



Risk assessment and method statement

Hot works and welding RAMS

Welding, cutting, grinding and other hot work. Pre-filled with typical hazards, controls and sequence: edit it for this site.

PROJECT

SITE ADDRESS			
ACTIVITY		RAMS REFERENCE	
Welding, cutting, grinding and other hot work			
CONTRACTOR CARRYING OUT THE WORK		PRINCIPAL CONTRACTOR	
PREPARED BY	APPROVED BY	REVISION	DATE

Revision record

Reissue and rebrief when the sequence, the programme, the team or the conditions change. If you would have written it differently had you known, it needs a new revision.

REV	DATE	WHAT CHANGED	BY

THE WORK

The activity, the place and the people

Pre-filled for this kind of work. Make every line specific to this site: this sequence, this access, these people, this weather.

Scope of the activity

What is being done, and what is not included.

MHSWR REGULATION 3(1)

Hot work at [location]: [welding, oxy-fuel cutting, grinding, brazing or torch work] on [steelwork, pipework or roof], as shown on [drawing ref]. Includes preparing the area, the permit, the fire watch and making safe. Hot work only where cold methods are not practicable. Not included: [list any exclusions].

Location and access

Where on site, how people and materials get there, and the restrictions.

Site access via [gate]. Cylinders stored at [compound location], upright and secured, oxygen apart from fuel gases. Work area at [location], with the floor below and adjoining rooms at [refs]. Hot work hours [08:00 to 15:00], ending two hours before site close.

Programme and interfaces

When the work runs, and who else is working nearby.

CDM REGULATION 15(2)

START DATEDURATIONWORKING HOURS

INTERFACES WITH OTHER TRADES

Other trades kept out of the work area and away from falling sparks: [trades]. Fire alarm detectors in the area isolated only under the site procedure, by [name]. Site security told about former hot work areas at close.

Documents this RAMS relies on

Hot work permit [ref]; COSHH assessment for the metals and coatings [ref]; LEV test record; RPE face-fit test records; welding procedure [ref]. Site fire plan and alarm arrangements; DSEAR assessment where flammable atmospheres may exist.

The team, and their competence

CDM REGULATION 8

ROLE	NAME	CARD, TICKET OR TRAINING NEEDED	CONTACT
Welders		Trained and assessed for the process and position, working to the welding procedure for the job.	
Permit issuer		Given clear authority by the principal contractor to issue and close hot work permits.	
Fire watch		Briefed on the area, trained to use the extinguishers, and able to raise the alarm.	
Grinder users		Trained in the safe use and mounting of abrasive wheels, with a record of the training kept.	
Gas equipment users		Trained in oxy-fuel equipment, including lighting up, shutting down and what to do after a flashback.	
RPE wearers		Face-fit tested for each tight-fitting mask they use, and trained to check it before use.	

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METHOD STATEMENT

The sequence of work

The order the team will work in on the day, with the controls built into each stage. If the sequence changes on site, revise the RAMS and brief it again.

STAGE	WHAT IS DONE, AND HOW	CONTROLS AT THIS STAGE	BY
Before the day	Confirm hot work is needed and cold methods are not practicable. Survey the area, including voids, the other side of walls and the floor below, and agree the permit with the site.	Combustibles and alarm arrangements identified; COSHH assessment for the metals and coatings; RAMS approved.	Contracts manager
Arrival and briefing	Sign in, attend the induction, and brief the team on this RAMS, the permit, the fire watch and the alarm. Check welding sets, gas equipment, extinguishers and RPE.	Briefing signed against this revision; face-fit test records checked.	Supervisor
Prepare the area	Remove combustibles from the area, voids, openings and the floor below. Cover what cannot be moved with non-combustible board, and set up screens and extraction.	Two extinguishers within reach; any detector isolated under the site procedure and logged.	Welder
Issue the permit	The permit issuer checks the precautions, then issues the permit for the location, the work and the time it is valid. The fire watch is named on it.	No blanket permits; the permit stays at the place of work.	Permit issuer
Set up the equipment	Secure cylinders upright, fit flashback arresters and leak check the hoses. Check welding leads and fit the return clamp close to the work.	Proprietary leak detection spray, never a flame; damaged leads taken out of use.	Welder
Carry out the hot work	Weld, cut, grind or heat as planned, with extraction at source and the fire watch in place. Stop if sparks reach an area that was not cleared.	LEV running for indoor work; RPE as assessed; the watch kept through breaks.	Welder
Make safe	Close the cylinder valves, isolate the welding set, and take hoses and torches out of enclosed spaces. Leave hot metal marked or in a safe place.	Equipment off and isolated before the watch begins.	Welder
Fire watch	Watch the area continuously for at least an hour after the hot work ends, including above, below and beside it. Make one more check two hours after the work ends.	Fire watch log signed at each check; a thermal imaging camera used where available.	Fire watch
Close the permit	The fire watch reports back. The permit issuer inspects the area and closes the permit, and any isolated detectors are switched back on.	Permit closed only after the two-hour check; site security told about former hot work areas.	Permit issuer
Clear the site	Return cylinders to the store, remove waste, offcuts and spent wheels, and hand the area back to the site manager.	Cylinders returned upright and secured; empty cylinders treated as full.	Supervisor

CDM REGULATION 15(2): PLAN, MANAGE AND MONITOR THE WORK

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RISK ASSESSMENT

Hazards, controls and the risk that remains

Each significant hazard rated before and after its controls, as likelihood times severity. The ratings are typical: check them for this site.

	LIKELIHOOD		SEVERITY		
	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
	1	2	3	4	5

1 to 4 low
 5 to 12 medium
 15 to 25 high

HAZARD	WHO COULD BE HARMED, AND HOW	RISK BEFORE	CONTROLS	RISK AFTER	BY
Fire from sparks, slag and heat	Everyone on site and the building, from sparks reaching voids, gaps and combustible materials.	4 x 5 = 20 High	- Combustibles removed from the area, voids, openings, the floor below and beyond walls; what cannot move is covered with non-combustible board. - Hot work permit issued for the job, location and time, after the issuer has checked the area. - At least two suitable extinguishers within reach, and the team trained to use them.	1 x 5 = 5 Med	Permit issuer
Smouldering fire after work ends	The building and anyone in it after the team leaves, from material that smoulders before it ignites.	3 x 5 = 15 High	- Continuous fire watch for at least an hour after hot work ends, then a further check at two hours, as HSG168 advises. - Hot work finished at least two hours before the end of the working day. - Areas above, below and beside the work included in the watch, with a thermal imaging camera where available.	1 x 5 = 5 Med	Fire watch
Welding fume	Welders and others nearby, from fume that can cause lung cancer and other lung disease.	4 x 5 = 20 High	- Cold methods or lower-fume processes chosen where practicable. - Local exhaust ventilation capturing fume at source for all indoor welding; general ventilation alone is not enough. - RPE where LEV is not enough and for all outdoor welding. HSE names powered air RPE with a protection factor of at least 20 as the best option for arc welders.	2 x 5 = 10 Med	Supervisor
Fume from coated or contaminated metal	Welders and cutters working on painted, galvanised, plated or dirty metal.	3 x 4 = 12 Med	- Coatings identified before work; lead paint and other coatings removed back from the cut where practicable. - Extraction and RPE chosen for the coating, under a COSHH assessment.	1 x 4 = 4 Low	
Gas cylinder leaks, fire and explosion	Users and everyone nearby, from leaking oxy-fuel or LPG cylinders, hoses and regulators.	3 x 5 = 15 High	- Only the cylinders needed on site; stored upright and secured, oxygen apart from fuel gases, and returned to the store after work. - Hoses colour coded, kept short, and leak checked with a proprietary leak detection spray, never a flame. - Cylinder valves closed at the end of the job and before cylinders are moved.	1 x 5 = 5 Med	
Flashback	The operator and anyone near the cylinders, from flame burning back through the hose to the regulator.	2 x 5 = 10 Med	- Flashback arresters at the regulators on both oxygen and fuel gas, and non-return valves at the torch. - Correct lighting-up procedure, with hoses purged and a spark igniter used. - Equipment checked after any flashback; a heated acetylene cylinder is left alone and the fire service called.	1 x 5 = 5 Med	
Oxygen enrichment	Workers in enclosed areas, where leaking or misused oxygen makes clothing burn fiercely.	2 x 5 = 10 Med	- Oxygen never used to blow dust off clothing or to freshen the air in a space. - No oil or grease on oxygen valves, regulators or fittings. - Hoses and torches taken out of enclosed spaces during breaks.	1 x 5 = 5 Med	
Flammable atmospheres, tanks and drums	Workers cutting or welding containers that held flammable materials, or working near flammable vapour.	2 x 5 = 10 Med	- Hot work avoided where a flammable atmosphere may exist; where DSEAR applies, its assessment and the site permit are followed. - Tanks and drums cleaned and certified free of gas and residues by a competent person before hot work. - Gas detector used before and during work near possible flammable vapour.	1 x 5 = 5 Med	

MHSWR REGULATION 3(6): WITH FIVE OR MORE EMPLOYEES, RECORD THE SIGNIFICANT FINDINGS

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RISK ASSESSMENT, CONTINUED

More hazards, and those specific to this site

HAZARD	WHO COULD BE HARMED, AND HOW	RISK BEFORE	CONTROLS	RISK AFTER	BY
Electric shock from welding sets	Arc welders, especially in damp conditions or in contact with steelwork.	3 x 5 = 15 High	- Welding sets to the appropriate standard, with leads, connectors and electrode holders checked for damage before use. - Return lead clamped close to the work, not to handrails or pipes. - Dry gloves and clothing, an insulating mat or dry platform in damp conditions, and a set with a no-load voltage limiting device.	1 x 5 = 5 Med	
UV radiation and arc eye	Welders and anyone nearby, from arc light that burns the eyes and skin.	4 x 3 = 12 Med	- Welding helmet or face shield with a filter suited to the process and current. - Welding screens around the work to protect others. - Skin covered with flame-resistant clothing, including arms and neck.	1 x 3 = 3 Low	
Burns from spatter and hot metal	Welders, cutters and helpers handling freshly cut or welded metal.	4 x 3 = 12 Med	- Flame-resistant overalls, leather gauntlets, boots and spats. - Hot metal marked, or left to cool in a safe place.	2 x 3 = 6 Med	
Abrasive wheel breakage and contact	Grinder users and people nearby, from a wheel bursting or a cutting disc shattering.	3 x 4 = 12 Med	- Wheels mounted only by people trained to do it, as HSE guidance HSG17 advises. - Speed marked on the wheel at least the speed of the machine, wheel inspected before fitting, and the guard in place. - Grinder held with both hands, with nobody in line with the wheel.	1 x 4 = 4 Low	
Noise and vibration from grinding	Grinder users and others working nearby.	4 x 3 = 12 Med	- Noise and vibration exposure assessed, with time on the tool planned to stay within the action values. - Hearing protection where the assessment requires it; low-vibration tools and well-maintained wheels.	2 x 3 = 6 Med	
Hot work in confined spaces	Welders in tanks, ducts, voids and chambers, where fume and gas build up and oxygen can fall.	2 x 5 = 10 Med	- Entry avoided where the work can be done from outside. - Where entry is needed, a safe system of work with gas monitoring, ventilation, cylinders kept outside, and a rescue plan.	1 x 5 = 5 Med	
Fire alarm isolated for the work	Everyone in the building, if detectors isolated for hot work are not switched back on.	3 x 5 = 15 High	- Detectors isolated only under the site procedure, by the person responsible for the alarm. - Each isolation logged and reinstated when work stops for a break or the day, and before the permit is closed.	1 x 5 = 5 Med	

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EQUIPMENT

Plant, equipment and PPE

Plant and equipment

Each item, the checks and certificates it needs, and who may operate it.

PUWER 1998, LOLER 1998

ITEM	CHECKS AND CERTIFICATES	OPERATOR COMPETENCE
Welding set and leads	Leads, connectors and holder checked for damage before use.	Trained welder
Oxy-fuel set, regulators and hoses	Flashback arresters fitted; leak test before use.	Trained operator
Angle grinder and wheels	Wheel speed rating at least the machine speed; guard in place.	Abrasive wheels trained
LEV unit	Checked before use; hood placed close to the arc.	Trained user
Fire extinguishers	At least two, suitable for the materials, within reach.	Fire watch
Gas detector	In calibration and checked before use.	Trained user

Personal protective equipment

PPE is the last line of defence, after the controls above. Specify the type, not just the item.

PPE AT WORK REGULATIONS 1992

ITEM	NEEDED	TYPE AND SPECIFICATION
Safety helmet	☒	To site standard
Safety footwear	☒	Leather safety boots with spats
High-visibility clothing	☒	To site standard, worn over FR clothing
Gloves	☒	Leather welding gauntlets
Eye protection	☒	Welding filter; impact rated for grinding
Hearing protection	☒	For grinding, where the assessment requires it
Respiratory protection Type, and face-fit tested	☒	Powered air RPE, protection factor 20 or more
Harness or restraint Anchor points identified	☐	

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CONTROLS

Substances, permits, emergencies and the environment

Hazardous substances

Each substance and its COSHH assessment.

COSHH 2002, REGULATION 6

SUBSTANCE	COSHH ASSESSMENT REFERENCE	CONTROLS
Mild steel welding fume	COSHH assessment ref	LEV at source indoors; RPE where LEV is not enough and outdoors
Stainless steel welding fume	COSHH assessment ref	LEV at source; RPE as assessed; screens to protect others
Fume from galvanised or painted metal	COSHH assessment ref	Coating removed back from the cut; LEV and RPE as assessed
Fuel gases: acetylene and propane	COSHH assessment ref	Stored upright and ventilated; leak checked; flashback arresters

Permits and plans

PERMIT OR PLAN	NEEDED	REFERENCE
Hot work permit	☒	
Permit to work	☒	
Permit to dig or break ground	☐	
Confined space entry	☒	
Lift plan	☐	
Temporary works design	☐	

Emergency and rescue

First aid, fire, and how someone is rescued.
The rescue plan belongs in the RAMS, not after it.

For fire, raise the alarm, stop work and close cylinder valves if it is safe. Use an extinguisher only if trained and safe to do so. Never move a heated acetylene cylinder: clear the area and tell the fire service where it is. First aider and kit on site, with the nearest accident and emergency department named on the briefing.

Environment and neighbours

Dust, noise, vibration, waste, spills and hours of work.

Cylinders returned to the supplier, with empty cylinders treated as full. Metal offcuts, slag and spent wheels collected for disposal. Extraction filters changed and disposed of as the maker directs. No hot work debris left in gutters, drains or on roofs.

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FIRE WATCH LOG

Fire watch log

A continuous watch during work and breaks, then for at least an hour after hot work ends, with a further check at two hours. Sign at each check and record what was found.

CHECK	TIME	AREAS CHECKED, INCLUDING ABOVE, BELOW AND BESIDE	FINDINGS AND ACTION	INITIALS
During the work				
Break in the work				
Hot work ends: watch starts				
15 minutes after				
30 minutes after				
45 minutes after				
60 minutes after				
2 hours after: final check				
Permit closed by the issuer				

HSE HSG168 FIRE SAFETY IN CONSTRUCTION (THIRD EDITION 2022), PARAGRAPHS 122 AND 123

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Briefed before the work starts

DATE AND TIME

A SIGNATURE AGAINST A REVISION, ON A DATE, BEFORE THE WORK STARTED, IS HOW A BRIEFING IS EVIDENCED

A pre-filled starting point, not legal advice. Edit it for the site and have it approved.