Permit to Work System Training for Supervisors Managing Hot Works & Other Permits

This training package has been produced pursuant to an Enforceable Undertaking between Lendlease Building Pty Limited ACN: 000 098 162 and SafeWork NSW dated 8th of August 2017

CONSTRUCTION IS ONE OF THE TOP 3 MOST
DANGEROUS INDUSTRIES IN AUSTRALIA

Globally every 15 seconds:
- a worker dies from a work related incident or disease
- 160 workers are injured at work

Construction workers are 3-4 times more likely to die from a workplace incident

Men are 10 times more likely than women to die at work

Why do **YOU** want to be safe at work?

WORKERS AGED **UNDER 25 YEARS** ACCOUNT FOR

20%

OF ALL WORK-RELATED INJURIES

Young male workers have the highest incidence rate of work related injury

OF WORKERS KILLED WERE WORKING FOR SOMEONE ELSE

39 **injuries every day where one or more weeks off work are required due to work related injury or disease**

25% of all workplace fatalities are from:
- Fall of workers
- Fall of materials
- Contact with live electricity

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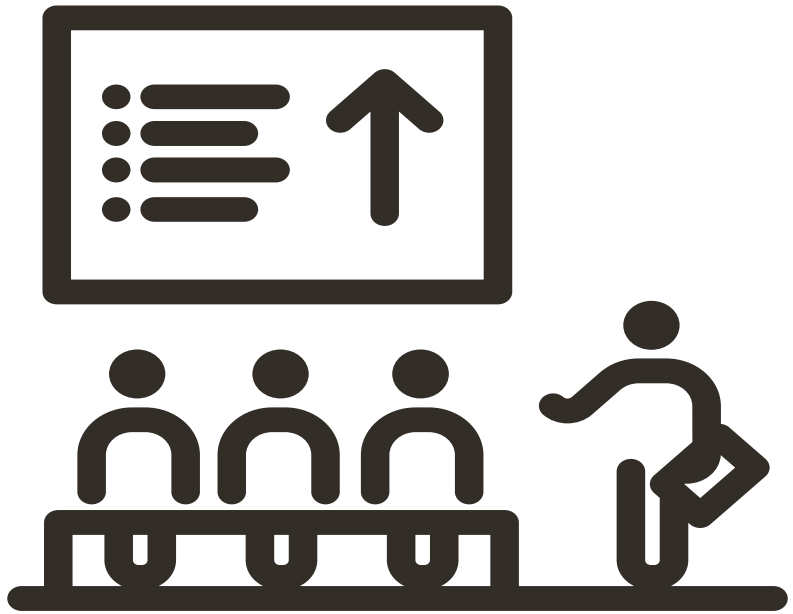

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Purpose

At the end of this session, you will:

- Understand what is a Permit To Work (PTW) System and its purpose
- Be able to identify the need for a Permit to Work for high risk work tasks
- Understand the requirements of Fire Attack Fire Response
- Understand the fundamentals of risk management
- Understand the roles and responsibilities in a PTW System
- Be familiar with a hot works permit, its use and its requirements
- Understand the requirements for supervisors as per Australian Standard 1674.1 when supervising hot works
- Correctly complete a Hot Works Permit as part of a PTW System

Note: This permit to work system training does not cover other specific permits such as Confined Space, Excavation or other, which can be supplemented in the Case Study section of the training.

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Section 1

PERMIT TO WORK SYSTEMS

What is a Permit To Work System?

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A Permit To Work is a key part of a **Permit To Work System** and is a means of communicating between site management, supervisors and workers who carry out the high risk work to identify the hazards related to the work and the precautions to be taken by workers to safely complete the high risk work.

A Permit To Work is an administrative control and does **not** in itself make the work safe, but by following the precautions listed in the Permit To Work the high risk work can be completed safely.

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Section 2

RISK MANAGEMENT & PERMIT TO WORK SYSTEMS

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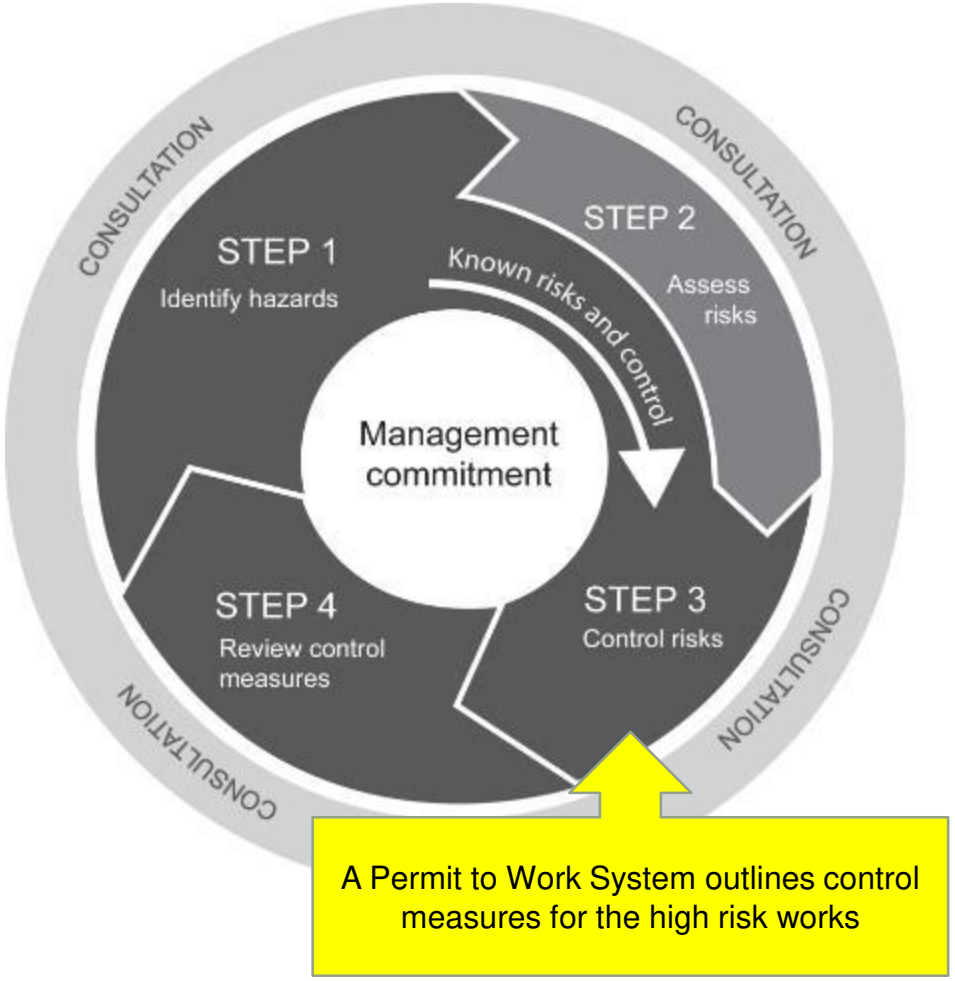
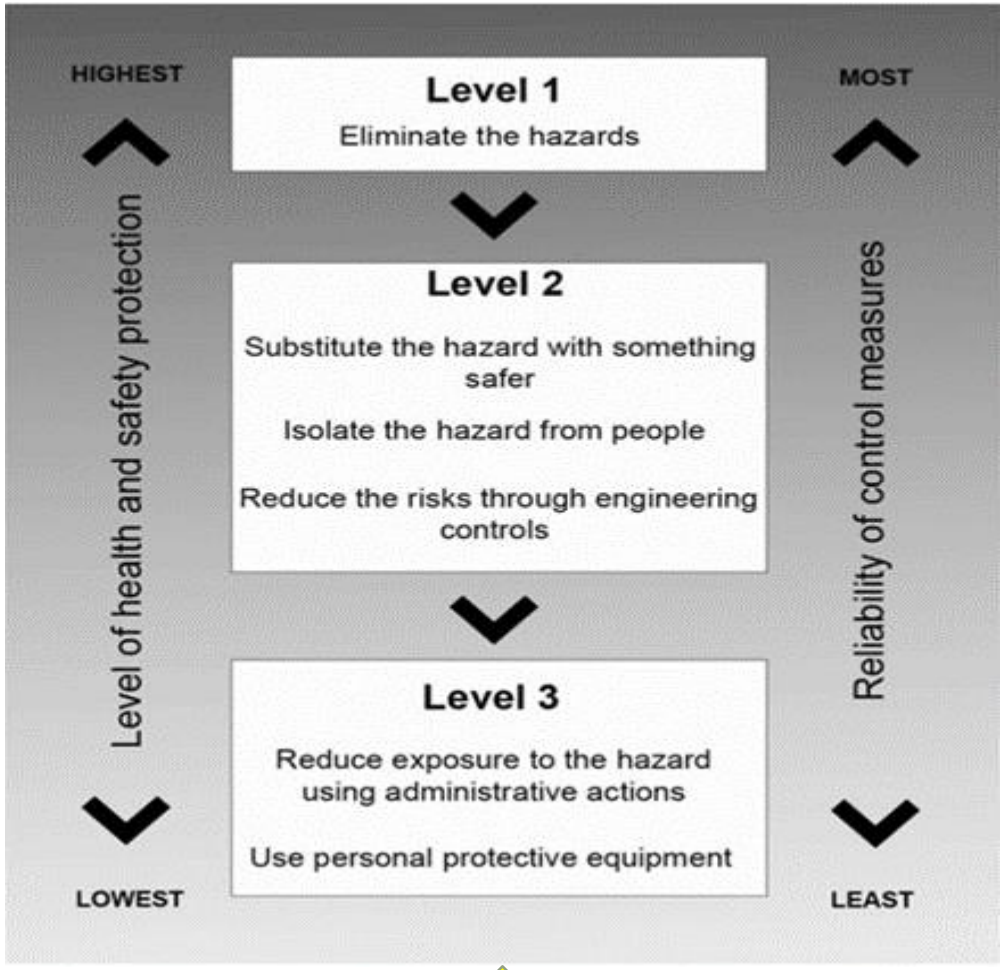
Risk Management Process

Where does a permit to work system belong on this Risk Management lifecycle?



Risk Management
(Hierarchy of Controls)



A Permit To Work System is generally an administrative control (Level 3), but it may document higher level controls, i.e. Level 2

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Section 3

HAZARDS & RISKS

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Hazard & Risk – What's the difference?

Hazard

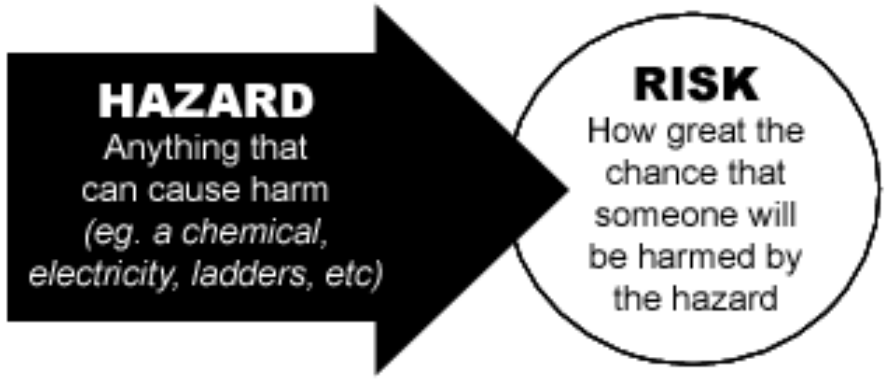
A **source or a situation with a potential for harm** in terms of human injury or ill-health, damage to property, damage to the environment, damage to plant or equipment or a combination of these,

- i.e. anything that can cause harm to people, plant, equipment, property and environment.

Risk

Risk (in relation to any hazard) is defined as:

- **the potential likelihood and consequence of harm** to people, plant, equipment, property or the environment.



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Section 4

ROLES & RESPONSIBILITIES – PERMIT TO WORK SYSTEM

Roles & Responsibilities Permit To Work System

A number of parties have roles and responsibilities in a Permit To Work System and some of these are typically outlined on a Permit To Work.

The **Permit To Work Officer** (an appointed representative of the Principal Contractor) must:

- **Issue the Permit To Work for completion** by the subcontractor that will do the high risk work; and
- **Understand the work area specific risks** associated with the proposed high risk works; and
- **Check that the completed Permit To Work requirements and any related precautions have been satisfied** before the high risk work commences to enable the Permit to be issued and authorised by the Permit To Work Officer; and
- **Verify that all equipment required for the works is fit for purpose** and has been inspected, tested and maintained in accordance with the manufacturer's requirements and relevant standards; and
- **Verify that workers have the required skills and competency** relevant to complete the high risk work,
- **Authorise the Permit To Work** to enable the high risk works to commence; and
- **Close the Permit To Work at the completion of the works** and where required check any conditions of the permit have been satisfied.

Roles & Responsibilities Permit To Work System

The **Subcontractor Supervisor** of the high risk work must:

- **Complete the Permit To Work** required to undertake the high risk work; and
- **Understand the work area specific risks** associated with the proposed high risk works; and
- **For Hot Works be competent in Demonstrate Fire Attack Firefighting Equipment; and**
- **Consult with all workers that will undertake the high risk works** to identify hazards and risks and controls; and
- **Check that the completed Permit To Work requirements and any related precautions have been satisfied** before submitting the Permit To Work to the Appointed Permit To Work Officer; and
- **Gain authorisation of the Permit To Work** to enable the high risk works to commence; and
- **Consult with the high risk work crew** to ensure all aspects of the Permit To Work and its control measures are understood and who will implement what controls; and
- **Ensure that the workers have the required skills and competency** relevant to complete the high risk work, and
- **Check that all equipment required for the works is fit for purpose** and has been inspected, tested and maintained in accordance with the manufacturer's requirements and relevant standards.

NOTE: ALL REQUIRED BEFORE THE HIGH RISK WORKS CAN BEGIN

Roles & Responsibilities Permit To Work System

The **Subcontractor Supervisor of the high risk work once the work begins** must:

- Supervise the high risk works to ensure that the controls outlined by the PTW are implemented; and
- Retain a copy of the Authorised Permit at the work area where the high risk works will be conducted; and
- Check all conditions of the permit have been satisfied (including the need for a fire watch) before returning the Permit To Work to the Permit To Work Officer for closure.

Roles & Responsibilities Permit To Work System

The **Workers** undertaking the high risk work must

- **Understand the work area specific risks** associated with the proposed high risk works; and
- **Consult with their Supervisor** to ensure all aspects of the Permit To Work and its control measures are understood and who will implement what controls; and
- **Ensure that they have the required skills and competency** relevant to complete the work, e.g. formally trained in first response (fire extinguisher) training (hot works); confined space entry training; gas monitoring training (confined space); oxy & acetylene equipment training (hot works) or other as required; and
- **Check that all their equipment required for the works is fit for purpose** and has been inspected, tested and maintained in accordance with the manufacturer's requirements and relevant standards; and
- **Follow the instructions of their Supervisor** for the high risk works to ensure the requirements of the Permit To Work are being implemented; and
- **Check all conditions of the permit have been satisfied** (including the need for a Fire Watch) before their Supervisor returns the Permit To Work to the Permit To Work Officer for closing.

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CASE STUDY HOT WORKS

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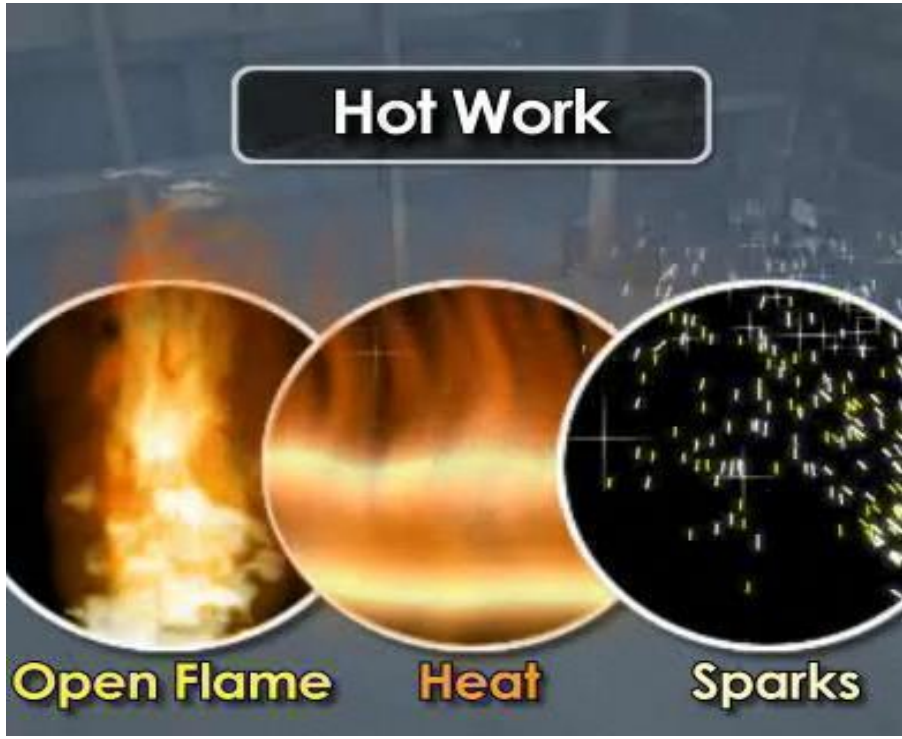
Case Study - Hot Works

AS1674.1-1997 1.3.3

HOT WORKS is grinding, welding, thermal or oxygen cutting or heating, and other related heat producing or spark or flame producing operations

Examples of risks related to Hot Works include:

- **Explosion** when carrying out Hot Works on drums, tanks, or vessels which contain flammable vapours, liquids or gases and have not been decommissioned/purged.
- **Ignition of flammable liquids or combustible materials** causing a fire, due to adjacent hot works.
- **Burns** from contact with flames, sparks, molten or hot metal resulting from hot works.
- **Exposure to toxic fumes** when carrying out hot works e.g. galvanised steel gives off cyanide gas or other products and related gases.
- **Depletion of oxygen levels** in a confined or enclosed atmosphere due to hot works causing suffocation.



Source: Catamount Consulting

When is a Hot Works Permit required?

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If the proposed hot works is located within a ‘hazardous environment’, a Hot Works Permit and its related precautions are required before the works can commence, to make the high risk work safe.

A “hazardous environment” is one in which combustible or flammable materials, goods or products are located **within 15m** of the hot works location

Extract from AS1674.1 – 1997 below:

A2 HOT-WORK AREA The area within a radius of 15 m from the point where the hot work is to be undertaken, including the space above and below that area, should be made safe by various techniques, preparation and testing, to ensure that any risk of fire or explosion resulting from the hot work is eliminated.

AS1674.1 Safety in Welding & Allied Processes – additional roles & responsibilities

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As per AS1674.1 – 1997, requires all hot works to be carried out under the control of a person who is responsible for the safe execution of all operations (Subcontractor Supervisor) and has authority to enforce the requirements of this standard with respect to all individual workers involved.

The **Subcontractor Supervisor** must ensure the following:

- The hazards of the location are identified; and
- The means of managing the hazards is in place; and
- The equipment complies with the requirements of the manufacturer; and
- The equipment is located so that, in the event of malfunction of the equipment, a fire or explosion is not created; and
- There is no inherent hazard due to the nature of the item on which the hot work is to be performed, e.g. explosive gases in a pipe to be cut, and
- A fire watch is carried out for a minimum of 30 minutes after the hot works is concluded and during any rest breaks in the hot works, e.g. lunch.

First Attack Fire Response

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- The Subcontractor Supervisor managing hot works must be trained in Demonstrating First Attack Fire Fighting Equipment (**CPPFES2005A**) which provides the necessary skills and knowledge to safely and confidently use **fire extinguishers**, a **fire hose reel** and **a fire blankets** to extinguish a small fire.

- The Subcontractor Supervisor must also understand the classification of fires and be able to perform a correct analysis in an emergency scenario to make sure the correct type of fire fighting equipment is used for the type of fire, e.g. CO2 for electrical fires.

- The Subcontractor Supervisor must make sure a fire watch is carried out for a minimum of 30 minutes after the hot works is concluded and during any rest breaks in the hot works, e.g. lunch.

Discussion Topics

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How would you control these hazards?

Discussion Topic 1:

A subcontractor would like to carry out welding of structural steel in an area where there is formwork and timber located within 10 metres.

Discussion Topic 2:

A subcontractor would like to perform oxy cutting on a column starter bar located in the middle of a graded earthen area with no combustible or flammable materials, goods or products located within 20 metres of the proposed hot works.

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Section 6

RAISE AND ISSUE A HOT WORKS PERMIT TO WORK

Raise and issue a Hot Works Permit - SAMPLE

Have you identified & controlled – combustible/flammable materials, open pipes & ducts, shafts, adjacent rooms & gaps to work areas above/ below?

Sparks, molten slag, radiant heat and other embers are all fire hazards for other workers and work areas. The Subcontractor Supervisor must demonstrate via risk assessment that it is not reasonably practicable to use alternative cutting equipment, e.g. pneumatic nibbler, to eliminate the proposed hot works.

Project Name	XYZ Construction Site		
Company requesting the Permit	ABC Steel working	Permit Issue Date	10/10/18
Subcontractor Supervisor of the Hot Works	Taylor Moroney	Mobile Number	0438 306 669
Permit valid from	Date: 10/10/18 Time: 0700 (24 hour)	Permit Valid To	Date: 10/10/18 Time: 1500 (24 hour)
Outline the Hot Works task covered by this Permit.	Cutting of Steel Reinforcement		
Outline the Specific Location of the Hot Works	Level 3, Section 4B-E		
Describe the Hot Works related plant and equipment to be used.	Hilti Grinder – AG 125-A36		
Describe the fire-fighting equipment made available at the Hot Works location.	Fire Extinguisher (9kg), Water source		

Raise & issue a Hot Works Permit - Sample

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ALL Questions below MUST be answered or the Hot Works Permit CANNOT be issued			
Have the following fire prevention checks been made?	**Yes**	**No**	**N/A**
Is there a fire detection system that will need to be isolated during the Hot Works?	☐	☒	
Has the Principal Contractor (for the site) or Owner (for the Building) been advised of the proposed Hot Works?	☒	☐	
Have combustible/flammable materials within 15m (above/below/beside the works) been identified and removed or made safe? (e.g. timber, solvents, hazardous goods storage, shade cloth, plastic)	☐	☒	☐
Will material when heated or burned, give off toxic gases, e.g. cyanide gas from galvanising? (check SDS)	☐	☒	
Is ventilation adequate? (including mechanical extraction/respirators if YES to the Question immediately above)	☒	☐	
Are fire blankets, spark arresters and flash screens in place?	☐	☐	☒
Is the Hot Works area isolated and barricaded to stop personnel, materials and plant movement in the area?	☒	☐	☐
Has fire-fighting equipment been confirmed as in-service and ready for use, i.e. 9kg extinguisher and a water hose as a minimum?	☒	☐	
Are personnel supervising the Hot Works trained in the use of the fire-fighting equipment provided?	☒	☐	
Is the weather, wind direction and wind strength satisfactory for hot works to be done?	☒	☐	☐
Have any nearby drains, pits and depressions been checked, isolated and sealed?	☒	☐	☐
Have any nearby tanks, valves, vents and pipelines been blanked off or effectively isolated or drained?	☐	☐	☒
Have any nearby leaks from valve and pump glands, flanges or other been controlled?	☐	☐	☒
Have any nearby pressure relief valves been vented to safe areas?	☐	☐	☒
Is there a potential for flammable gases/atmosphere in the area? **If Yes Site Manager approval required before works can proceed.**	☐	☒	
Note: A 30 Minute Fire watch is required to ensure against hot / glowing embers which may start a fire. E.g.. When oxy cutting steel, a minimum 30-minute fire watch is required	☒		

Raise & issue a Hot Works Permit - Sample

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THIS BOX IS COMPLETED BY THE SUBCONTRACTOR SUPERVISOR WHO CONSULTS WITH ALL WORKERS INVOLVED IN THE HOT WORKS & THE PERMIT REQUIREMENTS & PRECAUTIONS TO MAKE THE WORKS SAFE.

SUBCONTRACTOR SUPERVISOR OF THE HOT WORKS			
The Hot Works Permit has been signed by ALL of the work crew that will undertake the Hot Works (record below to be attached to this Permit)			
Subcontractor Supervisor's Name	Taylor Moroney	Signature	Taylor Moroney
Time	0700 (24 hour)	Date	10/10/18

Value your signature

Raise & issue a Hot Works Permit - Sample

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THE BELOW TABLE IS COMPLETED OUT BY THE SUBCONTRACTOR SUPERVISOR FOR THE HOT WORKS AND THE WORKERS INVOLVED IN THE HOT WORKS AS A RECORD OF CONSULTATION IN THE HOT WORKS PERMIT REQUIREMENTS TO MAKE THE HIGH RISK WORK SAFE.

A record of consultation with workers in the Permit To Work by the Subcontractor Supervisor of the Hot Works must be attached to this Permit To Work

Subcontractor Supervisor that undertook the consultation with all workers involved in the Hot Works described by this Permit

Subcontractor Supervisor's Name	Taylor Moroney	Signature	Taylor Moroney
Company Employed By	ABC Steel Fixing	Date	10/10/18

As a Worker involved in the Hot Works I acknowledge I have been consulted in and understand the fire prevention controls described by this Permit for the Hot Works (as described) to be implemented.

Worker's Name	Worker's Signature	Date of Consultation	Company Worker Employed By
James Arthur	James Arthur	10/10/18	ABC Steel Fixing
Edward Boswell	Edward Boswell	10/10/18	ABC Steel Fixing
Ryan McAllen	Ryan McAllen	10/10/18	ABC Steel Fixing

Raise & issue a Hot Works Permit - Sample

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THIS BOX IS COMPLETED BY THE PRINCIPAL (HEAD) CONTRACTORS PERMIT OFFICER WHO MUST AUTHORISE ALL HOT WORK PERMITS.
TO VERIFY THEY HAVE VISUALLY CHECKED THE WORK AREA CONDITIONS AND PREVENTION CONTROLS ARE SUFFICIENT TO PROVIDE A SAFE WORK CONDITION

PERMIT TO WORK OFFICER AUTHORISATION (PRINCIPAL CONTRACTOR)			
I have checked the work area conditions and prevention controls outlined above and (in my opinion) they are sufficient to provide a safe condition for the hot works to be undertaken, when managed by the Subcontractor Supervisor of the Hot Works named on this Permit.			
Principal contractor's Permit To Work Officer's Name	Terry An	Signature	Terry An
Time	0715 (24 hour)	Date	10/10/18

Raise & issue a Hot Works Permit - Sample

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These boxes are to be signed off once the Hot Works and the 30 minute fire watch have been completed. They must be signed by both the Subcontractor Supervisor and the Principal Contractor's Area Supervisor to ensure that the hot works were carried out correctly.

NOTE: If the subcontractors take breaks during the hot works, the a fire watch must be conducted in the break for at least 30 minutes.

SUBCONTRACTOR SUPERVSIOR			
I have supervised the Hot Works and the precautions outlined in this Permit have been effectively implemented and the **30-Minute Fire Watch has been carried out. Any breaks between the hot works, e.g. lunch, and the 30 minute fire watch required is recorded below.**			
Subcontractor Supervisor's Name	Taylor Moroney	Signature	Taylor Moroney
Time	1530 (24 hour)	Date	10/10/18
Fire Watch(s) during breaks	1045 to 1115	1300 to 1400	(24 hour) to

AREA SUPERVISOR FOR HOT WORKS LOCATION (PRINCIPAL CONTRACTOR)			
The Hot Works has been completed, the work area inspected, all personnel and equipment removed and all services have been restored to normal operations			
Principle Contractors Supervisor's Name	Terry An	Signature	Terry An
Time	1540 (24 hour)	Date	10/10/18

Exercise – Completing a Hot Works Permit for the following scenario

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- It is 7:00am on the 10th of October 2018 and a Sub-Contractor (XYZ Group) would like to perform some grinding and cutting works to some steel reinforcement as they are too long for the formwork deck on level 10, Area B4-C
- They will be performing these works all day (7am – 3pm)
- There are combustible materials in the works area (formwork, timber) within 5 metres of the proposed hot works location
- There is adequate ventilation (top deck is open)

Permit Documents

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A register of permits should be held at the workplace

A copy of the Permit To Work must be available on request at the work area where the high risk work is carried out

All workers involved must have been consulted in the precautions for the works outlined in the Permit To Work and issue their name, signature and date on the back page of the permit as evidence of *acknowledgement that each worker has been consulted in and understands the fire prevention controls to be implemented for the Hot Works described by this Permit.*

Please Complete Your Assessment

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