

ARKANSAS TECH UNIVERSITY HEALTH & SAFETY POLICY

DATE: March 9, 2022

SUBJECT: Hot Work Policy

PURPOSE: The purpose of this procedure is to ensure that employees of Arkansas Tech University, contractors and University property are properly protected against fire, explosion, and other dangers resulting from hot work (cutting and welding).

SCOPE: This procedure covers any oxygen fuel gas and/or electric arc cutting and welding operation that could become a source of ignition. The procedure applies to all University employees and contractors working at Arkansas Tech University.

RESPONSIBILITY: It shall be the responsibility of every employee of the University to ensure that they follow this procedure completely. It shall be the responsibility of every supervisor/manager overseeing the work of any contractor to ensure that contractors are aware of and follow this procedure completely.

Definitions:

The following is an alphabetical list defining terms and abbreviations as used throughout this document and with which the user(s) should be familiar. This list is not designed to be all encompassing but rather is intended to provide guidance when using hot work permits.

If in doubt whether to issue a hot work permit, it is recommended that a permit be issued subject to the provisions of this procedure.

Combustible: Any material that can be easily burned.

Cutter/Welder: The individual(s) performing the hot work operations.

Cutting/Welding Operations: The operation where any open flame or electric resistive welding or cutting device is used.

Fire Watch: A fire watch is required in locations where a fire might develop, where there are wall or floor openings within 35 feet, or where there is a presence of combustible material within 35 feet of where the hot work is being done. The fire watch shares the responsibility for fire/safety with the cutter/welder. The fire watch shall maintain a constant vigil during the operation (including lunch and breaks) to watch for stray sparks, ignition sources, or other fire hazards. This

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individual shall be specifically trained in the use of a fire extinguisher, be familiar with the facility and know how to sound the fire alarm.

Hazard: A potential for an accident with undesirable consequences, usually involving a loss of flammable, combustible, highly toxic materials.

Hot Work Operations: ANY operation that could cause a source of ignition, a hot work permit is required for ANY hot work operations.

Permissible Areas

1. A specific area designed or approved for hot work, such as a maintenance shop or detached outside location that shall be of noncombustible or fire-resistive construction essentially free of combustible and flammable contents, and suitably segregated from adjacent areas; or
2. Where hot work cannot be moved practically, as in most building construction projects, an isolated area of noncombustible construction made fire safe by removing all combustibles.

Source of Ignition: A source of ignition is a flame, tool spark, static electric charge or electric spark that could cause a fire or explosion.

Examples:

- Welding, burning, brazing, soldering, or any use of an open flame;
- Metal removing such drilling, chipping, abrasive cutting, milling, grinding, etc.;
- Internal combustion engines;
- Explosive-actuated fastening tools;
- Cutting or chipping concrete with or without reinforcement;
- Operating non-explosion proof equipment and tools in an explosion-proof area (Includes battery powered equipment and tools);
- Operating any cleaning device utilizing a metal or any other material contact that can produce sparks; and
- Work on live electrical circuits of any voltage in hazardous locations.

Procedures

Responsibility:

It is the responsibility of the employee doing a particular job to initiate and obtain final approval of the Hot Work Permit. If the work is to be completed by a contractor the supervisor responsible for the contractor's work shall initiate and obtain final approval of the permit. Hot Work Permits can be obtained from the Safety Coordinator or the Assistant Director, Facilities Management (ADFM).

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Procedure:

- Prior to the start of the Hot Work operation an approved permit shall be issued.
- The employee who is to be conducting the work shall initiate the permit.
- The first step in the approval process is the supervisor must sign the permit certifying they have inspected the immediate and surrounding work area for fire hazards and that sufficient precautions are being taken to reduce the risk of fire.
- The second step in the approval process is that the Safety Coordinator or the ADFM must review the permit and initial and date it after it is entered on the Hot Work Permit Log in the Safety Office.
- Hot Work Permits are task specific and valid ONLY for specific period of time indicated on the permit. Permits expire at 1) job completion; 2) change of location; 3) end of work shift.
- It is the responsibility of the requesting supervisor or his designee to post the Hot Work Permit in the area where it is clearly visible and to ensure the permit is retrieved at the end of the operation. The supervisor or his designee shall ensure that the permit is returned to the Safety Office upon completion of the operation.
- The approved or designated Hot Work area at Arkansas Tech University is the Carpenter's Shop. Hot Work operations outside of this area shall only be conducted under an approved Hot Work Permit.
- The Safety Coordinator and/or the ADFM are the ultimate and final authority for approving Hot Work Permits.

Hot Work Permits – Building Roofs

ALL Hot Work Permits issued for work on any building roof require additional steps to ensure the protection of University employees and property.

The Hot Work Requester and the Supervisor responsible for the work MUST physically check the area and ensure that all necessary precautions have been taken to prevent a fire. Once both the Requester and the Supervisor have completed this step they must call the Safety Coordinator or the ADFM and inform them that the physical review has been completed. The Safety Coordinator or ADFM DFM will then give their final approval and the permit will be entered on the log. THIS MUST BE COMPLETED PRIOR TO ANY WORK BE DONE.

Performing Hot Work

1. The cutter/welder should affix the Hot Work Permit to a visible place in the immediate work area. The Permit must remain in place until the hot work is completed. The cutter/welder is responsible for conducting the hot work within the authorized parameters and time limit set by the permit. Hot work may continue as long as conditions remain safe and not new hazards have been introduced.
2. The following precautions should be taken when performing any hot work operations at the Arkansas Tech University:

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- Perform hot work in the approved or designated area. If hot work cannot be moved to this area, follow all hot work procedures.
- Use equipment that is in good condition. Valves, regulators, hoses and torches **MUST** be thoroughly inspected prior to use.
- Do not perform welding, cutting, or other hot work operations in an area where sprinklers are out of service or where fire extinguishers have been removed.
- Move all combustibles at least 35 feet from hot work operations. If combustibles cannot be moved, they should be protected by metal guards or by flame proof curtains or covers. Do not use ordinary tarpaulins.
- Do not perform hot work in or on any vessel containing flammable or combustible materials, including residues, until they have been disconnected or blanked, completely cleaned out, and purged.
- Check the atmosphere for combustible gases or vapors, where necessary, using reliable combustible gas detection equipment. If there is a possibility of gas release during the hot work operations, continuous-duty portable combustible gas detectors should be used to continuously monitor the area.
- Ensure that a workable 5lb fire extinguisher is readily available in the immediate area.
- Where combustible materials are on the floor, the floor shall be swept clean for a radius of 35 feet in all directions of the hot work operations. If hot work operations are performed above combustible surfaces (i.e. wood floors or built up roofs), the surface shall be kept damp, covered with damp sand, or protected by fire resistant shields or tarpaulins. Where damp sand is used, personnel operating arc welding or cutting equipment shall be protected from possible shock.
- Do not perform hot work until all wall and floor openings within 35 feet of the operations have been tightly covered or otherwise protected with metal guards or flame proofed tarpaulins.
- Do not start hot work operations until a fire watch, where required, has been assigned and is in place to watch for dangerous sparks in the area and on the floors above and below the operation area.
- Secure gas cutting and welding cylinders so they will not be damaged and replace protective caps (and close gas supply valves) on all cylinders not actually in use. All cylinders **MUST** be stored in an upright position and secured with a chain or cable.
- Carefully and securely connect the ground clamp when using electrical arc welding equipment. Since improper grounds can be a source of ignition, the ground clamp should be connected as close to the work area as possible so that it can be easily observed.
- Ensure adequate ventilation is maintained during hot work operations to assure that personnel are not exposed to harmful fumes. This may include

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positioning of an exhaust blower close to the point of the exhaust fumes. Respiratory protection should also be considered.

- Remove all electrodes from the holders, carefully locate them so that accidental contact cannot occur, and disconnect the welding machine from the power source if hot work is to be suspended for any substantial period of time (lunch, break, overnight).

Fire Watch

The fire watch will share the responsibility for fire/safety with the cutter/welder. The fire watch should maintain a constant vigil during the operation (including breaks and lunch) to watch for stray sparks, ignition sources, or other fire hazards. This individual should be specifically trained in the use of a fire extinguisher and should stay with this equipment. The fire watch shall have no other responsibilities. He/she should be familiar with the facilities and also know how to sound the fire alarm. It is the fire watch's responsibility to try to extinguish any fires that may occur, as long as they are within the capacity of the equipment available. The fire watch's main responsibility is to protect the workers performing the hot work operations.

If necessary, the fire watch responsibilities may be rotated to another trained individual as long as the constant vigil is not interrupted.

The fire watch shall remain on duty during breaks, lunch and for one hour after the completion of the hot work operations.

Completing the Hot Work Permit Procedure

When the hot work is completed, either the welder/cutter or the fire watch shall remain in place for at least one hour, carefully inspecting the work area and the adjacent areas for the possibility of any smoldering fires. The inspection extends to floors above and below the actual work area and to adjacent rooms.

Barring any fires, the cutter/welder or fire watch shall remove the hot work permit. The permit will then be signed and indicate the time the watch was completed indicated. The permit will then be returned to the Safety Office.

Personal Responsibilities

The following describes the various personal responsibilities of the individuals involved in hot work operations:

1. Originator (employee or contractor)
 - Identifies the need for a hot work permit;
 - Obtains permit from Safety Coordinator or Assistant Director, Facilities Management.
 - Completes the top section of the permit and delivers to supervisor

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2. Originator's Supervisor

- Has the overall responsibility to ensure that the hot work procedure is followed at Arkansas Tech University.
- Inspects the work area before filling out the remainder of the hot work permit;
- Completes the remainder of the permit;
- Reviews the list of hot work precautions which may be necessary for the hot work permit;
- Signs the hot work permit and issues it to the originator when assured that all necessary precautions have been taken;
- The originator is responsible for getting the final approval from the Safety Coordinator or the ADFM. The hot work operations can then begin.
- After the hot work is completed the welder/cutter or the fire watch will return the permit to the Safety Office, where it will be maintained.

3. Cutter/Welder

- Reviews the list of hot work precautions with the supervisor;
- Affixes the hot work permit to a visible place in the immediate work area;
- Conducts the hot work operations within the authorized parameters and time limit set by the hot work permit;
- Stop the hot work operation if any new hazards are introduced into the area;
- Ensure that the fire watch remains in the area during breaks, lunch and for 1 hour after the operation is completed;
- Ensures that the permit is completed and returned to the Safety Office.

Training

Training on the Hot Work Policy will be conducted annually or as necessary.;