



Bicester, Oxfordshire

Risk Assessment and Method Statement (RAMS) for the Repair of Pipework & Hot Works

RAMS Number:	
Project Reference:	
Client Name:	
Location:	
Prepared By:	
Date:	

Table Of Contents

Table Of Contents	2
Introduction.....	3
Purpose	3
Scope of Works	3
Project Details	4
Site Location	4
Duration of Work.....	4
Working Hours.....	4
Key Contacts	4
Responsibilities	4
Risk Assessment.....	7
Method Statement	19
Materials And Equipment	19
Hazardous Materials	19
Sequence Of Works	20
Emergency Procedures	22
Waste Management	24
Monitoring and Review.....	25
Daily Inspections	25
Ongoing Risk Assessments.....	25
Feedback and Reporting Mechanisms	25
Approval and Acknowledgement	25
Acknowledgement	25

Introduction

Purpose

The purpose of this RAMS document is to ensure the safe and controlled execution of tasks associated with the repair, modification and installation of refrigeration and air conditioning pipework, including any hot works operations such as brazing, soldering or welding.

It identifies the potential hazards, assesses the associated risks, and outlines the control measures necessary to minimise the risk of injury, ill health, fire or property damage during these activities. The document is intended to guide all employees involved, ensuring that the work is carried out in compliance with current health and safety legislation, industry best practice, and relevant British Standards.

All works described within this document will be undertaken in accordance with, but not limited to, the following legislation:

- Health and Safety at Work etc. Act 1974
- Management of Health and Safety at Work Regulations 1999
- Provision and Use of Work Equipment Regulations 1998 (PUWER)
- Regulatory Reform (Fire Safety) Order 2005
- Control of Substances Hazardous to Health Regulations 2002 (COSHH)

All operatives and contractors are required to read, understand, and adhere to the contents of this RAMS. Ongoing risk assessment and dynamic monitoring of conditions should be undertaken throughout the duration of the works to ensure that any emerging hazards are identified and appropriately controlled.

Scope of Works

The works covered by this RAMS include the repair, installation, alteration and connection of refrigeration and air conditioning pipework and associated components. This may involve the use of hot works processes, such as brazing or soldering, and could include the following activities:

- Cutting, preparing and fitting copper
- Carrying out hot works using oxy-acetylene or MAPP gas equipment for brazing or jointing of pipework.
- Installing or replacing compressors, refrigeration components.
- Pressure testing, leak detection and evacuation of pipework systems.
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- Implementing fire safety precautions, including hot works permits, fire watch procedures and the provision of firefighting equipment.

This RAMS also considers the interaction of these activities with other site operations and ensures that appropriate precautions are taken to protect operatives, other workers and members of the public from any associated risks.

Project Details

Site Location

The site where the Repair of Pipework & Hot Works will take place is:

Whittington barracks harden centre building 61

Duration of Work

Estimated Duration is: **4 hours**

Start Date is: **14/11/2025**

End Date is: **14/11/2025**

Working Hours

Regular working hours for the works will be:

Start Time: **9am**

End Time: **5pm**

Overtime & Weekends: **nil**

Key Contacts

Role	Name	Tel	Email
Owner/Site Supervisor	Daniel Adams	07801990860	cityfridge@outlook.com

Responsibilities

Role	Description	Responsibilities
Owner/Site Supervisor	Overall responsibility for the safe and efficient completion of all works, including supervision of employees and coordination with clients or other contractors. Acts as the competent person on site	<ul style="list-style-type: none">• Has full responsibility for health, safety, and environmental compliance on site.• Ensures that all work is undertaken in accordance with the

	<p>for all refrigeration and hot works activities.</p>	<p>approved RAMS, legislation, and client requirements.</p> <ul style="list-style-type: none"> • Conducts site-specific briefings and toolbox talks before work commences. • Confirms that hot works permits and fire safety measures are in place prior to commencement. • Monitors work standards, supervises employees, and intervenes immediately if unsafe acts or conditions are identified. • Maintains communication with clients, site management, and other trades to ensure safe coordination of work. • Ensures all plant, tools, and equipment are suitable, maintained, and used correctly. • Reports any incidents, near misses, or hazards in line with company procedures.
<p>Employees</p>	<p>Carry out the practical aspects of the work under the supervision of the Site Supervisor. Responsible for following instructions, maintaining safe working practices, and using equipment correctly.</p>	<ul style="list-style-type: none"> • Follow all safe systems of work and instructions provided by the Site Supervisor. • Use PPE and equipment correctly and report any defects immediately. • Carry out work in accordance with training, the RAMS, and site safety rules. • Stop work and report to the Supervisor if any unsafe conditions or hazards arise. • Assist in setting up safe work areas, including barriers, signage, and fire precautions during hot works.

		<ul style="list-style-type: none">• Maintain good housekeeping and ensure tools and materials are stored safely.• Participate in toolbox talks, briefings, and ongoing safety discussions.
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Risk Assessment

CITY & COUNTY REFRIGERATION & AIR CONDITIONING LTD

WORK/ACTIVITY:	remedial works
Repair of Pipework & Hot Works	
Assessment Date:	07/11/25
Assessment No:	003
Completed By:	daniel adams
Review Date:	07/11/26

DESCRIPTION: *change over main compressor on upright fridge*

The purpose of this risk assessment is to identify and control hazards associated with the repair, installation, and modification of refrigeration and air conditioning pipework, including hot works such as brazing or soldering. It considers risks from heat, fumes, pressurised systems, manual handling, working at height, and the use of tools and gas equipment. Control measures are implemented to ensure work is carried out safely, preventing injury, fire, or damage to property.

RISK MATRIX			LIKELIHOOD				
			1	2	3	4	5
			RARE	LOW	POSSIBLE	HIGH	CERTAIN
SEVERITY	1	VERY LOW Negligible injury	1	2	3	4	5
	2	LOW Minor injury requiring first aid	2	4	6	8	10
	3	MID injury requiring doctors visit or A&E visit	3	6	9	12	15
	4	HIGH injury requiring admission to hospital	4	8	12	16	20
	5	VERY HIGH Death or permanently disabling injury	5	10	15	20	25

LOW	The level of risk is acceptable. Proceed with caution and stop if anything changes.	MID	The level of risk is acceptable if it cannot be reduced further following a review by a competent person.	HIGH	The level of risk is unacceptable and additional control measures are required to reduce the overall level of risk to an acceptable level.
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The hazards and associated risks with this work/activity have been identified and given a scored rating using semi-quantitative risk assessment methodology. The risk assessment ratings are a subjective estimate based on the knowledge of the assessor and identify the level of risk without controls and the level of residual risk once the control measures have been implemented. To calculate risk rating and residual risk rating, you should multiply the Likelihood (1-5), by the Severity (1-5).

Hazard Description	Who might be harmed & how	Risk Rating			Control Measures	Residual Risk Rating		
		Severity	Likelihood	Score		Severity	Likelihood	Score
Hot Works (Brazing and Soldering): The use of oxy-acetylene or MAPP gas equipment during the brazing or soldering of refrigeration pipework introduces risks of fire, explosion, and burns. Potential ignition of nearby combustible materials, gas leaks, or flashbacks can lead to serious injury, property damage, or fatalities. Workers are also at risk of burns from hot metal, tools, or flames, as well as	Employees: At risk of burns, eye injuries, fire-related incidents, or inhalation of harmful fumes. Others on Site: May be injured if a fire spreads or from exposure to smoke or heat.	5	4	20	Hot Works Permit: Obtain and complete a permit before commencing work. Fire Watch: Assign a competent fire watch during and for at least 30 minutes after hot works. Fire Prevention: Remove or protect combustible materials within 5 meters of the work area. Use fire blankets or shields where removal is not possible.	5	2	10

<p>inhalation of fumes and exposure to radiant heat.</p>				<p>Equipment Checks: Inspect gas hoses, regulators, and flashback arrestors before use. Ensure equipment is leak-free and maintained.</p> <p>Ventilation: Ensure adequate ventilation to prevent fume accumulation.</p> <p>PPE: Use flame-retardant overalls, heat-resistant gloves, tinted safety glasses, and face shields.</p> <p>Cylinders: Store and secure cylinders upright, away from heat sources, and ensure valves are closed when not in use.</p> <p>Extinguishers: Provide appropriate fire extinguishers (CO₂ or dry powder) within immediate reach.</p> <p>Supervision: Only trained and competent operatives to carry out hot works under the control of the Site Supervisor.</p>			
<p>Gas Cylinder Handling and Storage: The use and movement of pressurised gas cylinders (oxy-acetylene or MAPP gas) pose risks of explosion, fire, or physical injury. Cylinders may be damaged if dropped or improperly secured, and incorrect storage can expose them to heat or impact. Gas leaks from faulty valves, hoses, or regulators may result in fire, oxygen enrichment, or asphyxiation risks.</p>	<p>Employees: Risk of crush injuries from handling heavy cylinders, burns or blast injuries from leaks or ignition, and asphyxiation from gas release.</p> <p>Others on Site: At risk if cylinders leak, ignite, or fall in shared workspaces.</p>	5	3	15	5	1	5

					<p>Equipment Integrity: Ensure hoses, regulators, and flashback arrestors are in good condition and compatible with the gases used.</p> <p>Ventilation: Maintain adequate ventilation to prevent accumulation of gases.</p> <p>Training: Only trained operatives to handle and connect cylinders.</p> <p>Emergency Preparedness: Fire extinguishers to be readily available; isolate gas supply immediately in case of emergency.</p>			
<p>Exposure to Fumes and Flux Vapours: During brazing and soldering, harmful fumes and vapours can be generated from fluxes, filler materials, and heating of metal surfaces. Prolonged or repeated exposure can cause respiratory irritation, dizziness, eye and throat irritation, or longer-term health issues. Inadequate ventilation or confined spaces increase the risk of inhalation.</p>	<p>Employees: At risk of inhaling fumes leading to respiratory irritation or ill health.</p> <p>Others on Site: May be affected by drifting fumes if working nearby without adequate controls.</p>	4	3	12	<p>Ventilation: Ensure good natural or mechanical ventilation during all hot works.</p> <p>Local Extraction: Use portable fume extraction or fans where available.</p> <p>Positioning: Carry out brazing away from confined or poorly ventilated areas where possible.</p> <p>PPE: Provide and wear suitable respiratory protection (minimum FFP2 mask) when ventilation is inadequate.</p> <p>Flux Use: Use low-fume flux products where possible and follow manufacturer's instructions.</p> <p>Work Duration: Rotate tasks to minimise prolonged exposure to fumes.</p> <p>Hygiene: Wash hands and face after work and before eating, drinking, or smoking.</p> <p>COSHH: Follow COSHH assessments for all fluxes, cleaning products, and refrigerants used.</p>	4	2	8

<p>Manual Handling: Many tasks involve lifting, carrying, or maneuvering heavy or awkward items such as compressors, pipework sections, gas cylinders, and tools. Poor lifting techniques or excessive loads can lead to musculoskeletal injuries, strains, sprains, or crush injuries, particularly when working in confined spaces or awkward positions.</p>	<p>Employees: Risk of back injury, muscle strain, or crush injury from lifting or handling heavy or awkward objects.</p> <p>Others on Site: Could be struck by items being carried or dropped.</p>	3	3	9	<p>Assessment: Assess the weight, shape, and route before lifting.</p> <p>Mechanical Aids: Use trolleys, sack trucks, or lifting equipment where practicable.</p> <p>Team Lifting: For heavy or bulky items, carry out team lifts with clear communication.</p> <p>Technique: Train employees in safe lifting and handling techniques.</p> <p>Work Positioning: Plan works to avoid excessive reaching, bending, or twisting.</p> <p>Staging: Move materials closer to point of use to minimise carrying distances.</p> <p>Rest Breaks: Rotate manual tasks to prevent fatigue.</p> <p>PPE: Wear gloves and safety footwear to prevent crush and pinch injuries.</p>	3	1	3
<p>Pressurised Systems and Leak Testing: Pressure testing and commissioning of refrigeration systems can expose workers to high-pressure gases or refrigerants. Sudden release of pressure from pipework, hoses, or fittings can cause impact injuries, frostbite, or eye damage. Incorrect testing procedures or faulty gauges may result in bursts or ruptures, posing serious safety risks.</p>	<p>Employees: At risk of impact injury, eye or skin damage, or exposure to high-pressure gas release.</p> <p>Others on Site: May be affected by gas release or noise from system failure.</p>	5	3	15	<p>Equipment Inspection: Check gauges, hoses, and fittings before use to ensure they are rated and in good condition.</p> <p>Pressure Limits: Never exceed manufacturer’s recommended testing pressures.</p> <p>Isolation: Isolate the system being tested and ensure all personnel are clear before pressurisation.</p> <p>Leak Detection: Use approved leak detection fluids or electronic detectors — never naked flames.</p> <p>PPE: Wear eye protection and gloves to prevent injury from high-pressure release.</p> <p>Venting: Release pressure slowly and</p>	5	2	10

					in a controlled manner. Supervision: Only trained and competent persons to carry out testing and commissioning. Refrigerant Handling: Follow F-Gas and environmental regulations when charging or recovering refrigerant.			
Working at Height: Accessing roof-mounted plant, ceiling voids, or elevated pipework presents a risk of falls, slips, and dropped objects. Work may involve using ladders, podium steps, or mobile elevated work platforms (MEWPs). Falls from height can cause serious injury or fatality, and falling tools or materials can endanger others below.	Employees: Risk of falls resulting in serious injury or death; potential for hand or foot injuries from unstable working platforms. Others on Site: May be struck by falling tools or materials from above.	5	3	15	Planning: Assess all work at height in advance and use the safest access method available (avoid working at height where possible). Equipment: Use only certified access equipment such as ladders, podium steps, or MEWPs in good condition. Competence: Ensure all operatives using access equipment or MEWPs are trained and authorised. Fall Protection: Use harnesses and lanyards attached to secure anchor points when required. Edge Protection: Fit guardrails or barriers where open edges exist. Tool Control: Use tool tethers to prevent items from being dropped. Exclusion Zones: Establish and maintain exclusion zones beneath elevated work areas. Weather Conditions: Suspend work at height during high winds, rain, or icy conditions. Supervision: Continuous monitoring by the Site Supervisor to ensure safe practices are followed.	4	2	8
Electrical Hazards (Isolation, Tools & Temporary Power): The use of electrical tools, temporary lighting, and connection or disconnection of equipment during	Employees: Risk of electric shock, arc burns, or secondary injuries caused by involuntary movement or falls following electrical contact.	5	3	15	Isolation and Lock-Off: All electrical circuits must be isolated, locked off, and tested dead before any work commences. Tags and padlocks to be	5	1	5

<p>refrigeration works presents the risk of electric shock, burns, or electrical fire. Damaged cables, poor connections, or working near live circuits may result in arcing or accidental energisation. Moist or confined working environments increase the likelihood of contact with conductive surfaces. Inadequate isolation or failure to test before working can lead to severe injury or fatality.</p>	<p>Others on Site: May be affected by damaged or exposed cables, or electrical fires resulting from overloaded or defective circuits.</p>				<p>applied by authorised persons only. Verification: Use a proving unit and calibrated voltage tester to confirm isolation before handling cables or connections. Equipment Standards: All electrical tools and lighting to be 110V where possible, PAT tested, and fitted with RCD protection. Inspection: Visually inspect plugs, cables, and tools for damage before each use. Damaged equipment to be removed from service immediately and clearly labelled “Do Not Use.” Environment: Keep electrical equipment clear of wet or damp surfaces and away from refrigerants or cleaning chemicals. Temporary Power: Route cables safely using cable ramps or overhead hooks to prevent damage and trip hazards. Competence: Only qualified and competent persons to carry out electrical work, testing, or fault-finding. Housekeeping: Maintain tidy work areas to prevent entanglement or strain on leads and connections. Supervision: The Site Supervisor will ensure isolation procedures and equipment checks are strictly followed throughout the task.</p>			
<p>Confined / Restricted Spaces and Ventilation: Refrigeration and pipework activities may be carried out in confined or restricted areas such as plant rooms,</p>	<p>Employees: Risk of respiratory irritation, dizziness, or asphyxiation from fume or gas build-up, and difficulty evacuating in an emergency.</p>	5	2	10	<p>Pre-Assessment: Evaluate each work area before entry — identify confined spaces or restricted access zones and determine if entry is essential.</p>	4	1	4

<p>ceiling voids, risers, or service ducts. These environments often have limited ventilation, restricted movement, and few escape routes. The use of hot works or refrigerants in such areas can lead to oxygen depletion, build-up of fumes, or accumulation of flammable gases. Access and egress can be difficult in an emergency, and communication with those outside the space may be limited.</p>	<p>Others on Site: May be affected by gas or fume migration from the confined area or exposure during rescue attempts.</p>			9	<p>Ventilation: Provide adequate natural or mechanical ventilation to remove heat, fumes, or gases. Use portable fans or extraction units where necessary.</p> <p>Hot Works Control: Avoid carrying out brazing or soldering in confined spaces wherever possible. If unavoidable, keep cylinders outside the space and use extended hoses.</p> <p>Monitoring: Continuously monitor the atmosphere if there is any risk of oxygen deficiency or gas accumulation.</p> <p>Communication: Maintain clear communication with persons outside the confined area at all times (e.g. radios or buddy system).</p> <p>Access Control: Ensure entry and exit points are kept clear and well-lit. Do not block escape routes with tools or materials.</p> <p>Supervision: A standby person must remain outside the confined space whenever works are taking place inside.</p> <p>Emergency Preparedness: Establish a rescue plan before entry. Ensure first aid, extinguishers, and retrieval equipment are readily available.</p> <p>Training: Only trained and competent operatives to work in confined or restricted areas.</p>			4
<p>Slips, Trips & Falls / Housekeeping: Refrigeration and pipework operations often involve the use of gas hoses, electrical leads, hand tools, and</p>	<p>Employees: Risk of slips, trips, or falls leading to strains, sprains, fractures, or contact with hot or sharp surfaces.</p>	3	3	9	<p>Work Area Setup: Arrange tools, hoses, and materials to minimise clutter; maintain clear walkways at all times.</p>	2	2	4

<p>components spread across confined or cluttered work areas. Poor housekeeping or inadequate lighting can lead to slips, trips, and falls, which may result in musculoskeletal injuries, cuts, or fractures. The presence of flux, oil residues, or condensate on the floor can create additional slip hazards. Trip hazards also increase the likelihood of secondary incidents, such as falling into hot equipment or striking sharp pipe ends.</p>	<p>Others on Site: May trip over hoses or tools when passing through or adjacent to the work area.</p>				<p>Cable & Hose Management: Route hoses and leads away from walkways using hooks, guards, or overhead supports. Avoid crossing pedestrian routes.</p> <p>Cleanliness: Keep work areas free from flux, oil, water, and debris. Clean spillages immediately using absorbent materials.</p> <p>Storage: Secure gas cylinders upright and store tools or components in designated areas when not in use.</p> <p>Lighting: Provide adequate lighting in all work areas, including ceiling voids and plant rooms.</p> <p>Footwear: All operatives must wear safety footwear with slip-resistant soles.</p> <p>Supervision: The Site Supervisor will conduct regular housekeeping inspections throughout the working day.</p> <p>End of Shift: Ensure all waste materials, tools, and offcuts are removed at the end of each shift to leave the area clean and safe.</p>			
<p>Exposure to Refrigerants, Chemicals and COSHH Substances: During refrigeration and air conditioning works, engineers may be exposed to hazardous substances such as refrigerant gases, fluxes, brazing fumes, cleaning solvents, and leak detection sprays. These materials can cause respiratory irritation, dizziness, chemical burns, frostbite, or dermatitis following skin contact or inhalation. Accidental release of refrigerant gases</p>	<p>Employees: Risk of inhalation of harmful vapours or fumes, skin or eye irritation, burns, or frostbite from refrigerants and fluxes.</p> <p>Others on Site / Environment: Risk of exposure to leaking gases, environmental contamination, or secondary contact with hazardous residues.</p>	4	3	12	<p>COSHH Compliance: All substances to be used, stored, and disposed of in accordance with the manufacturer's Safety Data Sheet (SDS) and relevant COSHH assessment.</p> <p>Ventilation: Ensure good general and local ventilation when handling refrigerants, fluxes, or cleaning products. Avoid working in enclosed spaces without extraction.</p> <p>PPE: Provide and wear suitable PPE —</p>	4	1	4

<p>may also cause environmental harm or oxygen displacement in confined spaces. Poor storage, handling, or disposal of chemicals can further increase risks to personnel and the environment.</p>				<p>chemical-resistant gloves, safety goggles or face shield, flame-retardant clothing, and respiratory protection where necessary.</p> <p>Handling Refrigerants: Use recovery units and charging hoses designed for the specific gas type. Never vent refrigerants to atmosphere.</p> <p>Storage: Store all chemicals and gases upright in secure, well-ventilated areas, away from heat or ignition sources.</p> <p>Spillage Procedures: Keep absorbent materials and spill kits on site; isolate and ventilate area in event of leak or spill.</p> <p>Environmental Protection: Comply with F-Gas Regulations and Environmental Protection guidelines when handling or disposing of refrigerants.</p> <p>Training: Only competent and trained personnel to handle hazardous substances or carry out charging/recovery operations.</p> <p>Health Surveillance: Monitor for any signs of dermatitis or respiratory irritation in operatives regularly exposed to chemicals or fumes.</p>			
<p>Site Interaction and Shared Work Areas: Refrigeration and hot works are often undertaken in busy commercial environments or on multi-contractor sites where other trades, site personnel, and members of the public may be present. Poor coordination or lack of communication can lead to collision,</p>	<p>Employees: Risk of being struck by moving plant or vehicles, distracted during hot works, or injured by other trades' activities.</p> <p>Others on Site: May be harmed by heat, sparks, tools, or materials from refrigeration work zones.</p>	4	2	8	3	1	3

<p>distraction, exposure to fumes or sparks, or being struck by moving plant or vehicles. The risk is heightened when hot works, lifting, or pressurised testing occur near walkways, delivery bays, or occupied spaces.</p>					<p>out work zones and prevent unauthorised access. Traffic Management: Maintain safe separation between vehicles and pedestrians. Use banksmen when moving vehicles or lifting gas cylinders. Communication: Establish clear communication channels between trades (radios, daily coordination meetings, toolbox talks). Timing: Schedule hot works or high-risk tasks during quieter site periods to minimise exposure to others. PPE Enforcement: All personnel entering active work zones must wear appropriate PPE, including eye and head protection. Supervision: The Site Supervisor to remain present during critical operations and ensure exclusion zones are maintained. Emergency Routes: Keep all escape routes clear and ensure all personnel are aware of alarm signals and muster points.</p>			
<p>Noise and Vibration: Use of power tools, vacuum pumps, compressors, and gas equipment can generate noise levels that may exceed safe limits. Prolonged exposure can lead to hearing damage or fatigue, while vibration from power tools can contribute to hand-arm vibration syndrome (HAVS). Noise may also cause distraction, increasing the risk of errors or accidents in shared work areas.</p>	<p>Employees: Risk of hearing loss or HAVS from prolonged tool use; distraction and communication difficulties in noisy environments. Others on Site: May experience discomfort or hearing damage if exposed to high noise levels nearby.</p>	3	3	9	<p>Assessment: Evaluate potential noise and vibration exposure before work. Follow Control of Noise at Work Regulations and HSE guidance on vibration exposure. Engineering Controls: Use quieter or lower-vibration equipment where available. Fit vibration-damping handles and maintain tools to reduce resonance. Work Practices: Limit tool use</p>	2	2	4

					<p>duration; implement job rotation to avoid prolonged exposure.</p> <p>PPE: Provide and wear suitable hearing protection (ear defenders or plugs) when noise exceeds safe levels.</p> <p>Monitoring: Carry out periodic noise monitoring if work is prolonged or repeated at similar sites.</p> <p>Training: Inform employees of the risks and correct use of PPE; encourage reporting of any symptoms (numbness, tinnitus, fatigue).</p> <p>Communication: Use hand signals or radios if verbal communication is impaired by noise.</p>			
<p>Use of Hand and Power Tools: The use of powered drills, grinders, saws, and hand tools during installation or repair poses risks of cuts, punctures, entanglement, impact, flying debris, or electric shock. Defective or poorly maintained tools can lead to severe injuries, while misuse or incorrect PPE increases the likelihood of harm. Vibration and repetitive use may also contribute to fatigue and reduced control.</p>	<p>Employees: Risk of lacerations, eye injuries, or entanglement; potential for electrical shock or vibration injuries.</p>	5	2	10	<p>Tool Selection: Use only tools suitable for the task; ensure guards and safety devices are in place and functional.</p> <p>Inspection & Maintenance: Inspect tools before use; remove any damaged or defective items from service immediately.</p> <p>Training: Only trained personnel to operate power tools; refresher training provided as needed.</p> <p>PPE: Wear safety goggles, gloves, and hearing protection where applicable. Use dust masks if drilling or cutting materials that generate dust.</p> <p>Control of Leads: Route electrical leads safely to prevent trip hazards or damage.</p> <p>Vibration Control: Limit exposure through rotation of tasks and regular tool maintenance.</p> <p>Housekeeping: Keep tools organised</p>	4	1	4

					when not in use; return to storage after work. Supervision: The Site Supervisor to verify correct use of tools and adherence to safety practices.			
Working Alone / Out-of-Hours Activities: Refrigeration and air conditioning engineers may be required to attend breakdowns, maintenance, or emergency repair works outside of normal working hours, often working alone or with limited supervision. Lone working increases the risk of harm if an incident occurs, as immediate assistance or first aid may not be available. Additional risks include fatigue, reduced visibility, increased potential for slips or falls, violence or aggression when accessing client premises, and delays in emergency response due to site access restrictions or isolation.	Employees: Risk of injury or illness without prompt assistance; increased risk of fatigue-related errors, falls, or entrapment when working in isolation. Others on Site: Colleagues or security staff may be affected when responding to emergencies or assisting a lone worker.	3	3	9	Planning: Avoid lone working wherever possible. Where unavoidable, carry out a lone working risk assessment before attending site. Communication: Ensure the lone worker maintains regular contact with the Owner/Site Supervisor or designated contact via phone, text, or lone-worker app. Set agreed check-in times and escalation procedures. Access Arrangements: Confirm safe site access and lighting before attending. Obtain security or client contact details in advance. Emergency Preparedness: Ensure the lone worker has access to first aid supplies, fire extinguishers, and an operational mobile phone. Work Restrictions: No hot works or confined-space activities to be undertaken when working alone. Location Sharing: Workers must notify the Site Supervisor of their location, expected duration, and completion time before starting. Fatigue Management: Schedule out-of-hours works to minimise consecutive long shifts. Encourage adequate rest periods before and after callouts.	2	2	4

Method Statement





This Method Statement outlines the systematic approach for carrying out refrigeration and air conditioning pipework repair, modification, and installation works safely and efficiently. It details the preparation, sequence of operations, control measures, and emergency arrangements to be followed.






All personnel involved must understand the contents of this document and adhere to the procedures described to ensure safe working practices are maintained throughout the duration of the works.

Materials And Equipment

Materials Required	Equipment Required
<ul style="list-style-type: none"> • Copper or steel pipework and fittings • Brazing rods and flux • Insulation materials and tape • Cleaning agents and leak detection spray • Replacement components • Refrigerant and associated charging hoses 	<ul style="list-style-type: none"> • Oxy-acetylene or MAPP gas set with flashback arrestors • Adjustable spanners and pipe cutters • Portable fire extinguisher • Fire-resistant mat or heat shield • Pipe benders and swaging tools • Vacuum pump and pressure testing equipment • Assorted Hand tools • Battery-powered drill/driver • Tool tethers and lanyards • Safety harness and lanyard (if working at height) • Portable lighting and extension leads

Hazardous Materials

Hazardous Material	Pictogram	Use Required (Yes/No)
Acute Toxicity		
Explosive		
Oxidising		
Flammable		

Corrosive		
Gas Under Pressure		
Serious Health Hazard		
Health Hazard		
Hazardous to the Environment		
Other (please specify)		

Sequence Of Works

1. Site Setup and Induction

- Arrive on site and sign in with the client or site representative.
- Attend a site-specific induction covering emergency procedures, welfare arrangements, site hazards, and PPE requirements.
- Establish the work area using barriers, cones, or signage to segregate it from pedestrians, vehicles, and other trades.
- Identify safe access and egress routes for personnel, materials, and equipment.
- Confirm all required permits (Hot Works, Work at Height, Confined Space, etc.) are issued and valid.
- Ensure all operatives wear appropriate PPE including safety footwear, gloves, eye protection, and flame-retardant overalls for hot works.

2. Delivery and Storage of Materials and Equipment

- Deliver pipework, fittings, compressors, cylinders, and tools to site using appropriate lifting methods or mechanical aids. Store materials in designated areas on firm, level ground, away from heat sources and traffic routes.
- Secure gas cylinders upright with caps fitted when not in use; separate oxygen and fuel gases.
- Inspect all tools, hoses, regulators, and electrical leads for defects before use.
- Maintain good housekeeping in storage areas, ensuring clear access and safe stacking.

3. Review Documentation and Prepare Work Area

- Review project drawings, schematics, and method statements to confirm pipe routing and connection details.
- Identify and verify isolation points for both electrical and mechanical systems.
- Confirm that all isolations have been applied and verified before commencing work.
- Set up fire-resistant mats or welding screens to protect nearby materials from sparks and heat.
- Ensure extinguishers and a competent fire watch are in place prior to any hot works.

4. Draining and De-Gassing of Existing System

- Before any modifications, confirm the refrigeration system is fully isolated and electrically locked off.
- Check system pressure using calibrated gauges before connecting recovery equipment.
- Recover all refrigerant using approved recovery units and correctly labelled cylinders — do not vent to atmosphere.
- Follow the F-Gas Regulations and Environmental Protection Act at all times during recovery and disposal.
- Keep recovery units and hoses in good condition; monitor operation continuously.
- Record the refrigerant type and quantity recovered and label cylinders accordingly.
- Purge pipework after draining to remove residual gas and moisture.
- Confirm zero pressure before cutting or brazing commences.
- Only trained and F-Gas certified personnel to carry out refrigerant handling.
- Maintain ventilation and have firefighting equipment available throughout recovery operations.

5. Preparation and Cutting of Pipework

- Measure and mark pipe runs accurately in accordance with design drawings or site requirements.
- Use appropriate pipe cutters or saws; deburr and clean pipe ends to remove sharp edges and contaminants.
- Carry out cutting in well-ventilated areas, away from combustibles or open drains.
- Dispose of offcuts and scrap responsibly, maintaining a clean, organised workspace.

6. Brazing and Hot Works

- Set up oxy-acetylene or MAPP gas equipment in accordance with manufacturer guidance.
- Inspect hoses, regulators, and flashback arrestors prior to use.
- Remove or protect all combustibles within five metres of the hot-work area using welding blankets or screens.
- Carry out brazing with steady flame control and correct joint preparation.
- Maintain an active fire watch during works and for at least 30 minutes after completion.
- Keep suitable extinguishers (CO₂ and Dry Powder) at hand.
- Wear heat-resistant gloves, tinted safety glasses, and flame-retardant overalls.
- Close cylinder valves and vent hoses safely after use.

7. Installation and Assembly

- Position and secure new pipework runs using appropriate supports, clips, or brackets.
- Fit or replace compressors, valves, and fittings as required.

- Use team lifts or mechanical aids for heavy components to reduce manual-handling risk.
- Ensure all joints and fixings are properly aligned, tightened, and leak-free.
- Inspect supports to confirm adequate spacing and vibration resistance.
- Keep the work area tidy and clear of obstructions throughout the installation.

8. Pressure Testing, Evacuation and Charging

- Carry out a visual inspection of all new pipework and joints before testing.
- Conduct pressure testing using dry nitrogen or other inert gas — never oxygen.
- Monitor gauges closely for stability and check for leaks using approved detection spray.
- Once confirmed leak-free, evacuate the system using a vacuum pump to remove air and moisture.
- Charge the system with the correct refrigerant in accordance with manufacturer specifications and F-Gas legislation.
- Document all test pressures, vacuum levels, and refrigerant usage.

9. System Testing and Inspection

- Start the system and carry out functional testing to confirm correct operation.
- Inspect joints, pipework, and components for leaks, vibration, and noise.
- Check electrical connections, insulation, and labelling.
- Record commissioning data and rectify any identified issues.
- Obtain client or site representative sign-off once the system performs satisfactorily.

10. Dismantling, Cleanup and Demobilisation

- Allow all components and joints to cool before dismantling hot-work setups.
- Isolate gas cylinders; replace valve caps and secure them for transport.
- Remove all barriers, screens, and temporary equipment in a controlled manner.
- Clean the work area thoroughly, removing debris, offcuts, and waste materials.
- Dispose of waste responsibly in accordance with site waste-management procedures.
- Conduct a final inspection with the Site Supervisor to ensure the area is clean, safe, and reinstated to the client’s satisfaction.

Emergency Procedures

First Aid	
First Aider Details	Daniel Adams
First Aid Location	The fully stocked first aid kit is located in the Company Van. It must be regularly inspected to ensure it meets HSE guidelines for workplace first aid, including items such as bandages, sterile wipes, dressings, eye wash, and gloves.

Procedure and Responsibilities:

- The appointed First Aider is responsible for providing immediate assistance in the event of injury or illness and ensuring professional medical help is sought if required.
- All accidents, near misses, and injuries, no matter how minor, must be reported immediately to the Site Supervisor and recorded in the company accident book.
- In serious cases, the Site Supervisor will contact emergency services by dialling 999, clearly stating the site address, nature of the incident, and any hazards present (e.g. gas cylinders, hot works).

- When working on client premises, the location of on-site first aid facilities and trained personnel must be identified during the site induction.
- The first aid kit must be checked monthly and restocked as soon as any items are used or found to be out of date.
- All operatives will be briefed on the first aid arrangements, kit location, and emergency contacts before work commences.

Accident Reporting

Accident reporting is a critical component of workplace safety and compliance. All accidents, no matter how minor, must be reported immediately. The reporting process should begin with notifying the Site Supervisor, who will then take immediate action to secure the area and provide necessary first aid or medical assistance. Following the initial response, a detailed accident report should be completed, documenting the circumstances of the incident, the individuals involved, any injuries sustained, and the actions taken.

In cases of severe accidents, these must be reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR). These include work-related accidents that result in death or serious injury, diagnosed cases of certain industrial diseases, and dangerous occurrences that could have resulted in significant harm. Reporting under RIDDOR is mandatory and must be completed through the Health and Safety Executive (HSE) online portal or by telephone.

Fire Safety

Fire safety is a critical consideration during refrigeration and air conditioning works, particularly where hot works, brazing, or the use of oxy-acetylene/MAPP gas equipment is undertaken. The combination of flammable gases, electrical tools, and confined spaces can significantly increase the risk of ignition. All personnel must be aware of potential fire hazards, preventive measures, and emergency procedures before starting work.

Preventive Measures

- All hot works must be controlled under a valid Hot Works Permit, issued and authorised by the Site Supervisor or client representative prior to commencement.
- Combustible materials within 5 metres of the work area must be removed or protected using fire blankets, welding mats, or metal shields.
- Oxy-acetylene and MAPP gas equipment must be fitted with flashback arrestors on both oxygen and fuel lines and checked for leaks before each use.
- All electrical equipment and tools will be inspected and maintained in good condition to prevent overheating, arcing, or electrical faults.
- Fire extinguishers (minimum CO₂ and Dry Powder) will be located within immediate reach of hot works and clearly visible at all times.
- Extinguishers will be serviced and maintained in accordance with BS 5306 and checked before use.
- A Fire Watch will be maintained during hot works and for a minimum of 30 minutes after completion to identify any smouldering materials or delayed ignition.
- Work areas must be kept clean and free of combustible waste, including insulation, packaging, and rags.
- Cylinders must be stored upright and secured, away from heat sources, direct sunlight, and ignition points.
- No smoking, vaping, or naked flames are permitted within the work area or near stored gases and chemicals.

Emergency Procedures

- If a fire is discovered, the alarm must be raised immediately by shouting “FIRE” and activating the site alarm if available.
- All personnel must cease work immediately, shut down hot works equipment if safe to do so, and evacuate to the designated assembly point.
- Do not attempt to fight a fire unless it is safe and the person is trained and competent to use the correct extinguisher.
- The Site Supervisor will contact emergency services by dialling 999, providing the site address, nature of the fire, and any hazards present (e.g., gas cylinders, refrigerants).
- Designated fire wardens or the Site Supervisor will be responsible for accounting for all personnel at the assembly point.
- Gas cylinders should be closed at the valve, if safely accessible, and removed from the area only when authorised by emergency personnel.
- Do not re-enter the area until cleared by the fire service or responsible authority.
- All incidents and near misses must be reported and investigated to prevent recurrence.

Waste Management

Disposal of Waste Materials

- All waste will be segregated on-site into appropriate categories: metal offcuts, general waste, packaging, recyclables, and hazardous waste (where applicable).
- Recyclable materials such as copper pipe, brass fittings, steel, cardboard, and plastics will be collected separately and taken to an authorised recycling facility.
- General waste (non-recyclable materials) will be disposed of via licensed waste carriers in accordance with local authority requirements and the Waste (England and Wales) Regulations 2011.
- Hazardous waste, including spent flux, contaminated wipes, and refrigerant residues, will be disposed of through an approved waste contractor under the Hazardous Waste (England and Wales) Regulations 2005.
- Refrigerants will be recovered and recycled or disposed of in accordance with the F-Gas Regulations and the Environmental Protection Act 1990: under no circumstances will gases be vented to atmosphere.
- All waste containers (bins, skips, or recovery cylinders) will be clearly labelled to identify waste type and emptied regularly to prevent overflow or contamination.
- The Site Supervisor will be responsible for ensuring that waste is stored securely, disposed of correctly, and that no waste materials are left on site after completion.

Environmental Considerations

- Material use will be planned carefully to minimise waste generation and offcuts, in line with the Waste Hierarchy — Reduce, Reuse, Recycle, Dispose.
- All recyclable materials will be handled in a way that avoids unnecessary landfill disposal.
- Spillages of oil, flux, or refrigerant will be contained immediately using absorbent materials or spill kits; contaminated waste will be treated as hazardous.
- Non-hazardous waste and debris will be prevented from entering drains, soil, or watercourses in compliance with the Water Resources Act 1991.
- Site housekeeping will be maintained to a high standard, ensuring work areas remain clean, safe, and environmentally responsible at all times.
- Periodic environmental checks will be carried out by the Site Supervisor to verify compliance with waste and spill prevention measures.

Monitoring and Review

To maintain a safe and compliant working environment, City & County Refrigeration & Air Conditioning Ltd carries out regular monitoring and review of all safety procedures and control measures.

Daily Inspections

The Site Supervisor or another nominated employee will conduct daily visual inspections of the work area to ensure all activities are being performed safely and in accordance with this RAMS. Any issues identified will be rectified immediately, and records of inspections maintained where required.

Ongoing Risk Assessments

Risk assessments will be an ongoing process throughout the project, not a one-time activity. As work progresses, new hazards may emerge, and existing risks may change. Therefore, the Site Supervisor or another nominated employee will regularly revisit the risk assessments, evaluating the effectiveness of control measures and adjusting them as necessary.

Feedback and Reporting Mechanisms


All employees are encouraged to report hazards, near misses, or safety concerns directly to the Site Supervisor. Regular safety discussions or toolbox talks will be used to share feedback and promote continual improvement. Reported issues will be investigated promptly, and corrective actions implemented to prevent recurrence.

Approval and Acknowledgement

This section provides a record of the individuals responsible for preparing, checking and authorising this RAMS document, as well as a record of who the document has been read and understood by. It also includes a log of any revisions made.

Approved By:		Signed:		Date:	
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Revision Number:	Initial Revision
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Revision Number	Review Date	Remarks	Signed
001	07/11/25	<i>nil</i>	

Acknowledgement

By signing below, I acknowledge that I have read, understood, and agree to adhere to the contents of this Risk Assessment and Method Statement (RAMS) document. I recognise the importance of following the outlined procedures and safety measures to ensure a safe

working environment for myself, my colleagues, and all stakeholders. I commit to implementing the guidelines provided by City & County Refrigeration & Air Conditioning Ltd and will seek clarification on any aspects of this document if required.

Name	Date	Signed