>	<b>14</b>	<b>–</b>	<b>23</b>	<b>14</b>	<b>3</b>
Gas	34	–	16	6	1	–	1	–	10	–	–
Liquefied petroleum gas	36	–	3	24	–	–	4	–	4	1	–
Oil and petroleum	24	–	11	5	–	–	2	–	3	3	–
Other and specified	65	14	15	11	–	–	7	–	6	10	3
<b>Chimney, stove,pipe, flue (not confined to)</b>	<b>238</b>	<b>4</b>	<b>29</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>–</b>	<b>37</b>	<b>150</b>	<b>5</b>
<b>Candles</b>	<b>1,653</b>	<b>–</b>	<b>–</b>	<b>84</b>	<b>–</b>	<b>12</b>	<b>313</b>	<b>3</b>	<b>403</b>	<b>837</b>	<b>–</b>
<b>Other sources</b>	<b>1,4997</b>	<b>7</b>	<b>15</b>	<b>39</b>	<b>3</b>	<b>39</b>	<b>192</b>	<b>2</b>	<b>235</b>	<b>849</b>	<b>52</b>
Ashes, soot	108	–	2	6	–	–	39	–	12	49	–
Rubbish	67	–	–	6	–	–	4	–	32	25	7
Taper,lighted paper, other naked light	380	1	2	46	–	31	105	2	115	49	14
Hot metal, molten glass	59	–	1	6	–	–	12	–	17	22	–
Fireworks	62	–	–	8	–	5	6	–	32	8	6
Lightning	242	4	–	2	–	–	–	–	–	233	5
Spontaneous combustion	47	–	–	–	–	–	1	–	2	42	–
Spread from fire	391	–	–	4	–	2	6	–	4	353	19
Other	143	2	10	15	3	1	19	–	21	68	1
<b>Unspecified</b>	<b>882</b>	<b>13</b>	<b>30</b>	<b>35</b>	<b>4</b>	<b>5</b>	<b>19</b>	<b>–</b>	<b>16</b>	<b>350</b>	<b>383</b>

<sup>1</sup>Includes caravans, houseboats and other non-building structures used solely as a permanent dwelling ( see explanatory note 19)

Source: Department for Communities and Local Government, London

**ACE Contacts in your region for further information:**

Name	Region	Office	Contact Information
Colin Alleck	Asia Pacific	Sydney, Australia	colin.alleck@acegroup.com Phone: + 61 2 9335 3348
Rick Gerbrandt	Canada	Vancouver, Canada	rick.gerbrandt@acegroup.com Phone: + 1 604 895-7467
Marcus Jury *G	Europe	Frankfurt, Germany	marcus.jury@acegroup.com Phone: + 49 (0)69 75613 231
Bruno Escobar	Latin America	Mexico City, Mexico	bruno.escobar@acegroup.com Phone: + 52 (55) 52585863
Ken Vogel	USA	Plainsboro, USA	kenneth.vogel@acegroup.com Phone: + 1 609 799 1339

\*G – Denotes Global Product Champion

**Reference Sources****Flood losses**

<http://home.aceins.com/AceMainRoot/products/ProductsByBusiness/AOG/AEU/property/Flood/Global+Archive+of+Major+Floods.htm>

**Windstorm**

<http://home.aceins.com/AceMainRoot/products/ProductsByBusiness/AOG/AEU/property/Windstorm/>

**Fire losses UK 2005**

[www.communities.gov.uk](http://www.communities.gov.uk)



### **ACE Global Engineering Network**

The ACE Global Engineering Network creates strong, long term relationships with clients, focusing on cost effective and proficient solutions to their risk management challenges.

Through in depth loss prevention training backgrounds and industry expertise, ACE engineers are experienced in evaluating a wide variety of risks and complexity of exposures.

Our specialist team is driven by account and field engineers delivering high quality and effective loss prevention services. We have engineers in key strategic locations around the world who are familiar with international standards as well as local codes and work practices. This proves invaluable in helping clients establish and maintain operations in traditional and emerging markets.

For further information please go to: [www.aceagen.com](http://www.aceagen.com)