



CHINTHURST SCHOOL
TRADITIONAL VALUES | MODERN TEACHING

Chinthurst Preparatory School

Hot Works Policy

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1.1 - Introduction

1.1.1 - Chinthurst school is committed to a workplace free of injuries. Given the diverse nature of the activities of the school and the contractors of which will work inside of it, it shall be a requirement for Chinthurst school to have a Hot Working policy in place which ensures that employees or visitors to the school are protected from the potential risk from work relating to hot works.

1.1.2 - Most hot work operations involve a number of parties, all of whom have responsibilities for ensuring that the work is carried out safely. Contractors and/or maintenance staff must consult and liaise with either the Headmaster or the Premises Manager in the area that the hot work is to be performed.

1.2 - Policy

1.2.1 - A Hot Work permit will be required for any activity that requires the use of a flame or generates sufficient heat or sparks that might serve as a source of ignition. See definition of “Hot Work” below. This policy applies to indoor and outdoor work on any of Chinthurst School property.

1.2.2 - Persons performing Hot Work and signing permits must have completed suitable and sufficient training at an acceptable level.

1.2.3 - The person conducting the Hot Work will complete a permit and meet all of its requirements. The Headmaster or Premises Manager will review completed permits and the affected area before signing the permit and allowing Hot Work to begin.

1.2.4 - Cold cutting and attachment methods are preferred to Hot Work whenever possible.

1.2.5 - This Hot Work policy and permit process applies to contractors as well as employees working on Chinthurst grounds, whether it be the main school or pre prep.

1.2.6 - Permits provided to contractors are to be issued by the Premises Manager managing the project for the school.

1.2.7 - Where the Hot Work area is accessible by the public, conspicuous signs shall be posted stating: “CAUTION – HOT WORK IN PROGRESS – STAY CLEAR”.

1.2.8 - No Hot Work can be performed in a “Confined Space” without approval from James Vetch Dip Grad – Chinthurst Independent Health & Safety Consultant.

1.3 - Purpose

1.3.1 - To establish procedures defining a system of control that will allow work involving possible sources of ignition to be carried out safely, and there are suitable and sufficient safe systems of work and emergency arrangements in place to reduce the risk of injury, and there is no contact between sparks, flame or heat, and fuel sources eliminating the danger of fire, as well as being fully compliant with legal legislation.

1.4 - Scope

1.4.1 - This procedure applies to all hot work on Chinthurst School premises that poses a risk to employees, students, visitors, contractors and members of the public.

1.5 - Definitions

1.5.1 - **Hot Work:** Any work that produces open flames, hot slag or sparks. The Fire Code defines Hot Work as cutting, welding, brazing, soldering, grinding, thermal spraying, thawing pipe, installation of torch applied roof systems, or any other similar situation, such as Kilns in schools.

1.5.2 - **Combustible:** A material capable of sustained burning when ignited and in the presence of air.

1.5.3 - **Flammable:** A liquid having a flashpoint below 100 degrees Fahrenheit.

1.5.4 - **Fire Watch:** A trained individual stationed in the Hot Work area who monitors the work area for the beginnings of potential, unwanted fires both during and after Hot Work for 30 – 60 minutes depending on the area where Hot Works was being carried out. Individuals must be trained and familiar with the operation of portable fire extinguishers and methods to activate building fire alarm systems. Fire Watch can have other assigned duties if these do not prevent him/her from being an effective Fire Watch.

1.5.5 - **Confined Space:** A space that has the following characteristics:

Is large enough and so configured that an individual can bodily enter and perform assigned work; and has limited or restricted means for entry or exit; and is not designated for continuous employee occupancy

1.5.6 - **Hot work:** The use of open fires, flames and work involving the application of heat by means of tools or equipment. This includes the unintentional application of heat by the use of power tools, hot rivets or hot particles generated from cutting or welding operations.

The sources of heat most commonly involved include:

- Gas/electric welding and cutting apparatus.
- Blow torches/blowlamps.
- Bitumen/tar boilers.
- Grinding wheels and cutting disks.
- School Kilns.

1.5.7 - An additional person to act as a Fire Watch shall be available if conditions warrant, this is a person which checks areas which have had hot works carried out whether it be plumbers, gas fitters or electricians, factors to consider are the spread of ignition sources such as sparks and slag.

1.5.8 - Hot Work is restricted as follows:

- Hot Work is not allowed in areas where flammable vapours may be present within a minimum 50' radius.
- The immediate vicinity of any pipe line, valve, fitting, vessel, or equipment at Chinthurst that contains or has contained a flammable or combustible liquid or gas, e.g. the science laboratory.
- Areas where, when a gas meter test is done, the Lower Explosive Limit (LEL) reading is above 10% LEL.
- In areas where heavy dust may be present, the dust accumulation must be cleaned prior to the start of work.
- The signed permit shall be posted on the job site at all times by personnel doing the work.
- When the work is completed, the area shall be returned to normal condition.

2.1 – Management

2.1.1 - To ensure that all employees from Chinthurst involved in the Hot Work Process are trained (including Permit Authorizing Individual, Hot Work Operator and Fire Watch).

2.1.2 - Conduct periodic audits to ensure compliance with this policy, and report back to Health & Safety Consultant Chinthurst – James Vetch Dip Grad.

2.1.3 - Ensure that the policy is reviewed annually and is current with all applicable regulations.

2.2 - PAI (Permit Authorizing Individual)

2.2.1 - Assess the work area and sign the Hot Work Permit PRIOR to work commencing.

2.2.2 - Post one part of permit at job site and place top copy of permit at the site designated area. (i.e. permit board).

2.2.3 - Have a designated Fire Watch during Hot Work. This could be anyone who has been trained as Fire Watch.

2.2.4 - After completion of Hot Work ensure continuous monitoring for minimum of 30 minutes or longer as determined by the PAI. As well continue by the PAI. This function may be performed by a designated Fire Watch, or Chinthurst maintenance person.

(See Appendix 1 for Sample of Hot Work Permit)

2.3 - Person Performing Hot Work

2.3.1 - The person carrying out the Hot Work must verify that a hot work permit is in place before starting Hot Work. The permit is issued for one location only and is valid for no longer than 24 hours. It may become invalid if conditions change (i.e. adverse environmental condition).

2.3.2 - The person carrying out the Hot Work is responsible for complying with all rules and regulations concerning safe work practices and all requirements stated on the permit.

2.4 - The Fire Watch

2.4.1 - Assist Hot Work Persons in preparation and clean-up of Hot Work area.

2.4.2 - Wet down surrounding areas including lower floors and beams if applicable.

2.4.3 - Assess 35' radius for potential fire hazards.

2.4.4 - Be alert to any changes and identify changes or concerns to person carrying out the hot works.

2.5 - Outside Contractors

2.5.1 - Will be trained and held to the same Hot Work Standards as the Chinthurst maintenance persons. The Premises Manager who hires the contractor will ensure that this training has taken place prior to starting Hot Work and audits the process.

3.1 - Legal requirements

3.1.1 - The Management of Health and Safety at Work Regulations 1999.

3.1.2 - An assessment of the risks in all work activities is required to formulate safe systems of work at all times.

3.1.3 - Since hot work tools are highly portable ignition sources, improperly conducted hot work is a major cause of fires and explosions.

4.1 - Hazards

4.1.1 - Burns can be caused by the heat radiated from hot working, either by direct contact with hot surfaces, e.g the kiln in the art room, or from sparks generated from cutting or grinding operations.

4.1.2 - Eye damage:

The eye can be damaged by radiation generated from welding or brazing operations.

4.1.3 – Fire:

Hot work can cause flammable vapours and combustible materials to ignite.

4.1.4 – Welding Fume:

Fumes are a natural by-product of welding, and arise from even simple welding operations. which could be carried out by contractors or Chinthurst own staff, welding work requires the use of respiratory protection and/or good ventilation, as even simple operations may create fumes such as carbon monoxide, nitrogen oxide, and ozone.

Extra precautions are required during the welding of metal coated with or containing zinc, cadmium, chromium, copper, fluoride, lead, manganese, or vanadium, as the resulting fumes can lead to metal-fume fever.

Hazardous fumes released during welding operations are generally derived from:

- Base material being welded or the filler material that is used;
- Coatings and paints on the metal being welded, or coatings covering the electrode;
- Shielding gases supplied from cylinders;
- Chemical reactions resulting from the action of ultraviolet light from the arc, and heat;
- Process and consumables used; contaminants in the air, for example vapours from cleaners and degreasers.
- Exposure to welding smoke has serious short-term and long-term health effects often affecting the lungs, heart, kidney, and central nervous system.

4.1.5 – Explosions:

These can arise through working in explosive atmospheres or through flashback to an acetylene-welding cylinder. (See Take Care with Acetylene INDG 327)

4.1.6 - Hazards arising out of work activity:

- Hazards may arise due to the nature of the work area e.g. because of ineffective.
- Isolation of plant nearby.
- Ladders may need to be used to access the work.
- Environmental hazards, (noise, heat, lighting etc).
- The work may be in a confined space.
- Hazards from work in a nearby area.
- Toxic or flammable chemicals.
- These and many other hazards may be present as part of the operation being performed and must be considered as part of a risk assessment.

5.1 - Risk Assessment

5.1.1 - Employers are legally required to assess risks and to take all reasonably practical precautions to ensure the safety of workers and others affected by their activities.

5.1.2 - A risk assessment must be undertaken and recorded in line with Chinthurst School Risk Assessment Procedures and must give consideration as to whether hot working is really necessary or whether alternative options should be considered e.g.:

- The use of cold cutting or cold repair techniques;
- Replacing rather than repairing.

5.1.3 - The remaining risks from any hazards identified must be reduced as much as possible. It is the responsibility of the Premises Manager to ensure that risk assessments are in place and that personnel from the area where the hot work is to be carried out have been consulted.

5.2 - Permit to Work

5.2.1 - A permit to work system is a formal written system that controls and authorises high-risk activities/tasks. It specifies the work to be done and the precautions to be taken, forming an essential part of a safe system of work and allowing work to start only after safe procedures have been defined.

5.2.2 - It also provides a clear record that shows all foreseeable hazards have been considered.

5.2.3 - A permit for hot working is required for all non-regular hot working in Chinthurst.

5.2.4 - If regular hot working is undertaken then a risk assessment must be completed in the area concerned and the area designated a safe working zone.

5.2.5 - The permit-to work system, applies to contractors and subcontractors as well as the Chinthurst own staff.

5.2.6 - Hot work is permitted only in controlled areas (i.e. one where safe conditions are created by moving or protecting combustibles). Permits to work are the key to ensuring that safe hot work procedures are followed, so it is essential that those who issue permits to work or carry out associated analysis or environmental monitoring are competent to do so. The information that should be contained in a permit to work for hot work will depend on the job to be done'

5.2.7 - Permit To Work (PTW):

- The location and nature of the hot work.
- The proposed time and duration of the work.
- The limits of time for which the permit is valid.
- The precautions that should be taken before the work starts; during the work; and on completion of the work.
- The person in direct control of the work.
- It is essential that all those involved in the work are aware that conditions may change once a permit to work is issued. If this occurs, for example if other work is to be carried out in the vicinity, the permit to work should be withdrawn, the situation reviewed and, if appropriate, a new amended permit to work issued. If the timescale of changes can be foreseen, the period of validity of the permit to work should be correspondingly limited. This may well be less than the full duration of the proposed work.
- Regardless of the location or type of area all hot work must be inspected before work starts and a 'Hot work Permit' (appendix 1) issued before work commences.

5.3 - Precautions for Hot Work.

5.3.1 - Minimum safety standards include.

5.3.2 - Combustibles must be moved at least 35 feet away.

5.3.3 - Flammables must be moved at least 50 feet away.

5.3.4 - Two fire extinguishers (suitable for the area) must be on the site.

5.3.5 - A fire watch is required on every job.

5.3.6 - The fire watch must stay on the job site for 30 minutes after the hot work is finished.

5.3.7 - Every year major fires occur due to hot particles generated by cutting or welding operations igniting combustible materials. Where it is not practicable to remove such materials, e.g. for very short maintenance operations, it may be sufficient to ensure that they are temporarily covered by non-combustible material. This will be determined by a risk assessment of the area and the task to be performed. Personal Protective Equipment (P.P.E) and or other risk controls identified in the risk assessment must be implemented.

5.3.8 – No hazardous or combustible materials (e.g. flammable, toxic, very hot, steam, or very cold) must enter the hot work area during the operation unless they are needed as part of the operation and considered in the risk assessment.

5.3.9 – The atmosphere must be, and must remain, safe to breathe. The concentration of toxic substances should be as low as reasonably practicable and in all cases below the relevant occupational exposure limit.

5.3.10 – Many hot work processes generate toxic fumes where it is not reasonably practicable to provide adequate ventilation appropriate respiratory protective equipment should be worn. Particular care should be taken before entry into enclosed spaces.

5.3.11 - Any other necessary personal protective equipment must be provided and worn. This may include protective footwear, overalls, gloves and eye protection.

5.3.12 - Appropriate fire-fighting equipment must be available adjacent to the work area together with an identified person trained in its use. If areas not visible to persons carrying out hot work pose a risk, a person with a suitable fire extinguisher must keep watch.

5.3.13 - When work stops any cylinders of flammable gas, oxygen, or hoses and torches attached to them, must be removed.

5.3.14 - No smouldering residues must remain after the work has been completed, the sites of such work should be visited periodically until all likelihood of ignition has passed.

5.3.15 - When PTW has been signed, a copy should be given to the person in direct control of the hot work, and where appropriate a copy should be displayed at the site of the work. a record of the issue and withdrawal of permits to work should be kept.

5.3.16 - No hot work must be undertaken unless emergency plans are in place. It is the Premises Manager's responsibility to ensure an assessment of the emergency requirements has been made and actioned as appropriate. It is the supervisor's responsibility to ensure any measures deemed necessary are in place and tested prior to hot work being carried out.

5.3.17 - All persons involved in hot work operations should receive adequate instruction, training and supervision, and understand the:

- Hazards associated with the work and the precautions to be taken.
- Operation of relevant permit to work systems; and actions to be taken in the event of any unintended fire or other emergency.
- Detailed training should be given to persons responsible for issuing permits to work to ensure that they are aware of all relevant hazards and that these are considered before the permit is issued.

5.4 - Summary of Responsibilities for Chinthurst Headmaster or Contracting Supervisor

5.4.1:

- Carry out risk assessment prior to starting work.
- Permit to work (PTW)
- Emergency Procedures
- Issue and withdrawal of permit to work

Appendix 1: sample of Permit To Work Form (PTW)

(Issue for soldering, welding, cutting metal with a grinder, work with hot tar on roofs etc.)

1- Proposal (for completion by the person carrying out the work- i.e. contractor)

Building name:

Location of work:

Description of work:

The above location has been examined and the precautions checklist has been completed.

Name (Print)		Position	
Signature		Date	
Contractor			

2- Agreement (for completion by the individual authorising the work)

This permit is issued subject to the following conditions:

Time of permit issue:	<input type="text"/>	Time of permit expiry:	<input type="text"/>
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A final fire check will be carried out after work has finished before the permit is signed off.

Are any additional controls required?

Name (Print)	Position
Signature	Date

3- Extension of Permit (if required, for example when work has taken longer than anticipated. For completion by both parties)

Reason

Revised time of permit issue: Revised time of permit expiry:

Person undertaking work signature	
Authorised person signature	

4- Clearance (for completion by both parties when work has stopped)

The works area and area adjacent has been inspected and is free of fire, smoke, excess heat etc. following completion of the work. The fire alarm has been fully reinstated. **The permit is now cancelled.**

Person undertaking work signature	Date	Time
Authorised person signature	Date	Time

Hot work permit- precautions checklist

Fire protection	Y	N	N/A
Holes and openings in walls, floors, partitions and ceilings protected with non-combustible materials?			
Smoke and heat detectors isolated / covered if required? (this will be removed / reinstated at the end of the works)			
Area free from flammable liquids and gases?			
Portable fire extinguisher to hand?			
Person appointed on 'fire watch duties'?			

Precautions within 10 metres minimum of work area	Y	N	N/A
Combustibles removed, covered or damped down?			
Flammable liquids / gasses removed from area?			
Floors swept clean?			
Combustible floors covered with non-combustible material?			
Neighbouring areas assessed for risk of heat transfer?			

Equipment	Y	N	N/A
Equipment for hot work checked and in good order?			
Appropriate PPE will be used by operatives?			

Gas cylinders stored vertically on trolley at least 3 metres from the burner?			
Gas cylinders fitted with regulator and hoses etc. with a flashback arrestor. Secure and in good order?			
Hazardous materials will be removed from location as soon as possible after works completion			
Lit tar boilers will be attended at all times			

Emergency arrangements	Y	N	N/A
First aid arrangements in place?			
Familiar with emergency evacuation procedure?			

Weather	Y	N	N/A
Excessively hot, cold, windy, wet etc?			

Procedure / guidance for issuing hot work permits

- The person who authorises the work must be suitably competent and of sufficient status to ensure compliance.
- Prior to work commencing, a completed permit must be obtained by the person authorising the work. This should be repeated on every occasion that hot works are being undertaken.
- A permit must not be issued without an assessment of whether the area surrounding the hot works could involve flammable substances.

- A hot work permit must be issued for specific work in an identified area and must not be issued for protracted periods. A separate permit should be issued for works that span a lunch period or that spans a period of days.
- Before completing the first section of the permit, the person responsible for undertaking the work (contractor) must complete the checklist above to clarify that fire precautions have been considered and that equipment to be used is safe.
- If the person authorising the work is not satisfied with the arrangements in place, they should request and agree on further controls to be implemented and record these in the 'agreement' section of the permit.
- Occasionally, it may be necessary to grant an extension to the permit. Under such circumstances the reasoning behind the request must be clearly identified and reflected in the 'extension' section of the permit.
- The person authorising the work and the contractor must sign to confirm that work has been completed and that the working area has been inspected and is free of other hazards created by the hot works. This section should not be completed until the person authorising the work is satisfied that the environment is safe to be left unattended.
- Completed permits for hot work must be retained and filed by the person authorising the work.