

TASK 4: TERMINOLOGY

EU FireStat - Closing data gaps and paving the way for pan-European Fire Safety Efforts

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LIST OF ABBREVIATIONS

BAM	Bundesanstalt für Materialforschung und –prüfung
CFS-CTIF	Centre for Fire Statistics of CTIF
DBI	Danish Institute of Fire and Security Technology
EU	European Union
EuroFSA	European Fire Safety Alliance
LU	Lund University
NFPA	National Fire Protection Association
UoE	The University of Edinburgh
VFDB	Vereinigung zur Förderung des Deutschen Brandschutzes

EXECUTIVE SUMMARY

Task 4 of the EU FireStat project is focused on proposing common terminology definitions for all fire data to be collected aiming at ensuring the common understanding within the EU. The proposed terminology includes and complete ISO TS 17755-2 standard in EU context.

The common terminology is based on the learnings from tasks 1 and 2. Four groups of categories were established, i.e., intervention characteristics, human characteristics, building characteristics and fire characteristics and several variables are assigned to the established groups of categories. The common terminology was proposed by the consortium members by using the learnings from the previous tasks and by researching in public datasets and literature review.

For each variable, a definition and values assigned to the variable are presented. Notes to the definitions or values are also presented when needed.

Overall, the Task 4 work impacts the methodologies proposed in task 3 and has a significant impact on cost of implementation.

1. INTRODUCTION

Task 4 focuses on defining the variables selected in Task 2. Four groups of categories were established, i.e., intervention characteristics, human characteristics, building characteristics and fire characteristics. Several variables are assigned to the established groups of categories, as presented in Table 1.

Table 1. Categories of interest and the assigned variables

Categories of interest	Variables
Intervention characteristics	Incident date Incident time Incident location
Human characteristics	Number of deaths Number of injuries Age of victims
Building characteristics	Type of building Number of floors Fire safety measures present
Fire characteristics	Area of origin Item first ignited Material(s) contributing to fire development Cause of fire

The objective of Task 4 is to identify the most appropriate names and definitions for variables which describe the categories of interest to be recorded by fire officers in the immediate aftermath of a fire incident and subsequently collected at European level, as well as appropriate values which these variables can have. This terminology would constitute a minimum dataset for collection at the local level. It would not prevent a fire department or national authority from having a more detailed data collection, as long as they can provide simplified data according to the terminology of the pan-European statistics.

First, the relevant variables for collection were identified. Next, some of the variables derived from Task 2 are modified, in order to improve their understandability by fire officers. The next step is to identify the most appropriate values that these variables can have.

There are several goals when identifying appropriate values for a variable:

- values must be different from each other – overlapping alternatives must be avoided.
- values must avoid terms associated with moral failings or culpability – a reluctance to use such values could give a significant bias in the statistics, with respondents using “Undetermined” when in reality they have a reasonably certain assessment of what happened.
- The proposed number of values must be suitable to allow a meaningful analysis but at the same time avoiding a long list of alternatives.

One way to avoid many alternatives for values is to subdivide the long list into distinct groups. A list consisting of 12 groups of 12 alternative values will be easier for a respondent to work with than a long list of 144 alternatives, improving the user experience and at the same time giving more reliable statistics.

In order to limit the length of lists and also open up for new things to investigate such as e.g., solar panels, in most cases there is an “Other” category accompanied by a short text field, where the respondent can describe the specific value. This adds to the complexity of the data collection but will be very important for analysis at a national level. However, it is difficult to see how to analyze these texts at the European level since the words and concepts used may be highly specialized to give a good and comparable translation.

2. FRAMEWORK

The following threshold is established to determine which fires are to be collected for the project:

EUFireStat includes Building Fires where the Fire Service attended the scene, confirmed that a fire was either ongoing or had been extinguished, and resulted in damage to people, property or the environment.

- Damage in this context is considered as
 - Injuries at the fire scene.
 - Fatalities at the fire scene.
 - Damage to property of at least 100 euros.
 - Environmental contamination requiring clean-up.
- Fire in this context is considered as uncontrolled self-supporting flaming, glowing or smouldering combustion.
- The following will be included only if the event resulted in a fire as defined above after the initial event:
 - Explosions, flashes and discharges of static electricity, attempted suicide and suicide by self-immolation.

3. PROPOSED TERMINOLOGY

3.1. INTERVENTION CHARACTERISTICS

More details about the intervention characteristics can be seen in Annex A.

3.1.1. Incident time

Definition:

The earliest available moment¹ of which a fire event occurred, registered in hours (24H) and minutes at local time.

Note to definition:

¹Additional suggestion: the earliest available moment refers to the earliest moment that the fire is reported to an official authority/system (for example: the detection time by an automatic detection system linked to the control room or calling the emergency number).

Value:

hh/mm (24H) or undetermined + local time (for example: UTC + 01:00)

3.1.2. Incident date

Definition:

The earliest available moment¹ of which a fire event occurred, registered in the day, month and year at local date and time.

Note to definition:

¹Additional suggestion: the earliest available moment refers to the earliest moment that the fire is reported to an official authority/system (for example: the detection time by an automatic detection system linked to the control room or calling the emergency number).

Value:

dd/mm/yyyy (European notation)

3.1.3. Incident location

Definition:

The most precise place where a fire event occurred, registered in (by availability) coordinates, name of the country, region, town, postal code and/or street name and number.

Value:

If available: coordinates¹, country, region, town, postal code and/or street name and number where the fire occurred or unknown (then: only country)

Note to value:

¹Latitude and longitude to be collected.

3.2. HUMAN CHARACTERISTICS

3.2.1. Number of deaths

Definition:

Is the number of person(s) who died as a result of injuries sustained during a fire incident.

Note to definition:

Note 1: Fire-related fatalities are those that would not have occurred had there not been a fire.

Note 2: Fire deaths include people who die within 1 year because of injuries sustained from the incident. Fire deaths also include death from natural or accidental causes sustained whilst involved in the activities of fire control, attempting rescue or escaping from the dangers of the fire, including blast and defenestration.

Note 3: Fire deaths are composed of all persons discovered or declared dead on the location of the fire, during their transportation to the hospital or after their admission at the hospital.

Note 4: The number of the variable should include self-intended fires / suicidal fires but they should be marked as such

Note 5: People who died before a fire started (natural death, victims of a violent crime) are to be excluded from the statistics as soon as a forensic medical report is available.

Value:

Numerical value*

*To be approximated when unknown.

3.2.2. Number of injuries

Definition:

Is the number of persons who are injured (but not accounted for as deaths) as a result of a fire incident, within 1 year of the incident.

Note to definition:

Note 1: Fire-related injuries are those that would not have occurred had there not been a fire.

Note 2: Fire injuries also include injuries from natural or accidental causes sustained whilst involved in the activities of fire control, attempting rescue or escaping from the dangers of the fire, including blast and defenestration.

Note 3: Fire injuries are those treated at the scene or taken to the hospital.

Value:

Numerical value*

*To be approximated when unknown.

3.2.3. Age of victims

More details about the age of victims can be seen in Annex B.

Definition:

Numerical value of age of victim at time of the fire.

Note:

If actual age is not known, it should be estimated with the closest possible estimate. Particular care should be used in estimating the age for young adults aged 15 – 25 and older adults aged 60 – 70 as the threshold between youth and adult is often set at 18 years and between adult and senior at 65 years. For children less than 12 months old the age should be estimated to be one year.

Value:

Numerical value*

*To be approximated when unknown.

3.3. BUILDING CHARACTERISTICS

3.3.1. Type of building

More details about the type of building can be seen in Annex C1.

Notes:

The following definitions and classifications are extracted from the [Classification of Types of Constructions](#) **Erreur ! Source du renvoi introuvable.**] and adapted to the scope of the current project. This classification system is used by Eurostat for European statistical purposes, such as providing indicators on the development of granted [building permits](#) in the European Union (EU). The classification mainly differentiates the use of buildings, according to the main use (e.g. residential, non-residential **and mixed-use**) as well as their respective sub-divisions.

The highlighted words are the one added by the consortium members compared to the existing classification by Eurostat.

Definitions:

- 1) *Buildings* are roofed constructions which can be used separately, have been built for permanent (or **semi-permanent**) purposes, can be entered by persons and are suitable or intended for protecting persons, animals or objects. **Buildings that are under construction are excluded from the definition of Buildings but are listed as a separated type of construction (see Section 3 in the classification).**

Buildings do not necessarily need walls. It is sufficient for them to have a roof, but there must be a demarcation which constitutes the individual character of the building to be used separately.

A separate building is any free-standing building; also, in the case of interconnected structures (e.g. semi-detached or terraced houses), any unit separated from other units by a fire wall extending from roof to cellar is considered an individual building. If there is no fire wall the interconnected building units are regarded as individual buildings if they have their own access (own entrance) as well as their own utility system and are separately usable.

For technical reasons, buildings also include separately usable underground constructions which can be entered by persons and are suitable or intended for protecting persons, animals or objects (e.g. underground shelters, underground hospitals, underground shopping centers and workshops, underground garages).

Buildings are subdivided into residential, non-residential **and mixed-use buildings**.

- 2) *Residential buildings* are constructions that are exclusively used for residential purposes.
- 3) *Non-residential buildings* are constructions that are exclusively used for non-residential purposes.
- 4) *Mixed-use buildings* are constructions which are used for both residential and non-residential purpose.

In residential buildings, there is the notion of *Dwellings*, which is defined as the following according to Eurostat: Buildings that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Houseboats, barges, mobile homes and caravans used as principal residences of households are also included, as are historic monuments identified primarily as dwellings.

Values:

Section	Division	Group	Class	
1 BUILDINGS	11 Residential buildings	110	1100 Unknown	
		111	One-dwelling buildings One-dwelling buildings	
			1110	
		112	Two- and more dwelling buildings	
			1121	Two-dwelling buildings
			1122	Three- and more dwelling buildings
		113	Residences for communities	
			1130	Residences for communities
		12 Non- residential buildings	120	1200 Unknown
			121	Hotels and similar buildings
			1211	Hotel buildings
			1212	Other short-stay accommodation buildings
	122		Office buildings	
			1220	Office buildings
	123		Wholesale and retail trade buildings	
			1230	Wholesale and retail trade buildings
	124		Traffic and communication buildings	
			1241	Communication buildings, stations, terminals and associated buildings
			1242	Garage buildings
	125		Industrial buildings and warehouses	
			1251	Industrial buildings
			1252	Reservoirs, silos and warehouses

126	Public entertainment, education, hospital or institutional care buildings
1261	Public entertainment buildings
1262	Museums and libraries
1263	School, university and research buildings
1264	Hospital or institutional care buildings
1265	Sports halls
127	Other non-residential buildings
1271	Non-residential farm buildings
1272	Buildings used as places of worship and for religious activities
1273	Historic or protected monuments
1274	Other buildings not elsewhere classified

2. BUILDING UNDER CONSTRUCTION

Guidelines for classifications:

The classification uses a decimal system and includes:

2	Sections	(1-digit)
2	Divisions	(2-digit)
12	Groups	(3-digit)
23	Classes	(4-digit)

The unit to be used for classification is generally the individual construction. In certain cases it is only possible to apply it to a property as a whole. The classification is presented in the next section.

For fire statistic purposes, the most important aspect is to at least report the 2-digit (e.g. residential, non-residential or mixed-use).

For complex constructions consisting, for example, of several buildings, each building is to be classified as a separate unit. If, for example, a school consists of a school building and a hostel, the school building is to be assigned to 1263, whereas the hostel belongs to 1130. However, as mentioned above, if no detailed data are available, the complex is classified to 1263. See classification structure in next section.

As mentioned before, constructions are classified according to their specific use. Constructions used or designed for several purposes (e.g., a combined residential, hotel and office building) are to be assigned to one classification item, according to the main apparent use (more than at least half of the construction) as mixed-used building.

Mixed-used buildings follow the exact divisions as other buildings, with the addition of the index “m” following their initial classification.

This rule can be illustrated on the basis of the following theoretical example:

Example 1: The overall useful area of a building is broken down into:

Type of use	Percentage of overall useful area	CC Class
4 flats	30%	1122

Office of a credit institute	10%	1220
Pharmacy and shops	20%	1230
Library	30%	1262
Doctor's practice	10%	1264

- in the 2-digit division 12m "Non-residential buildings" because this covers the major percentage (70%) and the index "m" because it combines residential and non-residential activities.
- in the 3-digit group 126m "Buildings for public entertainment, education or hospital and institutional care" because this covers the major percentage (40%) within division 12 and the index "m" because it combines residential and non-residential activities.
- finally in the 4-digit class 1262m "Museums and libraries" because this class covers the major percentage (30 %) within unit group 126 and the index "m" because it combines residential and non-residential activities.

3.3.2. Number of floors

More details about the number of floors can be seen in Annex C2.

General Note:

The reasons for the assumption of the definitions for the number of floors is based on a deep analysis of existing definitions in the fire statistics of various countries (see Annex C2). Considering the information provided by the ISO/TR 17755:2014 [3] document, the number of floors could be recorded in terms of floors or height. In the ISO/TS 17755-2:2020(E) [2], the height of the building is defined as the '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'. However, the floor height of the building can vary considering various property types, especially if public buildings or industries are examined. Therefore, the floor is defined as the distance between the pavement and the ceiling of one floor. Moreover, in the statistics of the UK (England) and the USA, the number of floors (or stories) is grouped into floors above or below ground level (grade level), respectively. Based on the above investigations and after deep discussions amongst the consortium members, the number of floors has been defined and subdivided into those above and below ground level referred to as the main entrance of the building. Finally, the number of floors has been determined as an easier variable to record than the height of the building.

Definition:

The number of floors above is the numerical value to capture the number of floors above and including the ground level.

The number of floors below is the numerical value to capture the number of floors below and excluding the ground level.

Note to definition:

The floor is defined as the distance from the pavement to the ceiling of one floor.

The ground level is referred to the level of the main entrance of the building.

Examples:

The building has only a basement, a ground level and 2 floors.

- Number of floors above is 3
- Number of floors below is 1.

The building has a ground level, 10 floors and 2 floors of underground parking:

- Number of floors above is 11
- Number of floors below is 2.

Value:

Numerical value for floors above*
Numerical value for floors below*

*To be approximated when unknown.

3.3.3. Fire safety measures

Definition:

Fire Safety Measures are build in devices and systems that aim at reducing the effects of a fire. They can be detecting (smoke, fire etc.) and alarming (local, central etc.) and/or preventing fire spread (sprinklers, automatic extinguishing equipment, compartmentation etc.) or any combination of those.

Value:

Were there Fire Safety Measures present?

Yes* / No

*If yes, what kind?

- Detection
- Alarm
- Extinguishing system
- Fire doors – other compartmentation means

Were there Fire Safety Measures working at the time of the fire?

Yes/ No

3.4. FIRE CHARACTERISTICS

3.4.1. Area of origin

More details about the area of origin can be seen in Annex D.

General Note:

Area of origin corresponds to the room of origin in Task 2.

The proposed definition and values are based on a deep analysis of existing definitions and values in the fire statistics of various countries (see Annex D). The proposed values are grouped in seven groups, following the practice in USA and Australia. The selected values take in consideration the already existing values presented in the ISO/TR 17755:2014 [3] document, along with the existing values in several European countries. Some of the proposed values have examples attached to it, for a better understanding.

Definition:

Area of origin is the localized area where the fire started.

Values¹:

- Functional Area
 - Sleeping area
 - Bathroom/toilet
 - Kitchen
 - Living room

¹ a coding structure for these values can be proposed in a later stage of the project

- Laundry area
 - Meeting area
 - Office
 - Classroom
 - Cafeteria/Bar
 - Sauna
 - Stable/barn
 - Other (write a value)
- Area of Egress
 - Hallway or corridor
 - Stairway
 - Elevator
 - Escalator
 - Lobby
 - Other (write a value)
- Assembly or Sales Areas
 - Assembly area¹
 - Sales area
 - Showroom
 - Indoor swimming hall
 - Lounge area²
 - Other (write a value)
- Technical Processing Area
 - Operating area³
 - Processing or manufacturing area⁴
 - First-aid area
 - Stage/Scene
 - Other (write a value)
- Storage Areas
 - Storage area⁵
 - Parking area / garage
 - Cooling area / freezer
 - Fuel storage room
 - Trash
 - Shipping or receiving area
 - Silo / container / barn
 - Other (write a value)
- Service/Equipment Area
 - Machinery area⁶
 - Maintenance shop or area
 - Producing/distribution area⁷
 - Supply/disposal transport systems⁸
 - Heating area⁹
 - Shafts¹⁰
 - Other (write a value)

- Structural Areas
 - Wall assembly
 - Roof
 - Façade
 - Attic
 - Balcony/terrace
 - Substructure area¹¹
 - Awning
 - Area under renovation
 - Other (write a value)
- Undetermined

Note to values:

¹Examples of *assembly areas*: Conservatory, Cinema, Theater, Art gallery, Exhibit Hall, Library, Ticket office, Prayer room.

²Examples of *lounge areas*: Recreation rooms, Family rooms, Dens, Common rooms.

³Examples of *operating areas*: Computer room, Laboratory, Machine room, Projection room.

⁴Examples of *processing or manufacturing areas*: Workshop, Painting room, Drying room.

⁵Examples of *storage areas*: Closet, Tool or supply area.

⁶Examples of *machinery areas*: Server area, Technical area.

⁷Examples of *producing/distribution area*: Power house/plant/generator, Electrical distribution, Air conditioning and ventilation room, Filter room.

⁸Examples of *supply/disposal transport systems*: Ducts, Chimney, Ventilation duct, Water duct.

⁹Examples of *heating areas*: Boiler room, Remote heat transfer station.

¹⁰Examples of *shafts*: Elevator shaft, Supply and disposal shaft.

¹¹Examples of *substructure areas*: Cavities in ceiling, Cavity between floors, Other cavity.

3.4.2. Item first Ignited

Definition:

The initial fuel of the fire – the first item that had sufficient volume or heat intensity to extend to uncontrolled and self-supporting combustion.

Note:

The values for this variable must be at a level of detail which a fire officer is able to identify, hence the use of the word "item". It is sufficient to know the item at a general level without going into more detail about the item's structure or the material it is made from.

In items powered by electricity, an ignition can occur in the casing or heat insulation of the item. The heat for this ignition may be internal, coming from an electrical fault in the equipment itself, or external. We can illustrate this with two examples of fires there a coffee maker is the item first ignited. In the first case a fault in the coffee maker ignites the plastic casing, and the coffee maker is both the heat source and item first ignited. In the second example, someone carelessly leaves the coffee maker on a hot plate of a freestanding cooker which then gets turned on by accident. In this case the coffee maker is the item first ignited, but the freestanding cooker is the heat source.

Values:

- Food-related
 - Cooking fat or oil
 - Food
- Furnishing and clothing
 - Armchair, sofa, seat or similar
 - Curtains

- Bed
- Clothes
- Candle stick, including decorations
- Table
- Plant pot or window box
- Other furnishing
- Combustible material in household electric appliance
 - Freestanding cooker (*oven and hotplates or hob*)
 - Hotplate or hob (*separate – not part of freestanding cooker*)
 - Oven (*separate – not part of freestanding cooker*)
 - Microwave oven
 - Dishwasher
 - Fridge or freezer
 - Toaster
 - Coffee maker
 - Washing machine
 - Tumble drier
 - Heater
 - Fan or other ventilation appliance
 - Sauna heater
 - Other household electric appliance
- Combustible material in other electric appliance, tool or distribution
 - Lighting fitment
 - Battery
 - Battery charger
 - Wiring, socket, plug or power chord
 - Electricity distribution board/box
 - Photovoltaic panels
 - Transformer
 - Consumer electronics (*for example TV, video game console, video recorder or player, radio, telephone, cell phone, desktop-, laptop- or tablet computer*)
 - Other electrical item
- Building element
 - Façade and cladding elements
 - Windows
 - Floor/wall covering
 - Roof elements
 - Masonry
 - Inner wall
 - Joist
 - Other building element
- Other
 - Renovation or maintenance related items
 - Paper or cardboard (*including books*)
 - Soot or tar (*the item first ignited in a chimney fire*)
 - Wood chippings, bark or peat
 - Vegetation
 - Flammable liquid or gas
 - Car
 - Other vehicle
 - Pram

- Rubbish
- Other

- Undetermined

Comment to project group:

In task 2 “Item first ignited” was supported by only 30 % of stakeholders, but 67 % of consortium members. It was therefore not included in tier two of the Task 2 proposal. “Material responsible for fire development” was supported by just over 40 % of both stakeholders and consortium members and was therefore included in Tier 2. The first step in fire protection is to prevent ignition occurring. The second step is to prevent fire spreading to surrounding material. It would therefore be illogical to collect “Material responsible for fire development” without also collecting “Item first ignited”.

3.4.3. Materials contributing to fire development

Definition:

Any specific material assessed by the fire officer or fire investigator to have had a significant contribution to the development of the fire beyond the *item first ignited*.

Note:

This variable is only relevant if the fire spread from the *item first ignited*.

This variable is a re-wording of “Material responsible for fire development” from task 2.

There are some serious problems arising from the wording of this variable in task 2. Should we assume that the word “responsible” implies that we are only interested in the material which contributed most to the fire development? In most cases, several distinct materials will have contributed significantly to the fire development as a fire progresses from the *item first ignited* towards full surface involvement in the area of origin and then further in the building. If so, it is virtually impossible for an untrained fire officer to identify which material was most responsible for fire development.

We can get round the challenge of identifying the material most responsible for fire development by rewording the variable, and instead ask for any materials with a significant contribution to fire development. This variable must therefore allow multiple responses. This is in contrast to all the other variables proposed by the consortium: in all other cases only a single value is allowed. This is not a major problem for data collection, but it will create a very significant complication for statistical analysis.

It is often a major challenge for a well-educated and experienced fire investigator to inspect smoke and burn patterns in the area of origin and then make a judgement on which of all the fuel sources which had been present in the area of origin that made a significant contribution to the development of the fire. It is therefore unreasonable to expect reliable data on this from a fire officer other than in the relatively small proportion of all building fires that spread from the *item first ignited*, but without extensive damage to the *Area of origin*, in which case the data collected will not provide a significant gain in our knowledge of fire development.

Values (multiple choices allowed):

- Fire did not spread from *item first ignited*
- Fabric
- Upholstered furniture
- Foam mattress
- Flammable liquid
- Flammable gas
- Paper or cardboard (including books)
- Building elements
- Rubbish

- Renovation or maintenance related items
- Other

Comment to project group:

This variable should only be included in the proposal if the task 4 project group agree that the values chosen can be recorded reliably by fire officers.

This variable may well create significant frustration among respondents and is unlikely to provide actionable information to improve fire protection. Two similar variables – “item” and “type of material contributing most to flame spread” are included in the US fire administration’s NFIRS data collection from fire departments. However it is interesting to note they are not included in the supporting tables to the NFPA publication “Home Structure Fires”.

3.4.4. Cause

3.4.4.1. Heat source

Definition:

The source of energy that initiates combustion in the *item first ignited*.

Notes:

Heat source corresponds to source of ignition in Task 2.

The values for this variable must be at a level of detail which a fire officer is able to identify. A specialist fire investigator may be able to examine the item in more detail to discover the component in the item which produced the heat and how this failure occurred, but it is unreasonable to demand this from a fire officer.

According to the NFPA Guide for Fire and Explosion Investigations (NFPA 921), the combustion reaction taking place in a fire can be characterized by four components: the fuel, the oxidizing agent, the heat, and the uninhibited chemical chain reaction which makes the combustion self-supporting. This is commonly referred to as the “fire tetrahedron”.

One of the most important goals of pan-European statistics is to describe how ignition occurs at fires attended by the fire service. A reasonably accurate understanding in quantitative terms of how fires start is necessary for well-informed fire prevention activities.

Concerning the fire tetrahedron, we do not need statistics on the oxidizing agent as in all relevant cases this can be assumed to be oxygen in the surrounding air. However, we do need information on the first fuel item with enough energy to allow self-supporting combustion and the source of the heat which ignited it.

Item first ignited and *heat source* will allow us to understand how ignition occurred, but it is not in itself sufficient for fire prevention purposes – we also need to know why the item first ignited was exposed to the heat source for long enough for ignition to occur, as described in *primary causal factor* and *intent*.

Values:

- Household electric appliance (*not limited to a household environment – these values can be used in public and industrial buildings*)
 - Freestanding cooker (*oven and rings, hotplates or hob*)
 - Hotplate or hob (*separate – not part of freestanding cooker*)
 - Oven (*separate – not part of freestanding cooker*)
 - Microwave oven
 - Dishwasher
 - Fridge or freezer
 - Toaster

- Coffee maker
- Washing machine
- Tumble drier
- Heater
- Fan or other ventilation appliance
- Sauna heater/stove
- Other household electric appliance

- Other electric appliance or tool
 - Lamp or lighting fitment
 - Battery
 - Battery charger
 - Electric welding equipment
 - Electric hot air gun
 - Other electric appliance or tool

- Electric distribution
 - Wiring, socket, plug or power chord
 - Electricity distribution board/box
 - Transformer
 - Other electric distribution

- Consumer electronics *(for example TV; video game console; video recorder or player; radio; telephone or cell phone; desktop, laptop or tablet computer)*

- Fire or flame
 - Match or cigarette lighter
 - Fireplace or boiler
 - Cigarette, cigarette ash or similar
 - Candle, tea light
 - Gas burner
 - Embers from a fire or grill
 - Outdoor fire
 - Gas cooker
 - Gas welding equipment
 - Re-ignition of an earlier fire attended by the fire department
 - Other fire or flame

- Other
 - Lightning
 - Friction
 - Spontaneous combustion (biological or chemical)
 - Firework or pyrotechnic device
 - Sunlight
 - Explosive substance
 - Renovation or maintenance related items
 - Other

- Undetermined

3.4.4.2. Primary Causal Factor

Definition:

The general causal factor that the fire officer assesses to have been the most important in explaining why the *item first ignited* was exposed to the *heat source* in a way that led to an uncontrolled combustion.

Note:

Primary causal factor together with *intent* corresponds to *fire cause* in tier one of Task 2.

In many cases more than one of the alternatives will have played a part in the ignition event. However it should be possible for the fire officer to assess which of these factors was of greatest importance. It is this information that is most important for fire prevention work. The word "primary" is used to signal that it is the most important of the three factors that should be recorded.

The term "causal factor" is proposed instead of "fire cause" because the direct fire cause is already clear: the item first ignited has been exposed to the heat source for long enough for ignition to occur.

If the causal factor is recorded as *human act or omission* then it is most important to know whether the damage caused by the fire was intentional or unintentional, as there are completely different prevention strategies for these two types of fire.

Values:

- Human act or omission
 - Intentional (*A fire which is intentionally ignited under circumstances in which the person knows that the fire should not be ignited*)
 - Unintentional (*the damage caused by the fire was unintentional*)
 - Undetermined
- Equipment failure
- Natural phenomenon
- Undetermined
- Other

4. DISCUSSION ON THE IMPLEMENTATION OF THE DEFINED VARIABLES IN THE EU COUNTRIES

Based on the learnings from the previous tasks, all of the defined variables in this report are already collected by some EU countries, even if in most countries, there are no proper definitions for the collected variables.

The variable which are collected in more than half of the EU countries are: incident time (at least 16 EU countries), incident date (at least 14 EU countries), incident location (at least 15 EU countries), number of deaths (at least 20 EU countries), number of injuries (at least 15 EU countries), age of victims (at least 14 EU countries), type of building (at least 17 EU countries) and the primary cause of fire (at least 15 EU countries). As many countries already collect these variables we expect that some effort will be required for them to fit with the proposed definition and to obtain harmonized data.

The variables which are collected in less than half of the EU countries are: the number of floors (at least 8 EU countries), the presence, type and operation of fire safety measures, the area of origin (at least 9 EU countries), item first ignited (at least 10 EU countries), material contributing to fire development (at least 5 EU countries) and the heat source (at least 9 EU countries). It is expected that adding these data to the fire statistics will require a higher effort for implementation in practice, however less effort for harmonizing existing data collected.

Depending on the nature of the data, some variable will require more effort to harmonize the practices than others (see qualitative assessment of possible uncertainty issues connected to these variables in Task 3 report

- Section 6.4). Indeed, it is expected that the variables *incident time, incident date, incident location, age of victims, number of floors* and *fire safety measures present* can be implemented and harmonized with low effort.

For the implementation of variables *number of deaths* and *number of injuries*, it is expected that the process will be difficult, especially for the countries which are currently reporting only at the fire scene. For the countries which already correct these variables after cross checking with medical field, until a certain time after the fire, it is estimated that there should be no difficulties in adapting their practices.

Related to the variables *type of building, area of origin, item first ignited, material contributing to fire development* and *the cause*, the most challenging will be the adoption of the proposed values for each variable. We have seen in Task 1 that each country uses its own values for each variable, hence there will be a need to adapt to the proposed new structure.

5. CONCLUSIONS

Due to the lack of terminologies in fire statistics, available data cannot be compared from one country to another (with a few exceptions). Therefore fire statistics need to be improved through a harmonized terminology, in order to provide relevant information regarding the national fire safety situation. In this task, definitions and values are proposed for the variables that were identified in Task 2 of this project. These variables capture the categories of interest to be recorded by fire officers in the aftermath of a fire incident and subsequently collected at European level, as well as appropriate values which these variables can have. This terminology constitutes a minimum dataset for collection at the local level and it does not prevent a fire department or national authority from having a more detailed data collection, as long as they can provide simplified data according to the terminology of the pan-European statistics.

6. REFERENCES

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- [7] NFPA® 921 Guide for Fire and Explosion Investigations 2014 Edition, NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471 An International Codes and Standards Organization.
- [8] ENFSI-BPM-FEI-01 Version 04. Best Practice Manual for the Investigation of Fires and Explosions. February 2021.

ANNEX A: INTERVENTION CHARACTERISTICS

General Remarks:

This annex presents additional information about the intervention characteristics.

- The definitions of the concerned variables get little to no attention in the literature and other databases. A reason might be because the variables are considered very basic. Nonetheless, defining these variables is of importance.
- The minor differences between countries should be accommodated. Whether a country collects data while using the time of detection or the time of notification of the emergency number is not of much influence on the statistics in general. These differences are acceptable. Nonetheless, we added suggestions for definitions to use in the *EU FireStat* project.

More details about what was taken into account and the argumentations for the proposed definitions and values are presented below.

Incident time

<i>What do you have to take into account?</i>	<ul style="list-style-type: none"> > Hours, minutes, seconds, 24H? > Time in the specific country (the country has to be mentioned)? > How to deal with time zones; The local time (zone) is important, the system should convert this into the correct time zone based on coordinates > Moment of ignition? Of detection? Of notification of the alarm number? Of the fire services? > In a specific country, is a new incident caused by a former fire, registered as a new incident?
<i>Argumentation</i>	<ul style="list-style-type: none"> > Choosing for a 24-hour notation instead of 12 hour P.M. and A.M. seems to reduce the chances of mistakes. > We suggest using the earliest date of reporting the fire to an official authority/system (for example the detection time by an automatic detection system linked to the control room or calling the emergency number) because this is likely to be the easiest, most likely to be registered moment. > If a new incident is caused by a former fire (for example because of firebrands, embers or fire spread) and the emergency services (control room or fire brigade) register it as separate incidents, we will follow this up (i.e., the second incident will be given a new time). Otherwise, it will remain one incident and, thus, the initial time of notification is used.

Incident date

<i>What do you have to take into account?</i>	<ul style="list-style-type: none"> > European date notation (day, month, year)? > Date in the specific country (the country has to be mentioned)? > How to deal with time zones (time zone has to be mentioned)? > Moment of ignition? Of detection? Of notification of the alarm number? Of the fire services? > What to do with a new incident caused by a former fire?
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<p><i>Argumentation</i></p>	<ul style="list-style-type: none"> > As this is the <i>EU FireStat</i> project and we are proposing which data should be collected on a European level in Europe, the European data notation is logical. > We suggest using the earliest date of reporting the fire to an official authority/system (for example the detection time by an automatic detection system linked to the control room or calling the emergency number) because this is likely to be the easiest, most likely to be registered moment. > If a new incident is caused by a former fire (for example because of brand fire or fire spread) and the emergency services (control room or fire brigade) register it as separate incidents, we will follow this up (i.e. the second incident will be given a new date). Otherwise, it will remain one incident and, thus, the initial time of notification is used.
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Incident location

<p><i>What do you have to take into account?</i></p>	<ul style="list-style-type: none"> > Coordinates (define what coordinate system needs to be used and how it should be plotted), Street name, street number, city and postal code? Not all buildings have these, certainly not in all countries. > Province? Country? > Coordinates/GPS?² > What to do with a new incident caused by a former fire? > Multiple countries in the same accident? > The country had to be mentioned
<p><i>Argumentation</i></p>	<ul style="list-style-type: none"> > The more detailed and accurate the incident location, the better. The country of the fire should be available at all times, the rest of the information is desirable. > For example: if a postal code is not available (for example if the fire starts in a cabin in the woods), it is often possible to determine in which city the fire was and possibly obtain an address description. It could also be possible to determine the incident location based on the location (GPS) of the emergency services reporting (control room or fire brigade). > If a new incident is caused by a former fire (for example because of brand fire or fire spread) and the emergency services (control room or fire brigade) register it as separate incidents, we will follow this up (i.e. the second incident will be given a new date and time). Otherwise, it will remain one incident and, thus, the initial time of notification is used.

¹ In road statistics latitude and longitude are collected.

ANNEX B: HUMAN CHARACTERISTICS – AGE OF VICTIMS

This annex presents additional information about the age of victims.

Age reporting

Several countries were reported to collect age (Ireland, Italy, USA, Netherlands, UK, Poland, Spain). Belgium collects age (or approximation of age). Lithuania reports children under age 18 (not clear if they collect age). Canada collects age - (if exact age is not known, give an estimate to the nearest 10 years).

Age groupings

ISO/TS 17755-2:2020(E) [2]:

Age group of victims categorization by age of the victims of fire.

Romania:

Romania divides victims into six age categories – (0-6, 7-14, 15-25, 26-55, 55-70, >70).

ANNEX C1: BUILDING CHARACTERISTICS – TYPE OF BUILDING

This annex presents additional information about the type of building.

Explanatory notes

1	BUILDINGS	
11	Residential buildings	
111	1110	<p>One-dwelling buildings This class includes : - detached houses such as bungalows, villas, chalets, forest lodges, farmhouses, country houses, summer houses, weekend houses, etc. This class also includes : - semi-detached or terraced houses, with each dwelling having its own roof <i>and</i> its own entrance directly from ground surface This class excludes : - non-residential farm buildings 1271</p>
112	Two- and more dwelling buildings	
	1121	<p>Two-dwelling buildings This class includes : - detached houses, semi-detached or terraced houses, with two dwellings This class excludes : - semi-detached or terraced houses, with each dwelling having its own roof and its own entrance directly from ground surface 1110</p>
	1122	<p>Three- and more dwelling buildings This class includes : - other residential buildings such as flat blocks, apartment houses, with three or more dwellings This class excludes : - residences for communities 1130 - hotels 1211 - youth hostels, holiday camps and vacation bungalows 1212</p>
113	1130	<p>Residences for communities This class includes : - residential buildings for communities, including residences and service residences for the elderly, students, children and other social groups, e.g. retirement homes, workers' hostels, fraternity homes, orphanages, hostels for the homeless, etc. This class excludes : - hospitals and clinics 1264 - institutional buildings with nursing or medical care 1264 - prisons, barracks 1274</p>

- 12** **Non-residential buildings**
- 121** **Hotels and similar buildings**
- 1211** **Hotel buildings**
 This class includes :
 - hotels, motels, inns, pensions and similar lodging buildings, with
 or without restaurants
 This class also includes :
 - detached restaurants and bars
 This class excludes :
 - restaurants in apartment buildings 1122
 - youth hostels, mountain refuges, holiday camps, vacation
 bungalows 1212
 - restaurants in shopping centers 1230
- 1212** **Other short-stay accommodation buildings**
 This class includes :
 - youth hostels, mountain refuges, children's or family holiday
 camps, vacation bungalows, holiday and rest homes and other lodging
 buildings for holiday makers, not elsewhere classified
 This class excludes :
 - hotels and similar lodging buildings 1211
 - amusement and leisure parks 2412
- 122** **1220** **Office buildings**
 This class includes :
 - buildings used as places of business, for clerical and
 administrative purposes, e.g. banks, post offices, municipal offices,
 government department offices, etc.
 This class also includes :
 - conference and congress centers, law courts, parliament
 buildings
 This class excludes :
 - offices in buildings mainly used for other purposes
- 123** **1230** **Wholesale and retail trade buildings**
 This class includes :
 - shopping centers, shopping malls, department stores,
 detached shops and boutiques, halls used for fairs, auctions and
 exhibitions, indoor markets, service stations, etc.
 This class excludes :
 - shops in buildings mainly used for other purposes
- 124** **Traffic and communication buildings**
- 1241** **Communication buildings, stations, terminals and associated
buildings**
 This class includes :

- buildings and installations of civil and military airports, rail stations, bus stations and harbour terminals, cablecar and chairlift stations

- radio and television broadcast buildings, telephone exchange buildings, telecommunication centers, etc.

This class also includes :

- airplane hangars, signal-box buildings and engine and wagon sheds

- telephone booths

- lighthouse buildings

- air traffic control buildings (towers)

This class excludes :

- service stations 1230

- reservoirs, silos and warehouses 1252

- railway tracks 212

- airfield runways 2130

- telecommunication lines and masts 2213, 2224

- terminals for hydrocarbons 2303

1242 Garage buildings

This class includes :

- garages (overground or underground) and roofed car parks

This class also includes :

- bicycle sheds

This class excludes :

- carparks in buildings mainly used for other purposes

- service stations 1230

125 Industrial buildings and warehouses

1251 Industrial buildings

This class includes :

- covered buildings used for industrial production, e.g. factories, workshops, slaughterhouses, breweries, assembly plants, etc.

This class excludes :

- reservoirs, silos and warehouses 1252

- non-residential farm buildings 1271

- complex industrial installations (power stations, refineries, etc.) which do not have the characteristics of a building 230

1252 Reservoirs, silos and warehouses

This class includes :

- reservoirs and tanks

- reservoirs for oil and gas

- silos for cereals, cement or other dry aggregates

- cold stores and specialized warehouses

This class also includes :

- storage areas

This class excludes :

- agricultural silos and storage buildings used for agriculture 1271

- water towers 2222

- hydrocarbon terminals 2303

126 Public entertainment, education, hospital or institutional care buildings

1261 Public entertainment buildings

This class includes :

- cinemas, concert halls, opera houses, theaters, etc.
- meeting halls and multi-purpose halls mainly used for public entertainment
- casinos, circuses, music halls, dance-halls and discotheques, bandstands, etc.

This class excludes :

- museums, art galleries 1262
- sports halls 1265
- amusement and leisure parks 2412

1262 Museums and libraries

This class includes :

- museums, art galleries, libraries and resource centers

This class also includes :

- archives buildings

This class excludes :

- historic monuments 1273

1263 School, university and research buildings

This class includes :

- buildings used for pre-primary, primary and secondary education (e.g. nursery schools, kindergartens, primary schools, secondary schools, colleges, grammar schools, technical schools, etc.), formal education schools, vocational training schools
- buildings used for higher education and research; research laboratories; higher educational establishments

This class also includes :

- special schools for handicapped children
- further education colleges
- weather stations, observatory buildings

This class excludes :

- hostels which are detached buildings of boarding schools 1130
- hostels for students 1130
- libraries 1262
- university hospitals 1264

1264 Hospital or institutional care buildings

This class includes :

- institutions providing medical and surgical treatment and nursing care for ill or injured people
- sanatoria, long-stay hospitals and nursing homes, psychiatric hospitals, dispensaries, maternity facilities, maternal and child welfare centers

This class also includes :

- university hospitals, hospitals of penitentiaries, prisons or armed forces

- buildings used for thermal treatment, thalassotherapy, functional rehabilitation, blood transfusion, breast milk collection, veterinary treatment, etc.

- institutional buildings with combined residential/lodging services and nursing or medical care. for the elderly, for handicapped people, etc.

This class excludes :

- residences and homes with social assistance (welfare) services for old or handicapped people, etc. 1130

1265 Sports halls

This class includes :

- buildings used for indoor sports (basketball and tennis courts, swimming pools, gymnastic halls, skating or ice-hockey rinks, etc.) providing facilities for spectators (stands, terraces, etc.) and for participants (shower and changing rooms, etc.)

This class excludes :

- multi-purpose halls mainly used for public entertainment 1261

- sports grounds used for open-air sports, e.g. open-air tennis courts, open-air swimming pools, etc. 2411

127 Other non-residential buildings

1271 Non-residential farm buildings

This class includes :

- farm buildings and storage buildings used for agriculture farming, e.g. cowsheds, stables, pig houses, sheep-folds, studs, kennels, industrial hen-houses, granaries, hangars and agricultural outhouses, cellars, wine making plant, wine vats, greenhouses, agricultural silos, etc.

This class excludes :

- installations of zoological and botanical gardens 2412

1272 Buildings used as places of worship and for religious activities

This class includes :

- churches, chapels, mosques, synagogues, etc.

This class also includes :

- cemeteries and associated constructions, funeral parlors, crematoriums

This class excludes :

- secularized religious buildings, used as museums 1262

- historic monuments, etc. 1273

1273 Historic or protected monuments

This class includes :

- historic or protected buildings, of any kind, not used for other purposes

This class also includes :

- protected ruins, archeological excavations and prehistoric sites

- statues and commemorative, artistic or decorative constructions

This class excludes :

- museums 1262
- religious buildings 1272

1274 Other buildings not elsewhere classified

This class includes :

- penitentiaries, prisons and remand centers, barracks for armed forces, police or fire services

This class also includes :

- structures such as bus shelters, public toilets, wash houses, etc.

This class excludes :

- telephone booths 1241
- hospitals of penitentiaries, prisons and armed forces 1264
- military engineering works 2420

3

BUILDINGS UNDER CONSTRUCTION

ANNEX C2: BUILDING CHARACTERISTICS – NUMBER OF FLOORS

This annex presents additional information about the number of floors.

State of the art of the definitions

Eurostat **Erreur ! Source du renvoi introuvable.**, ISO_TS_17755-2:2020(E) [2], ISO/TR 17755:2014(E) [3], Task 0 and Task 1 of the current project, present definitions for the variable of interest, as presented next.

- *EUROSTAT Types of Constructions Code list-en*

No number of floors listed.

- *ISO/TS 17755-2:2020(E)*

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.

- *ISO/TR 17755-2:2014(E)*

Number of floors could be referred to:

- Number of floors in the building
- Number of floors damaged by the fire (Kenya, UK)

Number of stories (UK)

Height of building (Canada, Russia)

Height of building (China). In China, there are 4 groups: high-rise, underground, multi-floor. In China, the following buildings are classified as high-rises: residential (more than 10 stories and 10 stories) and other buildings ≥ 24 m. Building height means the height from the ground outside of the building to its cornice or roof surface layer.

Height of building. Number of floors above and below ground level of the building (Japan)

Height of building. Stories at or above grade/Stories below grade (USA)

- *TASK 0 of the current project*

Information derived by ISO ISO/TR 17755:2014 (see above)

- *TASK 1 of the current project*

Some information related to the number of floors are available when building characteristics are defined.

State of the art of the fire statistics

More details about the height of the building are presented in *IRS* [4], *NFIRS* [5] and *AIRS* [6].

- *IRS UK*

- Question 8.28 – Number of floors/decks above ground level/main deck (e.g., 1 for bungalow)

- Question 8.29 – Number of floors/decks below ground level/main deck (e.g., 1)

- *NFIRS USA*

Building Height: The number of stories at or above grade level and the number of stories below grade level in the fire building.

Example: The house was two stories high with no basement

- Number of stories above 2

- Number of stories below 0

- *AIRS Australia*

Block K – Structures fires

K4 Number of levels (ground level & above)

4.1 Definition

The number of levels at and above the lowest point of egress from the building.

4.2 Purpose

To assess the effectiveness of regulations relating to fire safety in high rise buildings.

4.3 Implementation

For buildings on sloping terrain, consider the lowest level of egress to be ground level - 1. The level number recorded may not correspond to the numeral displayed near the lifts or on directories. Mezzanine levels should be counted as a whole level (see Fig 1)

Table K4 details the codes for the number of levels for this field. Select the most appropriate code from the table and complete the computer entry.

Table K4 - Levels Codes CODE LEVELS

Table K4 - Levels Codes

CODE	LEVELS
1 to 94	The number of levels
95	Ninety five levels or more
96	No levels above ground
99	Undivided structures such as silos, hangars, bridges
00	Number of levels undetermined

DIFFERENCES FOUND IN THE AVAILABLE DEFINITIONS

1. Height of the building or number of floors
2. How to number floors is counted (e.g., Ground floor = 1, Ground floor = 0)
3. The reference point could be the ground floor or lowest egress point

ANNEX D: FIRE CHARACTERISTICS – AREA OF ORIGIN

This annex presents additional information about the area of origin.

State of the art of the definitions

NFPA® 921 [7], ISO_TS_17755-2 [2] and ENFSI-BPM-FEI-01[8] present definitions for the variable of interest *area of origin*, along with other variables connected to the variable of interest, as presented next.

- *NFPA® 921*

Area of Origin. A structure, part of a structure, or general geographic location within a fire scene, in which the “point of origin” of a fire or explosion is reasonably believed to be located. (See also Point of Origin.)

Point of Origin. The exact physical location within the area of origin where a heat source and the fuel interact, resulting in a fire or explosion.

- *ISO_TS_17755-2:2020(E)*

Location of the fire is the general area where the origin of the fire started.

Area of origin of the fire is the general localized area within the location where the fire started.

Point of origin of the fire is the exact physical location within the area of origin where the fire starts.

- *ENFSI-BPM-FEI-01*

Point of Origin is the place at which the fire started.

No values given. There is no distinction between area and point of origin. Wording depends on how much the actual location can be narrowed down.

State of the art of the values

The existing values for *area of origin*, as presented in ISO TR 17755-2014 [3], along with provides values for *area of origin* in several European countries, are next summarized.

- *ISO_TR_17755_2014*

ISO_TR_17755_2014 provides specific rooms or areas within buildings, for building and structure fires, for countries that provided that detail in attachments to the survey. Canada provides many sub-categories shown in section F1 of Canadian Code Structure on Fire Loss Statistics, 2002 edition, accessible at http://www.ccfmfc.ca/pdfs/code_structure_2002.pdf. It is not clear whether the more detailed categories are still in use.

Australia

Means of Egress

- Hallway, corridor, mall
- Exterior stairway, including fire escapes and exterior ramps
- Interior stairway, including interior ramps
- Escalator
- Lobby, entrance way
- Fire-isolated escape route
- Means of egress not classified above

Assembly or Sales Areas

- Large assembly areas with fixed seats (100 or more persons).
- Large open room without fixed seats (100 or more persons).
- Small assembly area with or without fixed seats (less than 100 persons).
- Lounge area, including living rooms, common rooms, dens, recreation rooms, family rooms.

- Sales, show-room area.
 - Library.
 - Swimming pools
 - Assembly, sales areas not classified above
 - Assembly, sales area with insufficient information available to classify further
- Functional Areas*
- Sleeping room for under five persons, including patient rooms, bedrooms, cells
 - Sleeping area for five or more persons.
 - Dining area, lunchroom, cafeteria.
 - Kitchen, cooking area.
 - Lavatory, locker room, cloakroom.
 - Laundry room, area.
 - Office
 - Personal service area
 - Laboratory
 - Printing or photographic room, area
 - First aid, treatment room.
 - Operating room.
 - Electronic equipment room/area.
 - Performance, stage area.
 - Projection room, area.
 - Process, manufacturing area
 - Functional areas not classified above
 - Functional areas insufficient information available to classify further
- Storage Areas*
- Product storage room or area, storage tanks, storage bin.
 - Closet and small storage area
 - Supply storage room or area.
 - Records storage room, vault
 - Shipping, receiving, loading area, loading dock.
 - Waste or rubbish area, container.
 - Garage, carport, vehicle storage area
 - Storage areas not classified above
 - Storage areas; insufficient information available to classify further
- Service Facilities*
- Lift, dumbwaiter.
 - Utility shaft.
 - Light shaft
 - Chute.
 - Duct.
 - Display window
 - Chimney/flue.
 - Conveyor
 - Service facilities not classified above
 - Service facilities with insufficient information to classify further
- Service, Equipment Areas*
- Machinery room/area.
 - Heating equipment room or area, water heater area
 - Switchgear area, transformer vault, switchboard
 - Incinerator room/area.
 - Maintenance shop/area.
 - Test cell (a testing area or unit that simulates a condition)
 - Enclosure with pressurized air
 - Enclosure with enriched oxygen atmosphere
 - Service, equipment areas not classified above

— Service, equipment areas; insufficient information available to classify further

Structural Areas

- Crawl space, substructure space
 - Exterior balcony, open porch or veranda
 - Ceiling and floor assembly, concealed floor/ceiling space
 - Ceiling and roof assembly, concealed roof/ceiling space
 - Wall assembly, concealed wall space
 - Exterior wall surface
 - Exterior roof surface
 - Awning
 - Structural areas not classified above
 - Structural areas; insufficient information available to classify further
- Other areas are specified for vehicles and for outdoor locations

United Kingdom

For Dwellings

- Airing/drying cupboard
- Bathroom/toilet
- Bedroom
- Bedsitting room
- Chimney
- Conservatory
- Corridor/hall
- Dining room
- External fittings
- External structures
- Garage
- Indoor swimming pool
- Kitchen
- Lift/lift shaft/motor room
- Living room
- Refuse store
- Roof space
- Roof
- Sauna
- Stairs
- Under stairs (enclosed storage area)
- Utility room
- Open plan area
- Other
- Not known

For Other Residential

- Airing/drying cupboard
- Bar/canteen/restaurant/mess
- Bathroom/toilet
- Bedroom
- Bedsitting room
- Boiler room
- Cell
- Chimney
- Class room
- Cloakroom
- Common room/staff room/day room
- Conservatory
- Corridor/hall

- Dining room
- Dormitory
- External fittings
- External structures
- Garage
- Indoor swimming pool
- Kitchen
- Laundry room
- Lift/lift shaft/motor room
- Meeting room
- Office
- Power house/plant/generator
- Reception area
- Refuse store
- Roof space
- Roof
- Sauna
- Stairs
- Store room
- Under stairs (enclosed storage area)
- Utility room
- Ward/sick bay
- Other
- Not known

For Non Residential Building

- Barn
- Bathroom/toilet
- Boiler room
- Canteen/restaurant
- Chimney
- Cloakroom
- Conservatory
- Corridor/hall
- External fittings
- External structures
- Garage
- IT server/mainframe room
- Kitchen
- Lift/lift shaft/motor room
- Meeting room
- Office
- Parking garage
- Power house/plant/generator
- Process/production room
- Reception area
- Refuse store
- Roof space
- Roof
- Shop floor/showroom/display hall
- Stairs
- Store room
- Under stairs (enclosed storage area)
- Utility room
- Other
- Not known

Other areas are specified for each of several types of vehicles.

USA

Means of Egress

- Hallway or corridor
- Exterior stairway
- Interior stairway
- Escalator
- Lobby
- Other egress/exit

Assembly or Sales Area

- Assembly area with fixed seats for 100 or more people
- Assembly area without fixed seats for 100 or more people
- Assembly area for less than 100 people
- Common room, den, family room, living room, lounge, sitting room
- Sales area or showroom
- Art gallery, exhibit hall, library
- Swimming pool
- Other assembly or sales area

Function Area

- Bedroom for fewer than five people
- Bedroom for five or more people
- Dining room, bar, cafeteria
- Kitchen or cooking area
- Bathroom, checkroom, lavatory, locker room
- Laundry area
- Office
- Personal service area
- Other function area

Technical Processing Area

- Laboratory
- Photography area
- First-aid area
- Operating room
- Computer room
- Performance or stage area
- Projection room
- Processing or manufacturing area
- Other technical processing area

Storage Area

- Storage room, area, tank or bin
- Closet
- Tool or supply storage
- Records storage
- Shipping or receiving area
- Trash chute
- Garage
- Other storage area

Service Area

- Elevator shaft
- Conduit, pipe, utility, or ventilation shaft
- Light shaft
- Laundry or mail chute
- Duct

- Display window
- Conveyor
- Other service area
- Service or Equipment Area*
- Machinery room or area
- Heating room or area
- Switchgear area or transformer vault
- Incinerator area
- Maintenance shop or area
- Test cell
- Pressurized air enclosure
- Enclosure with enriched oxygen atmosphere
- Other service or equipment area

Structural Area

- Crawl space or substructure area
- Exterior balcony
- Ceiling/floor assembly or space between stories
- Attic or concealed roof/ceiling space
- Wall assembly or concealed wall space
- Exterior wall surface
- Exterior roof surface
- Awning
- Other structural area
- Other area of origin
- Undetermined

Japan

Structure fire

Rooms for dwelling: Living room, Drawing room, Study room, Reading room, Bedroom, Closet, storage room, Dining room,

Common space: Entrance, Hall, Corridor, Stair, Balcony, Kitchen, Staircase, Changing room, Dressing room, Locker Room, Bathroom, Lavatory, Wash place, Toilet, Hot-water service room,

Working spaces: Manufacturing plant, Processing plant, Repair shop, Paint plant, Drying room, Machine operation room, Packaging room, Room for receipt of goods, Shipping room, Engineering works room, Cooking place, Stage, Platform stage, Studio, Theatre basement,

Mechanical room: Dust chamber, Dust chute, Annexed incinerator room, Structure fire,

Facilities room: Stokehold, Boiler chamber, Switchboard room, Transformer room, Generator room, Capacitor room, Projection room, Illumination room, Broadcasting room, Correspondence room, Signal room, Telephone, Switch room, Machine room, Engine bay, Air conditioning machine room, Elevator, Escalator, Luggage lift, Duct space,

Storage: Ordinary storage, Garage, Indoor parking area, Hangar, Boat house, General warehouse, Freezing compartment, Barn, Hazardous material storage, Commercial spaces, Merchandising store, Service store, Shops serving food and drink, Bar room, Seat of the restaurant, Game hall, Audience seats, Hotel room, Medical profession, Consultation room, Operation room, Artificial room, Treatment room, Laboratory such as X-rays, Pharmacy room, Rehabilitation, a recreation room, Patient's bedroom

Office room: Office a private basis, Reception room, General office room, Meeting room

Room for academic use: Research laboratory, Exhibition room, Library room, Reading room, Classroom, Gymnastic room, Lounge, Break room for working staff, Security guards room, Front counter, Night duty room

Security guards room: Building manager room

Empty house etc.: Empty house, Vacant room, Building under construction, House for raising domestic animals

Exterior: Rooftop, Porch, Balcony, Attic, Ceiling, Inner side of wall, External wall, Underfloor, Penetration part, Others

- *Provides values in several European countries*

Sweden

- Area of origin
- Outside building
- Patio or balcony
- Bathroom or toilet
- Sauna
- Tank
- Computer server room
- Animal stall or stable
- Electricity distribution
- Ventilation room
- Storeroom
- Sales area
- Garage or carport
- Landing
- Elevator, including shaft and machine room
- Office
- Internal corridor
- Tunnel
- Cellar (unfurnished)
- Kitchen
- Barn
- Storage area or yard
- Loading bay
- Classroom
- External corridor
- Boiler room
- Personnel area
- Production area
- Assembly hall
- Silo
- Chimney
- Rubbish room/rubbish chute
- Bedroom/dormitory
- Stairwell
- Laundry
- Living room
- Workshop
- Attic (unfurnished)
- Other
- Unable to assess

Denmark

Fires in private residence

- Kitchen
- Living room
- Storage rooms, hobby rooms, etc.
- Bedroom
- Cavities in construction incl. chimney
- Storage room, basement
- Storage room, attic
- Entrance
- Waste room
- Balcony / terrace

- Bath, WC
- Other room
- Unknown
- Uninformed

Norway

Housing

Industry

Office

Transportation

Hotel

Culture

Health building

Prison

Private residence

- Kitchen
- Living room
- Bedroom
- Gang
- Office
- Wet room
- Basement
- Boost
- Stairwell
- Elevator
- Chimney
- Cavities in construction
- Sales premises
- Production premises
- Common area
- Storage
- Boardroom
- Garage
- Meeting room
- External
- Other
- Unknown

Germany

The fire brigade notes sometimes the room of the origin in a structural fire, a definition is not existing. The presumed origin of the fire in structural buildings is classified according to the following values (source: vfdb Brandschadenstatistik 02-2020):

- Living room
- Sleeping room
- Kitchen
- Bathroom
- Warehouse
- Storage room

- Office / business room
- Chimney
- Hallway / stairwell
- Garage / parking house
- Machine room
- Transport / traffic rout
- Workshop
- Boiler room
- Meeting room
- Facade element
- Other room
- Attic
- Cavity in ceiling
- Cavity in between double floor (raised floor)
- Other cavity
- Location unknown

Austria

- Elevator
- Lobby
- Passage / transit
- Stairways
- Corridor in living / working areas
- Corridor outside living / working areas
- Entrance area / vestibule / foyer
- Showroom
- Bank / ticket office
- Tv / radio studio
- Church / church / prayer room
- Sales area
- Assembly area
- Sitting area
- Guest room
- Working room
- Atelier
- Balcony
- Office
- Cellar /tenant cellar
- Kitchen
- Loggia
- Sauna
- Sleeping area
- Stable / barn
- Toilet
- Classroom
- Living room
- Bathroom
- Winter garden
- Sick room / nursing room

- Hotel room / guest room
- Smoking room
- Laboratory
- Painting room
- Laundry / washing room
- Drying room
- Construction site
- Dock
- Sales preparation room
- Stage / scene
- Processing /manufacturing area
- Workshop
- Shooting site
- Assembling / hobby room
- Sawmill / sawmill hall
- Testing room
- Smoke house
- Drying area for crops
- Projection room
- Filling plant
- Parking space for motor vehicles
- Storage room
- Loft
- Wardrobe
- Hangar
- Laboratory
- Cooling room / freezer
- Warehouse
- Barn
- Silo / container
- Pantry / store cupboard
- Wine cellar
- Fuel storage room
- Garbage room / area
- Bicycle room
- Pram storage room
- Chute
- Work platform
- Elevator shaft
- Air condition duct and shaft
- Ventilation channel
- Smoke pipe / chimney
- Display window
- Supply and disposal channel
- Supply and disposal shaft
- Remote heat transfer station
- Transformer room
- Machine room
- Heating room
- Installation room

- Air condition and ventilation room
- Electric distribution room
- Filter room
- Remise
- Server room
- Technic room
- Smoke pipe / chimney
- Empty room ceiling
- Empty space – double floor
- Other empty space in structure
- Façade
- Roof
- Others
- Empty
- Unknown
- Under construction