

Hot Work Requirements



Introduction

Many aspects of maintenance, engineering and construction work require Hot Work. If not managed appropriately, Hot Works create the potential of death, serious injury or ill-health and/or damage to property and the environment. It is necessary to have procedures in place to reduce the risks associated with Hot Work to an acceptable level, this document outlines the minimum requirements at Auckland Airport.

Hot Work is any work or activity which may be a source of ignition. Hot Works include but is not limited to the use or operation of:

- Welding or flame cutting equipment;
- Grinder, electric drill or other non-flameproof or spark-generating electrical equipment;
- Hot tapping equipment;
- Concrete cutting & chipping; and
- Hand tools that may create a spark.

Scope

This document applies to all persons working for and on behalf of Auckland Airport. It summarises the expectations from the Health and Safety at Work Act 2015 & supporting regulations, guidance issued by WorkSafe NZ and Auckland Airport's Safety Management System (SMS). It is also informed by the expectations of Auckland Airport's insurers as discussed with the Airport from time to time.

For more details on hot work please refer to relevant legislation, regulations, guidance and components of Auckland Airport's SMS.

Definitions

Term:	Definition:
Designated Hot Work Area	An approved area where specific fire, emergency and environmental issues can be easily controlled. Hot Work can be done in these areas without requiring a Permit. Designated Hot Work Areas must have: • No combustibles shall be stored in the area; • No open cable trays in the vicinity; • End of shift inspection system in operation, and • Readily available means of calling emergency services. • Where practicable, area surfaces (walls, floors, benches and roof) are non-combustible; • There are no openings in the area through which sparks can escape; • Fire hose or hose reel and appropriate fire extinguishers available in area, and • All wall and floor openings covered.

Term:	Definition:
Fire System Impairment	A situation in which the site/area fire protection systems are not in operation or have reduced capacity.
Hot Work Prohibition Zone	The following areas where Hot Work is prohibited: • Areas where the fire system has been impaired; • Oxygen enriched environments; • Inside flammable good stores or in the restriction zone around them; • Inside areas used for the storage and handling of oxidisers; • Within 6 metres of hazardous/dangerous goods storage areas; • Within 6 metres of gas fill stations; • Within 6 metres of aluminium composite panels that form part of the building; • Within 50 metres of an aircraft while refuelling; • Within 15 metres of an aircraft or refuelling equipment on the Airfield Movement Area (when refuelling is not occurring).
Hot Works with a Naked Flame	Any heating or hot works that involves the use of a naked flame as the heating or work source. Includes but is not limited to welding or flame cutting equipment, gas blow torches, gas heaters or any other use of equipment that has a naked flame.
Naked Flame Prohibition Zone	Clause 16 of Auckland Airport's Bylaws prohibit Hot Works with a Naked Flame from occurring within 50 metres of: • an aircraft; • a store or container of liquid fuel; or • explosives.
Safety Watch	A qualified and competent person assigned to remain on watch at the Hot Work site, the Safety Watch must stay for 1 hour after the Hot Works have completed to ensure no risk of fire. The Safety Watch must be able to understand the hazards and emergency procedures associated with the Hot Work. If there is no active fire protection or detection system covering the area, then a four-hour fire watch is required for works in or adjacent to the ITB or DTB (extended fire watch requirement).
Temporary Designated Hot Work Area	An approved area that will be utilised temporarily for Hot Work (i.e. project sites), it must meet the requirements of a Designated Hot Work Area, Hot Work can be carried out in these areas without requiring a Permit.

1. Hazard/Risk Identification

Hazard	Consequence
1.1. Fire	A serious fire could cause serious injury to worker/s and/or members of the public and cause severe damage to airport property and the environment, not only this, but there is a huge risk to general operations of the airport.
1.2. Hot surfaces, radiation, flames	Contact with hot surfaces, radiation or flames could cause burns to those workers carrying out the task.
1.3. Toxic fumes	Fumes generated by different forms of hot work may range from being a nuisance to highly toxic. Health effects can be acute and occur very soon after exposure or may be chronic and may not present itself for a number of years. Toxic gases may be: • Used in, or generated by the process; • Generated when coatings on metal surfaces are heated; • Generated when the arc flash and some chemicals or paints react.
1.4. Arc flash	Burns to the surface of a workers eye due to exposure to welders arc
1.5. Other hazards not specific to Hot Work	Other hazards that aren't specific to hot works need to be identified prior to the works commencing. These hazards may make undertaking hot works riskier than normal and need to be controlled with that risk in mind. Examples include hot work in: • Prohibition zones; • Adverse weather; • Confined/restricted spaces; • Aluminium Composite Panel (ACP); • Areas where fire systems are impaired.

2. Safe System of Work

As Hot Work has the potential to affect airport operations as a whole, a Permit is required for all Hot Work not completed in a designated workshop or temporary hot works area.

To be issued a Permit, the Permit Issuer must be supplied with the relevant supporting documentation:

- Permit to work application
- Rescue/recovery plan
- JSA or SOP for the hot work
- Site location

The length in which a Permit can be issued is up to the Permit Issuers discretion (maximum 7 days).

3. Auckland Airport Hot Work Controls

Designated Hot Work Areas

It is preferred that all Hot Work is carried out in designated Hot Work Areas. In this situation the Hot Work can be completed without a Permit, using an approved Standard Operating Procedure (SOP).

Designated Hot Work Areas will be clearly signposted and will meet the requirements defined above (Designated Hot Work Area definition).

When planning Hot Work consideration needs to be given to whether the work can be done in the Designated Hot Work area and moved to site, if not, the options below should be considered:

Temporary Designated Hot Work Areas

Temporary designated Hot Work areas may be authorised when necessary for large project/construction works. The temporary designated Hot Work areas must meet the requirements of a designated Hot Work Area and must have:

- Defined boundaries in which the Hot Work will take place;
- An assessment conducted by persons competent in fire hazards and endorsed by the Head of H&S;
- The approval documented and displayed at the area;
- A monitoring programme established to ensure compliance with Hot Work conditions;
- An annual review.

Hot Works in Non-Designated Zones

Where it is not practicable to carry out Hot Work in a designated area (permanent or temporary) the following minimum controls must be implemented:

- a. A **JSA and Permit** must be completed;
- b. A Permit will **not** be issued when relevant authorities issue a "**Total Fire Ban**";
- c. The Permit must be supported with a **rescue/recovery plan**;
- d. Where there is **adverse weather or environmental conditions** that create a **significant fire risk** (e.g. high temperatures, low humidity or gusty wind) Hot Work should be **rescheduled or additional fire controls** implemented;
- e. **Gas cylinders** that are to be used while welding must be **restrained** and **secured** against movement at all times during **storage, transport and use**;
- f. **Gas cylinders** must **not be** positioned across **access ways** or **traffic areas** or **transported within closed vehicles**;
- g. All bottles, hoses and connections relating to welding equipment is to be **checked** to ensure they are **connected properly** and **ready for safe use** prior to undertaking Hot Work;
- h. **Flash back arrestors**, suitable for the types of equipment used are to be fitted to both **oxygen** and **fuel gas lines** at the **regulator outlet** and **between the blowpipe and hose**;
- i. A **Safety Watch** must be assigned to monitor the Hot Work, they must **not have any other duties** and have **direct line of site** with the work being carried out;
- j. The **Safety Watch** must be maintained for a **minimum of 60 minutes after** the Hot Work has stopped.
- k. If the works are in either the domestic or international terminal buildings (or immediately adjacent) in an area where there is no active fire protection or detection system covering the area, then a four-hour fire watch is required (extended fire watch requirement).
- l. Depending on the nature of the Hot Work there may be a **requirements for multiple Safety Watches**, this will be established in the JSA and Permit process;

- m. **Gas testing** is required in areas where **flammable gases, liquids (vapours)** are, or have been previously **stored**, prior to and during the Hot Works;
- n. **Portable hand-held fire extinguishers** of the appropriate type are required for carrying out Hot Work and must be **readily available** at the worksite;
- o. **Fire extinguishers** must be **in addition** to those provided for the normal protection of the building;
- p. **Combustible materials** (paper, dusts, rags and flammable spills) must be **cleaned up** and **moved**, where possible at least a 10m radius for ground level work, and 15m radius for elevated work;
- q. If **combustible materials cannot be cleared** from an area, the area must be **covered** with a **fire resistant blanket** to prevent spread of sparks;
- r. There must be **adequate ventilation** in place to remove all fumes or gases that are generated as a result of the Hot Work;
- s. Any Hot Work carried out in a **Confined Space** must be the minimum requirements of the AIAL Confined Space requirements;
- t. If there is the **potential for sparks** and/or **hot materials** to enter **conveyors** and/or **ducting** system they must be **isolated** and **cleared** of all combustible materials;
- u. **Appropriate screening** is put in place to safeguard other workers from exposure to **arc flash**;
- v. All persons carrying out Hot Work shall wear **PPE** that is fit for purpose for the work being completed;

Hot Work on Airfield Movement Areas

The relevant airfield rules must be followed and permissions obtained from the Airfield team before considering any welding work, hot mix work or maintenance work using Hot Works on/adjacent to the airfield movement area. Note there are differing (more restrictive) rules under clause 16 of Auckland Airport Bylaws 1989 for Hot Works with naked flame.

Under no circumstances will Hot Works with a Naked Flame be permitted within 50 metres of an aircraft or a store or container of liquid fuel or explosives.

Under no circumstances will Hot Work be permitted within 50 metres of an aircraft while refuelling.

At all other times (when refuelling not occurring) a 15-metre fire precaution area is to be observed around an aircraft and/or fuelling equipment for Hot Works.

For Hot Works within 50 metres of an aircraft in summer temperatures, consider wind direction, whether aircraft vents are open and whether gas monitoring is required.

The various restrictions on Hot Works around an aircraft can be summarised as follows:

	Hot Works with no naked flame	Hot Works with a Naked Flame
Within 15 metres of an aircraft	✗	✗
Within 15 metres of refuelling equipment or a store or container of liquid fuel	✗	✗
Between 15 metres and 50 metres of an aircraft that is not refuelling	✓	✗
Between 15 metres and 50 metres of an aircraft that is refuelling	✗	✗
Between 15 metres and 50 metres of refuelling equipment or a store or container of liquid fuel (when refuelling is not occurring)	✓	✗
Between 15 metres and 50 metres of refuelling equipment or a store of container of liquid fuel (when refuelling is occurring)	✗	✗
More than 50 metres distance from an aircraft (whether or not it is refuelling)	✓	✓

More than 50 metres distance from refuelling equipment or a store of container of liquid fuel	✓	✓
Within 50 metres of explosives	✗	✗
More than 50 metres distance from explosives	✓	✓

Hot Work in Prohibition Zones

Where there is no alternative to performing Hot Work in a 'Hot Work Prohibition Zone', a plan will be developed and approved by the Head of H&S, the Asset Owner, the AES Crew Chief and the Area Authority.

The plan must reduce the risk to as low as reasonably practicable and contain additional controls and mitigations;

The plan has been approved in writing by the relevant General Manager responsible for the area in which the work is being undertaken.

Fire Systems Impairment

Where a fire system impairment will be required, a fire systems isolations certificate shall be completed and authorised by the appropriate AIAL Infrastructure personnel.

The Hot Works Permit will not be closed as complete until the impairment to the Fire System has been reinstated and the Fire Isolation Certificate signed off verifying reinstatement as complete.