



Brandfarliga  
Arbeten



# **FIRE HAZARD WORKS**

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## What are fire hazard works?

Any work, which in any way involves generation of heat or sparks, such as welding, soldering, drying, must be performed in a safe manner, in compliance with fire safety requirements.

These works are also referred to as high temperature works or hot works. We have decided to refer to them as to **Fire Hazard Works**. Persons performing fire hazard works must receive training in order to obtain the required certificate. The „Fire hazard works” training ensures obtaining the certificate compliant with the requirements of insurance companies, with a specified period of validity. The Fire Hazard Works Training has been developed by SVEBRA and Sveriges Byggindustrier (*the Swedish Construction Federation*) in agreement with leading Swedish experts in this area. The education program was prepared with input from the representatives of various industry sectors to adjust the training content to different occupational situations.



## Tip!

You are not sure if a work belongs to the fire hazard works' category?

Think if the work may in any way result in generation of heat, smoke or fire, or produce sparking. If so, you may have to do with fire hazard work.

If you can change the tools or the environment and as a result minimise the risk, then your work will not pose a hazard and will not be fire hazard work.

## What are fire hazard works?

Fire hazard works are works, which due to use of tools may produce heat and/ or sparks and which are performed at a temporary workplace. However, it is not only the tool that classifies a work as fire hazard work. Also the material that is processed and the environment in which the work is performed determine whether a specific job is fire hazard work.

Based on the risks involved the permit manager decides whether a work is a fire hazard work or not.

## What is the difference between a permanent and a temporary workplace?

A permanent workplace is designed for a given work to be performed in it; a metal workshop can be given as an example here. Such a place is free of combustible materials and the firefighting equipment is always situated at a specified location there. Here fire hazard works can be performed without the need to obtain a fire hazard work permit.

Temporary workplaces are all workplaces, which have not been designed for performing fire hazard works. In this case, there may be a risk of a building, vehicle or forest catching fire as a result of the work performed. That is why a fire hazard work permit must be obtained to perform work in such places.

### Tip!

Prior to starting work, the best option is to ensure you will work in safe work environment: can you move your temporary workplace to another location, where there is no risk of fire?

If this is not possible, prior to commencing work you should act in compliance with the permit and the check list. In the Permit and Check List section read about all the measures that must be implemented.

## Why are the safety rules of insurance companies important?

All corporate insurance policies include safety rules, which must be followed during performance of fire hazard works. The requirements must be satisfied regardless of whether you are a client, company, contractor or an employee.

In case of fire due to failure to follow the safety rules, there is a risk of costly deductions from the compensation amount. Claims for damages and legal penalties may also be applicable.

### Tip!

Safety rules help minimise risk and work safely. If you follow the rules described in the section „Permit and Check List“, you will meet the requirements of insurance in compliance with the applicable safety rules.

Read the section „Permit and Check List“ to find out more about all the rules that need to be implemented.



## **What organizational roles are required for fire hazard works?**

Responsible performance of fire hazard works is characterised by transparent organisation of the work, allowing to perform activities in the safest possible manner. There are three basic organisational roles in fire hazard works: the permit manager, contractor and fire watch attendant. Everyone in the organization must complete the training and obtain a certificate. The permit manager must also have the authorization to perform fire hazard work if he/ she issues the permits more often than once a year.

## Permit manager

The permit manager, i.e. the person responsible for issuing permits assesses the risk and checks whether the requirements for carrying out the work in a safe manner are met. Following such assessment, the permit manager gives written permission to perform work. The permit manager must:

- Assess on the spot if a given work is fire hazard work.
- Conduct on-the-job preparation and indicate which persons will be the operators and determine whether a fire watch attendant is required.
- Use the Permit and the Checklist, in conjunction with the operator and the fire watch attendant, familiarize himself with the items in the list to take the necessary measures to meet the requirements and eliminate the risk of fire.
- Assess the monitoring period on completion of the work.
- Issue the permit which must be signed by all the persons involved in the work.
- Actively supervise whether safety rules are observed before, during and on completion of the work.

### Tip!

No fire hazard work can start without permit. When you receive the work order, and before you get to the workplace, ask who can issue the permit if the work proves to be fire hazard work.

## Tip!

The permit manager cannot act fire hazard work operator but can act as a fire watch attendant. All the people in the team are jointly responsible for carrying out the work safely and following fire hazard work procedures. In the event of a change in risk, it is the responsibility of each employee to stop work.

## Operator

The operator is a person who is holding the tools.

The operator must:

- Familiarize himself with the equipment.
- Use the personal protective equipment, including also the equipment required for work in the environment in which the work is to be carried out.
- Take responsibility for ensuring that the work performed always complies with the regulations and the permit.
- Stop the work and contact the permit manager if the conditions of work change.

## Fire watch attendant

Fire watch attendants secure the temporary workplace and see to it that the work is carried out in such a way that no fire can start and watch the workplace for any signs of smoke or open fire. The fire watch attendant must:

- Know how the work will be carried out.
- Be present at the site all the time.
- Be able to respond adequately, to raise alarm.
- Have the firefighting equipment at hand.
- Be able to stop the work, if the conditions change.

## Flammable materials superintendent

The flammable materials superintendent should be appointed for work in spaces in which flammable materials are stored in such quantities that a fire hazard work permit is required. In such situations, a special permit needs to be issued by the flammable materials superintendent before starting work. To prevent omitting this issue, there is a question in the Permit and Checklist regarding this topic.

## Can the responsibility for issuing permits for fire hazard works be delegated to another person?

Anyone who buys an insurance policy for their building can issue a permit. However, this task can also be assigned to another person. It should be remembered that the person who will issue permits needs both expertise and eligibility to be able to perform their duties.

### Delegation of responsibility can be effected in various ways:

- For the delegation of responsibility to be effected correctly, it must be done in writing.
- Within own organisation: as a personal handover or in the job description.
- Contractors: You can delegate a task to another company/ contractor.
- The contractor in turn personally appoints another person to perform the task within his organisation. For example, the Swedish construction contracts AMA AF contain provisions on the delegation of responsibility for issuing permits, in which "the contractor will provide a designated natural person".
- Forms for the delegation of responsibility are available for download at the website [www.brandfarligaarbeten.com](http://www.brandfarligaarbeten.com)

## Risk management

Fire hazard works involve risk management.

Prior to the commencement of the work, during and on completion of the work you should:

- Identify the risk of fire.
- Assess the risk of fire.
- Manage the risk of fire.

The picture of the risk can change while the work is in progress. It is important to continuously monitor and regularly identify the risk, as well as assess and manage the risk on an ongoing basis.

## What is the KOKA method?

You can use the KOKA method to assess the risk for fire hazard works:

### Consequences

What will the consequences be if a fire is started? Remember, the consequences may be far greater than damage to the building itself.

A fire can cause stopping of work and, as a result, costly downtime.

Think about what can happen and what actions are needed to mitigate the possible effects of fire.

## Environment

What do the surroundings look like? Are there any things around that need to be moved, cleared, shielded or protected against fire in any other way? Are there any gases or dusts that could pose a hazard present?

## Structure

What do the structure and material look like? Are they flammable? Can heat, gas or sparks get through to the materials that could ignite? Is there any foamed polystyrene used for concrete insulation present at the workplace, and if so how can it be protected or made less susceptible to fire hazards?

## Work method analysis

What tool/ machine should be used? Can the work method be changed in order to minimise the risk?



## **Are there any approved tools, the use of which decides that a given work is not considered to be a fire hazard work?**

All tools producing heat or sparks are considered to be tools posing a fire hazard. There are no „approved” tools. You must assess the risk at every instant. It is not only the tool that determines that given conditions pose a fire hazard, also the material that is processed and the environment in which the work is performed determine whether a specific work is a fire hazard work. Cutting a nail with an angle grinder is not a fire hazard work if it is carried out outdoors on the snow. But the same work is a fire hazard work if it is performed at the very same place in summer, when the grass is dry. Always take into account all circumstances and do not assess the risk only in terms of the tool used.



## **What is applicable during the performance of construction work?**

Fire hazard works in the construction sector can be subdivided into two basic groups: works carried out under large and small projects.

### **Large projects**

In the case of large construction projects we have to do with a high level of safety. The whole task is often regulated by agreements such as AMA and AF. We have to do with a specific organisation of work and with the responsibility delegation system. Specific procedures regulate all the issues related to the performance of fire hazard works. The client has delegated the responsibility to the contractor. The contractor performs the general contract and has at his disposal the construction manager who issues permits to all, including subcontractors, such as electricians or metalworkers. The construction manager present at the site decides what safeguards are needed. Safety checks are held regularly.

### **Smaller projects**

In the case of smaller construction projects the situation may be somewhat unclear. These can involve smaller buildings/ building extensions, and, first of all, service works.

The property owner must delegate responsibility for issuing permits to the appropriate person so that he or she can issue them. In the case of smaller projects, the agreement pursuant to the provisions of AMA / AF is not so clear, which means that the delegation of responsibility must be done in writing.

The construction manager is not present at the workplace all the time. Then it might be more difficult to issue a permit and to take the resulting actions prior to the commencement of the work, during and on completion of the work. If a contractor turns up, issuing additional permits may pose a problem.

Protection measures in smaller projects are generally much stricter. Sometimes other activity is conducted in the same building. In such situations, the protection measures tend to be more comprehensive and the coordination between different actions must function well. For example, when a contractor is to perform fire hazard works in a shopping centre and wants to turn off some of the elements of the fire alarm to avoid the alarm going off without a need. There are usually a lot of people in a shopping centre, and the risk of fire increases when fire hazard works are carried out in the building. In such a situation the deactivated fire alarm system needs to be replaced, for instance by using a greater number of fire watch attendants.

### **Tip!**

»If you think safety is expensive, check how much a real accident costs!«

If you remove a fire door that can withstand fire for 60 minutes, a large part of the fire protection will be eliminated. In this situation and for longer-lasting works, you should install a temporary door to reduce the risk of fire.

For smaller construction projects, you should think about the following elements as early as at the design stage:

- How does the delegation of responsibility work - can we determine these issues at the procurement stage?
- Who can be the permit manager?
- Which safeguards need to be considered?

If you take this into account from the very beginning, then smaller projects will be as easy to deliver as large ones.



## **What are we obliged to do while working in single-family houses?**

Private individuals often do not have knowledge and do not understand the regulations regarding fire hazard works. Also, their insurance contracts do not include the requirements in this respect. Therefore, you as a contractor take full responsibility for following the safety rules.

### **Remember:**

- A home insurance contract does not contain requirements for carrying out fire hazard works.
- As an entrepreneur, you must carry out work in compliance with the regulations, because all companies include this requirement in their insurance contracts.
- A permit manager and, if necessary, a fire watch attendant must be appointed.
- Lone working is prohibited.

## What are we obliged to do while carrying out roofing work?

Many fires result from the use of open fire. The consequences can be very serious if the material of the structure catches fire as it is hard to put such fire out. Plants, e.g. branches, which reach beyond the edge of the roof and can ignite during roofing works are another example of an increased fire hazard.

There are certain high-risk structures, which need to be considered during roofing works. Extra checks are necessary for:

- Ventilated constructions: hot air can get under the panels and ignite the material underneath it.
- Roof eaves in ventilated constructions: next to the roof eaves there may be flammable materials, e.g. insulating materials, which may catch fire.
- Window elements/ veranda door: if the gaps around window frames have been caulked with tar impregnated tow/ oakum, they can catch fire.
- Insulated roofs: it is important to establish the type of insulation. If fireproof or non-combustible insulation is used, that's fine, but if combustible or styrofoam insulation is used, there is a high risk of fire. Styrofoam ignites easily and the fire spreads quickly. Remember to seal cracks and think about heat conduction when cutting screws, pipes, etc.

Bitumen melting rules must be observed when working on roofs and balconies.

- The bitumen melting pot must have a lid and an overspill tray large enough to intercept the boiler's holding capacity.
- The overspill tray should be placed on a minimum 20 mm thick mineral wool board, if it is to be used on a combustible surface.

For setting up on a subgrade outdoors the following distances apply:

• Construction scaffold or elevator	5.0 meters
• Combustible wall	1.5 meter
• Combustible roof	2.0 meters
• Propane cylinder	3.0 meters
• Stored combustible material	5.0 meters
• Combustible waste	5.0 meters
• Fuel oil or similar tank	3.0 meters

## Tip!

- Carefully inspect the structure of the building.
- Do not use open flame torches.
- Remove combustible materials present in the vicinity, including plants and branches.



*Follow the rules regarding outdoor setups.*

## **What are we obliged to do while carrying out work in industrial buildings?**

When fire hazard work is carried out in industrial buildings extra precision in risk assessment is required.

Activities are often carried out round the clock, and the premises - due to the nature of the work performed - can be large open spaces, which means that the fire cells are large. It is also expected that the walls, and especially the floors in the building, may be saturated with substances such as oil after many years of operation. Consequences of fire can lead to downtime and thus entail extremely high costs. Property damage is usually the lowest cost compared to production downtime.

## Tip!

- Cable ladders and electrical wiring must be protected because even very small damage to a cable can lead to costly repairs and downtime.
- Do not work in the areas containing lubrication and hydraulic oils. They are often stored in a number of locations within the site and are usually designated with suitable signs on the floor.
- Find out if the site contains locations with fire hazard materials or whether these are places classified as fire hazard areas.
- Seal and enclose voids and ducts between storeys to prevent sparking between floors; lubricating oils can be kept on the floor below the level where the work is being carried out.
- Constructing portable protective partition walls may be an effective method of protection.
- Deploy the fire watch attendants around the site so that they can detect fire or its origins at an early stage. In production areas, the environment may prevent the use of fire alarms due to smoke or for other reasons.

## How do the fire prevention requirements change in the course of the delivery of the works?

Safety rules set by insurance companies must be followed. There are also statutory and executory provisions that must be observed:

- AML = the Work Environment Act, Arbetsmiljölagen
- AFS = Regulations by the Work Environment Authority, Arbetsmiljöverkets föreskrifter
- PBL = the Building Code, Plan- och bygglagen
- BBR = the Building Regulations by the Swedish National Board of Housing, Building and Planning, Boverkets byggregler
- LSO = the Act on Protection against Accidents, Lagen om skydd mot olyckor
- LBE = the Act on Flammable and Explosive Materials, Lagen om brandfarliga och explosiva varor.

### New construction:

A construction process requires an involvement of a number of authorities. Fire documentation is often developed that describes how a building's fire protection system should be designed. This is regulated by the Swedish Building Code (PBL) and the construction regulations of the Swedish National Board for Housing, Building and Planning (BBR). At the last stage of the works, the building is commissioned, and during the commissioning the building is inspected before being put into operation. All parts of the documentation must be taken into consideration.

## Management:

At the stage of managing the facility, activities in the building are already underway, and the fire protection rules are included in the Act on the Protection against Accidents (LSO). This law requires implementation of suitable fire protection.

The Swedish Work Environment Authority (Arbetsmiljöverket) requires also that nobody should suffer injury at work or die as a result of fire or any other accident.

## Alteration and extension

Sometimes an activity needs to be expanded or modified, and in such situations, the Swedish Building Code (PBL) and the building regulations of the Swedish National Council for Housing, Construction and Planning (BBR) should again be taken into account.

The difference between the construction of a new building and modification or extension is such that we also need to take into consideration whether any activity is carried out in the existing building. If so it may be necessary to implement further safety measures. The persons that need to be consulted prior to the commencement of the work may be: the person responsible for fire safety, the safety manager for the building, flammable materials superintendent and others.

## SBA – systematic fire prevention work:

Systematic fire prevention works should be carried out in all types of buildings and facilities, however their scope varies depending on the type of activities carried out in the building. Systematic fire prevention works are carried out based on the fire risk factor and must be adapted to it.

Frequently occurring elements of the systematic fire prevention work are:

- Fire prevention rules
- Fire prevention organisation
- Description of the building and activity
- Rules and procedures
- Fire protection control system
- Education
- Monitoring

The Act on Flammable and Explosive Materials (LBE) is usually the legal act which becomes applicable on completion of the building. In some cases, it is the activity carried out in the building that determines what safety measures are required, e.g. fire protection requirements increase if the building houses a restaurant serving alcohol. A higher level of protection is also required if the restaurant is situated at the first floor rather than at the ground floor.

## What are the types of fire protection systems?

There are fire protection systems which help meet the requirements specified in the building regulations of the Swedish National Board for Housing, Building and Planning (BBR). The requirements change over time, but the main principle states that if a fire protection system has been installed, it should be working. The examples of fire protection systems include:

- Escape routes
- Fire insulation/ fire-retardant coating
- Fire and evacuation alarms
- Deluge sprinklers
- Fire extinguishing systems
- Fire ventilation systems
- Smoke exhaust fans
- Fire hydrants
- Extinguishers
- Fire compartments

### Tip!

Remember that the BBR regulations are not retroactive. A building must comply with the legislation and regulations applicable at the time of its construction. In the case of structural alterations to a building that require a building permit, applicable regulations of the BBR legislation apply.



## Tip!

Are you forced to turn off the fire protection system while you are working? Remember that in this situation protection is reduced and the consequences of fire are increasing. Remember to switch the fire protection system back on after finishing the work.

## Permit and Checklist

### How do we use the Permit and Checklist?

The Permit and Checklist is a form that allows you to make sure you have not overlooked anything; it is also a legal document that needs to be provided in the event of a fire.

- Preparation
- Methods
- Prevention

After reviewing all the parts and answering the questions, you can conclude that you have completed the necessary risk assessment.

### Remember:

- The permit must be issued at the workplace and all the persons involved in the work (the permit manager, contractors and fire watch attendants) must sign it.
- All the persons involved in the work should jointly analyse the activities and the work method.
- Go through all the questions in the checklist, answer the questions or mark the answer in the appropriate box.
- The checklist serves as a work permit and should specify how long the permit is valid for. Permits should be issued for the shortest possible time, usually for one day/ one shift.

## The content of the Permit and Checklist including safety rules:

### *Preliminary information in the Permit and Checklist*

- Enter the address in the event of an alarm, which you can provide in the emergency call to 112. The address in the event of an alarm is the address of the temporary workplace. It should be remembered that in the case of new construction, there is not always an address, so you must clearly define your location so that the Emergency Services can find the place of the incident, e.g. by using geographical coordinates.
- Enter the workplace. The workplace is a temporary place in which a work is to be performed, for instance a fan room.
- Enter the permit validity date. A permit should be issued for the shortest period possible, but usually not for more than one day or one shift. Works can be carried out neither before the start of the specified period nor after its expiry. A new permit should be issued if needed. If the permit is transferred to a new permit manager, the new permit manager must inspect the workplace during the performance of the work and after its completion. The new permit manager must also receive authorization to issue permits from the client.

## PREPARATION

Following the risk assessment made on site answer the following questions: are the works to be performed considered to be fire hazard work?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT APPLICABLE
The permit manager: Am I, the permit manager, authorized and appointed to carry out this task?	YES <input type="checkbox"/>	NO	

### *Safety rule 0 – The permit*

Anyone who intends to carry out or to have fire hazard works carried out (for example, the owner or user of the property or the contractor / general contractor) must nominate in writing a permit manager who will assess whether the work is associated with a fire hazard. If it is considered that there is a fire risk, work may only be carried out if the permit manager:

- issues a permit based on the Permit and Checklist for Fire Hazard Work or similar documents, the documentation is fully completed,
- he/she makes sure during the performance of the work that the safety rules given below are followed.

## Tip!

Assess whether the work is a fire hazard work. Use the KOKA method:

- Consequences
- Environment
- Structure
- Work method analysis

Consider whether you can change the conditions to avoid fire hazard work, for example, by changing your working method or workplace. Check if you can change anything that will result in the work ceasing to be fire hazard work, e.g. replace the work tool you intend to use with another tool that causes less fire hazard.

The permit manager can delegate his/ her responsibility to another person if authorized to do so by his/ her appointer. The permit manager cannot carry out fire hazard work himself/ herself.

Is the person who will be performing Fire Hazard Work appropriately certified?	YES <input type="checkbox"/>	NO	NOT APPLICABLE
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### *Safety rule 1 - Competence*

A person who is to carry out a fire hazard work should have an appropriate certificate and experience in fire protection. The same requirements are posed to the person serving as fire watch attendant. The training enabling to obtain the certificate must be carried out in accordance with the educational plan for fire hazard works established by insurance agencies and the educational committee of the Swedish Fire Protection Association.

A person who is appointed for the permit manager function on a regular basis should complete equivalent training and have equivalent experience.

### **Tip!**

The certificates can be verified with the "Brandfarliga Arbeten" (Fire Hazard Work) application, which can be downloaded via Google Play or AppStore. You can also check the valid certificates at the website, [www.brandfarligaarbeten.com](http://www.brandfarligaarbeten.com). Otherwise, the certificate must be confirmed with a plastic card and an identity document..

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Will fire watch attendant(s) be needed in the course of the work? (A fire watch should be posted unless it is obvious, there is no such need)	YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT APPLICABLE
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The place of location of a fire watch attendant(s):

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Has mandatory post-work surveillance of the workplace been agreed with an authorized person?	YES <input type="checkbox"/>	NO	NOT APPLICABLE
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Full name:

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Enter the period of time (minimum one hour):

### *Safety rule 2 – Fire watch attendant*

A fire watch attendant must be appointed. He/ she is to be present at the workplace– during the time when fire hazard work is being carried out – also during the break – and during the monitoring period following the completion of the work – for at least one hour – or during another period specified in the permit by the permit manager.

The fire watch attendant cannot leave the workplace until the danger of fire has passed. A fire watch attendant is not needed if the permit manager decides that it is obvious that a work can be carried out safely without a fire watch.

### **Tip!**

Monitoring of completed works and the function of the fire watch attendant are two separate activities. Remember that monitoring at the workplace after the completion of the work should be carried out for at least one hour. In turn, the need for a fire watch attendant can be evaluated, and the permit manager can assess that there is not need for it.

## Tip!

Not all companies have a flammable materials superintendent among their staff. If you have any doubts as to whether the site contains or has contained a flammable product, you should discuss this with the client and/ or the permit manager. The client or the permit manager then can then decide how/ whether a fire hazard work should be carried out.

	YES	NO	NOT APPLICABLE
For work to be carried out in spaces where flammable materials are/ have been present:	<input type="checkbox"/>		<input type="checkbox"/>
Has a permission been issued by the flammable materials superintendent?			

### *Safety rule 3 – Flammable materials*

For work to be carried out in spaces that contain/ have contained flammable materials a permission must be obtained from the flammable materials superintendent.

Is suitable, operational and approved firefighting equipment available for immediate firefighting action?	YES <input type="checkbox"/>	NO	NOT APPLICABLE
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### *Safety rule 8 – Firefighting equipment*

Approved and adequate firefighting equipment in good working order should be available for immediate firefighting action. This applies to a fire hose with water or two approved handheld extinguishers with a minimum performance rating Class 34A 233 BC (containing at least 2x6 kg of fire extinguishing powder).

During roofing work:

During roofing work, a fire hose and two approved handheld extinguishers with a minimum performance rating Class 34A 233 BC (containing at least 2x6 kg of fire extinguishing powder) are required. As an alternative, three handheld extinguishers with minimum performance rating Class 34A 233 BC (containing at least 3x6 kg of fire extinguishing powder) can be used. During roofing work, a demolition tool and a portable spotlight must be at hand at all times.

## Tip!

For fire extinguishers, check if:

- the charge gauge needle is in the green area
- the hose is intact
- the safety pin is in place with tamper seal intact
- the extinguisher operating instructions are legible, and
- check the extinguisher for any traces of rust or other damage.

Check the following elements of the hose:

- the nozzle is intact and can be opened/ closed
- the fire hose has appropriate operating pressure as determined by the operational risk factor
- the hose has a diameter of at least 19 mm.



Is it possible to immediately call the Emergency Services?	YES <input type="checkbox"/>	NO	NOT APPLICABLE
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### *Safety rule 10 – Alerting*

A possibility to immediately alert the Emergency/ Fire Services must be ensured. An active mobile phone should be available, unless there is a landline telephone within the reach of hand. Whoever has been instructed to raise the alarm, must know the workplace address.

### **Tip!**

Check the telephone signal reception and the battery charge level. If there is a risk that the mobile phone will not work or there will be no landline phone nearby, use a shortwave radio to communicate with a person who in the event of an accident will be able to immediately transmit the alarm message to appropriate services. If a fire breaks out, immediately call 112. Then call the permit manager.

## WORK METHODS

### Work method and tools:

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Enter the work method to be used.

If gas welding equipment is used - is it free from defects and in compliance with the applicable safety regulations?	YES <input type="checkbox"/>	NO	NOT APPLICABLE <input type="checkbox"/>
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#### *Safety rule 9 – Welding equipment*

Welding equipment must be in proper working order. The acetylene cylinder should be fitted with flashback arrestor. Blowpipes should be fitted with check valves for fuel gas and oxygen.

Safety gloves and a stop key must be provided.

Leak test must be performed daily, and during installation on pressure gauges/ meters if they have been removed.

Here is how to perform a leak test:

- Check whether the valves on the handle are shut.
- Open the valve on the cylinder to build up pressure on the gauges.
- Shut the valves on the cylinder and wait for a few minutes.
- The pressure gauge needles should be indicating pressure instead of dropping towards zero.

Every 24 months, the check valves for combustible gas and oxygen should be inspected in an approved workshop in compliance with SS-EN 730. The next inspection date must be indicated on a sticker to be placed on the check valve cover.

### **Tip!**

As a permit manager, you are not sure how to perform a leak test? Use the help of the contractor and ask him to perform the leak test.

During waterproofing works or other works, such as drying/heating: Is the gas flame encased?	YES <input type="checkbox"/>	NO	NOT APPLICABLE <input type="checkbox"/>
During ice and snow melting: Does the permit manager give permission for the use of open flame?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT APPLICABLE <input type="checkbox"/>

### *Safety rule 11 – Drying and heating*

When drying and heating with a gas torch, the gas flame must be shielded so that it cannot cause ignition.

### **Tip!**

When working on the roof you must follow a golden rule: “never use open flame”. It should be remembered that the consequences of fire on roofs often are quite large, since fires inside structures are hard to put out.

When drying the underlay and applying the waterproofing layers: Will the material be heated up to maximum 300°C?	YES <input type="checkbox"/>	NO	NOT APPLICABLE <input type="checkbox"/>
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*Safety rule 12 – Drying the underlay and applying waterproofing layers*

When drying the underlay and when applying the waterproofing layers the material can be heated up to maximum 300°C.

**Tip!**

No modern waterproofing material needs heating to temperatures exceeding 300°C. When smoke or flames appear in the material it means the applied temperature is too high. Additionally, soot and other burnt particles are generated in such a situation, thus deteriorating the adhesive properties of the waterproofing layers. Increase the distance from the material or possibly make quicker movements while working or secure the gas flow to the torch.

## Tip!

If the material in the bitumen boiler starts burning, cut off the gas supply first. Next, shut the lid and let the mix to cool down a little. Never try to direct a stream of water to the bitumen boiler.

Extinguishers should be kept above the bitumen melting pot and above the roof pitch to prevent burns from burning bitumen while reaching out to get the extinguishers.

	YES	NO	NOT APPLICABLE
When melting bitumen: Is the equipment operated in compliance with the document issued by the Fire Protection Association, » Safety rules for melting of bitumen when working on roofs and balconies «?	<input type="checkbox"/>		<input type="checkbox"/>

### *Safety rule 13 – Bitumen melting*

When melting bitumen, the equipment must be set up, operated and supervised in accordance with the Fire Protection Association safety rules for the melting of bitumen when working on roofs and balconies.

## PREVENTIVE MEASURES

Has the workplace been cleared up and sprayed with water, if necessary?	YES <input type="checkbox"/>	NO	NOT APPLICABLE
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### *Safety rule 4 – Clearing up and spraying with water*

The workplace should be:

- Cleared up
- Sprayed with water, if needed.

### Tip!

Clear up the site with at least 10 m radius around the workplace. Spraying with water may be required before the commencement of the work, during or after the completion of the work. Do not forget to spray the surface beneath the workplace.

When spraying with water, hot welding sparks bouncing back from the water surface may occur. That is why it may prove necessary to spray with water an area larger than with 10 m radius around the workplace.

Have all combustibles been removed or protected by covering/ screening off in the workplace and in its vicinity?	YES <input type="checkbox"/>	NO	NOT APPLICABLE
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### *Safety rule 5 - Combustibles*

All combustible materials present at the workplace or in its vicinity must be:

- Moved away
- Protected by covering
- Screened off

### **Tip!**

An effective method could be screening off with a fire blanket so as to, for example, contain sparks, in combination with covering combustible material which cannot be removed. The minimum safety clearance for presence of EPS is 20 m.

Are the structures conducting heat and/ or concealed combustible parts of the building and accessible for immediate extinguishing action?	YES <input type="checkbox"/>	NO	NOT APPLICABLE <input type="checkbox"/>
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*Safety rule 6 – Hidden combustible parts of the building*

Structures conducting heat and hidden combustible elements of the building must be checked for fire hazard, and if such hazard is identified:

- They must be protected
- They must be made accessible for immediate extinguishing, if needed.

**Tip!**

The permit manager decides whether an intervening action entailing damage needs to be undertaken.

Try and obtain access to the technical drawings to check what is the structure of the building. See to it that you have tools such as a crowbar, demolition tool or a saw at hand, allowing you to quickly open a wall in the event of fire. Do not rely on electric tools which require the mains voltage; consider a risk of power supply failure as a result of fire.

Have gaps, holes, penetrations and other openings at the workplace been sealed or checked and protected?	YES <input type="checkbox"/>	NO	NOT APPLICABLE <input type="checkbox"/>
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### *Safety rule 7 – Unsealed areas*

Any gaps, holes, penetrations and other openings at the workplace and in its vicinity must be:

- Sealed off
- Checked for fire hazard.

### **Tip!**

Where can welding sparks and spatter travel? For instance, can hot air or gas penetrate into the gaps or holes? Prevent this by waterproofing them with fire resistant materials.

Are the escape routes free of obstacles?	YES <input type="checkbox"/>	NO	NOT APPLICABLE <input type="checkbox"/>
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*Think of your safety before starting work.*

- Where are my nearest emergency exits?
- Are there any special safety rules to be followed at the workplace?
- How can you trigger an evacuation alarm, if any?
- Where is the first aid equipment available?
- Where is the fire assembly point?

### Tip!



Do not forget to check the escape routes before starting work. As a rule, there must be at least two escape routes. The routes should be free of any obstacles and the exit door should be easy to open.

Is the automatic fire alarm turned off during the work?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	NOT APPLICABLE <input type="checkbox"/>
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If so, in which sections/ buildings, the addresses of which have been provided, have automatic fire alarms been turned off by the facility manager?

### Tip!

The person who can turn the functions of the automatic fire alarm off is referred to as the facility manager. Ask the facility manager to note which sections have been turned off for the time of performance of a specific work. Do not forget, that on completion of the works the connections should be reinstated. You will receive a remainder about it in the application.

## Signatures:

The Permit and Checklist must be signed by all contractors and fire watch attendants.

The permit manager should make sure that the rules specified in the Permit and in the Checklist are followed before starting the work, during and after the completion of the work. Preferably, a final inspection should also be carried out on the completion of the work.

## Final inspection:

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Monitoring of the work after its completion started date/time

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Monitoring of the work after its completion finished date/time

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Approved by:

(The work has been completed, the monitoring after the completion of the work has ended, and fire safety at the workplace has been checked).

## Tip!

The final inspection is important and available also in the application:

- Enter when the monitoring of the work after its completion starts and when it ends and who has approved the completion of the work.
- Preferably, write down a note about starting the monitoring after the completion of the work. This may be relevant in a lawsuit.
- Approval of the completion means that a person authorized within the organization structure has ascertained that the monitoring over the time determined by the permit manager has been performed. Still, it must be assessed whether the risk of fire still exists, since if it does, the monitoring period must be extended.

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