



# HOT WORK SAFETY GUIDELINE

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These safety guidelines are prepared by Finance Finland.

## Hot work safety guidelines

### 1 Hot work training

Hot work safety training has been combined with the roof insulation and water proofing hot work safety examination into one qualification as of 1 January 2016.

Qualifications gained prior to 2016 are not affected by this change. They are valid until the date marked on the hot work card, and apply only to the specific type of work trained for (either roof insulation and water-proofing hot work, or other types of hot work).

### 2 Purpose of the safety guidelines

These safety guidelines provide the standards for the prevention of fire damage during hot work and roof insulation and water-proofing hot work.

### 3 Binding force of the safety guidelines

The policyholder and the insured must adhere to these safety guidelines. Moreover, the policyholder must make sure that these safety guidelines are adhered to when performing hot work.

Sections 2–6 and 8–9 in these safety guidelines concern hot work.

Sections 2–5 and 7–9 in these safety guidelines concern roof insulation and water-proofing hot work.

### 4 Definitions

<i>Hot work</i>	Hot work refers to work which creates sparks or involves the use of flames or other heat sources and which causes a fire hazard. These include operations such as electric arc and gas welding, gas soldering, hot air blower work, flame cutting, metal polishing and cutting with a handheld power cutter.
<i>Hot work card</i>	The hot work card is a certificate for passing the hot work safety examination, and is valid for a fixed period of time.
<i>Hot work permit</i>	A hot work permit is a written license that entitles to perform hot work at a temporary hot work site. Granting a hot work permit requires that risks have been identified and assessed, and necessary safety precautions defined.
<i>Hot work plan</i>	The hot work plan is a written plan for safe conduct of hot work and roof insulation and water-proofing hot work.
<i>Hot work safety training</i>	Training approved by The Finnish National Rescue Association SPEK ensures that the person performing hot work and the person granting the hot work permit have sufficient knowledge of hot work safety.
<i>Hot work with minor fire hazard</i>	Hot work with minor fire hazard refers to operations that involve a small risk of ignition and spread of fire.

<i>Identifying and assessing the hazards associated with hot work</i>	The hazards associated with hot work are identified at the work site and its surroundings and their severity assessed. This is done before the hot work permit is granted and each time the conditions at the hot work site change. The safety precautions for avoiding damage resulting from hot work are prepared on the basis of this assessment.
<i>Permanent hot work site</i>	A permanent hot work site is a special-purpose fire section or other area separated from the surroundings where hot work can be safely performed.
<i>Roof insulation and water-proofing hot work</i>	Hot work related to roof insulation and water-proofing include tasks in which a flame or other heat source is used, causing a fire hazard. Examples of these are drying the base prior to insulation with a flame or hot air, heating bitumen in a bitumen pot, attaching water-proofing by heating, and related tasks that cause sparking
<i>Roof insulation and water-proofing hot work card</i>	The roof insulation and water-proofing hot work card is a certificate for passing the roof insulation and water-proofing hot work safety examination, and is valid for a fixed period of time.
<i>Roof insulation and water-proofing hot work safety examination</i>	Training approved by The Finnish National Rescue Association SPEK ensures that the person performing hot work related to roof insulation and water-proofing, and the person granting the hot work permit have sufficient knowledge of hot work safety.
<i>Temporary hot work site</i>	Temporary hot work sites include all other than permanent hot work sites. A roof insulation and water-proofing hot work site is always a temporary hot work site.

## 5 Hot work plan

The policyholder must have a written hot work plan.

A hot work plan shall include at least the following:

- the person in charge of hot work safety, who maintains the hot work plan and sees to it that the orders of these safety guidelines can be implemented in practice;
- persons with the permission to grant hot work permits;
- persons with the permission to perform hot work;
- the availability of shielding materials and initial extinguishing equipment necessary in hot work;
- the organisation of the hot work fire watch;
- 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;
- permanent hot work sites.

If hot work is performed by contractors, the contractor's hot work plan can be used, provided that

- the policyholder has ensured that the contractor has a written hot work plan that is at least as extensive as the plan described above; and
- the policyholder has required that the contractor and subcontractor comply with the plan.

## 6 Hot work

### 6.1 Hot work with minor fire hazard

In hot work with minor fire hazard, the risk of ignition and spread of fire is small during the entire duration of the hot work.

The theoretical maximum temperature of the equipment used in hot work with minor fire hazard may not exceed the ignition temperature of materials at and near the working environment.

Hot work with minor fire hazard includes operations such as electric soldering and use of hot air in circumstances as mentioned above.

The worker must assess the risk of fire, taking into account the work method, flammability of the processed material and the worker's own capability to detect and extinguish any initial fire himself. If the worker is unsure whether the fire hazard is minor or not, or whether the work can be done without fire hazard or not, then the hot work in question cannot be considered only a minor fire hazard.

In hot work with minor fire hazard, the worker must take care of safety considerations required by the work method, site and environment – for example tidiness, order and the availability of initial extinguishing equipment.

For the person performing the work, a hot work permit or a hot work card is not required in hot work with minor fire hazard.

### 6.2 Hot work at a permanent hot work site

Hot work shall be undertaken at a permanent hot work site whenever possible. 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.

For the person performing the work, a hot work permit or a hot work card is not required in hot work at a permanent hot work site.

A permanent hot work site should 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 structures and protective covers of the hot work site must be tight enough to prevent sparks and splashes 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 box or two portable extinguishers with 27A 144BC rating;
- the hot work site may contain no unnecessary inflammable materials;
- no inflammable liquids may be handled or stored in the hot work site, and the hot work site must not be adjoined to any area that may contain combustible gases;
- the requirements that apply to temporary hot work site must also be met at a permanent hot work site if the object of hot work involves a substantially increased fire hazard.

### 6.3 Hot work at a temporary hot work site

Hot work may only be performed at a temporary hot work site if it is not possible to perform it at a permanent hot work site.

If hot work is determined to be unsafe based on the assessment of hazards or is prohibited on some other basis, hot work shall be replaced with a working method that does not involve a fire hazard.

At a temporary hot work site, hot work may only be performed by a person who has a valid hot work card. A written fixed-term hot work permit is always required when performing hot work at a temporary hot work site.

#### 6.3.1 Hot work permit

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

In the hot work permit, the person granting the permit shall determine the safety precautions deemed necessary on the basis of the abovementioned assessment of hazards. Hot work may not be started until the worker and the hot work fire watchman have ensured that the security precautions determined in the hot work permit have been implemented. The hot work permit should specify the person granting the hot work permit, the persons performing the hot work and the hot work fire watchmen.

The person granting the hot work permit shall prepare at least four copies of the hot work permit, one of which is delivered to the policyholder. Before starting the hot work, the person granting the hot work permit shall give one copy to the person performing the hot work, one to the hot work fire watchman on duty during hot work and one to the hot work fire watchman who is on duty after the completion of hot work. All persons performing the hot work and hot work fire watchmen must be informed of the security precautions stipulated in the hot work permit.

The person granting the hot work permit must have a valid hot work card.

The hot work permit can be granted by the person specified in the policyholder's hot work plan, who is the most capable to identify and assess risks and determine due safety precautions based on personal experience and knowledge of the worksite.

If the policyholder does not meet the abovementioned prerequisites for granting the hot work permit himself, the permit can be granted by the person specified in the contractor's hot work plan, who may be the person performing the hot work with a valid hot work card.

A hot work permit can only be granted for a fixed term. The hot work permit is restricted to to the specific hot work site, and only those hot work operations specified in the permit are allowed at the hot work site. If the conditions of the hot work site change during the validity of the hot work permit, the person granting the hot work permit shall update the hot work permit to match the new conditions.

A roof insulation and water-proofing hot work site is always a temporary hot work site.

### 6.3.2 Safety precautions at a temporary hot work site

The safety precautions implemented at the temporary hot work site are ordered on the basis of the assessment of hazards, but must include at least the following:

- the hot work site must be kept clear of inflammable materials;
- any inflammable materials that cannot be removed must be tightly protected with a fire-proof cover;
- accessories and equipment (e.g. cables) at the hot work site must be protected with covers;
- any openings in the structures must be protected with covers and any gaps must be sealed;
- any inflammable surfaces in the structures must be protected with covers;
- the motion of sparks and splashes into the environment and the conduction of heat into the structures must be prevented;
- the gas content in the working space shall be measured when necessary, and if necessary the space must be ventilated;
- any fire alarms and extinguishing systems based on smoke detection in the area where the smoke from hot work may spread shall be switched off to prevent false alarms, and they shall be switched back on as soon as possible;
- sprinkler systems shall not be switched off, but if necessary the sprinkler nozzles shall be covered with a temporary cover, which shall be removed immediately after the completion of hot work;
- fire extinguishing equipment that fulfils the requirements of section 6.3.3 must be available at the hot work site.

### 6.3.3 Fire extinguishing equipment

The person granting the hot work permit determines what fire extinguishing equipment is required at a temporary hot work site on the basis of the identification and assessment of hazards caused by the hot work. The equipment shall nevertheless always include at least two portable extinguishers with 43A 183BC rating. One of the portable extinguishers may be replaced either with two portable extinguishers with 27A 144BC rating, or with a fire hose box that complies with the standard SFS-EN 671-1.

The fire extinguishing equipment must remain in the hot work site during the entire duration of the hot work, and also during the fire watch afterwards.

### 6.3.4 Hot work fire watch

The hot work fire watch shall be ordered based on the assessment of risks caused by hot work.

The hot work fire watch must continue throughout the entire hot work process, including breaks. When the hot work has been completed, the hot work fire watch must be continued in accordance with the hot work permit, but for at least one hour. The hot work plan shall specify how the hot work fire watch is arranged. The same person performing the hot work cannot be the hot work fire watchman who is on duty during work.

During the hot work fire watch, the hot work site and its adjacent areas must be monitored continuously.

The hot work fire watchman must know the risks involved in hot work, know how to make an emergency call and use the initial extinguishing equipment provided at the hot work site. If necessary, the hot work fire watchman must interrupt the hot work.



## 7 Roof insulation and water-proofing hot work

Roof insulation and water-proofing hot work may only be performed by a person who has a valid hot work card issued after 1 January 2016, or a still valid roof insulation and water-proofing hot work card (if issued before 2016).

### 7.1 Roof insulation and water-proofing hot work permit

A written temporary hot work permit is always required when performing roof insulation and water-proofing hot work.

Before granting the hot work permit, hazards caused by hot work must be identified and assessed, with special attention to risks caused by structures and cavities under the site.

The person granting the permit shall determine the safety precautions deemed necessary on the basis of the abovementioned assessment of risks. Hot work may not be started until the worker and the hot work fire watchman have ensured that the security precautions determined in the hot work permit have been implemented. The hot work permit should specify the person granting the hot work permit, the persons performing the hot work and the hot work fire watchmen.

The person granting the hot work permit shall prepare at least four copies of the hot work permit, one of which is delivered to the policyholder. Before starting the hot work, the person granting the hot work permit shall give one copy to the person performing the hot work, one to the hot work fire watchman on duty during hot work and one to the hot work fire watchman who will be on duty after the completion of hot work. All persons performing the hot work and hot work fire watchmen must be informed about the security precautions ordered in the hot work permit.

The person granting the hot work permit must have a valid hot work card issued after 1 January 2016, or a still valid roof insulation and water-proofing hot work card (if issued before 2016).

The hot work permit can be granted by the person specified in the policyholder's hot work plan, who is the most capable to identify and assess risks and determine due safety precautions based on personal experience and knowledge of the worksite.

If the policyholder does not meet the abovementioned prerequisites for granting the hot work permit himself, the permit can be granted either by an expert named by the contractor, or the person specified in the contractor's hot work plan.

In water-proofing hot work the person doing the work cannot be the same person who grants the permit. An exception to this is short-term maintenance or repair work in which the water-proofed structures or other closely located structures are non-combustible and do not form cavity spaces. In such conditions the person performing the hot work may grant the permit to him/herself, but only after identifying and assessing the hazards and determining that the hot work is safe.

A hot work permit can only be granted for a fixed term. The hot work permit is specific to the hot work site, and only the hot work operations specified in the permit are allowed at the hot work site. If the conditions of the hot work site change during the validity of the hot work permit, the person granting the hot work permit shall update the hot work permit to match the new conditions.



## 7.2 Selection of working method

If the structures to be insulated are inflammable or the structures contain cavities 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.

Naked 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.

## 7.3 Safety precautions at a roof insulation and water-proofing hot work site

The safety precautions ordered based on the assessment of risks shall be implemented at the hot work site, however including at least the following:

- any unnecessary inflammable materials must be removed from the hot work site;
- any inflammable materials that cannot be removed must be tightly protected with a fire-proof cover;
- any openings in the structures must be protected with covers and any gaps must be sealed if a flame, splashes or sparks can spread into the structures through them;
- any fire alarms and extinguishing systems based on smoke detection in the area where the smoke from hot work may spread shall be switched off to prevent false alarms, and they shall be switched back on as soon as possible;
- sprinkler systems shall not be switched off, but if necessary the sprinkler nozzles shall be covered with a temporary cover, which is removed immediately after the completion of hot work;
- fire extinguishing and clearing equipment and shielding materials must be available at the site in accordance with section 7.4.

## 7.4 Fire extinguishing and clearing equipment and shielding materials

The person granting the hot work permit determines the emergency extinguishing equipment required at a roof insulation and water-proofing site on the basis of the identification and assessment of hazards caused by the hot work. The equipment shall 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 water-proofing hot work site must have fire-proof shielding materials and clearing equipment that in the event of fire can be used to cut a hole in the structure for fire control.

## 7.5 Roof insulation and water-proofing hot work fire watch

The required hot work fire watch shall be ordered on the basis of the assessment of risks caused by roof insulation hot work. Hot work fire watchman must always be present during hot work and after the completion of work, if the structures to be insulated or adjacent structures are inflammable or contain cavities.

The hot work fire watchman must monitor the hot work site, its environment and substructures without interruption. If necessary, multiple hot work fire watchmen must be appointed. The hot work fire watch must continue throughout the entire hot work process,

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

The hot work fire watchman must know the risks caused by hot work, how to make an emergency call and how to use the emergency extinguishing equipment provided at the hot work site. If necessary, the hot work fire watchman must interrupt the hot work.

## **8 Rescue Act and hot work standards**

According to the Rescue Act, adequate safety precautions must be taken when any repair work or similar work which significantly increases the risk of fire or other accident is started.

By following these safety guidelines, the standard SFS 5900 "Hot work safety", and the standard SFS 5991 "Hot work safety in roof insulation and water-proofing industry", the person performing hot work can ensure that he/she exercises sufficient caution when performing hot work.

The person performing the hot work is always responsible for the fire safety of hot work performed.

## **9 Entry into force**

These safety guidelines shall take effect on 1 January 2017 and replace the Hot Work Safety Guidelines 2016 by the Federation of Finnish Financial Services.

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