



**MERTHYR TYDFIL**  
County Borough Council  

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Cyngor Bwrdeistref Sirol  
**MERTHYR TUDFUL**

# Hot Work Policy

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## 1.0 INTRODUCTION

The purpose of this policy statement is to define how Merthyr Tydfil County Borough Council will control the management of 'hot work'.

Serious fires frequently occur during maintenance and construction operations, where work is carried out on machinery, plant or the fabric of buildings. Most of these fires are the result of carelessness and ineffective supervision during operations that require the use of open flames or the local application of heat.

Fires can be caused by hot work in a number of ways, including:

- ignition of nearby combustible materials;
- smouldering fires or heat which are not observed while the work is being carried out and which later take hold and develop into serious fires;
- sparks or hot debris flying away from the heat source which can fall onto combustible material or into gaps within the structure of the building such as walls and floors;
- conduction of heat spreading through the material being heated, particularly pipework, and coming into contact with combustible material;
- ignition of explosion of fuel source, such as flammable fumes or liquids, gas bottles, etc.

The sources of heat most commonly involved include:

- gas / electrical welding and cutting apparatus;
- blow lamps and blow torches;
- bitumen and tar boilers;
- grinding wheels and cutting discs.

Whether hot work is carried out by Council employees or by outside contractors or their subcontractors, it is important that all such work is fully and effectively managed.

This policy provides Council managers with information and instruction on managing the risks associated with hot working practices.

## **2.0 DEFINITION**

Hot work is any process that can be a source of ignition when flammable material is present or can be a fire hazard regardless of the presence of flammable material in the workplace. Common hot work processes are welding, soldering, cutting and brazing.

## **3.0 ARRANGEMENTS**

### **3.1 General Precautions**

- a) Hot work should only be authorised where a safer method of work is not available.
- b) Hot work should only be carried out by trained personnel.
- c) Hot work will only take place during the normal working hours of the premises. If a situation demands urgent, out of hours hot work, for instance, a soldered repair to a water pipe at midnight, then the only remedial work to take place will be the making safe of that area until morning, e.g. shutting off the water supply. The hot work of soldering will wait until the building is open normally and full precautions can be taken.
- d) Wherever possible, items to be the subject of hot work should be removed to a safe area designated for that purpose.
- e) In premises protected by a sprinkler system, welding and cutting operations should never be carried out when the water supply to the sprinkler system is shut off.
- f) When hot work is being undertaken in premises fitted with an automatic fire detection system only the zone where the work is being carried out should be isolated. The zone should be reinstated as soon as the task has been completed.
- g) Thirty minutes after completion of hot work, carry out an inspection of the work area and any adjacent areas that may have been affected by transferred or conducted heat. This is to ensure that there are no smouldering heat sources.

### 3.2 Procedure for Hot Work Permits

- a) Hot work permits will be held and issued by the building manager or premises responsible person.
- b) Hot work permits should be completed on every occasion that hot work of any type is undertaken within or upon the fabric of established buildings or any structures or plant in the open.
- c) Hot work permits should not be issued without considering the significance of any other permits to work in the vicinity or any adjacent processes that may be going on.
- d) A hot work permit should relate to a specific task that is to be undertaken in a clearly identified area.
- e) Hot work should only be authorised where a safer method of work is not available.
- f) Wherever possible, items to be the subject of hot work should be removed to a safe area designated for that purpose.

### 3.3 Exceptions

Hot work permits will not be required where:

- a) The work complies with all aspects of the safe system of work described at Appendix A.
- b) The work is carried out in one of the following dedicated hot working areas:
  - i. The fitters workshop at the Cyfarthfa depot.
  - ii. Brazing hearths and other dedicated hot working areas within school workshops.

### 3.4 Before Hot Work Commences

- a) Before hot work commences, an area within 10 metres of the hot work process should be cleared of combustible materials and flammable liquids. All elements of combustible construction and surface finishes should be protected. This applies to any openings, holes or gaps in walls, floors and ceilings through which sparks could pass. The 10m distance may need to be increased especially in high fire risk areas or when overhead work is to be undertaken.
- b) Where combustible materials within 10m cannot be removed, they should be completely protected by the use of non-combustible or purpose made fire retardant blankets, drapes or screens. Flammable liquids should always be removed from the area.
- c) Combustible floors in the designated areas 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.
- d) Floors should be swept clean.
- e) Hot work should never be carried out in an atmosphere containing flammable vapours or combustible dust. Where a hazardous atmosphere is suspected, air samples should be taken and work only begun when the atmosphere has been certified to be non-hazardous. If there is a risk that the flammable atmosphere may recur, further testing of the atmosphere will be necessary.
- f) Flammable solvents should not be used to clean surfaces immediately before work commences.
- g) 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.
- h) Where hot work is to be undertaken on composite building panels or similar constructions, i.e. panels incorporating thermal or other insulation material, the type of insulating or other materials behind metal or other non-combustible surfaces should be assessed. Alternative methods should be employed if combustible materials are identified or suspected, especially polystyrene, polyurethane or other foam plastics.
- i) Good ventilation should be provided in all areas where hot work is to be carried out as procedures may generate copious volumes of smoke and fume.

- j) At least two Loss Prevention Certification Board approved (LPCB) fire extinguishers should be provided. These should be located in the area where the hot work is to take place and be ready for immediate use in the event of an outbreak of fire.
- k) All personnel involved with hot work should be familiar with:
  - the means of escape from the premises;
  - the method of raising the fire alarm;
  - the means for summoning the fire service.

### 3.5 Following Completion of Hot Work

- a) When hot work is complete, paint strippings, hot stub-ends of welding rods and other hot waste materials should be removed and disposed of safely.
- b) At the end of the working period, all equipment including gas cylinders, should be removed to a secure area. Where bitumen / tar boilers were employed, only the gas cylinders need to be removed.
- c) Thirty minutes after completion of hot work, carry out an inspection of the work area and any adjacent areas that may have been affected by transferred or conducted heat. This is to ensure that there are no smouldering heat sources.

### 3.6 Specific Items

#### Blow lamps & Blow Torches

- a) LPG blow lamps or torches should be extinguished and allowed to cool before changing cylinders. Paraffin or petrol blow lamps should only be filled and lit in the open and should never be refilled when hot.
- b) Blow lamps or torches should be lit immediately before work commences and extinguished as soon as the work ceases.
- c) Lighting up should only be carried out in accordance with the manufacturer's instructions. Blow lamps or torches should not be left unattended when alight.
- d) Electrically powered hot air blowers are a particular source of danger as no flame is apparent. When using these appliances, the same safety measures should be observed as when undertaking other forms of hot work.

### Bitumen & Tar Boilers

- a) To prevent heat from igniting roofs during roof work, bitumen / tar boilers, lead heaters and similar equipment should only be taken onto the roof in exceptional circumstances and a non-combustible heat insulating base must be provided.
- b) The equipment must always be supervised by an experienced operator and sited on a firm and level surface where spilled material can easily be controlled.
- c) Gas cylinders must be at least 3m from the burner. Gas hoses should be in good condition and properly fitted. Cylinders that are not in use should be stored away from the working area.
- d) The bitumen level and its temperature should be monitored and the boiler lid should be kept closed.
- e) The burner should be turned off before transporting the boiler on a lorry or trailer.

### Grinding Wheels & Cutting Discs

- a) The correct grade of wheel or disc should be used for the task in hand.
- b) Before each period of use, the wheel / disc should be checked to ensure that it is securely fastened and in good condition.

## **4.0 PERMIT TO WORK**

- 4.1 A permit to carry out hot work will always be required unless the safe system of work attached at Appendix A can be implemented in its entirety.
- 4.2 A copy of the permit to work form is attached at Appendix B.



## **Appendix A: Safe system of work for hot work in low risk environments**

## **SAFE SYSTEM OF WORK**

### **HOT WORK WITHIN A LOW RISK ENVIRONMENT**

#### Scope / Description

This written safe system of work may be followed without the requirement for a hot work permit, so long as the work falls **fully** within the scope of all four conditions below. In all situations where the requirements of the work falls outside the scope of the given conditions, or is not specifically included within the conditions, a hot work permit will be required.

#### **1. Protection of the fire detection system:**

A maximum of ONE local detector head may be temporarily covered or isolated for the duration of the work and reinstated immediately after the work is complete.

#### **2. Permissible hot work activities:**

- Heat application on fixed pipework or metal work where:
  - the heat applied is more than 300mm from any structure through which the pipework or metalwork runs into a separate adjacent area; and
  - the heat application does not take longer than 3 minutes; and
  - where the pipe bore is 22mm and smaller.
- Paint stripping using a hot air gun.
- Grinding using a portable abrasive wheel.

**3. Permitted hot work equipment:**

- Portable oxy-acetylene cylinders, up to and including 6kg, in good condition, fitted with regulators and flashback arrestors.
- Portable arc-welders.
- Hand-held portable liquid petroleum gas (LPG) bottles up to and including 4.5kg, in good condition, fitted with regulators.
- Electric hot air guns.
- Portable abrasive wheels.

**4. Defined low risk environments**

A. Internal rooms where all the conditions below are met in full:

- 1) The floor, walls, ceiling and any internal structures or fittings are constructed of a non-combustible material.
- 2) The structure of the room and its fittings ensures that there is no risk of sparks falling into any gaps.
- 3) The room is clear from dust and no dust has been or is being generated by a work process.
- 4) There are no flammable or explosive materials or liquids anywhere within the room.
- 5) The room is well ventilated.

B. External areas where all the conditions below are met in full:

- 1) Any adjacent structures within 5 metres are constructed of a non-combustible material.
- 2) There is no structure within 5 metres where sparks could fall into gaps within the structure.
- 3) The area is clear from dust and no dust has been or is being generated by a work process.
- 4) There are no flammable or explosive materials or liquids within 5m.

## PROCEDURE

Before hot work takes place:

1. Ensure the area has been cleared of all loose combustible materials and any flammable liquids or gases.
2. Ensure all areas adjacent to the work that may be affected by heat transfer or conduction (including the other side of walls or partitions) have been checked to ensure all combustible materials have been removed.
3. Ensure that any immovable combustible material is fully covered with an appropriate non-combustible material.
4. Ensure the work area is screened using non-combustible material.
5. In the case of gas-fuelled work any cylinder that is not held in the hand is secured in a vertical position.
6. Flash back arrestors are fitted to all oxy-acetylene cylinders.
7. Gas cylinders can and will be located at least 2 metres from the burners.
8. In addition to the portable fire extinguisher carried by the operator there is at least 1 appropriate fire extinguishers located in the working area and there is a person in the immediate working area for the duration of the work who is competent to use the fire extinguishers provided.
9. If it is necessary to protect one automatic detector head this is carried out immediately before work starts. NB. never use a powdered glove.

When hot work is complete:

10. Directly after completion of hot work, reinstate any isolated automatic detector head.
11. Clear and check the work area and any adjacent areas that may have been affected by transferred or conducted heat to ensure that they are safe.
12. Thirty minutes after completion of hot work, carry out an inspection of the work area and any adjacent areas that may have been affected by transferred or conducted heat. This is to ensure that there are no smouldering heat sources.

## **Appendix B: Hot work permit**

# HOT WORK PERMIT

Permit No.



## A. Proposal – To be completed by the person responsible for carrying out the work

Building:

Exact location of proposed work:

Nature of hot work to be undertaken:

The above location has been examined and the precautions listed on the reverse side of this form have been complied with as indicated.

Name (BLOCK CAPITALS)	Signed
Date	Position
Contractor Name	

## B. Agreement – To be completed by the Premises Responsible Person or other nominated person on site

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

Time of issue of permit

Time of expiry of permit \*

A final fire check of the work area shall be made, not before

Additional conditions required:

Name (BLOCK CAPITALS)	Signed
Date	Position

## C. Fire watch – To be completed by the person responsible for the work before returning this permit 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 fire following completion of the work.

Time inspection completed:

(This must be at least one hour after work was completed).

Name (BLOCK CAPITALS)	Signed
Date	Position
Contractor Name	

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

Note: where work is being carried out by a contractor, the issuer of the permit should ensure that the contractor has complied with the requirements prior to work being carried out, and should be satisfied that the area is free of fire when work is completed.

## Procedure for Hot Work Permits

(The person carrying out the check should tick the appropriate boxes)

- 1 The person nominated to authorize hot work, normally the Premises Responsible Person, must have experience or training in the problems associated with hot work and be of suitable status to ensure compliance with the procedures.
- 2 Prior to the commencement of work, a Hot Work Permit should be obtained from the Premises Responsible Person. This should be done on every occasion that hot work of any type is undertaken within or upon the fabric of established buildings or any structures or plant in the open. This procedure should also apply to all buildings which are being refurbished.
- 3 A Hot Work Permit should not be issued without considering the significance of any other permits to work in the vicinity or adjacent processes which may involve the use of flammable liquids or gases.
- 4 A Hot Work Permit should also be issued for a specific task that is undertaken in a clearly identified area. Hot Work Permits should not be issued for protracted periods. Separate Hot Work Permits should be issued for work which extends from morning to afternoon periods.
- 5 Before completing the first part of a Hot Work Permit, the person responsible for carrying out the work should complete the checklist shown below to indicate that fire protection measures are adequate, suitable precautions have been taken and the equipment to be used is safe.
- 6 If the Premises Responsible Person or other 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 competent 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.
- 7 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.

## Hot Work Permit Checklist

### Can this job be avoided? Is there a safer way?

#### Fire Protection

1. Where sprinklers are installed they are operative
2. A competent person not directly involved with the work will provide a continuous fire watch during the period of hot work and for at least one hour after it ceases, in the work area and those adjoining areas to which sparks and heat may spread.
3. At least two suitable fire extinguishers or a hose reel are immediately available. Both the personnel undertaking the work and providing the fire watch are trained in their use.
4. Personnel involved with the work and providing the fire watch are familiar with the means of escape and the site emergency procedures for raising the alarm / calling the fire brigade

#### Precautions within ten metres (minimum) of the work

5. 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
6. Flammable liquids have been removed from the area
7. Floors have been swept clean

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

8. Combustible floors have been covered with overlapping sheets of non-combustible material or wetted and liberally covered with sand. All openings and gaps (combustible floors or otherwise) are adequately covered
9. Protection (non-combustible or purpose-made blankets, drapes or screens) has been provided for: 
  - walls partitions and ceilings of combustible construction or surface finish
  - All holes and other openings in walls partitions And ceilings through which sparks could pass
10. Combustible materials have been moved away from the far side of walls or partitions where heat could be conducted, especially where these incorporate metal
11. Enclosed equipment (tanks, containers, dust collectors) has been emptied and tested, or is known to be free of flammable concentrations of vapour or dust

#### Equipment

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