



Fire Protection
Association



RC7: Risk control for hot work



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1 Scope

These recommendations are relevant to any structure, building, or area where construction, alteration, or maintenance is taking place. They concentrate on the key aspects of property protection when hot work is being carried out. Factors which could potentially cause fire to propagate due to inadequate preparations for hot work are addressed.

In addition to acting in accordance with these recommendations, it will also be necessary to comply with the requirements of the Regulatory Reform (Fire Safety) Order 2005 and equivalent legislation in Scotland and Northern Ireland (refs. 1-4) and to carry out a fire risk assessment for the protection of personnel. Information relating to life safety and the fire safety regulations is available from various web sites (see 'Further reading').

The sources of heat most commonly involved in hot work processes and covered by the recommendations include:

- gas/electric welding and cutting apparatus;
- blowlamps/blowtorches;
- hot air 'guns' or blowers;
- bitumen/tar boilers;
- angle grinders and grinding wheels; and
- brazing and soldering.

A suggested Hot Work Permit is included in the document and has been designed taking into account experience from fires caused by hot work.

Where hot work is being undertaken on construction sites or in buildings undergoing refurbishment, this publication should be read in conjunction with the current edition of **Fire Prevention on Construction Sites** (ref. 5).

2 Synopsis

These recommendations outline the hazards associated with the carrying out of hot work. Fire precautions are described and a model hot work permit and associated checklist are provided.

3 Introduction

Serious fires frequently occur during maintenance and construction operations, where work is proceeding on either machinery/plant/services or the fabric of buildings. Most of these are the result of carelessness and ineffective supervision during operations requiring the use of open flames or the local application of heat. In order to prevent such an event, a formal risk assessment should always be carried out whenever any hot work is contemplated.

Hot work activities may ignite adjacent or unseen material, heat may be conducted away from the working area by metal components and sparks or hot metal may travel a long distance while retaining the potential to ignite combustible materials. Frequent training should be given to all relevant personnel to make them aware of these and the other dangers associated with hot work. In addition to controlling those hot work operations carried out by their own staff, supervisors should also be made aware that it is vital to control the hot work operations of contractors and sub-contractors. Because of the dangers associated with carrying out welding and other hot work processes on tanks or vessels which have contained flammable or other hazardous materials, it should not be undertaken unless the safety precautions detailed in HSE publication CS15: **Cleaning and gas freeing of tanks containing flammable residues** (ref. 6) have been rigorously observed.

Additional free resources including a RISC Authority hot work training film (ref 14) and hot works site induction toolkit (ref 15) are available to download from the Fire Protection Association website: <https://www.thefpa.co.uk/>

4 Recommendations

4.1 Permit to work

Experience has shown that a satisfactory standard of care and supervision is far more likely to be achieved where a formalised written permit to work system is in force, under a competent supervisor with the authority to ensure compliance with the procedures. Consequently, these recommendations comprise overall advice together with a Hot Work Permit, which is accompanied by a checklist of the more obvious precautions. The permit and checklist may be freely copied.

4.2 General precautions

- 4.2.1 Hot work should only be authorised where a safer method of work is not available. For example, pipe jointing may be possible without soldered fittings and hot work avoided when external surfaces are being prepared for painting.
- 4.2.2 All hot work procedures shall only be carried out by trained personnel, using equipment which is in good condition and being used in accordance with the manufacturer's instructions. Frequent training should be provided to all relevant personnel to make them aware of the risks associated with hot work.

Note: To ensure that hot work activities are carried out to the highest safety standards it should be ensured that those undertaking the work are trained and competent to do so, and are aware of the risks associated with the activity and the appropriate precautions required to mitigate those risks.

Consequently, those undertaking hot work should have completed a suitable programme of hot work safety training, with accreditation on successful completion for each individual.

RISC Authority has developed a stand-alone customisable Hot Work Site Induction Toolkit specifically for this purpose, taking around 15 minutes to complete. This delivers training for those carrying out hot work at the point of site entry. It is freely available on the FPA website: <https://www.thefpa.co.uk/advice-and-guidance/public-toolkits/hot-works-site-induction-toolkit> (Ref. 14, 15).

Located on a PC with printer and camera at reception, the software elicits information from those entering a site to conduct hot works and takes them through a hot works safety video, before asking them to complete a series of questions to demonstrate they have watched and understood what is required of them. If they answer enough questions correctly, then a photo ID and time limited certificate is issued to them which also contains important emergency site contact details.

In addition, there is an on-line Hot Work Passport training programme available for purchase from the Fire Protection Association (FPA): <https://www.thefpa.co.uk/training/hot-work-passport>

This incorporates 4½ hours of training that provides a Hot Work Passport certification (valid for 5-years) following successful completion.

The FPA introduced this training scheme to enhance the level of competence of those involved in work with the potential to produce ignition sources. The Passport Scheme was developed in response to calls from industry for a national benchmark of fire safety knowledge.

Equivalent robust training arrangements from other providers are also acceptable.

- 4.2.3 Wherever possible, items to be the subject of hot work should be removed to a safe area designated for that purpose.
- 4.2.4 In sprinklered premises, hot work should not be carried out when the water supply to the sprinkler system is shut off. Adequate precautions should be taken to prevent accidental discharge.
- 4.2.5 When hot work is being undertaken in premises fitted with an automatic fire detection system, only the local detectors or zone where the work is being carried out should be isolated. The zone or detectors should be reinstated as soon as the task has been completed.
- 4.2.6 A trained person, not directly involved with the work, should provide a continuous fire watch during and after each period of work (see section 4.4 'Following completion of hot work'), to detect and extinguish any incipient burning in the work area and in all adjoining areas to which sparks and heat may spread. These could include the floors below and above, and areas on the other sides of walls from where the work is being carried out.
- 4.2.7 The minimum fire watch periods described in section 4.4 may be extended, as described, in circumstances where a suitable and sufficient fire risk assessment undertaken by a competent person has deemed it necessary. Such circumstances include, for example, the presence of significant combustible materials used in the premises' construction, contents, or furnishings; high rise premises; where the presence of holes or voids may allow smouldering to occur unseen; where wall or floor openings within a 6m radius expose combustible materials in adjacent areas (which may include concealed spaces in wall or floor construction); where work is undertaken in locations where there is restricted access or visibility.

4.3 Before hot work commences

4.3.1 Risk assessment

Before any attempt is made to start the proposed hot work, a formal risk assessment should be carried out and the results recorded, to assess the possible consequences of the operation. The following questions should be considered, together with specific questions according to the actual conditions:

- Is it necessary for hot work to be conducted at all?
- Would it be feasible to transfer the workpiece to a safer area (such as a workshop), or perhaps employ an alternative solution (the use of bolts or compression joints, for example) rather than the use of hot work?
- If the hot work were to run out of control and fire should result:
 - Who or what is at risk within the room?
 - Could fire spread out of the room?
 - If the fire were to spread further, what other occupancies could be involved?
- Is there any incompatible process in progress in the relevant area (such as the use of flammable solvents to lay flooring)?
- Is there a back-up for any mechanical or electrical equipment, computer systems and, or data which could be damaged by fire?
- Are there any personnel who need to use the area at the same time as the hot work is being done? Can alternative arrangements be made?
- Could the work lead to the company's security being compromised?

4.3.2 Clearance and protection of work area

- 4.3.2.1 Before work commences, an area within 10m of the hot work process should be cleared of combustible materials and flammable liquids, and all elements of combustible construction and surface finishes protected, as should any openings, holes, or gaps in walls, floors, and ceilings through which sparks could pass. The distance may need to be more than 10m in some circumstances, especially where overhead work is to be undertaken.
- 4.3.2.2 Where combustible materials within 10m cannot be removed, they should be completely protected. Flammable liquids should always be removed from the area.
- 4.3.2.3 Protection, except where mentioned otherwise, should be by the use of non-combustible or purpose-made blankets, drapes, or screens. The most commonly available blankets or drapes are those incorporating woven glass fibres.
- For construction sites, subject to a suitable and sufficient written risk assessment undertaken by a competent person, temporary protective covering materials as described in "Fire prevention on construction sites: The joint code of practice on the protection from fire of construction sites and buildings undergoing renovation, 10th Edition - Section 10" (ref. 5), may be used in circumstances where the use of non-combustible materials is not practicable.
- 4.3.2.4 Combustible floors in the designated area should be covered with overlapping sheets of non-combustible material or wetted and liberally covered with sand. Particular care should be taken to ensure that any gaps in the flooring are adequately covered.
- 4.3.2.5 Floors should be swept clean.
- 4.3.2.6 Good ventilation should be provided in all areas where hot work is to be carried out, as procedures may produce copious volumes of smoke and fumes.
- 4.3.2.7 Hot work should never be carried out in an area identified as a hazardous zone through a risk assessment required by the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002 (ref. 7). Where a hazardous atmosphere is suspected, air samples should be taken and work only commenced when the atmosphere has been certified to be non-hazardous. If there is a risk that the hazardous atmosphere may recur, further testing of the atmosphere will be necessary. See section 4.3.7.6.
- 4.3.2.8 Flammable solvents must not be used to clean surfaces immediately before work commences.

4.3.3 Prevention of fire spread outside the work area

Before carrying out work on one side of a wall or partition, an examination should be made of the area on the other side to ensure that any combustible materials are not in danger of ignition by direct or conducted heat. Heat may be readily conducted where walls are metal or metal items such as beams, bolts, or pipes penetrate to the other side.

4.3.4 Sandwich panels or composite construction

Where hot work is to be undertaken on composite building panels or similar constructions, the type of insulating or other materials behind metal or other non-combustible surfaces should be assessed. If combustible materials are identified or suspected, alternative methods should always be employed. If in doubt, it should always be assumed that panels have a combustible core. Cold stores, in particular, may incorporate large amounts of combustible insulating materials in both wall and ceiling panels.

4.3.5 Voids

An inspection should be carried out for voids above, below, or around the work area, such as false ceilings, cable ducts, or other cavities, which may be able to transmit flames or smoke from one area to another.

Particular care should be taken when working in or on timber frame structures, such as roofs and buildings where a timber frame form of construction may have been adopted. Care must also be taken in heritage properties where voids are commonly encountered, for example behind panelling and in window frames.

4.3.6 Multiple occupancy buildings

Liaison should be established in multiple occupancy buildings before work commences to enable contractors or others to be effectively controlled and access made available to areas adjacent to where work is to be undertaken.

4.3.7 Fire precautions

4.3.7.1 At least two fire extinguishers must be at hand and a careful watch maintained for fire breaking out whilst work is in progress. The types and size of extinguishers provided shall be appropriate to the risks at hand, nature of the work being undertaken, equipment used, and the local environment. Provision should include as a minimum at least one water-based or foam unit with a minimum 13A rating, (Information regarding appropriate fire extinguishers is available in BS 5306-8 (ref. 8)).

4.3.7.2 Portable extinguishers should be approved and certified by an independent, third-party certification body. They should be inspected and maintained in accordance with BS 5306-3 (ref.9).

4.3.7.3 Those undertaking the hot work activity, including the fire watch, shall be trained and competent in their use.

4.3.7.4 Fires involving flammable gases should only be controlled and not extinguished until such time as the gas supply can be shut-off.

4.3.7.5 All personnel involved with the hot work should be familiar with the means of escape from the premises and the method of raising the fire alarm and summoning the fire brigade (Fire & Rescue Service or Industrial Fire Response Team).

4.3.7.6 Hot work must not be carried out in areas with explosive atmospheres.

In areas where flammable and combustible liquids and vapours might be present, it is essential that air monitoring is carried out to ensure that flammable vapours at concentrations likely to enable their ignition are not present. Hot work shall be prohibited in areas where concentrations are detected in excess of 10% of the lower explosive limit (LEL).

See "Further reading" for relevant HSE (Health and Safety Executive - UK) guidelines.

4.3.8 Security of equipment

The carrying out of hot work may mean that items within the area and others removed from it are more exposed to theft than in a normally running organisation. It is essential to ensure that secure areas are available for accommodating any displaced items, including computers and data.

4.4 Following completion of hot work

4.4.1 Clearance of area

4.4.1.1 When work is complete, paint strippings, hot stub ends of welding rods, and other hot waste materials should be removed and disposed of safely.

4.4.1.2 All equipment, including gas cylinders, should be removed to a secure area at the end of the working period or when the task is completed, if this is sooner. Where bitumen/tar boilers are involved, only the gas cylinders need to be removed.

4.4.2 Fire watch

- 4.4.2.1 Any area specified in a hot work permit must be subject to a continuous fire watch during the period of works by a dedicated individual or individuals where a suitable and sufficient risk assessment indicates the potential for hot work impacts to be more widespread (for example on construction sites if the work area is particularly large, multi-level and/or congested; or an opening or thermally conductive assembly extends through a wall). The continuous fire watch should be maintained for at least one hour after work is completed. Additional checks must be made at regular intervals for a further one hour but may be needed for longer based on a risk assessment. In some cases, completing these checks for up to three hours, or more, might be appropriate after cessation of hot work before the permit is signed off. These further checks should be at intervals of no more than 20 minutes and must include any area(s) on the other side of any wall, partition or ceiling within 10-metres of the area, and/or floors below, in which the hot work has been carried out. The fire watch periods should be extended where determined necessary by a suitable and sufficient fire risk assessment. Ideally photographs of the immediate vicinity, adjacent voids and vulnerable spaces should be taken to demonstrate that a fire watch has been undertaken. In all circumstances the fire watch must be maintained during lunch or tea breaks or any other temporary cessations of work. Photographs should be appended to the hot work permit and available for review as part of the sign off process. For hot work in fire-susceptible locations with potential for concealed burning, such as construction sites, thermographic imaging should be used routinely, before the work is undertaken, during and after the work as part of the fire watch. Their use allows the fire watcher to compare images and ensure the thermographic signatures match pre and post-work, hence checking the area for any potential hot spots. Photographs should be held on record. (Ref. 15, 16, 17)
- 4.4.2.2 As described in 4.4.2.1, the minimum fire watch periods should be extended in circumstances where a suitable and sufficient fire risk assessment undertaken by a competent person has deemed it necessary. Such circumstances include, for example, on construction sites where hot work has been undertaken within or adjacent to a timber-framed structure; high rise construction sites; where the presence of holes or voids may allow smouldering to occur unseen; where wall or floor openings within a 10m radius expose combustible materials in adjacent areas (which may include concealed spaces in wall or floor construction); where work is undertaken in locations where there is restricted access or visibility.

4.5 Equipment used for hot work – precautions

4.5.1 Gas welding and cutting apparatus

- 4.5.1.1 Gas welding and cutting procedures shall only be carried out by trained personnel.
- 4.5.1.2 The equipment should be set up in accordance with the manufacturers' instructions to incorporate appropriate safety devices, such as gas regulators and flashback arrestors.
- 4.5.1.3 Equipment and hoses should be checked to ensure that they are in good condition prior to each period of work.
- 4.5.1.4 Gas cylinders should always be adequately supported, preferably by mounting on purpose-built trolleys (ref. 10).

4.5.2 Acetylene

Acetylene is a flammable gas that is unstable and liable to decomposition at elevated temperatures and pressures. As a result, acetylene in cylinders, once suspected to be unstable, constitutes a unique firefighting hazard in comparison with other gas cylinders. Fire service safe working practices include the establishment of a 200m hazard zone up to 200 metres around the incident and leaving the cylinders involved undisturbed for 24 hours or more prior to removal. This can result in serious disruption to the business concerned and those in the neighbourhood.

- 4.5.2.1 Wherever possible, the use of acetylene should be eliminated and alternative solutions used. RC49-1(ref. 11) provides detailed information and advice, not only on alternatives, but also on the management of acetylene cylinders in the workplace where its use is unavoidable.
- 4.5.2.2 Where the use of acetylene cannot be avoided, only the minimum number of cylinders should be present on site, and these should be removed as soon as their work is complete.

4.5.3 Electric welding and cutting apparatus

- 4.5.3.1 The cable connecting any electric welding apparatus to the source of electrical supply should be as short as possible.
- 4.5.3.2 Care should be taken to ensure that all wiring is of suitable design and construction to carry the heavy currents required.
- 4.5.3.3 All connections should be correctly made so that they cannot give rise to overheating or sparking.
- 4.5.3.4 Operators should be made aware of the importance of three connections (welding lead, welding return, and welding safety earth) for every welding circuit.
- 4.5.3.5 Before each period of use, the electric cables should be inspected visually to ensure that they have not been damaged by heat or abrasion.
- 4.5.3.6 Electric welding and cutting apparatus should be inspected periodically in compliance with the Electricity at Work Regulations 1989 (ref. 12). Suitable records should be kept.

4.5.4 Blowlamps and blowtorches

- 4.5.4.1 LPG blowlamps/blowtorches should be extinguished and allowed to cool before changing cylinders. Paraffin or petrol blowlamps should only be filled and lit in the open and should not be refilled when hot.
- 4.5.4.2 Blowlamps/blowtorches should be lit as short a time as possible before work commences and extinguished immediately the work ceases.
- 4.5.4.3 Lighting of the torch should only be carried out in accordance with the manufacturer's instructions.
- 4.5.4.4 Blowlamps/blowtorches should not be left unattended when alight.

4.5.5 Hot air 'guns' or blowers

- 4.5.5.1 Electrically-powered hot air 'guns' or blowers are a particular source of danger as no flame is apparent. When using these appliances similar safety measures should be respected as when undertaking other forms of hot work, based on a specific risk assessment.
- 4.5.5.2 Before each period of use the electrical cable to the blower should be inspected visually to ensure that it has not been damaged by heat or abrasion.
- 4.5.5.3 The equipment should be inspected periodically in compliance with the Electricity at Work Regulations 1989 (ref. 12).

4.5.6 Bitumen/tar boilers

- 4.5.6.1 Bitumen/tar boilers, lead heaters, and similar equipment should only be taken onto roofs in exceptional circumstances, when a non-combustible heat insulating base must be provided to prevent heat igniting the roof.
- 4.5.6.2 The boiler should always be sited on a firm and level surface where spilled material can easily be controlled.
- 4.5.6.3 The equipment must be supervised by an experienced operator at all times.
- 4.5.6.4 Gas cylinders must be at least 3m from the burner. Gas hoses should be checked to ensure that they are in good condition and properly fitted prior to each period of work.
- 4.5.6.5 Gas cylinders not in use should be stored away from the working area.
- 4.5.6.6 The bitumen level and its temperature should be monitored and the lid should normally be kept on the boiler.
- 4.5.6.7 The burner should be turned off before transporting the boiler on a lorry or trailer. Further information on the safe use of bitumen/tar boilers may be found in ref. 13.

4.5.7 Angle grinders and grinding wheels

- 4.5.7.1 The correct grade of wheel or disc should be used for the task in hand.
- 4.5.7.2 Before each period of use, the wheel/disc should be checked to ensure that it is securely fastened and in good condition and that the electric cable has not been damaged.

4.6 Contracted work

- 4.6.1 Prior to entering into a contractual arrangement with contractors, advice should be obtained from an insurer or insurance adviser because the adequacy of a contractor's insurance arrangements may vary considerably.
- 4.6.2 Current legislation requires that contractors be made aware of the specific site hazards and the fire safety procedures to be adopted, including the hot work permit system. A written undertaking to observe the precautions should be obtained from the contractors prior to the commencement of the work.

4.7 Procedure for hot work permits

4.7.1 Issuing authority

- 4.7.1.1 The person nominated to authorise hot work, normally the company fire or safety officer, must have experience or training in the problems associated with hot work and be of suitable status to ensure compliance with the procedures.
- 4.7.1.2 Before work starts, a hot work permit should be obtained from the authorised person. A suggested format for a permit is included in this document.
- 4.7.1.3 A separate permit should be used on every occasion that hot work of any type is undertaken within or upon the fabric of established buildings or any structures or plant, including plant in the open. This procedure should also apply to construction sites once fitting out has commenced, and to all buildings which are being refurbished.

4.7.2 Limitations to issue of permit

- 4.7.2.1 A hot work permit should not be issued without considering the significance of any other work permits to work in the vicinity, or adjacent manufacturing processes that may involve the use of flammable liquids or gases.
- 4.7.2.2 A hot work permit should be issued for a specific task that is to be undertaken in a clearly identified area.
- 4.7.2.3 Hot work permits should not be issued for protracted periods as there is a danger that staff may not always be present or the fire watch requirements (see 4.2) may not be met. For example, separate hot work permits should normally be issued for work which extends across a meal break from morning to afternoon.
- 4.7.2.4 Care must be taken that an appropriate period of fire watch can be observed with respect to each permit that is issued.
- 4.7.2.5 Before issuing a hot work permit, a check should be made that the no hot work will begin or need to continue within a period of 60 minutes before the end of the working day.

4.7.3 Checklist

Before completing the first part of the hot work permit, the person responsible for issuing the permit for the work should complete the checklist on the reverse side of the form, in conjunction with the person responsible for carrying out the work, to indicate that fire protection measures are adequate, suitable precautions have been taken, and the equipment to be used is safe.

4.7.4 Additional conditions

If the person authorised to issue the hot work permit is not satisfied with the arrangements, further measures may be requested, and any additional conditions should be entered in the space provided. The earliest time at which a final fire-check should be made will also be specified. This will normally be at least one hour after the time of expiry of the hot work permit, when work must be complete. If trained personnel will not be available to make this check (for example in the case of a permit issued late in the day) work must not be commenced.

4.7.5 Retention of the permit

The hot work permit should be completed in duplicate, with the top copy being handed to the person responsible for carrying out the work. The second copy should be retained by the issuer who may wish to inspect the site of the work or instigate spot checks to ensure that conditions have been met and that work is complete before the hot work permit expires.

The completed form should be returned to the issuer and retained for future reference.

5 References

1. Regulatory Reform (Fire Safety) Order 2005, SI 2005 No. 1541, The Stationery Office.
2. Fire (Scotland) Act 2005, 2005 asp 5, The Stationery Office.
3. Fire Safety (Scotland) Regulations 2006, Scottish SI 2006 No. 456, The Stationery Office.
4. The Fire Safety Regulations (Northern Ireland) 2010, Statutory Rules of Northern Ireland 2010 No 325, The Stationery Office.
5. **Fire prevention on construction sites: The joint code of practice on the protection from fire of construction sites and buildings undergoing renovation**, 10th Edition, 2022, Contractors Legal Group/Fire Protection Association.
6. CS15: **Cleaning and gas freeing of tanks containing flammable residues**, Health and Safety Executive, 2013.
7. Dangerous Substances and Explosive Atmospheres Regulations 2002, SI 2002 No. 2776, The Stationery Office.
8. BS 5306-8: 2012: **Fire extinguishing installations and equipment on premises. Selection and positioning of portable fire extinguishers. Code of Practice**, British Standards Institution.
9. BS 5306-3: 2017, **Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of Practice**, British Standards Institution.
10. RC8: **Recommendations for the storage, use and handling of common industrial gases in cylinders**, Fire Protection Association, 2017.
11. RC49: **Recommendations for reducing business interruption: Part 1: Acetylene cylinders involved in fires**, Fire Protection Association, 2016.
12. The Electricity at Work Regulations 1989, SI 1989 No. 635, The Stationery Office.
13. **Code of Practice 4: Safe and satisfactory operation of propane-fired thermoplastic and bitumen boilers, mastic asphalt cauldrons/mixer, hand tools and similar equipment**, LP Gas Association, 2004.
14. **Hot work training video**, 2021, Fire Protection Association and RISCAuthority.
This 25 minute video instructs the user on what constitutes hot work; where safety requirements apply; what the dangers are; completing the hot work permit; and roles and responsibilities on site. Updated with new video footage pertinent to a modern-day construction site, this video is offered free of charge to assist in the battle against hot work -related losses.
15. **Hot work site induction toolkit**, 2021, RISCAuthority.
This software is designed to ensure best practice risk control processes are understood by all entering a site. Located on a PC with printer and camera at reception, the software elicits information from those entering a site to conduct hot works and takes them through a hot works safety video, before asking them to complete a series of questions to demonstrate they have watched and understood what is required of them. If they answer enough questions correctly, then a photo ID, mtme limited certificate is issued to them which also contains important emergency site contact details.
16. HSG168 **Fire safety in construction**, Health and Safety Executive, 2022.
17. NFPA 51B **Standard for fire prevention during welding, cutting, and other hot work**, 2019.

6 Further reading

- L101: **Safe work in confined spaces. Confined Spaces Regulations 1997. Approved code of practice and guidance**, Health and Safety Executive.
- INDG297 **Safety in gas welding, cutting and similar processes**, Health & Safety Executive
- HSG118: **Electrical safety in arc welding**, Health and Safety Executive
- INDG314: **Hot work on small tanks and drums, including plant**, Health and Safety Executive,
- **Hot work in docks**, Health & Safety Executive
- **The selection and use of flammable gas detectors**, Health & Safety Executive

Appendix 1 – Hot work permit

A hard copy of the of the permit with sections A&B and Checklist completed should be held by the person(s) completing the work. A hard copy and/or PDF copy of the completed permit (with checklist) including sections C&D should be retained for work management and auditing purposes

ISSUING COMPANY PERMIT NO.

A PROPOSAL (to be completed by the person responsible for carrying out the work)

BUILDING
 EXACT LOCATION OF PROPOSED WORK
 NATURE OF WORK TO BE UNDERTAKEN

I have completed and submitted the Checklist and understand the scope of work and precautions to be taken.

SIGNED BLOCK CAPITALS
 DATE POSITION

B AGREEMENT (to be completed by Company Safety Officer or other nominated person – the 'Issuer of the Permit')

This Hot Work Permit is issued subject to the following conditions:

ISSUE OF PERMIT: DATE TIME
 EXPIRY OF PERMIT*: TIME

* It is not desirable to issue permits for protracted periods. Fresh permits should be issued where, for example, work extends from morning to afternoon.

A FINAL CHECK OF THE WORK AREA SHALL BE MADE, NOT BEFORE (TIME)

ADDITIONAL CONDITIONS REQUIRED

The above location has been examined and the precautions checklist that accompanies this form has been complied with. I have carried out a risk assessment and consider that there is no reasonably practical alternative to doing the job using hot work. I have been provided with evidence of appropriate Public Liability Insurance.

SIGNED BLOCK CAPITALS
 DATE POSITION

C FOLLOWING COMPLETION OF WORK (to be completed by member of staff or contractor responsible for the work.

The permit should then be returned to the Issuer)

The work area and all adjacent areas to which sparks and heat might have spread (such as floors below and above and areas on other sides of walls) have been inspected and found to be free of smouldering materials and flames

Stub ends of welding rods and other hot waste materials have been removed and disposed of safely

Any isolated automatic fire detectors or detection zones have been reinstated

All equipment, including gas cylinders, has been removed to a safe area

TIME INSPECTION COMPLETED: (this must be at least 60 minutes after work has been completed followed by further checks being made at regular intervals, of no more than 20 minutes, up to 120 minutes (or more)* after cessation of hot work)

SIGNED BLOCK CAPITALS
 DATE POSITION

D SIGN OFF BY ISSUER OF PERMIT

The hot work has been completed. Any detector(s) or zones of the fire alarm system that were isolated have been fully reinstated.

SIGNED BLOCK CAPITALS
 DATE

* Based on risk assessment

Appendix 2 – Hot work permit checklist

The following checks should be carried out by the hot work operative at the hot work site prior to commencing hot work. The person carrying out these checks should tick the appropriate boxes, and then return the Checklist to the Hot Work Permit issuer.

ISSUING COMPANY

PERMIT NO.

GENERAL

Wherever practicable the use of hot work should be avoided and a safer way employed. If you cannot comply with the following points, do not go ahead with the hot work.

FIRE PROTECTION

✓ or N/A

Where sprinklers are installed, they are operative. (In sprinklered premises, hot work should not be carried out when the water supply to the sprinkler system is shut off.)

Where an automatic fire detection system has been installed, it will be kept operative. Only the zone where the hot work is being carried out will be isolated for the period whilst hot work is in progress.

A trained person not directly involved with the work will provide a continuous fire watch during the period of hot work. Following completion of each period of the work, the continuous fire watch will remain in place for at least 60 minutes after work is completed, followed by further checks being made at regular intervals, of no more than 20 minutes, up to 120 minutes (or more where determined necessary through risk assessment) after cessation of hot work, before the permit is signed off. This is to ensure that the working area and all adjacent areas, including the floors below and above, and areas on the other sides of walls, screens, partitions, and above false ceilings are free of smouldering materials and flames. The fire watch periods should be extended where this has been determined necessary by a suitable and sufficient fire risk assessment.

At least two appropriate extinguishers are immediately available. The personnel undertaking the work and providing the fire watch are trained in their use.

Personnel involved with the work and providing the fire watch are familiar with the means of escape and method of raising the alarm/calling the fire brigade.

PRECAUTIONS WITHIN 10 METRES (MINIMUM) OF THE WORK

Combustible materials have been cleared from the area. Where materials cannot be removed, protection has been provided by non-combustible or purpose-made blankets, drapes, or screens.

Flammable liquids have been removed from the area.

Floors have been swept clean. Combustible floors have been covered with overlapping sheets of noncombustible material or wetted and liberally covered with sand. All openings and gaps (combustible floors or otherwise) are adequately covered.

Protection (non-combustible or purpose-made blankets, drapes, or screens) has been provided for:

- walls, partitions, and ceilings of combustible construction or surface finish; and
- all holes and other openings in walls, partitions, and ceilings through which sparks could pass.

Where work is being carried out on building panels, an assessment has been made of insulating or other materials behind or forming the core of the panels.

Combustible materials have been moved away from the far side of walls or partitions where heat could be conducted, especially where these incorporate metal.

Enclosed equipment (tanks, containers, dust collectors etc) has been emptied and tested, or is known to be free of flammable concentrations of vapour or dust.

In areas where flammable and combustible liquids and vapours might be present, air monitoring implemented to ensure that flammable vapours are not present (must be less than 10% lower explosive limit (LEL)) before commencing and during the hot works.

Thermographic inspection implemented for hot work in fire-susceptible locations with potential for concealed burning (such as construction sites) before the work is undertaken, during and after the work (as part of the fire watch), checking the area for any potential hot spots. Photographs should be held on record.

EQUIPMENT

Equipment for hot work has been checked and found to be in good repair. Gas cylinders have been properly secured.

SIGNED

BLOCK CAPITALS

DATE



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Association**



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