Health and Safety Briefing:

Fire Safety

Fires at JMU

Fires keep occurring, and they usually have devastating consequences.

Institute of Organic Chemistry (C1), January 2013

Fires at JMU

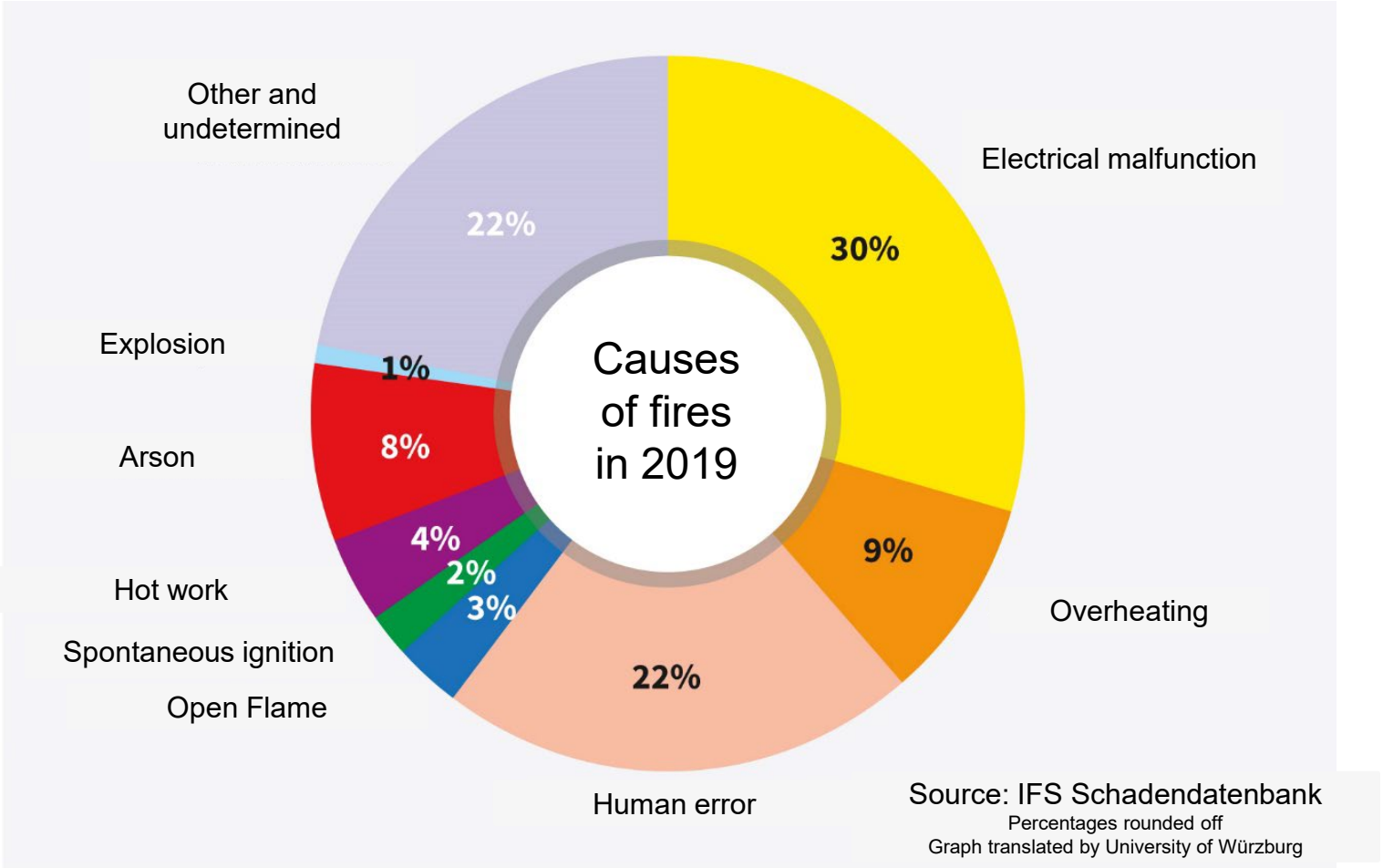
Biocentre - Chair of Biochemistry and Molecular Biology (B1), April 2006

The most common causes of fires:

- Electrical malfunction
- Open flame
- Smoking
- Arson

Each supervisor has a responsibility for the health and safety, including the safety from fire, of the employees working under their direction.

What are the causes of fires in Germany?

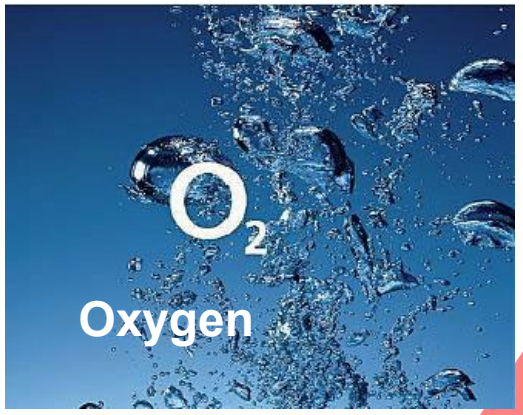


Fire statistics

Alarming figures

- Approx. 200,000 fires and **600 fire deaths** are reported in Germany each year. Almost one in three fire victims is a child.
- Approx. **6,000** fire victims each year sustain severe injuries. Many of these injuries are permanent. An additional 60,000 people each year sustain minor injuries in fires.
- **95%** of fire deaths are the result of smoke inhalation, not burns.
- **70%** of fire victims are asleep at the time of the fire. Most fire injuries and deaths occur between 11 p.m. and 7 a.m.
- **80%** of fires occur in residential, not in industrial buildings.

How do fires start?

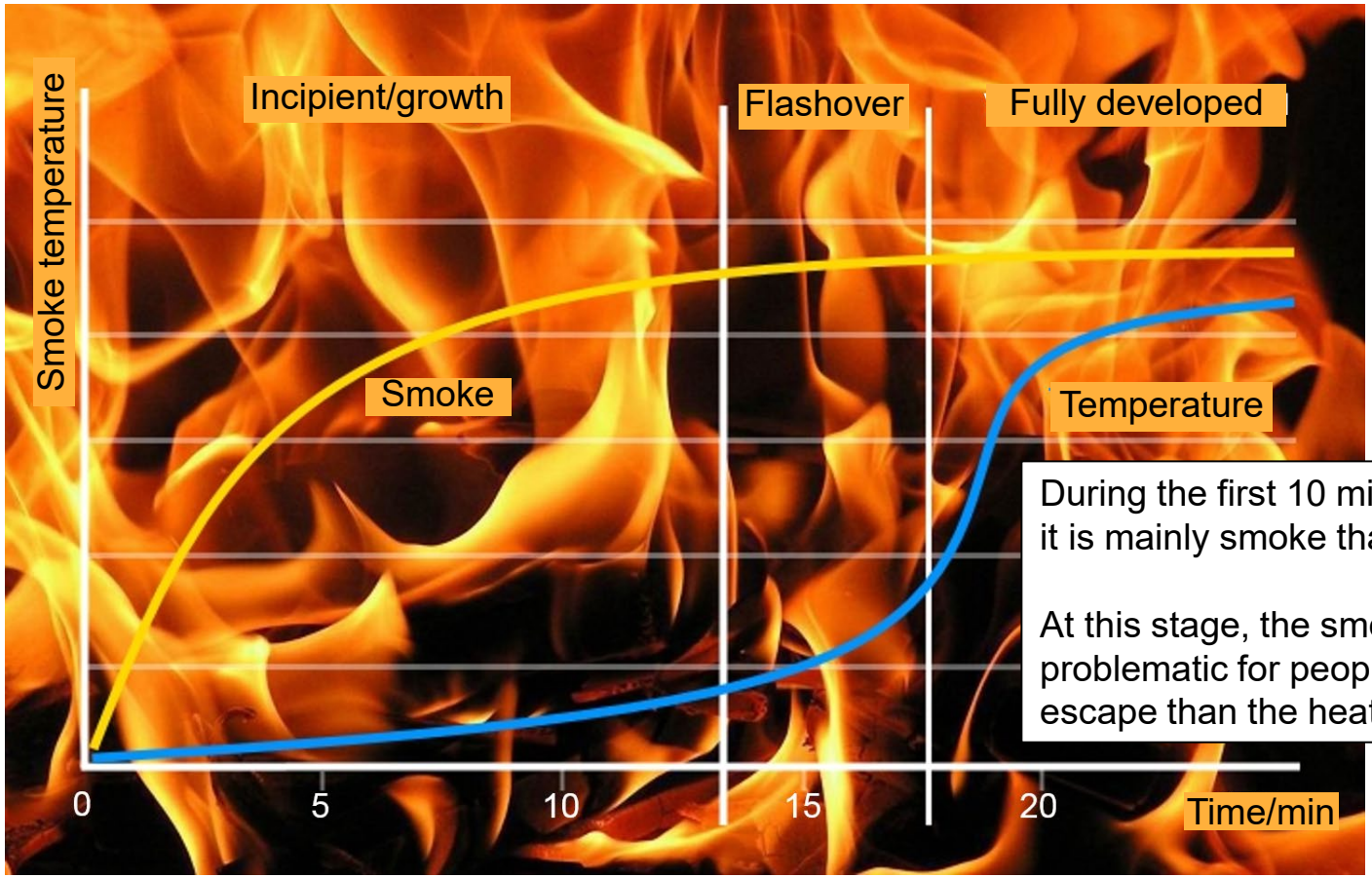


Fire triangle

Fuel

Gases
Liquids
Solid combustibles

Stages of fire



During the first 10 minutes of a fire, it is mainly smoke that is produced.

At this stage, the smoke is more problematic for people trying to escape than the heat.

Graph translated by University of Würzburg

Threats to life during a fire

- Oxygen deprivation
- Loss of visibility caused by smoke
- Toxic gases and vapours

Help us reduce the risk of fire:

Do not use open flames

Smoking is permitted in designated areas only.
No smoking is permitted anywhere in JMU buildings!

No smoking in this building

Take measures to eliminate electrical fire hazards

Avoid heat build-up in appliances

Do not cover air vents

Place appliances on a fireproof surface

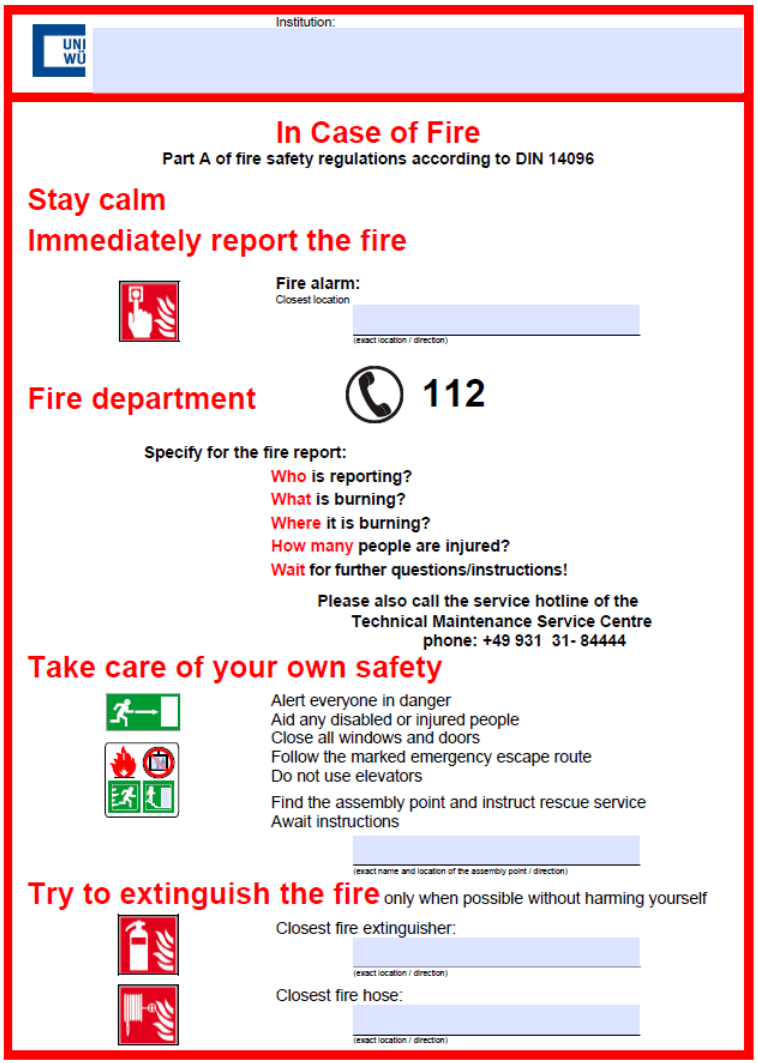
Ensure a safe distance

Fire safety regulations (part A) according to DIN 14096

This poster provides information to all staff members, visitors etc. about what to do in the event of a fire.

- In the event of major incidents, **call the JMU Technical Maintenance Service Centre at**

  +49 931 31-84444



Institution:

In Case of Fire

Part A of fire safety regulations according to DIN 14096

Stay calm

Immediately report the fire

Fire alarm:
Closest location
(exact location / direction)

Fire department 112

Specify for the fire report:
Who is reporting?
What is burning?
Where it is burning?
How many people are injured?
Wait for further questions/instructions!

Please also call the service hotline of the Technical Maintenance Service Centre
phone: +49 931 31- 84444

Take care of your own safety

Alert everyone in danger
Aid any disabled or injured people
Close all windows and doors
Follow the marked emergency escape route
Do not use elevators

Find the assembly point and instruct rescue service
Await instructions
(exact name and location of the assembly point / direction)

Try to extinguish the fire only when possible without harming yourself

Closest fire extinguisher:
(exact location / direction)

Closest fire hose:
(exact location / direction)

Fire safety regulations (part B) according to DIN 14096

Responsibilities of persons - without - special fire safety responsibilities

Part B of the fire safety regulations provides information to all staff members about the fire emergency procedures for a particular building, e.g. the location of the designated assembly point.

- General measures
- Hazardous materials
- Hot work
- Escape routes
- Alarm systems and fire extinguishing equipment
- What to do in the event of a fire
- Assembly points
- Resuming operations after a fire or false alarm

Fire safety regulations (part C) according to DIN 14096

Responsibilities of persons - with - special fire safety responsibilities

Part C of the fire safety regulations
Fire safety arrangements
Instructions for executive/teaching staff etc.
Fire prevention officers
Fire evacuation drills

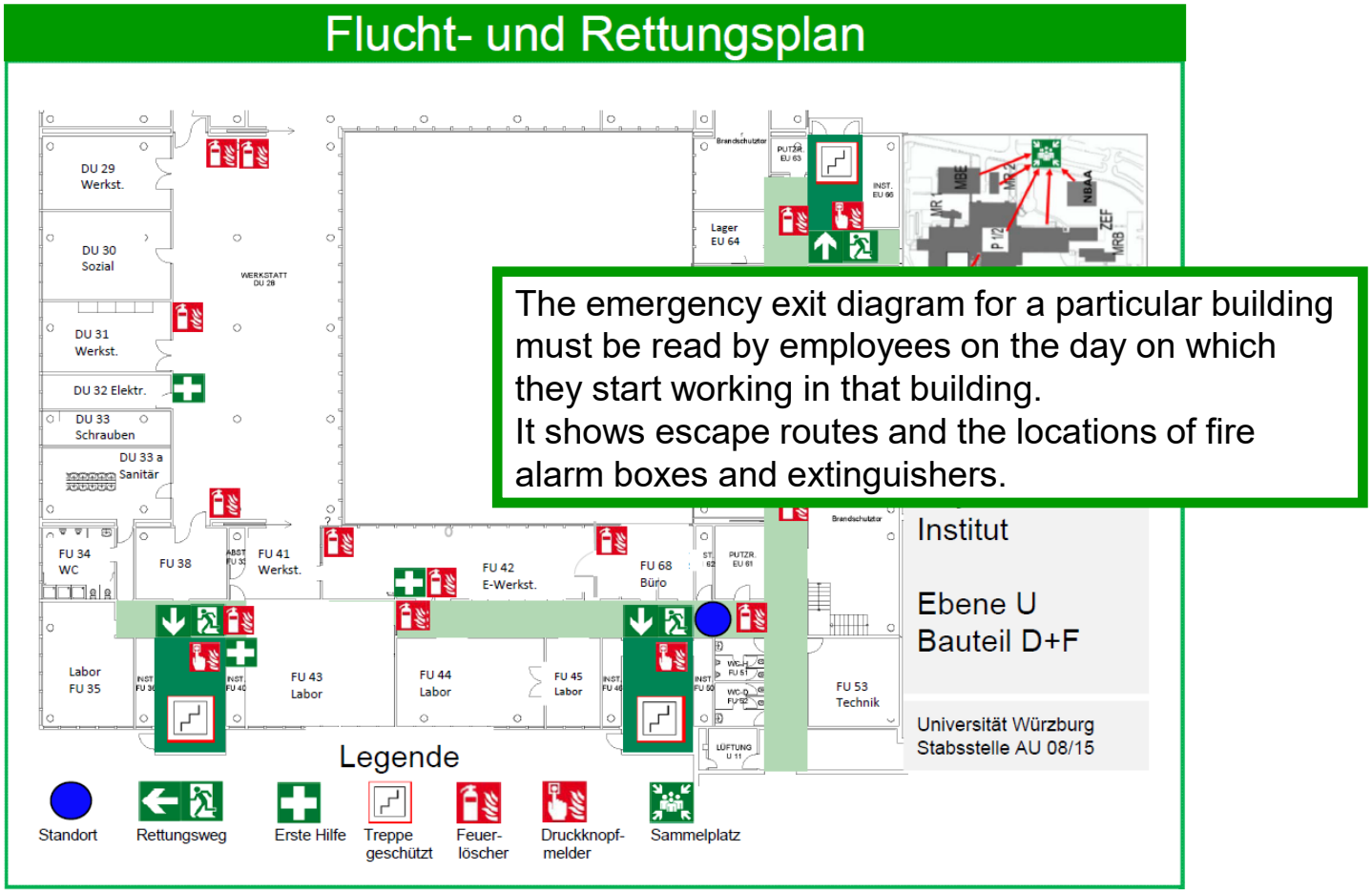
- Executive staff
- Fire prevention officer
- Health and safety officers
- Teaching staff

Excerpt from the JMU sample fire safety regulations

Preventing fires and keeping them from spreading
Detailed analyses of all worksites can help identify and eliminate fire hazards. Fire compartmentation in buildings and automatic fire detection and alarm systems can help keep fires from spreading.

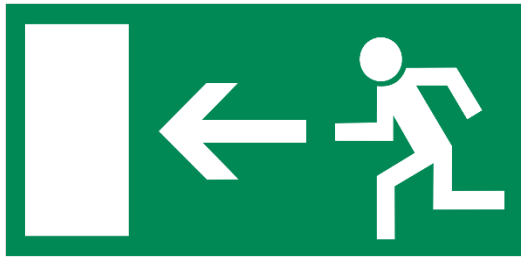
Protecting people from injury or death in the event of a fire
It is crucial to enable people to escape quickly and safely from a building. To allow safe exit in the event of a fire, escape routes must be adequate in width, have adequate lighting and must be free from smoke.

Emergency exit diagrams



The emergency exit diagram for a particular building must be read by employees on the day on which they start working in that building.
It shows escape routes and the locations of fire alarm boxes and extinguishers.

Emergency exit signs



Green emergency exit signs indicate the quickest and safest escape route.

Escape routes must be kept clear at all times!

Never block or lock emergency exit doors! Hallways, stairways and pedestrian routes on JMU grounds must be adequate in width, and their width must be maintained at all times. They must be kept clear of combustibles at all times and must be properly signed.

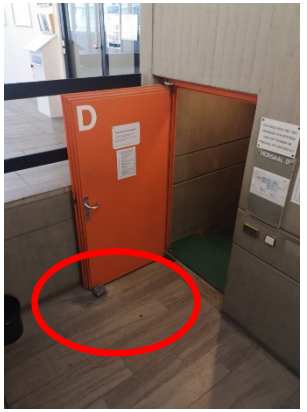
Doors on escape routes and emergency exit doors must remain unlocked/must be quick and easy to open without the need for a key or other tool until all persons have left the building.

Fire doors

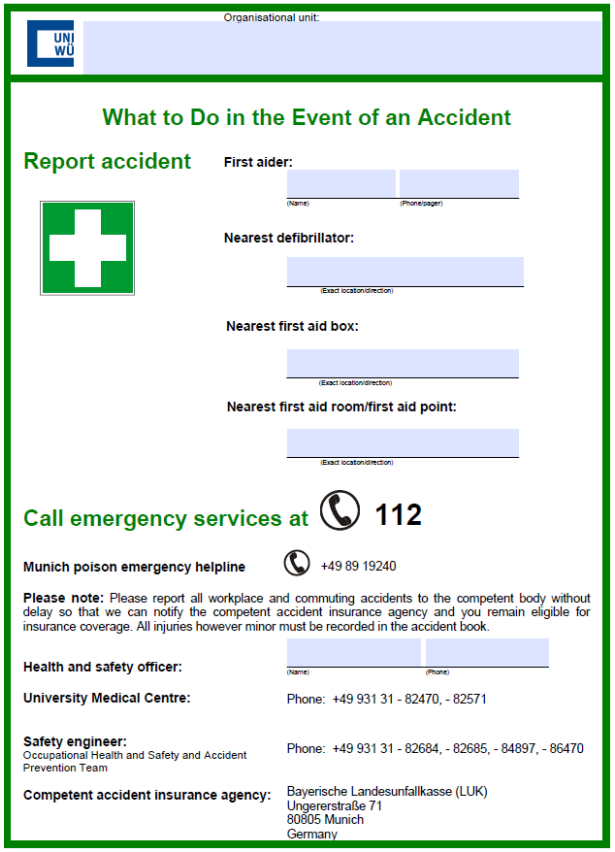
Fire doors stop smoke from spreading to other areas of the building (10 min.).

They must be closed during a fire and are usually self closing. **Never disable the self-closing mechanism** or prop fire doors open. Propping open a fire door (in the event of a fire) is a **criminal offence** (Section 145 (2) Criminal Code).

Defective fire doors must be repaired!



Important posters



Organisational unit:

What to Do in the Event of an Accident

Report accident

First aider:

(Name) (Phone/pager)

Nearest defibrillator:

(Exact location/direction)

Nearest first aid box:

(Exact location/direction)

Nearest first aid room/first aid point:

(Exact location/direction)

Call emergency services at 112

Munich poison emergency helpline +49 89 19240

Please note: Please report all workplace and commuting accidents to the competent body without delay so that we can notify the competent accident insurance agency and you remain eligible for insurance coverage. All injuries however minor must be recorded in the accident book.

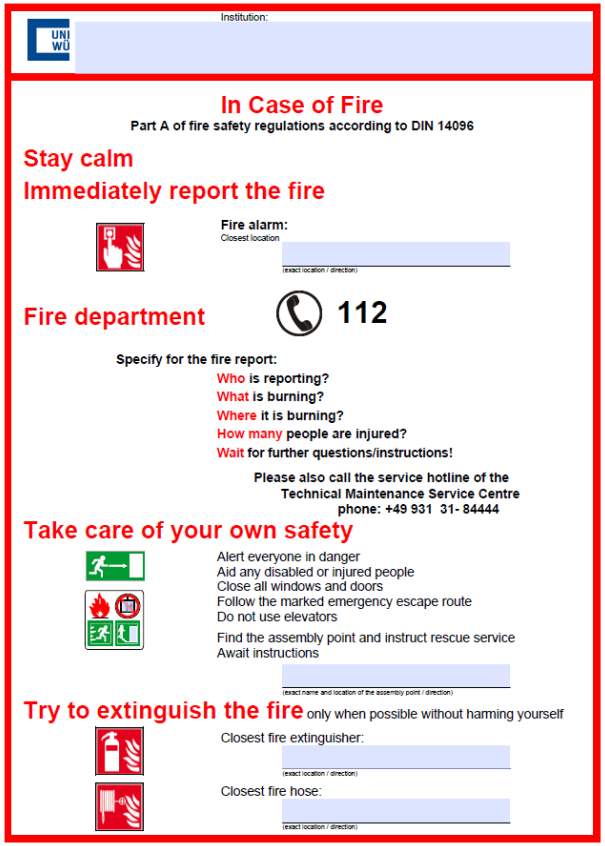
Health and safety officer:

(Name) (Phone)

University Medical Centre: Phone: +49 931 31 - 82470, - 82571

Safety engineer:
Occupational Health and Safety and Accident Prevention Team
Phone: +49 931 31 - 82684, - 82685, - 84897, - 86470

Competent accident insurance agency:
Bayerische Landesunfallkasse (LUK)
Ungererstraße 71
80805 Munich
Germany



Institution:

In Case of Fire

Part A of fire safety regulations according to DIN 14096

Stay calm

Immediately report the fire

Fire alarm:
Closest location

(exact location / direction)

Fire department **112**

Specify for the fire report:

- Who is reporting?
- What is burning?
- Where it is burning?
- How many people are injured?
- Wait for further questions/instructions!

Please also call the service hotline of the Technical Maintenance Service Centre phone: +49 931 31- 84444

Take care of your own safety

Alert everyone in danger
Aid any disabled or injured people
Close all windows and doors
Follow the marked emergency escape route
Do not use elevators

Find the assembly point and instruct rescue service
Await instructions

(exact name and location of the assembly point / direction)

Try to extinguish the fire only when possible without harming yourself

Closest fire extinguisher:

(exact location / direction)

Closest fire hose:

(exact location / direction)

Display these posters and keep them up to date!

What to do in the event of a fire:

-Remain calm, do not panic.

-Operate a fire alarm box - the fire brigade will then be notified automatically (if the building has a fire alarm system).
-Always call the **fire brigade at 112.**

-**Where** is the fire? (building, floor, room)
-**What** is on fire? Are there any hazards near the fire, e.g. flammable liquids?
-How many people are **injured**?
-**Who** is reporting the fire?
-**Stay on the phone** until the call handler hangs up.

Only if there is enough time:

- Switch off electrical appliances!
- Close - but do not lock - doors and windows!
- Attempt to extinguish the fire but only if you can do so without putting yourself in danger!

- If your escape route is filled with smoke, stay in the room, close the door, go to the window and attract attention.
To escape a smoke-filled room, crouch or crawl low to the ground to avoid inhaling toxic gases (danger of suffocation).

- Alert everyone who might be in danger! Help anyone who needs extra help in escaping!
- Use designated escape routes!
- Do not use lifts!
- Go to your designated assembly point!

What to do if there is smoke present

- Approx. 95% of fire deaths are the result of smoke inhalation.

- Why is that?

Building fires usually start as smouldering fires that produce dense smoke.
That smoke contains asphyxiants, it obscures visibility and contains excessive levels of toxic CO that will lead to unconsciousness after only a few breaths.

After 1 or 2 minutes, the red blood cells are saturated with CO and the victim is dead and beyond resuscitation.

- To escape a smoke-filled room, crouch or crawl low to the ground. Smoke rises and there is more oxygen near the floor.

- If your escape route is filled with smoke, stay in the room, close the door, go to the window and attract attention.

Preventing fires and keeping them from spreading

•Always store flammable liquids in appropriate rooms and cabinets.
•Keep the stock of flammable liquids to the minimum necessary.
•Maintain the integrity of fire compartments (keep fire doors closed, ensure that fire safety systems are functioning properly).
•Practise using extinguishing equipment and operating a fire alarm box.
•Ensure that extinguishing equipment and fire alarm boxes are not obstructed or obscured from view.

Some of the information contained in this presentation was taken from the presentation ‘Allgemeine Unterweisung zum Arbeits- und Brandschutz’ by Eckhart Schulz, TU Dresden, with the author’s permission.