
**Fire safety — Statistical data
collection —**

**Part 2:
Vocabulary**

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Published in Switzerland

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
Bibliography	12
Alphabetical index	13

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 92, *Fire safety*.

A list of all parts in the ISO 17755 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

ISO/TR 17755:2014 has shown that experts involved in fire safety who work on international and national fire statistics databases face three main issues:

- 1) a lack of common terminology (many terms have different definitions),
- 2) a lack of common methodology,
- 3) some weaknesses in the training and qualification of fire investigators.

In order to harmonize the existing definitions within ISO, this document is a tool for use in proposing a common methodology for collecting fire statistics. It was decided to harmonize the definitions of certain terms commonly used in fire statistical data within the framework of ISO and to collect them in this document which is the only terminology guide used for this series of International Standards. This document supplements ISO 13943 for application to fire statistics.

The methodology for collecting fire statistics will be the focus of a future part in this series.

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Fire safety — Statistical data collection —

Part 2: Vocabulary

1 Scope

Data collection is of prime importance in fire safety, for several reasons: assessing the effect of any regulation, providing probability and gravity data to fire risk analysis, and the selection of scenarios for examples in fire safety engineering. Statistical data collection of fires is nevertheless collected and analysed from local or national perspectives at the time of publication of this document, making any comparison difficult. A first step identified in the need for harmonization is the issue of terminology.

This document defines terminology relating to fire statistical data, in order to supplement ISO 13943 for this specific field of application.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

accelerant

fuel (3.51) or oxidizer, often an ignitable liquid, solid or gas (LGP/NP) intentionally used to initiate a fire or increase the rate of growth or spread of fire

3.2

accidental fire

fire for which the cause does not involve an intentional human act to ignite or spread the fire into an area where the fire should not be

3.3

age group of victims

categorization by age of the *victims* (3.15) of fire

Note 1 to entry: this categorization may differ locally. This document proposes the following categories:

- Newborn (child under 28 days of age)
- Child (person whose age is between 28 days (included) and 9 years (included))
- Youth (person whose age is between 10 years (included) and 17 years (included))
- Adult (person whose age is between 18 years (included) and 64 years (included))
- Elderly (person who is aged 65 or more).

**3.4
alarm**

time to notification to fire service or other local service

Note 1 to entry: This definition differs from *alarm time* defined in ISO 13943:2017, 3.16 which corresponds to the time interval between ignition of a fire and activation of an alarm to notify occupants.

**3.5
area of origin of the fire**

general localized area within the location where the fire started

Note 1 to entry: See also, *location of the fire* (3.58) and *point of origin of the fire* (3.64).

**3.6
arson**

act of intentionally and maliciously starting a fire or causing an explosion

**3.7
arsonist**

person who commits *arson* (3.6)

**3.8
auto-ignition
self-ignition**

initiation of combustion by heat but without a spark or flame

**3.9
backdraft**

rapid flaming combustion caused by the sudden introduction of air into a confined oxygen-deficient space that contains gaseous *fuel* (3.51) or hot products of incomplete combustion

Note 1 to entry: In some cases, these conditions can result in an explosion.

**3.10
building**

permanent or semi-permanent walled and roofed structure that stands alone and separately from other structures, including those under construction, or any comparable structure

Note 1 to entry: See also *built environment*, ISO 13943:2017, 3.32.

Note 2 to entry: When buildings are used for automatic operations, this shall be specified.

**3.11
building fire**

fire involving any kind of *building* (3.10) such as residential, commercial, public building

**3.12
building status**

status of the *building* (3.10) in terms of occupancy or construction

EXAMPLE Occupied, vacant or permanently unoccupied, under construction, under demolition

**3.13
building under construction**

building (3.10) for which construction is in progress

**3.14
building under demolition**

building (3.10) for which demolition is in progress

3.15
casualty
victim

person killed or injured

3.16
cause of a fire

predefined categorical class of the primary cause of the fire

Note 1 to entry: See also, *source of the fire* (3.74), *material first ignited* (3.59), *classification of the primary cause of a fire* (3.20) and *circumstances of the fire* (3.19).

3.17
cause of unacceptable fire (and smoke) propagation

reason of fire (and smoke) spread

Note 1 to entry: This should be prevented by fire protection measures.

Note 2 to entry: Note to entry 1: Typical causes are, amongst other things, use of unsuitable building materials, defects in fire detection, insufficient supply of extinguishing water, and inadmissible shutdown of automatic fire extinguishing systems.

3.18
cause of casualty

phenomenon causing death of a person in a fire

EXAMPLE Smoke inhalation (heat gases and toxic gases including oxygen depletion), burn, physical injury.

3.19
circumstance of the fire

element (including events, factors, behaviours, characteristics, coincidences) that contributed to ignition and development of a fire

Note 1 to entry: See also, *source of the fire* (3.74), *material first ignited* (3.59), *cause of a fire* (3.16) and *classification of the primary cause of a fire* (3.20).

3.20
classification of the primary cause of a fire

predefined categorical classes of the primary cause of a fire (3.16)

Note 1 to entry: This classification is composed of the following items:

- Undetermined
- Natural, for example caused by lightning, volcanoes, etc.
- Caused by human actions
 - Unintentional
 - Intentional (*arson* [3.6], *suicide fire* [3.71])
 - Unknown intent
- Technological
 - Electrical, e.g. short-circuit, overload and overheating
 - *Fuel* (3.51) leak or gas leak
 - Thermal, e.g. heater, flame
 - Explosion, e.g. bomb
 - Spontaneous ignition

Note 2 to entry: See also *source of the fire* (3.74), *material first ignited* (3.59), *cause of a fire* (3.16) and *circumstances of the fire* (3.20).

**3.21
condition of casualty**

predefined categorical classes of the circumstances of casualty

EXAMPLE Asleep at time of fire; bedridden or other physical handicap; defenestration; impairment by alcohol; impairment by drugs; impairment by medication; blinded or partially sighted; deafness; mental impairment; *senility* (3.72); awake and no physical or mental impairment at the time of fire; under restraint or detention; too young to react to fire emergency; child left unattended; unclassified.

**3.22
commercial and industry fire**

fire on the premises of a commercial or industrial enterprise

Note 1 to entry: Note to entry 1: Commercial and industrial fires can reach, depending on operational processes and materials, a considerable extent, which can only be suppressed effectively with special extinguishing agents and a long onset time of fire brigade.

**3.23
damages**

total loss caused by fire, including *direct property damages* (3.25) and *indirect losses* (3.54) such as business interruption, loss of future production and including loss of wildlife or watershed values in wildland fires

Note 1 to entry: Damages may be categorized as economic loss, physical loss, and environmental loss.

**3.24
deliberate fire
incendiary fire
intentional fire
voluntary fire**

fire intentionally ignited under circumstances in which the person knows that the fire should not be ignited

Note 1 to entry: They are composed of *arson* (3.6) and suicides by fires.

**3.25
direct property damages**

damages (3.23) excluding *indirect losses* (3.54)

Note 1 to entry: See also, *damages* (3.23) and *indirect losses* (3.54).

**3.26
dwelling fire
home fire
residential fire**

fire which occurs in a property that is also a place of residence, excluding hotels, hostels and residential institutions

**3.27
ethnicity**

group of people classified together on the basis of physical characteristics transmitted genetically or of common nationality or geographical or historical location

Note 1 to entry: Some countries provide fire statistical data related to ethnicity, whereas in some other countries this is prohibited for ethical reasons.

3.28 evacuation

action which is intended to move people to a safer location in order to avoid a developing hazard

Note 1 to entry: See also *escape* ISO 13943:2017, 3.99 and *evacuation behaviour* in ISO 13943:2017, 3.100.

3.29 extent of fire propagation

horizontal and vertical dimension of *fire spread* (3.46)

Note 1 to entry: If a fire can overcome a building compartment built with fire resistant walls, ceiling and fire enclosures, for example, there may be a failure of the structural protective measure or an error in fire protection planning.

3.30 extent of smoke propagation

horizontal and vertical dimension of smoke spread

Note 1 to entry: In the event of fire, smoke can particularly endanger life and health and is therefore an important indication of casualties.

3.31 exterior propagation of a fire from balcony to balcony

spread of a fire which starts at the exterior on a balcony and propagates to another balcony above

Note 1 to entry: The main part of the combustible of the fire is located on the balcony. In some cases, the fire can also, at the same time, propagate inside the upper floor from the exterior of the *building* (3.10). In some cases, the fire can propagate below.

Note 2 to entry: See also, *exterior propagation of a fire from one level to another* (3.32) and *façade fire* (3.34).

3.32 exterior propagation of a fire from one level to another

spread of a fire which starts inside a *building* (3.10) and propagates inside the upper floor by the exterior

Note 1 to entry: The main part of the combustible of the fire is located inside the building.

Note 2 to entry: See also, *exterior propagation of a fire from balcony to balcony* (3.31) and *façade fire* (3.34).

3.33 extinguished fire

fire at its final stage, after the main body has been knocked down

Note 1 to entry: All traces of fire are extinguished at this time.

Note 2 to entry: See also, *surrounded fire* (3.79), *under control fire* (3.81) and *knocked down fire* (3.55).

3.34 façade fire

fire that starts inside or outside a *building* (3.10) and mainly develops by combustion of the materials constituting the external cladding of the façade, and where applicable, facilitated by façade construction

Note 1 to entry: This external cladding can be separated in the external thermal insulation composite system and decoration system.

Note 2 to entry: See also, *exterior propagation of a fire from balcony to balcony* (3.31) and *exterior propagation of a fire from one level to another* (3.32).

3.35 false fire alarm

alarm (3.4) for which no fire occurred or for which fire department response was unnecessary

3.36

fatal fire

fire with at least one *fire fatality* (3.37)

Note 1 to entry: See also, *multi fatal fire* (3.62).

3.37

fatal fire casualty

fire fatality

fatal fire injury

fire death

person who has died as a result of injuries sustained during a fire incident

Note 1 to entry: In this context, there is no limitation of time after the fire. Fire fatalities also include death from natural or accidental causes sustained whilst involved in the activities of fire control, attempting *rescue* (3.67) or escaping from the dangers of the fire, including blast and defenestration, except when a death occurred in sites with the right of extraterritoriality

Note 2 to entry: Fire fatalities are composed of all persons discovered or declared dead on the *location of the fire* (3.58), during their transportation to the hospital or after their admission at the hospital.

Note 3 to entry: A person who dies by fire resulting from vehicle accidents is included in the fire fatalities database if the death can be attributed to fire.

3.38

fire in technical facility

fire started from a technical facility that is installed in or on a *building* (3.10)

Note 1 to entry: Note to entry 1: Typical technical facilities are ventilation rooms, elevator rooms, and new-energy related areas (e.g. photovoltaic system, wind turbine).

3.39

fire

reported fire

<fire statistics> fire that receives a fire department response regardless of loss, without any exception

Note 1 to entry: In some countries, a fire can be reported to a fire station. In this case, it is specifically noted as such.

Note 2 to entry: Reported fire does not include the following, except where they cause fire or occur as a consequence of fire: explosion, lightning and electrical discharge.

Note 3 to entry: This definition differs from general definitions of *fire* given in ISO 13943:2017, 3.114, 3.115 and 3.116.

3.40

fire casualty

fire victim

person killed or injured as a direct effect of a fire without any limit of time following the date on which the injury was sustained

Note 1 to entry: In some countries, limits of time are used. In such cases, this is noted.

3.41

fire incident report

official fire department report of a fire incident

3.42**fire injury**

person who is injured (but not fatally injured) as a result of a fire incident, without any limitation of time after the fire,

Note 1 to entry: This includes being injured from natural or accidental causes sustained whilst involved in the activities of fire control, attempting *rescue* (3.67) or escaping from the dangers of the fire, including blast and defenestration and requiring *first aid* (3.48) at the scene (provided by anyone) or further medical treatment with or without any hospital admission.

Note 2 to entry: A person who is injured by fire resulting from a vehicle accident is included in the fire injuries database if the injury can be attributed to fire.

Note 3 to entry: In some countries, limits of time are used. In such cases, this is noted.

Note 4 to entry: See also, *minor injury* (3.61), *light injury* (3.57), *serious injury* (3.73) and *life threatening* (3.56).

3.43**fire investigation**

process of determining the origin, cause and development of a fire and other relevant factors for the event, such as actions by individuals

3.44**fire investigation report**

report that describes the results of the *fire investigation* (3.43)

3.45**fire investigator**

investigator specially trained for *fire investigation* (3.43)

3.46**fire propagation****fire spread**

movement of fire from one place to another

3.47**fire statistics**

statistics (3.76) dedicated to fires concerning issues such as fire fatalities, fire injuries and fire losses

3.48**first aid**

urgent treatment given at the fire scene by anyone

3.49**first responder**

person who, in the course of their normal duty, can be first on the fire scene

3.50**flashover**

<stage of fire> transition to a state of total surface involvement in a fire of combustible materials within an enclosure

3.51**fuel**

<fire statistics> material that maintains combustion under specified environmental conditions

Note 1 to entry: This definition differs from that given in ISO 13943:2017, 3.189.

3.52

height of a building

distance between the floor of the ground floor used by firefighters and fire engines and the floor of the highest level used by people of the *building* (3.10)

Note 1 to entry: This is at least the number of floors above the ground level of the building.

3.53

ignition source

source of energy that initiates combustion

3.54

indirect losses

amount of loss incurred as a result of being unable to use business property or equipment

3.55

knocked down fire

fire at a stage where the most threatening parts of the fire have been put out and only limited quantities of debris burn or carbonize

Note 1 to entry: The termination is completed by clearing until there is no material involved in the combustion.

Note 2 to entry: See also, *surrounded fire* (3.79), *under control fire* (3.81) and *extinguished fire* (3.33).

3.56

life threatening

injured person who must immediately receive emergency *rescue* (3.67) and medical treatment to prevent a certain and impending death

Note 1 to entry: See also, *fire injury* (3.42), *minor injury* (3.61), *light injury* (3.57), and *serious injury* (3.73).

3.57

light injury

moderate injury

person who is hospitalized for 1 day to 3 days or requires 1 day to 3 weeks off work

Note 1 to entry: See also, *fire injury* (3.42), *minor injury* (3.61), *serious injury* (3.73) and *life threatening* (3.56).

3.58

location of the fire

general area where the origin of the fire started

Note 1 to entry: See also, *area of origin of the fire* (3.5) and *point of origin of the fire* (3.64).

3.59

material first ignited

fuel (3.51) that is first set on fire by the heat of ignition

Note 1 to entry: See also, *source of the fire* (3.74), *cause of a fire* (3.16), *classification of the primary cause of a fire* (3.20) and *circumstances of the fire* (3.19).

3.60

means of egress

continuous and unobstructed path available for a person, valid or invalid, to leave a *building* (3.10), structure or space to reach a public way unexposed to fire threat

Note 1 to entry: Means of egress consist of three separate and distinct parts: 1) the exit access, 2) the exit, 3) the exit discharge.

3.61**minor injury**

person who is hospitalized or off work for less than 1 day

Note 1 to entry: See also, *fire injury* (3.42), *light injury* (3.57), *serious injury* (3.73) and *life threatening* (3.56).

3.62**multi fatal fire**

fire with more than one *fire fatality* (3.37)

Note 1 to entry: See also, *fatal fire* (3.36).

3.63**nature of casualty****severity of casualty**

stage of *fire victim* (3.40)

EXAMPLE Minor injury, light injury, serious injury, life threatening, death.

Note 1 to entry: See also, *fire injury* (3.42), *minor injury* (3.61), *light injury* (3.57), *serious injury* (3.73) and *life threatening* (3.56).

3.64**point of origin of the fire**

exact physical location within the area of origin where the fire starts

Note 1 to entry: See also, *area of origin of the fire* (3.5), and *location of the fire* (3.58).

3.65**positive fire statistics**

fire statistics (3.47) relating to the non-occurrence of an adverse event

EXAMPLE Number of *rescues* (3.67), properties, goods or areas saved from the fire.

Note 1 to entry: See also, *statistics* (3.76).

3.66**property damages**

estimated monetary value of the damage to property and contents caused by fire and firefighting operations, including costs for demolition and decontamination as well as *indirect losses* (3.54) due to business interruption

Note 1 to entry: Property damages does not include land value. It can include indirect loss due to business interruption.

3.67**rescue**

action to remove a person from an immediate and potentially fatal danger

3.68**response time**

time from the time of call to the arrival of the first fire engine

3.69**safeguard**

action to protect a person against a possible and delayed danger, damage or loss

3.70**self-evacuation**

action to move oneself to safer positions to avoid an evolutionary danger

3.71

**self-immolation
suicide fire**

act of killing oneself by the use of fire, often by pouring *accelerant* (3.1) over the body and igniting it

3.72

senility

weakening of a person's mental or physical abilities due to old age

3.73

serious injury

person who is hospitalized for 4 days or more or has more than 3 weeks off work

Note 1 to entry: See also, *fire injury* (3.42), *minor injury* (3.61), *light injury* (3.57) and *life threatening* (3.56).

3.74

source of the fire

device, equipment, machine, action or phenomenon which provides the activation energy necessary to cause a combustion

Note 1 to entry: See also, *cause of a fire* (3.16), *material first ignited* (3.59), *classification of the primary cause of a fire* (3.20) and *circumstances of the fire* (3.19).

3.75

staircase fire

fire that starts and/or propagates through the stairway/staircase/stairwell

3.76

statistics

item of numerical data, or a quantity computed as a function on a body of numerical data, or the function itself

3.77

statistical analysis

use of mathematical methods to reduce sizeable bodies of numerical data into a small number of summary *statistics* (3.76) from which useful conclusions may be drawn

3.78

status of a victim

role of a *victim* (3.15) during a fire

EXAMPLE Civilian; firefighter (civilian or military, volunteer or professional, on-duty or off-duty or retired); other rescuer (civilian or military, volunteer or professional, on-duty or off-duty or retired); unknown.

3.79

surrounded fire

fire where nozzles are established at selected points of attack and are sufficient to prevent the fire from spreading

Note 1 to entry: See also, *under control fire* (3.81), *knocked down fire* (3.55) and *extinguished fire* (3.33).

3.80

traffic accident

accident involving one or more vehicles

3.81

under control fire

fire completely surrounded by a control line and whose intensity declines in these limits

Note 1 to entry: See also, *surrounded fire* (3.79), *knocked down fire* (3.55) and *extinguished fire* (3.33).

3.82

urban fire

fire involving *buildings* (3.10) or structures in cities or towns with potential to spread to adjoining structures

3.83

vegetation fire

wildland fire

fire occurring in forests, scrublands, grasslands or rangelands, either of natural origin or caused by human intervention

3.84

victim characteristics

information collected about *victims* (3.15)

3.85

year of construction

exact year of the beginning of construction of the *building* (3.10) or at least the opening of the building

Note 1 to entry: The choice is noted.

Note 2 to entry: If possible, the exact date is given.

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