

Program Subject: Hot Work Safety Program Policy

1. PURPOSE

- 1.1 To provide safety requirements for welding, cutting and brazing in accordance with 29 CFR 1910.252 of the Occupational Safety and Health Administration.
- 1.2 To eliminate or control potential ignition sources resulting from welding, flame cutting, soldering or similar activities which may produce flames or sparks.
- 1.3 To provide a safe work/learning environment in University buildings where temporary hot work may be performed.
 - 1.3.1 Potential health, safety and property hazards can result from the fumes, gases, sparks, hot metal and radiant energy produced during hot work.
- 1.4 To prevent any fires that may result from “**hot work**” processes and protect life and property from fire hazards and atmospheric contaminants that may occur during welding, cutting, and brazing job activities.

2. SCOPE

- 2.1 This policy applies to all University employees, students, faculty and contractors who may perform welding, cutting, or brazing in their job functions.

3. RESPONSIBILITIES

- 3.1 Department of “Risk Management and Safety” (RMS)
 - 3.1.1 To be responsible for ensuring the development and implementation of this policy.
 - 3.1.2 To provide necessary resources as available to carry out the program.
 - 3.1.3 To review and approve, in coordination with a shop supervisor, locations proposed for Hot Work Areas.
 - 3.1.4 To assist supervisor inspecting designated areas to ensure conditions have not become unsafe for welding or cutting.
 - 3.1.5 To establish procedures for the designated areas and other areas for welding, cutting and brazing.
 - 3.1.6 To review, update, and evaluate the overall effectiveness of the Welding, Cutting, and Brazing Program.
 - 3.1.7 To provide training for fire watches and ensure that the proper firefighting equipment is in working condition and is available to standby personnel.
 - 3.1.8 Suspend welding, cutting, and brazing work if conditions become unsafe for the work being performed.
- 3.2 **Directors or Department Heads**
 - 3.2.1 To ensure that faculty is aware of this policy and properly trained to conduct and supervised hot work operations associated with their programs.
 - 3.2.2 To implement any areas for improvement identified through audits, inspections, and/or incident investigation.

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3.3 Facilities Management Supervisors and Design & Construction

- 3.3.1 Ensure that all directly supervised employees and contractors are utilizing appropriate welding, cutting, and brazing procedures.
- 3.3.2 Inform the Facility Director whenever welding, flame cutting, and soldering operations are planned in conjunction with a project to ensure that all safety procedures are followed.
- 3.3.3 Ensure that the conditions of designated hot work areas have not changed prior to authorizing hot work.
- 3.3.4 Ensure that all welding and cutting equipment is maintained in safe operating condition.
- 3.3.5 Ensure the protection of combustibles from the ignition by meeting the following criteria:
 - 3.3.5.1 Moving hot work to a location free of combustible materials.
 - 3.3.5.2 If work cannot be moved, combustibles must be moved to a safe distance from the operation or shielded from ignition sources.
- 3.3.6 Ensure that employees are suitably trained in the operation of the equipment and safe use of the process.
- 3.3.7 Issue hot work permits for work under their supervision.
- 3.3.8 Return all closed hot work permits to RMS via safety@uwec.edu as soon as possible after project completion.
 - 3.3.8.1 Hard copies of permits may also be brought to the RMS office.

3.4 Contractors and sub-contractors are responsible

- 3.4.1 Follow the University's Welding, Cutting and Brazing Policy and all OSHA requirements.
- 3.4.2 Obtain a Hot Work Permit from the Facilities Management Supervisor/Project Manager prior to initiating any hot work.
- 3.4.3 Provide the necessary fire watch.
- 3.4.4 Comply with the required precautions as specified on the completed Hot Work Permit.
- 3.4.5 Sign off on the hot work permit.

3.5 Employees (Welding Operators)

- 3.5.1 Read and understand this policy.
- 3.5.2 Inspect all welding equipment prior to use for proper working condition.
- 3.5.3 Obtain a "Hot Work Permit" for any non-designated areas if necessary.
- 3.5.4 Complete Hot Work training as required by this policy.
- 3.5.5 Ensure that all PPE is worn properly for the specific hazard involved and that all equipment is in good working condition.
- 3.5.6 Conduct welding, cutting, brazing and/or hot work activities in accordance with all safety guidelines and procedures.
- 3.5.7 Protect nearby personnel against heat, sparks, etc. when working in occupied workplaces.
- 3.5.8 Inform their supervisors of any hazards that they feel are not adequately addressed in the workplace and of any concerns that they have regarding the program.

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4. PROGRAM COMPONENTS

4.1 Welding Hazards: Health and physical hazards are associated with welding depending upon the welding process, the base material, the filler material, and the shielding gas that may be used.

4.1.1 Health Hazards may be either acute or chronic, the following are the most common:

4.1.1.1 Burns

4.1.1.2 Electrical shock and burns

4.1.1.3 Infrared and ultraviolet eye injury from looking at the arc without eye protection

4.1.1.4 Lung irritation or poisoning from toxic gases or fumes from the welding operation

4.1.2 Physical Hazards associated with welding operations include:

4.1.2.1 Fire

4.1.2.2 Potential Explosion when welding near closed containers that have held flammable liquids or other combustible materials

4.1.2.3 Potential Flash fire when welding near flammable/combustible vapors at the worksite

4.2 Safety Guidelines: Hot work shall be performed in a Designated Hot Work Area, if possible.

4.2.1 A **Designated Hot Work Area** must meet the following requirements:

4.2.1.1 The Designated Hot Work Area shall be a discrete area, sectioned off by noncombustible walls, or curtains. **See Appendix A for details.**

4.2.1.2 Adequate ventilation, such as a suction hood system providing 20 air changes per hour, should be provided for the work area.

4.2.1.3 Where welding, cutting and brazing are done near walls, partitions, ceilings, or a roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

4.2.1.4 Protective dividers such as welding curtains or non-combustible walls will be provided to contain sparks and slag to the combustible free area.

4.2.1.5 Flammable and combustible liquids and material will be kept 35 feet from work area.

4.2.1.6 Floors shall be swept and clean of combustibles within 35 feet of work area.

4.2.1.7 At least one 10 lb. dry chemical fire extinguisher should be within access of the 35 feet of work area.

4.2.2 **Hot Work in areas not designated as Hot Work Areas** – When welding, cutting, or brazing work is to be done outside of a Designated Hot Work Area, it is necessary to meet the following requirements:

4.2.2.1 A Hot Work Permit is required for all Hot Work. **See Appendix B for details.**

4.2.2.2 Flammable materials that cannot be removed from the area must be adequately covered or guarded before hot work is started.

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- 4.2.2.3 All floor openings and cracks shall be closed, sealed and/or covered to ensure that sparks cannot drop into the openings and contact with combustible materials.
- 4.2.2.4 Guards, shields, and or fire-blankets shall be used to confine the heat, sparks and/or slag from meeting any combustible material with 35 feet of the hot work
- 4.2.2.5 Portable welding curtains or shields must be used to protect other workers in the welding area.
- 4.2.2.6 Airflow away from the welder and others present must be established and maintained.
- 4.2.2.7 Plastic materials must be covered with welding tarps during welding procedures.
- 4.2.2.8 Suitable fire extinguishing equipment shall always be maintained in a state of readiness for instant use. This may include fire extinguishers, water hoses or buckets of sand, depending on the nature of the combustible material exposed.
- 4.2.3 **Fire Watches** shall be required whenever these activities are performed in locations where other than a minor fire might develop. The Fire Watch:
 - 4.2.3.1 Shall be present to ensure that sparks, slag and heat generated by the hot work do not start a fire while the welder is working.
 - 4.2.3.2 Shall remain at the work location for at least thirty (30) minutes after the hot work has been completed to ensure that no sparks or slag are smoldering and that the heat generated by the hot work did not cause some other material to smolder thus creating a potential fire hazard.
 - 4.2.3.3 Shall be trained in the proper use of fire extinguishing equipment and be prepared to use it.
 - 4.2.3.4 Shall be familiar with facilities for sounding an alarm in the event of a fire or other emergency.
 - 4.2.3.5 Shall also be trained to react to other potential hazards associated with the work activity such as exposure to welding fumes, welding flash and any other potential hazards unique to the area in which the work is being performed.
 - 4.2.3.6 Shall be required to read the Hot Work Permit and sign the permit acknowledging the fact that they understand the potential hazards and will follow the requirements of the permit.
 - 4.2.3.7 If feasible, floors shall be wetted prior to start of hot work to prevent ignition.
- 4.2.4 **Prohibited Hot Work Areas**
 - 4.2.4.1 Areas not authorized by management.
 - 4.2.4.2 Areas equipped with sprinkler systems that are out of order.
 - 4.2.4.3 In the presence of potentially explosive atmospheres, e.g., a flammable liquid.
 - 4.2.4.4 Areas where combustible or flammable materials are within 35 feet and cannot be moved or protected.
 - 4.2.4.5 Areas where appropriate firefighting equipment is not readily available.
 - 4.2.4.6 Areas where floor and wall openings cannot be covered.

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4.3 Hot Work Procedures

- 4.3.1 All hot work permits shall be returned to the issuing supervisor when the hot work has been completed.
- 4.3.2 Supervisor and employee are responsible for identifying and controlling workplace hazards before hot work is performed.
- 4.3.3 Hot Work Permit procedures shall be mandatory for contractors under contract by Facilities Management Supervisor/Project Manager.
- 4.3.4 Hot Work Permit (for non-designated hot work area) will be issued for a period covering the duration of hot work.

4.4 Hot Work Permit Procedure: A hot work permit must be completed prior to the commencement of any hot work operations.

- 4.4.1 Obtain or request a hot work permit form from the Facilities Management Supervisor/Project Manager and/or RMS. **See Appendix C.** Hot Work Permit Process.
- 4.4.2 Complete the required hot work permit sections.
- 4.4.3 The hot work permit must be signed by the supervisor, project manager, and contractor performing the hot work operations.
- 4.4.4 The required precautions checklist on the hot work permit must be in affect prior to starting the hot work. The hot work permit must be kept on site or proximity.
- 4.4.5 Completed hot work permits must be sent to the Office of RMS.

4.5 Hot Work Permit Validity

- 4.5.1 The duration of a hot work permit depends upon the type of project and the type of hot work being performed.
- 4.5.2 Normally hot work permits are only issued for an 8-hour period unless otherwise stated on the hot work permit.

4.6 Prior To Hot Work

Several tasks must be performed before hot work begins that include, but are not limited to:

- 4.6.1 Inspect hot work equipment to be used shall be in satisfactory operating condition.
- 4.6.2 Inspect hot work site is clear of combustibles or combustibles are protected.
- 4.6.3 No exposed combustibles are located on the opposite side of partitions, walls, ceilings, or floors.
- 4.6.4 Remove all flammable/combustible materials within a 35-foot radius of the hot work.
- 4.6.5 Sweep floor of all loose combustible debris.
- 4.6.6 Placing non-combustible or flame-resistant screens to protect personnel in adjacent work areas from heat, flames, radiant energy and welding splatter.
- 4.6.7 Cover sprinkler heads directly above the hot work area with wet rags or other non-combustible materials so they will not be triggered during the work if the hot work area has any.
- 4.6.8 Cover smoke detectors located in proximity of the work area or notify the electrical shop to deactivate smoke detectors in the hot work area.
- 4.6.9 Notify anyone nearby who may be affected by the work.
- 4.6.10 Make provisions for proper ventilation.

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4.7 During Hot Work

During the hot work there are other precautions that must be taken:

- 4.7.1 Combustible floors shall be kept wet during the hot work.
- 4.7.2 Store acetylene and other fuel cylinders in a secure and upright position.
- 4.7.3 Place hoses so that they will not be crushed or damaged.
- 4.7.4 Be constantly aware of conditions that may cause a fire to start.
- 4.7.5 Floors shall be kept clean within the hot work area.

4.8 After Hot Work

There are some responsibilities that must be undertaken after hot work is completed:

- 4.8.1 Remove any covers from sprinkler heads immediately upon completion of the hot work if the hot work area has any.
- 4.8.2 Remove covers from any smoke detectors immediately upon completion of the hot work or notify the electrical shop to reactivate them if they have been deactivated.
- 4.8.3 Clean up any slag, debris or used electrodes resulting from the work.
- 4.8.4 Restore ventilation to its original condition.

4.9 Inspection and Storage of Cylinders

4.9.1 Inspection and Handling

- 4.9.1.1 Inspect cylinders, regulators, gas identification tag, and hoses before use.
- 4.9.1.2 Open valves slowly and always point the outlet away from personnel.
 - Valves with hand-wheels can be opened with torque wrenches designed for such use.
 - Valves without hand-wheels can be opened with the wrench provided or recommended by the gas supplier.
 - Quickly close the valve in the event of an emergency, keep wrenches and other recommended tools on the valve while the container is in use.
- 4.9.1.3 Smoking is never allowed for your safety and the safety of others.
- 4.9.1.4 Unless cylinders are secured on a special truck, regulators shall be removed and valve-protection caps, when provided for, shall be put in place before cylinders are moved.
- 4.9.1.5 Inspect your work area for grease or oils before you use compressed gas.
- 4.9.1.6 Always use regulators for all gas cylinder hookups, valves must be fully shut off when not in use.
- 4.9.1.7 Ensure that you use only non-sparking tools for flammable gases.
- 4.9.1.8 Be sure the cylinder is always secured upright in your work area to prevent tipping, falling, or rolling.
- 4.9.1.9 Never refill or attempt to repair a gas cylinder.
- 4.9.1.10 Remove leaking cylinder from the building & properly vent all remaining gas.
- 4.9.1.11 Damaged cylinders should be marked "Damaged-Do not Use".
- 4.9.1.12 Be sure to check all hose fittings for compressed air systems by using a control nozzle with self-closing valve at the operator's end.

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4.9.2 Storage

- 4.9.2.1 Label and separate the empty cylinders from the full ones.
- 4.9.2.2 Always install the caps back on the cylinder.
- 4.9.2.3 Store cylinders upright and away from heat sources.
- 4.9.2.4 Keep the storage area dry and well ventilated.
- 4.9.2.5 Store oxygen cylinders separately from the other types.
- 4.9.2.6 Cylinders should be chained or strapped to prevent tipping.
- 4.9.2.7 Fuel gas and oxygen must be stored at a minimum of 20 feet apart or separated by a one-hour rated fire wall.

4.10 Ventilation Guidelines for Welding, Cutting and Brazing Operations

4.10.1 General or Dilution Ventilation

- 4.10.1.1 Relies on diluting airborne contaminants with fresh air from open doors, windows or fans.
- 4.10.1.2 Provides enough air movement to keep the fumes and gases out of the welder's breathing zone.

4.10.2 Local Exhaust Ventilation

It is much more effective in controlling welding fumes and gases because it captures the fumes and gases close to the source and keeps them from entering the welder's breathing zone. This is usually accomplished using hoods and ducts. To be effective, local exhaust ventilation must:

- 4.10.2.1 Be close to the welding arc or flame where the fumes, gases and heat are generated, and
- 4.10.2.2 Have enough velocity to draw away the contaminants.
- 4.10.2.3 Ensure protection from fume and gases by (depending on circumstances) one or a combination of:
 - Good general ventilation and use of a booth
 - Local exhaust ventilation such as fume hoods and ducts
- 4.10.2.4 Movable hoods placed as close to the work as practical and provided with a rate of 100 feet per minute in the zone of welding when the hood is at its most remote distance from the point of welding. The rates of ventilation required to accomplish this velocity using a 3-inch wide flanged suction opening accordance with 29 CFR 1910.252(c)(3)(i) are shown in the following table:

Welding Zone	Minimum air flow cubic feet/minute	Duct diameter, inches
4 to 6 inches from arc or torch	150	3
6 to 8 inches from arc or torch	275	3 ½
8 to 10 inches from arc or torch	425	4 ½
10 to 12 inches from arc or torch	600	5 ½

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4.11 Types of Welding Operating Procedures

4.11.1 Hot Work in Confined Spaces

- 4.11.1.1 All personnel working in a confined space must also comply with all the requirements of the ***Confined Space Program Policy***.
- 4.11.1.2 All hot work performed in confined spaces must be adequately ventilated. Where it is impossible to provide such ventilation, consulted with RMS.
- 4.11.1.3 Oxygen must never be used for ventilation.
- 4.11.1.4 An attendant will always be stationed outside to observe the welder and be capable of putting rescue operations into effect.
- 4.11.1.5 When welding or cutting is performed in a confined space, gas cylinders and welding machines will be left on the outside.

4.11.2 Electric Welding and Cutting

4.11.2.1 Perform Safety Check on all equipment

- Ensure fire extinguisher is charged and available.
- Ensure electrical cord, electrode holder and cables are free from defects (no cable splices are allowed within 10 feet of the electrode holder.
- Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects.
- Ensure the welding unit is properly grounded.
- Examine equipment frequently to determine that all electrical connections and insulations on holders and cables are in good condition. Loose cable connections may overheat, or arc cause a fire.
- Keep welding cables dry, grease and oil-free, and protected from sparks or hot metal.
- Store welding rods in the container on the welding machine, do not throw on floors or staging.
- When electrical welding is done inside a confined space, welding machines shall be left outside of the confined space and heavy portable equipment shall be blocked in order to prevent accidental movement.
- Whenever electrical welding operation ceases, such as during lunch or overnight, welding machines shall be shut off. Where practicable, unattended electrodes and electrode holders shall be removed from the confined space.

4.11.2.2 Set Voltage Regulator no higher than the following for:

- Manual Alternating Current Welders – 80 volts.
- Automatic Alternating Current Welders – 100 volts.
- Manual or automatic Direct Current Welders – 100 volts.

4.11.2.3 Uncoil and spread out welding cable.

- To ensure proper contact of work leads and connection.

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- To remove any metal fragments from magnetic work clamps (to avoid electric shock do not wrap welding cables around a body part and avoid welding in wet conditions).
- 4.11.2.4 Avoid overheating,
- Prior to spot welding, the material is usually cleaned in a caustic or slightly acid bath. Employees performing these wash operations shall be protected from splashing liquid.
 - The operator shall make necessary adjustment to the contactors.
 - In hand spot welding installations, eye protection shall be required to protect the operator from the spattering metal.
 - Welding of materials such as stainless and high carbon steels causes excessive spattering of metal. Operators shall be cautioned to protect against the possible penetration of the metal into the tips of the fingers.
- 4.11.3 Gas Welding and Cutting:** Gas welding typically uses an oxy-acetylene gas flame as a source of heat. Some types of gas welding, such as soldering, use propane or other fuel gasses.
- 4.11.3.1 Brazing** – Brazing applies heat to the metal, usually from an oxy-acetylene gas flame. The metal does not reach its melting point. Instead, filler material and flux from a welding rod melt to form the weld.
- 4.11.3.2 Soldering** – Like brazing, is accomplished without melting the metal parts that will be joined.
- 4.11.3.3 Gas Cutting** – Creates a molten pool of metal using heat from a gas torch. A jet of oxygen is injected into pool to accelerate the oxidation of the material.
- 4.11.4 Perform Safety Check on all equipment
- 4.11.4.1 Ensure tanks have gas and fittings are tight.
- 4.11.4.2 Ensure fire extinguisher is charged and available.
- 4.11.4.3 Ensure hoses have no defects.
- 4.11.4.4 Ensure PPE (welding hood, gloves, rubber boots/soled shoes, aprons) are available and have no defects.
- 4.11.4.5 All defective equipment must be repaired or replaced before use.
- 4.11.5 Remove flammables and combustibles
- 4.11.5.1 Remove all nearby flammable or combustible materials before striking an arc or lighting a flame.
- 4.11.5.2 Remove all flammable and readily combustible materials from your pockets, such as matches and cigarette lighters.
- 4.11.5.3 Place welding screen or suitable barricade around work area to provide a fire safety zone and prevent injuries to passersby.

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4.12 Welding Operators Protection (See more details in PPE policy): Welders need to be protected against heat, sparks, ultraviolet rays, hot slag, fumes, and toxic gases.

4.12.1 Eye and Face Protection

4.12.1.1 Safety glasses, goggles, face shields, helmets, or other suitable eye protection having the proper lens shade for the work being done shall be worn during all welding, cutting, and brazing operations.

4.12.1.2 Fire Watch personnel shall wear eye and face protection as appropriate.

4.12.1.3 Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.

4.12.1.4 Goggles, helmets, and face shields shall be checked frequently.

4.12.1.5 The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual’s needs in accordance with 29 CFR 1910.252(b)(2)(ii)(H) of the OSHA.

Welding operation	Shade No.
Shielded metal-arc welding 1/16, 3/32, 1/8, 5/32-inch electrodes	10
Gas-shielded arc welding (nonferrous) 1/16, 3/32, 1/8, 5/32-inch electrodes	11
Gas-shielded arc welding (ferrous) 1/16, 3/32, 1/8, 5/32-inch electrodes	12
Shielded metal-arc welding: 3/16, 7/32, 1/4-inch electrodes	12
Shielded metal-arc welding: 5/16, 3/8-inch electrodes	14
Atomic hydrogen welding	10 – 14
Carbon arc welding	14
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, 6 inches and over	5 or 6
Gas welding (light) up to 1/8 inch	4 or 5
Gas welding (medium) 1/8 inch to 1/2 inch	5 or 6
Gas welding (heavy) 1/2 inch and over	6 or 8

NOTE: In gas welding or oxygen cutting where the torch produces a high yellow light, use a filter or lens that absorbs the yellow light.

4.12.1.6 Head protection

- Head protection made of a flame-resistant material shall be worn.

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4.12.1.7 Protective clothing and equipment

- Protective clothing and equipment shall be suitable for the type of work to be performed, kept in good repair, and kept free of oil and grease.
- Sleeves shall be kept buttoned at the wrist.
- Collars shall be kept buttoned.
- Fire-resistant gloves and aprons shall be worn during welding, flame cutting and brazing processes.
- Safety shoes should be worn to protect the operator from spark hazard.

4.12.1.8 Respiratory Protection

- Engineering controls and safe work practices are the primary means to prevent employee over exposure to welding fumes, toxic gases, and dusts.
- FM employees will not perform welding that cannot be safely done without the use of a respirator.

4.12.1.9 Hearing Protection

- Hearing Protection Devices may be required during some welding operations. See more details in *Hearing Conservation Program Policy*.

5. TRAINING

Provide initial training to all personnel affected by this procedure and at any time there is a modification to this procedure that will affect work practices. The degree of training provided shall be determined by the potential hazards of the welding, cutting, and brazing job assignment.

5.1 Initial training

- 5.1.1 To ensure employees recognize the hazards associated with welding, cutting and brazing operations.
- 5.1.2 To know the safe work practices for welding, cutting and brazing operations.
- 5.1.3 To understand the importance and requirements of Hot Work Permits.
- 5.1.4 To understand the requirements to establish and maintain Hot Work Areas
- 5.1.5 To use the appropriate personal protective equipment (PPE) for the job
- 5.1.6 Employees performing the hot work shall be trained in the proper use of the equipment they will be using to perform the hot work.
 - 5.1.6.1 They shall also be trained in the proper use of the fire extinguishing equipment that is provided for the use of the Fire Watch.
 - 5.1.6.2 They shall also be trained in the proper use of any protective equipment or procedures necessary to protect themselves or other personnel in the area and the facility.

5.2 Additional or refresher training

- 5.2.1 All authorized and affected employees shall receive appropriate training whenever there is a change in their job assignments or a change in welding equipment or processes that present a new hazard.
- 5.2.2 Employees or supervisors have reason to believe that there are deviations from or inadequacies in the employees' knowledge of known hazards or use of equipment or procedures.

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Appendix A. HOT WORK PERMIT for the “Designated Hot Work Area”

The permit is valid if work task, locations, conditions, operations and personnel remain the same not to exceed six months. The (RM&S) and/or immediate supervisor is responsible for auditing and making sure this permit is active every six months.

This work area must be inspected by the immediate supervisor before issuance of Hot Work Permit. In addition, it has been designated as an approved area for general cutting and welding operations.

Department/Shop: _____ Location: _____

Describe sources of ignition (e.g., acetylene torch, soldering, electric arc, etc.): _____

The following requirements shall be followed for operations in the **Designated Hot Work Area**.

SAFETY PRECAUTION

Yes No NA

- Curtain or blanket to catch sparks, service piping, and electrical systems protected.
- Combustibles removed on opposite sides of walls, ceilings which may be ignited by conduction or radiation.
- Combustibles removed or covered within 35 feet and adjacent walls, ceiling, floors protected or covered.
- Nearest fire alarm box or phone for Fire Department call located and available.
- Wall and floor openings within 35 feet protected or covered. In addition, appropriate fire extinguisher is at the work area.
- There is no appreciable combustible lint, dust, vapors, liquids, or containers that contained these materials in the area.
- All containers which contain flammable liquids, gases/solids and toxic substances have been cleaned or purged.
- All hot-work equipment to be used has been inspected and is in good condition.
- Required PPE in the form of goggles, glasses, helmets, flame-retardant clothing, gloves, and footwear are in use.
- ^ Fire Watch has been assigned for dangerous sparks and will remain on job site 30 minutes after job completion.
- Additional ventilation, type and when required: _____
- Respiratory protection, type and when required: _____

Comments: _____

^ A Fire Watch is required when combustibles or flammable substances within 30ft cannot be removed; wall or floor openings within 35ft cannot be protected; or combustible materials on opposite walls, ceilings, or floors cannot be removed. In addition, the welding operator can be a part of Fire Watch if he/she performs very minor welding and cutting. The location where this work is to be done has been examined, necessary precautions taken, and permission is granted for this work.

Employee Printed Name / (Starting Date) Employee Signature / (Expiry Date) Employee Printed Name / (Starting Date) Employee Signature/(Expiry Date)

Employee Printed Name / (Starting Date) Employee Signature / (Expiry Date) Employee Printed Name / (Starting Date) Employee Signature/(Expiry Date)

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Period of Permit Validity:

(From: Month/Date/Year)

(To: Month/Date/Year)

This permit is valid only so long as work conditions existing at the time of issuance continue. It expires on every six (6) months or any change in condition that adversely affects safety in work area.

(Signature of RMS' Staff)

(Signature of Area/Job Supervisor)

POST IN HOT WORK AREA

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Appendix B. HOT WORK PERMIT (HWP) for outside the “Designated Hot Work Area”

This hot work permit is required for any temporary operation outside the Designated Welding Areas that involve open flames, heat and/or sparks. This includes but is not limited to: Welding, Cutting, Grinding, Soldering, Thawing, Torch Applied Roofing, and Brazing.

RECOMMENDED PRECAUTIONS

Supervisor:

1. Complete all *Precaution Checklist*.
2. Complete this permit form and issue to person performing hot work procedure.
3. Provide Fire Watch and/or welder must act as Fire Watch.
4. Provide a copy of the permit for Safety Coordinator and post this Permit at the work site in an appropriate location.

Before signing this form authorizing the job, the person responsible for Hot Work Safety should inspect the proposed work area and check below the precautions with his/her supervisor.

Precaution & Safeguard Checklist

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Fire extinguisher on job site. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Welding, Cutting, and Brazing equipment is in good repair. |

Precautions within 35 feet of work

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Floor swept clean of combustibles and overhead structure cleaned of dust, lint and debris. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Combustible floors wet down or covered with damp sand, welding drop cloths, or metal shields. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Flammable liquids removed from area & other combustibles protected with welding drop cloths or metal shields. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | All floor and wall openings covered and/or protected. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | WALLS/CEILINGS: remove combustibles away from opposite side or adjacent structures. |

Work of Walls or Ceilings

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Construction is noncombustible and without combustible covering or insulation. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Combustible materials moved away from other side of wall. |

Work on Enclosed/Confined Equipment

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| Yes | No | NA | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | When welding in confined areas, gas cylinders and power sources are located outside area and secured. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Adequate ventilation is provided. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Atmosphere checked with gas detector. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Purge any flammable vapors and/or gases. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Confined Space Permit obtained, if required. |

Standard PPE Welding Precautions

- | | | |
|--------------------------|--------------------------|-------------------------------------|
| Yes | No | |
| <input type="checkbox"/> | <input type="checkbox"/> | Eye protection. |
| <input type="checkbox"/> | <input type="checkbox"/> | Proper clothing |
| <input type="checkbox"/> | <input type="checkbox"/> | Face shield |
| <input type="checkbox"/> | <input type="checkbox"/> | Machine grounded |
| <input type="checkbox"/> | <input type="checkbox"/> | Welding equipment in good condition |

Fire Watch (FW)

- (FW) will be provided during and for 30 minutes after work.
- (FW) is supplied with extinguishers and/or hose.
- (FW) is trained in use of this equipment and in sounding alarm.

(FW) is required to inspect after work for fire safe and sign this form.

Authorization: *(print clearly)*

This permit will authorize _____ (Name)

Location/Bldg/Room/Floor: _____ (Be specific)

_____ (Starting date) _____ (Time)

_____ (Expiry date) _____ (Time)

Work Order #: _____

Type of Hot Work	<input type="checkbox"/> Brazing	<input type="checkbox"/> Grinding	<input type="checkbox"/> Arc Welding
	<input type="checkbox"/> Cutting	<input type="checkbox"/> Soldering	<input type="checkbox"/> Other
<input type="checkbox"/> Torch Applied Roofing			
Hot Work Performed By:	<input type="checkbox"/> UW-Eau Claire Employee		
	<input type="checkbox"/> Contractor: _____		

Signatures Required Before Beginning Work

I have been instructed and I understand the hazards as well as the precautions necessary to perform this work safely.

(Signature of person performing the work)

I verify that this work site has been inspected, that all necessary precautions have been taken to prevent fires and/or explosions to control hazardous conditions, and the individual signed above is authorized to begin conducting this work.

Signature of supervisor _____ Date and time of signature _____ AM or PM

Final Check Up

Work area and all adjacent areas to which sparks and heat might have spread were inspected 30 minutes after the work was completed and during the fire watch period were found fire safe.

Name (print) & Signature of _____ Date and time of signature _____ AM or PM
Fire Watch

NOTE: Return this form after the work is completed and fire watch has conducted the final check and signed off on the form.

Program Subject: Hot Work Safety Program Policy

Appendix C. HOT WORK PERMIT PROCESS

