Revision draft

Fire safety basics for hot work operatives

CFPA-E Guideline No 12:2022 F

CFPA EUROPE®
Fire Safety | Security | Natural Hazards

The CFPA Europe develops and publishes common guidelines about fire safety, security, and natural hazards with the aim to achieve similar interpretation and to give examples of acceptable solutions, concepts, and models. The aim is to facilitate and support fire protection, security, and protection against natural hazards across Europe, and the whole world.

Today fire safety, security and protection against natural hazards form an integral part of a modern strategy for survival, sustainability, and competitiveness. Therefore, the market imposes new demands for quality.

These Guidelines are intended for all interested parties and the public. Interested parties includes plant owners, insurers, rescue services, consultants, safety companies and the like so that, in the course of their work, they may be able to help manage risk in society.

The Guidelines reflect best practice developed by the national members of CFPA Europe. Where these Guidelines and national requirements conflict, national requirements shall apply.

This Guideline has been compiled by the Guidelines Commission and is adopted by the members of CFPA Europe.

More information: www.cfpa-e.eu

Copenhagen, October 2022
CFPA Europe

Jesper Ditlev
Chairman

Cologne, October 2022
Guidelines Commission

Hardy Rusch
Chairman

CFPAEUROPE®

Contents

Key words:

1 Introduction

This guideline is primarily intended for those responsible for safety in companies and organisations. It is also addressed to the rescue services, consultants, safety companies etc. so that, in the course of their work, they may be able to help companies and organisations to increase the levels of fire safety.

It is very important to educate and influence those who are involved with hot work processes. Hot work operators should be able to:

- identify hazards;
- assess hazards in specific hot work situations;
- carry out hot work in temporary work places in a safe manner;
- understand the contents and requirements of national standards;
- understand the characteristics of gases used in hot works; and
- carry out the required safety tasks before, during and after hot work.

It is also important that hot work operatives should be competent to handle hot work tools and equipment in a safe manner and know alternative safe work methods.

If fire breaks out as a result of hot work, the hot work operative should be familiar with portable fire extinguishing equipment an how to choose and use it effectively.

The main aim should be to improve the understanding and attitude of hot work operatives so that, within a general approach of risk assessment, they can carry out hot work in a safe manner. This is accomplished by hot work training, adherence to a strict hot work permit policy and even, in some European countries, examinations and fixed term certificates for hot work operatives. This is addressed in various ways in different countries.

2 Scope

The aim of this guideline is to help prevent injury to people and damage to property and the environment as a consequence of hot work at temporary work sites including roof insulation and water proofing.

3 Definitions

Hot work: Hot work refers to work which creates sparks or involves the use of flames or other heat sources and which may cause a fire hazard. These include but are not limited to operations such as electric arc and gas welding, gas soldering, hot air blower work, flame cutting, metal polishing, cutting with a handheld power cutter and roofing and waterproofing.

Hot work certificate: The hot work certificate is a certificate for passing the hot work safety examination approved by the national CFPA-E member organisation, and is valid for a fixed period of time, for example five years.

Hot work permit: A hot work permit is a written permit that entitles to perform hot work at a temporary hot work site. Issuing a hot work permit requires that risks have been identified and assessed, and necessary safety precautions have been taken.

Hot work plan: Hot work plan is a written policy for safe conduct of hot work and roof insulation and waterproofing hot work.

Hot work safety training: Training approved by the national CFPA-E member organisation ensures that the person performing hot work, fire watcher and the person issuing the hot work permit have sufficient knowledge of hot work risks and safety

Permanent hot work site: A permanent hot work site is a work place where hot work is carried out on a regular basis and where risks associated with hot work have been assessed and addressed so that hot work can be safely performed. A permanent hot work site is typically a special-purpose fire section or other area separated from the surroundings.

Temporary hot work site: All other environments than permanent hot work sites are considered as temporary hot work sites. A roof insulation and waterproofing hot work site is always a temporary hot work site.

Permit issuer: Permit issuer is a certified operator who approves a permit for hot work at a temporary site.

Hot work operator: Hot work operator is a person who carries out hot work at a temporary site and who holds a valid certificate to perform the work.

Fire watcher: Fire watcher is a person who monitors potential fire when conducting hot work is carried out at a temporary site and who has a valid certificate to perform in the role.

4 Alternative working methods

Given that hot work always involves hazards that could cause fire to start, it is always advisable to consider other working methods such as, bolting rather than welding. The overall aim is to avoid sparks or involve the use of a naked flame. It should also be considered to transfer the work piece to a safer area (such as a permanent hot work site), see section 6.3.

5 Hot work plan

All industrial and other types of organisations, construction sites, plants and facilities should have a written hot work policy, which might also be known as hot work plan. The plan shall constitute a permanent set of instructions approved by the management for the safe performance of hot work. It should include a hot work permit scheme.

A hot work plan should include at least the following:

- the person in charge of hot work safety, who maintains the hot work plan and sees to that the orders of these safety guidelines can be implemented in practice;
- persons with the permission to issue hot work permits;
- persons with the permission to perform hot work;
- persons with the permission to act as a fire watcher;
- training requirements and a plan to insure adequate competence for hot work organisations
- the availability of shielding materials and initial extinguishing equipment necessary

- elements influencing the hot work safety arising from the policyholder's production, premises, environment and other similar factors that need to be considered besides the issues presented in these safety guidelines;
- location of permanent hot work sites when applicable.

6 Hot work

6.1 Tools, their storage and use

All tools and equipment should comply with the provisions contained in relevant laws, regulations, standards and authorities' requirements for hot work operations.

6.2 Hot work at a permanent hot work site

Hot work should preferably be undertaken at a permanent hot work site whenever possible to ensure the highest level of fire safety. Safety considerations required by the work method, the site and the environment must be taken into account for hot work at a permanent hot work site.

A permanent hot work site is recommended to meet the following requirements:

- the structures of the hot work site must be fire-proof or covered with fire-resistant material if the structures are combustible,
- the building structures and protective covers of the hot work site must be tight to prevent sparks and heat from escaping the work site or entering the structures,
- the hot work site shall have at least two portable extinguishers with 43A 183BC rating, one of which may be replaced with a fire hose real or two portable extinguishers with 27A 144BC rating,
- unnecessary combustible materials should be removed from the hot work site,
- no flammable liquids or combustible gases may be handled or stored in the hot work site. The hot work site should not be located adjacent to any area that could pose a risk of fire or explosion.

If hot work is carried out in a permanent work place in a different manner than than what has been intended a new risk assessment should be carried out to evaluate the fire hazard and associated risks.

Requirements regarding fire extinguisher can vary in different countries.

6.3 Hot work at a temporary hot work site

Hot work should only be performed at a temporary hot work site if it is not possible to perform it at a permanent hot work site. Hot work should if possible always be replaced with a working method that does not involve a fire hazard.

No hot work operations should not be carried out at temporary hot work sites unless a hot work permit has been issued for the work concerned. (see Annex 1 for an example of a hot work permit).

National guidelines and legislations should be followed, relating to the recommendation that the local fire authorities should be contacted before any hot work operations are commenced,

whenever there is a high risk of fire or explosion. Examples of where this may apply includes hazardous occupancies, such as refineries, chemical plants or historical buildings with cultural interest etc.

A roof insulation and waterproofing hot work should always be assessed as a temporary work site.

6.4 Hot work permit

Before issuing the hot work permit, hazards caused by hot work must be identified and assessed at the hot work site.

The permit issuer should determine necessary safety precautions on the basis of assessment of hazards utilising a written hot work permit. Hot work may not be started until the worker and the hot work fire watcher have ensured that the security precautions determined in the hot work permit have been implemented. The hot work permit should specify the name of the permit issuer the hot work operator and the fire watcher.

The hot work permit can be issued by the person specified in the policyholder's hot work plan. The permit issuer should be a person capable to identify and assess risks and determine due safety precautions based on personal experience and knowledge of the worksite.

A hot work permit can only be issued for a limited period of time. The hot work permit is restricted to the specific hot work site, and only those hot work operations specified in the permit are allowed to perform. If the conditions of the hot work site change during the validity of the hot work permit, a new hot work permit should be issued to reflect the new conditions.

7 Safety precautions at a temporary hot work site

A safe hot work process consists of identifying and assessing hazards, specifying and implementing safety measures, monitoring safety before, during and after hot work is carried out. A safe hot work process is described in the company's hot work plan and hot work permit.

7.1 Safety precautions before performance of hot work

- Inform the residents of a property and the people who work there about the hot work.
- Use a written hot work permit from the permit issuer designated by the customer.
- A fire watcher is designated for the duration of the hot work and for guarding after completion of the work.
- Ensure that the address of the work site is known to everyone involved in the hot work. They should have knowledge of where the nearest telephone is located, how to make an emergency call and how to use the first aid fire extinguishers.
- Remove combustible and flammable materials from the hot work site and its surroundings and clean the hot work site.
- Inspect the facilities surrounding the hot work site, including loft, ventilation and other intermediate spaces. Protect them and arrange fire watching for these spaces, if assessed as needed.
- Protect any combustible constructions and openings if they cannot be removed.
- Water the hot work site and its surroundings, if necessary.
- Verify that the tools used comply with regulations.

- Measure the concentration of flammable gases and oxygen in the work area. Ventilate the area, if necessary.
- If there is an imminent chance that hot work could cause a false fire alarm, fire detectors should be disconnected. Only the person in charge of the fire detection equipment or their deputy may disconnect the detectors.
- Remain fire extinguishing systems in operation whenever possible. The fire extinguishing system may only be disconnected when work is done on the system itself. However, the sprinkler nozzle should be protected against heat.
- Ensure that there are protective covers or mineral wool sheets at the work site to prevent the spread of sparks. Protection is more efficient if the protective cover is wetted and closely fitted. The spread of sparks can also be prevented by movable partitions made of fire-resistant material.
- Prevent heat conduction to the surrounding facilities through pipes, ventilation ducts, and similar.
- When working on a grating, prevent the spreading of sparks to areas below by covering the grating with fire-resistant covers or locate a fire watcher on the floor below.
- Protect all cable trays in the vicinity of the hot work site.
- Censure that the fire extinguishing equipment, protective material and emergency equipment defined in the hot work permit are always present at the site.

7.2 Safety precautions during hot work

Hot work can only be started once the hot work operator and the fire watcher have verified that the safety precautions set out in the hot work permit have been taken. The permit issuer approves the hot work by signing the permit. During hot work, the fire watcher supervises fire safety by continuously monitoring the hot work site, its surroundings, and base structures.

The fire watcher must be aware of the hazards related to hot work and know how to make an emergency call and use the first aid fire extinguishing equipment. Hot work fire watching is performed for the whole duration of the work, including breaks. If the fire watcher detects a hazard, they must stop the hot work. Fire risks in the surrounding spaces must also be considered, and several fire watchers must be assigned, if necessary.

When performing hot work, the permit issuer, hot work operator and fire watcher should ensure the following:

- That the hot work fire watcher is present throughout the duration of the work, including during breaks.
- That the first aid fire extinguishers defined in the hot work permit are present at the site.
- Observe whether the risk of fire in the surrounding areas has increased during the work and evaluate whether additional safety measures are necessary.
- That flammable material generated during the work is promptly removed.
- Concentration of flammable gases is monitored. The space must be ventilated, if necessary.
- That the conditions of the hot work permit remains throughout the work, If the risks change or increases, the work must be interrupted, the impact of the changes must be assessed and, if necessary, new safety measures should be agreed upon. This may include the issuing of a new hot work permit.

7.3 Safety precautions after completion of hot work

When performing hot work, the permit issuer, hot worker and fire watcher should ensure the following:

- Thourough inspection the work site and its surroundings.
- The permit issuer is informed when the hot work is completed.
- Ensure that fire watching is carried out at the hot work site and, if required, in the surrounding facilities.
- Close the valves on the gas cylinders and gas outlets used for the work and disconnect the gas hoses and process equipment from them. Transfer the gas cylinders and related equipment to a safe location. Gas cylinders should be stored in a location marked "gas cylinders".
- If it was necessary to disconnect the fire alarm system, ensure that it is reconnected. Only the person in charge of the equipment or their deputy may operate the equipment.

8 Roof insulation and water-proofing hot work

8.1 Additional safety precautions

If the building structures are combustible or contain combustible voids that cannot be inspected and monitored, hot work must be replaced with a working method that does not involve a fire hazard. The water-proofing material must not be attached over flashing or metal structures so that the point of attachment is heated. Open flame or hot air must not be used near an opening or a lead-through or in the junction of horizontal and vertical structures so that the naked flame or hot air can penetrate the structure. In some countries, naked flames are forbidden.

It is important to inspect:

- The fire safety of structures at a work site: feedthroughs, foots of pipes, ventilation pipes, ventilation openings, roof outlets, bases for antennas, the backs of sheet metals on walls and eaves, the backs of boards and panels. Alternative working methods must be considered, especially in these work phases.
- Loft, ventilation and other middle spaces and protect them.
- Fire-resistant protective material and emergency equipment suitable for making a hole in the structure for extinguishing purposes must be available at a roofing and waterproofing work site when hot work is involved.

8.2 Bitumen boiler

Requirements for the use and safety measures of bitumen boilers may vary between countries. Make sure to comply with the national legislations and guidelines.

A bitumen boiler should be such that the roof structures underneath it will not heat up and catch fire. The lid of the boiler should be tight to suffocate a fire inside the boiler and prevent rainwater from leaking into the boiler.

In addition, a bitumen boiler that is more than 50 litres in capacity should comply at least with the following requirements:

- The lid of the boiler should be hinged.
- A gas cylinder burner that is part of the boiler's structure may only be used for heating.

- The boiler should be equipped with a measuring equipment that indicates the temperature, a flame control device and a thermostat, or another device that prevents overheating and ignition of bitumen.
- The drain valve should be closed tightly in all conditions.
- The bitumen boiler should contain a structure marking that indicates the maximum permitted capacity.
- The boiler should be equipped with at least four closed lifting loops that must be placed outside the boiler for lifting.
- Bitumen boilers should be on wheels for making their transfer easier.

A bitumen boiler should only be used outdoors. Place the boiler on a steady and level surface and ensure that there is no flammable material or openings in the vicinity.

The liquefied gas hose of a bitumen boiler must be equipped with a pressure regulator and a hose break valve. Only use a burner and a regulator suitable for the boiler and its structure.

Hot bitumen may boil over or leak from the boiler. Therefore, boilers with a maximum capacity of 50 litres that do not have equipment-preventing overheating must be placed in a protective metal container. The size of the tub must be large enough so that any bitumen that leaks from the boiler cannot flow over the sides of the tub.

The maximum use temperature of oxidized bitumen is 240 °C. The maximum use temperature of bitumen rubber is 190–220 °C depending on the manufacturer and the product. Modified bitumen is processed in a blender boiler that evens out the temperatures. Under no circumstances may bitumen be heated to a higher temperature than that issued by the manufacturer.

9 Fire extinguishing, clearing equipment and shielding materials

Permit issuer determines what fire extinguishing equipment is required on the basis of the identification and assessment of hazards caused by the hot work.

At a temporary hot work place, the equipment should always include at least two portable extinguishers with 43A 183BC rating. The fire extinguishing equipment should remain in the hot work site during the entire duration of the hot work and also during the fire watch afterwards.

At a roof insulation and waterproofing site the fire extinguishing equipment should nevertheless always include at least two portable extinguishers with 43A 183BC rating. The emergency extinguishing equipment must remain in the hot work site during the entire duration of the hot work and also during the fire watch afterwards. A roof insulation or waterproofing hot work site must have fireproof shielding materials and breaking tool that in the event of fire can be used to cut a hole in the structure for fire control.

10 Hot work fire watcher

The hot work permit shall specify how many and where the fire watcher is arranged.

The fire watcher must continue throughout the entire hot work process, during hot work and after the completion of work, including breaks. The fire watcher should be trained to know the risks involved in hot work, know how to make an emergency call and use the fire extinguishing

equipment provided at the hot work site. If necessary, the fire watcher must interrupt the hot work. It is recommended that the fire watcher has a hot work certificate, but the needed level of training may vary in different countries.

The hot work operator cannot be the fire watcher who is on duty during work. The hot work site and its adjacent areas must be monitored continuously by the fire watcher. If necessary, multiple fire watcher must be appointed.

When the hot work has been completed, the fire watch must be continued in accordance with the hot work permit, but for at least one hour.

11 Hot work examination and certificate

There are some European countries in which the training and examination of hot work operatives and the permit issuers is linked to a formal, compulsory certification scheme for such operatives. While such a regime is recommended, it is recognised that not all countries subscribe to its adoption.

The hot work certificate validate that the person has passed the hot work safety examination. The training, learning outcomes and examination procedures should be in accordance with CFPA-E training 1.19 "Hot Work" and it includes fire drills, first aid extinguishing and safety precautions.

The CFPA-E training 1.19 "Hot Work" is followed by an examination to verify that those performing hot work have an adequate knowledge of fire hazards and hot work safety. Those passing the examination are awarded a hot work certificate, which shall include the following information: name of certificate holder, number of certificate, validity and issuer of the certificate.

Annex 1: Examples of "Hot Work Permits"

Example 1:

The Finnish National Rescue Association SPEK

HOT WORK PERMIT no.

The client	Company/community	Contact person and phone number	
The hot work operators	Company/contractor EMERGENCY NUMBER 112 - When calling from the company's in-house number:		
	Names of the hot work operators: ☐ The issuer of the hot work permit has verified the validity of the hot work licences of all hot work operators		
Hot work plan	The hot work plan of ☐ The client's ☐ The contractor's		
The object of work	Company/building/unit/area		
	Address of the hot work site		
Hot work	☐ Abrasive cutting and bobbing ☐ Electric welding ☐ Gas soldering and welding ☐ Flame cutting ☐ Using a heat gun ☐ Using a bitumen boiler ☐ Using a gas cylinder burner ☐ Other, please specify:		
Identifying and assessing the hazards associated with hot work		YES precautions are needed	NO there are no hazards
	Alternative work methods have been assessed before issuing the hot work permit.	☐	☐
	The hot work site contains inflammable dust, powdery material or inflammable waste.	☐	☐
	There are inflammable materials at the hot work site	☐	☐
	Wall, ceiling and floor surfaces or structures near the hot work site can ignite.	☐	☐
	There are cables or cable trays at the hot work site.	☐	☐
	The object of hot work contains inflammable materials.	☐	☐
	The hot work site has openings, holes, sheet metal platings, cavities or ventilation gaps that facilitate the transmission of flames, sparks or spatter into the structures or the surrounding environment.	☐	☐
	The hot work site contains inflammable gases or vapours or they may be generated there.	☐	☐
	There are air conditioners and air inlets at the hot work site.	☐	☐
	Sparks and spatter may spread to a wide area, including above and below the object of work.	☐	☐
	Heat generated during hot work can be spread to wall, ceiling, or floor structures.	☐	☐
	Other dangers:	☐	☐
Hot work safety precautions	The client / The contractor ☐ ☐ The hot work site must be cleaned. ☐ ☐ Any inflammable material generated during the work must be removed. ☐ ☐ Inflammable materials must be removed from the hot work site. ☐ ☐ Protections must be placed in such a way that flames/sparks/spatter cannot spread. ☐ ☐ A separate protective structure is required. ☐ ☐ Any gaps and openings on the walls, ceiling and floor must be covered. ☐ ☐ Cables, cable trays, machinery, equipment, inflammable structures, etc. must be protected. ☐ ☐ The work area must be watered. ☐ ☐ The object of work must be cooled uninterruptedly. ☐ ☐ The concentration of gases must be measured and the work area ventilated, if necessary. ☐ ☐ Surrounding areas must be guarded. ☐ ☐ Other required safety measures: The fire alarm must be disconnected during hot work, if required. Systems may only be connected and disconnected by the person in charge of the equipment. The sprinkler system should not be disconnected. If required, the sprinkler nozzles can be covered during hot work. This should be agreed with the person in charge of the equipment. Name and telephone number of the person in charge of the fire alarm/sprinkler system:		
Extinguishing equipment	The issuer of a hot work permit specifies the necessary and applicable extinguishing equipment for the hot work site based on a survey and assessment of hazards caused by hot work. Usually (always with roofing hot work) there must be at least two hand extinguishers of class 43A 183B C available. The equipment required at the hot work site is acquired by ☐ The client ☐ The contractor ☐ Hand extinguisher(s) of class 43A 183B C _ _pcs ☐ Stirrup pump ☐ Hand extinguisher(s) of class 27A 144B C _ _pcs ☐ Special fire extinguishing equipment ☐ CO_2 extinguisher(s) _____ pcs ☐ Fire blanket ☐ Hose reel ☐ Emergency equipment ☐ Pressurized fire hose		
Hot work guarding	The client / The contractor ☐ ☐ During work and breaks Hot work guard: ☐ ☐ After work _ hours (minimum of 1 hour) Hot work guard:		
The validity of the hot work permit	Starting date The permit is valid daily from x to x End date		
Issuer of the hot work permit	Date	Signature, name in block letters, and telephone number	

Hot work permit issuer (blue), hot work operator (yellow), and hot work guards (white)

Publisher: The Finnish National Rescue Association SPEK, www.spek.fi/tulityo Product number:43050

Example 2:

Permit/Checklist for Heta Arbeten®

Work site: .....

Call-out address: .....

Work method: ☐ Welding ☐ Angle grinding ☐ Cutting ☐ Soldering/brazing ☐ Hot air ☐ Bitumen boiler

☐ Other .....

The permit is valid from (date) ..... (time) ..... until (date) ..... (time) .....
(The permit must be issued for as short time as possible, normally not longer than one day/one shift)

Does the work represent a fire hazard? (MME method) ☐ Yes ☐ No

	Yes	No	
0	☐		A permit issuer has been appointed.
1	☐		The person who is to carry out the work is authorised to perform hot work.
2 a	☐		Fire-watch during the work is arranged through an authorised fire-watcher.
			Name(s) of fire-watcher(s): .....
			☐ The permit issuer considers that a fire-watcher is clearly not needed during this work.
2 b	☐		Post-hot work fire-watch (always at least one hour) has been arranged through an authorised fire-watcher.
			Different, longer time: ..... Fire-watcher for post-hot work fire-watch: .....
3	☐		A permit for working in an area that contains or has contained flammable goods must be obtained from the person appointed as superintendent for the handling of such goods.
4	☐		The work site is cleared and if necessary wetted.
5	☐		Combustible material at and close to the work site is removed, protected by covering and/or screened off.
6 a	☐	☐	There are concealed heat-conducting structures and concealed combustible structural elements.
6 b	☐		These are protected and accessible for immediate fire-fighting.
7 a	☐	☐	There are gaps, holes, penetrations and other openings at and close to the work site.
7 b	☐		These are sealed or checked and protected.
8	☐		Approved, functioning and sufficient fire-fighting appliances of the correct type are available for immediate fire-fighting.
9 a	☐	☐	Welding equipment will be used in the work.
9 b	☐		Welding equipment is free from defects. The acetylene cylinder is fitted with a flashback arrestor. Welding torches are fitted with check valves for the fuel gas and oxygen. Protective gloves and a stop key are available.
10	☐		The emergency services/fire brigade can be called out immediately.
11a	☐		In waterproofing or other drying/heating, the gas flame is enclosed.
11b	☐	☐	The permit issuer allows an open flame to be used to melt snow and ice.
12	☐		In the drying of substrate and application of waterproofing, the material is heated to max. 300 °C.
13	☐		For the melting of bitumen, the equipment is handled in accordance with with the Swedish Fire Protection Association's document "Melting of bitumen for work on roofs and balconies".

The following sections/addresses in the automatic fire alarm are disconnected during the work (use form SBF 175)

.....

Signature of permit issuer All the safety rules have been fulfilled and work can begin.

.....

Signature | Name in block capitals | Telephone number

Signature of hot works operative (HWO) and fire-watcher (FW)	**Certificate check performed** (by permit issuer)	**HWO**	**FW**
..... Signature ..... Name in block capitals	☐	☐	☐
..... Signature ..... Name in block capitals	☐	☐	☐
..... Signature ..... Name in block capitals	☐	☐	☐

Signature of permit issuer Work completed, post-hot work fire-watch period completed and fire safety at the work site checked.

..... Signature ..... Name in block capitals

Heta Arbeten® BRANDSKYDDSFÖRENINGEN

SBF HA-004:05 Brandskyddsföreningen fastställd 2017-04-26

Annex 2: Minimum requirements for emergency fire extinguishing and protection exercises

There can be national variations for practical training programmes but they should always meet at least the following.

The hot work training includes a compulsory exercise section on emergency fire extinguishing and loss prevention measures. The purpose of the exercises is to highlight the importance of protective measures, such as shielding, in the prevention of hot work damage. It is also important to allow each course participant the opportunity to safely practice emergency fire extinguishing. About one hour must be reserved for the exercises.

The theoretical section must include explanations of different types of fire extinguishers and their application, and the breaking tools required in roofing and waterproofing work.

Emergency fire extinguishing exercise should include the following elements:

Exercise on the operation of a handheld fire extinguisher

- Removing the pull pin.
- Operating the extinguisher.
- Experiencing recoil/pressure.
- Correct extinguishing distance (does the pressure spread the flammable material?).
- Range of the discharge at the start and gradual wearing off.
- Sufficiency of the extinguishing agent.
- Understanding the effect of wind in outdoor spaces.
- Approaching a fire safely.

Optional:

- Reduced visibility in a closed space due to discharge from the extinguisher.
- Exercise on the use of a fire blanket.
- Operating the fire blanket.
- Safe extinguishing method.

Goal of the exercises:
During the practice, each participant must perform practice emergency fire extinguishing using a handheld extinguisher and if possible, fire blanket and a hose reel.

The minimum size of the fire extinguishing pool used in the training is 0.25 m² and it is recommended that different types of fire extinguishers and hose reels be covered in the training. The safety of the fire extinguishing training as well as the safety of the practice area must be secured.

Optional exercise for preparing the hot work site:

- Cleaning the worksite and its surroundings, different protection methods and tools.
- Acknowledging adjacent premises.
- Blocking sparks and metal splatter.
- Fire-watch of the hot work site (hot work permit, extinguishing equipment, safety measures).
- Taking into account fire technical systems.

The fire protection practice can be done in groups. Participants learn to apply and rehearse what they have learned during the theoretical part of the training. The sample cases are prepared by

the trainer. Participants are divided into different groups: hot work permit issuers, hot work operators, fire watchers. They must plan the safe conduct of hot work and implement loss prevention measures at the practice scenario worksite (specified by the trainer). Participants should practice writing/filling a hot work permit and the loss prevention measures in the classroom using protective materials. The hot work permit is prepared as a group assignment based on examples.

European guidelines

Fire

Guideline No 1 F - Internal fire protection control
Guideline No 2 F - Panic & emergency exit devices
Guideline No 3 F - Certification of thermographers
Guideline No 4 F - Introduction to qualitative fire risk assessment
Guideline No 5 F - Guidance signs, emergency lighting and general lighting
Guideline No 6 F - Fire safety in care homes
Guideline No 7 F - Safety distance between waste containers and buildings
Guideline No 8 F - withdrawn
Guideline No 9 F - Fire safety in restaurants
Guideline No 10 F - Smoke alarms in the home
Guideline No 11 F - Recommended numbers of fire protection trained staff
Guideline No 12 F - Fire safety basics for hot work operatives
Guideline No 13 F - Fire protection documentation
Guideline No 14 F - Fire protection in information technology facilities
Guideline No 15 F - Fire safety in guest harbours and marinas
Guideline No 16 F - Fire protection in offices
Guideline No 17 F - Fire safety in farm buildings
Guideline No 18 F - Fire protection on chemical manufacturing sites
Guideline No 19 F - Fire safety engineering concerning evacuation from buildings
Guideline No 20 F - Fire safety in camping sites
Guideline No 21 F - Fire prevention on construction sites
Guideline No 22 F - Wind turbines – Fire protection guideline
Guideline No 23 F - Securing the operational readiness of fire control system
Guideline No 24 F - Fire safe homes
Guideline No 25 F - Emergency plan
Guideline No 26 F - withdrawn
Guideline No 27 F - Fire safety in apartment buildings
Guideline No 28 F - Fire safety in laboratories
Guideline No 29 F - Protection of paintings: transports, exhibition and storage
Guideline No 30 F - Managing fire safety in historic buildings
Guideline No 31 F - Protection against self-ignition end explosions in handling and storage of silage and fodder in farms
Guideline No 32 F - Treatment and storage of waste and combustible secondary raw materials
Guideline No 33 F - Evacuation of people with disabilities
Guideline No 34 F - Fire safety measures with emergency power supply
Guideline No 35 F - Fire safety in warehouses
Guideline No 36 F - Fire prevention in large tents
Guideline No 37 F - Photovoltaic systems: recommendations on loss prevention
Guideline No 38 F - Fire safety recommendations for short-term rental accommodations
Guideline No 37 F - Fire protection in schools
Guideline No 38 F - Fire safety recommendations for short-term rental accommodations
Guideline No 39 F - Fire protection in schools
Guideline No 40 F - Procedure to certify CFPA-E Fire Safety Specialists in Building Design

Natural hazards
Guideline No 1 N - Protection against flood
Guideline No 2 N - Business resilience – An introduction to protecting your business
Guideline No 3 N - Protection of buildings against wind damage
Guideline No 4 N - Lighting protection
Guideline No 5 N - Managing heavy snow loads on roofs
Guideline No 6 N - Forest fires
Guideline No 7 N - Demountable / Mobile flood protection systems

Security
Guideline No 1 S - Arson document
Guideline No 2 S - Protection of empty buildings
Guideline No 3 S - Security systems for empty buildings
Guideline No 4 S - Guidance on keyholder selections and duties
Guideline No 5 S - Security guidelines for museums and showrooms
Guideline No 6 S - Security guidelines emergency exit doors in non-residential premises
Guideline No 7 S - Developing evacuation and salvage plans for works of art and heritage buildings
Guideline No 8 S - Security in schools
Guideline No 9 S - Recommendation for the control of metal theft
Guideline No 10 S - Protection of business intelligence
Guideline No 11 S - Cyber security for small and medium-sized enterprises

Comments and corrective actions:

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Fire Safety | Security | Natural Hazards

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