APPLICATION

All New York University academic, commercial and residential facilities.

PURPOSE

To minimize the incidence of employee injuries from welding, flame cutting and soldering processes.

POLICY AND GENERAL INFORMATION

Authorization from a supervisor of welding, flame cutting and soldering processes must be given to operators prior to such operations occurring. The supervisor shall be responsible for the safe practice of all processes performed by the operators. Applicable regulations shall be followed.

1.0 Responsibilities

1.1 Prior to the decision to conduct welding, flame cutting and/or soldering operations, the Building Manager, Project Manager and/or Maintenance & Operations Supervisor shall review the project and inspect the proposed work area for potential hazards (see section 3.0 of this policy).

1.2 The Project Manager shall inform the Building Manager whenever welding, flame cutting and soldering operations are planned in conjunction with a project, and coordinate with the Building Manager to insure that all safety procedures are followed. (see section 4.0 of this policy)

1.3 The Building Manager or designee and/or the Maintenance & Operations Supervisor shall inspect all University or outside contractor equipment in order to determine that it is in proper working order and in a fire safe condition. Any equipment deemed to be unsafe will not be used and removed from the building.

2.0 Training

2.1 Project Managers and Maintenance & Operations Supervisors shall be responsible for training machine operators to be familiar with the processes of welding, flame cutting and soldering used in their respective job assignment(s).

2.2 Operators and fire guards shall have Certificates of Fitness issued by the New York City Fire Department in their possession during welding, cutting and soldering operations.

3.0 Personal Protective Equipment

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3.1 Goggles and face shields that give maximum eye protection for each welding, flame cutting and soldering process shall be worn by operators performing these operations and helpers assisting the operators.

3.2 Flame resistant gloves and aprons shall be worn during welding, flame cutting and soldering processes.

3.3 Should protective hard hats be worn, they shall be made of a flame resistant material.

3.4 Safety shoes with protected tops should be worn to protect the operator from spark hazard.

4.0 Area Conditions for Welding, Flame Cutting and Soldering

4.1 Prior to welding, flame cutting or soldering, exposed combustible material in the work area shall be covered with a non-combustible material or moved at least thirty-five feet away from the point of operation. Please refer to Hot Work Permit Safety Policy No. 138 for instructions on completing the permit.

4.2 If it is necessary to weld, flame cut or solder close to wood construction or near combustible material that cannot be moved, an ABC rated multipurpose dry chemical fire extinguisher shall be placed within five feet of the point of operation.

4.3 Welding and flame cutting operations shall not be permitted if any of the following conditions are present:

   4.3.1 Authorization from the supervisor has not been given to the operator to perform such processes;
   4.3.2 Sprinkler system is impaired in the work area;
   4.3.3 Explosive atmospheres (e.g., mixtures of flammable gases, vapors, liquids or dusts in air) are present;
   4.3.4 There is the storage of large quantities of readily ignitable materials; or
   4.3.5 There are unprotected personnel in the vicinity of the work area.

4.4 One fireguard is required for each torch operator and an additional fireguard shall be provided on the floor or level below the operation. Such person shall have no other duties assigned to him when on watch duty. An inspection of the work area and the floor/level below the work area must be made by the fire guards one-half hour following the completion of welding, cutting and soldering operations.

4.5 Appropriate warning signs shall be posted during welding, flame cutting and soldering processes. Once work has been completed, a warning sign shall be posted to prevent accidental contact.

4.6 Areas where welding, flame cutting or soldering processes are occurring should be well ventilated.
5.0 Guarding

Welding, flame cutting and soldering shall not be conducted unless persons in the vicinity of the work area are segregated from the activities. Appropriate guarding and barricades shall be erected.

6.0 Welding, Flame Cutting and Soldering (usage of torches)

6.1 A City-Wide permit shall be obtained from the New York City Fire Department prior to any welding, flame cutting and soldering operations. The permit shall be posted in the work area.

6.2 For the storage, handling, usage and disposal of compressed gas cylinders that are used in welding and flame cutting processes, see Safety Policy No. 104 “Safe Storage, Handling, Use and Disposal of Compressed Gas Cylinders”. In addition, a City-Wide Permit for the storage and handling of oxygen and combustible gases shall be obtained from the New York City Fire Department.

6.2 Miscellaneous precautions when using cylinder gas

6.2.1 Hose and hose connections

- Do not use hoses that are too long - it is difficult to purge long hoses properly and long hoses may be difficult to work with.
- Check hoses for leaks and wear. If a leak is detected, repair it immediately. Repairs shall be made by cutting the hose and inserting a splice. Repairing a hose by taping is not adequate.
- Store hoses in a cool dry area.
- Use flashback devices (e.g., flame arrestors) between cylinder and hose connections and between hose and torch connections.

6.2.2 Torches

- To attach a torch or change torches, shut off the gas at the pressure-reducing regulators; never by crimping the hose.
- Open torch valves to relieve all gas pressure from the hose and regulator.
- To light torches, use a friction lighter, stationary pilot flame or other suitable source of ignition. Never light a torch with a match. When lighting a torch, always point the tip in a direction so no one will be burned when the gas is ignited.

6.2.3 Arc Welding

- The work area shall be barricaded such that workers other than the operator(s) do not enter the work area.
- The case of the welding machine shall be grounded.
- Current settings for arc welding shall not exceed 600 amps.
- An AC transformer-type welding unit should be equipped with a voltage regulator, which automatically reduces the open-circuit secondary voltage to 38 volts during idling. It should also be equipped with a circuit breaker and a three-conductor power supply cable.
- Welding transformers should not be attached to lighting circuits.
Open circuit voltages should only be used when both of the following conditions are met:

a. All equipment and circuiting are fully insulated and the operator cannot make electrical contact other than through the arc itself, while the arc is maintained.

b. Disconnecting or voltage reducing devices operate within a time limit not exceeding one second after breaking the arc.

- Fully insulated electrode holders shall be used to prevent the workers from accidentally striking an arc with such holders.

- Hot electrodes must not be dipped into water.

- Electrodes shall not be charged with bare hands or wet gloves, or when standing on wet floors or surfaces that are being used as grounding surfaces.

- If a cable (either work lead or electrode lead) becomes worn exposing bare conductors, cover the exposed portion with rubber, plastic or friction tape equivalent in insulation to the cable covering.

- Arc welding should be conducted in rooms where walls, ceiling and other exposed surfaces have a dull finish produced by a dark non-reflective paint.

- Cables shall be kept clear of the arc welding point of operation. Cables shall be kept clear of the operator.

7.0 Soldering (not involving torches)

7.1 When not in use, soldering irons should always be placed in an insulated non-combustible holder. The holder shall be such that the operator cannot accidentally touch it when reaching for it without looking.

7.2 A hot soldering iron shall never be left unattended.

7.3 All electric soldering irons should be stored in a dry storage area.

7.4 Before each use, check the equipment for defects in the iron and power cord and check the equipment to see if it is dry. Should the equipment be defective or wet, do not use and report it to the supervisor.

7.5 Faceshields and gloves should be worn in the event that the solder or flux might splatter.

8.0 Outside Contractors

8.1 Outside contractors must comply with all the requirements of the New York University policy for welding, flame cutting and soldering and all applicable regulations.

8.2 The Building Manager shall be given copies of all permits and Certificates of Fitness prior to work commencing.

8.3 The Building Manager shall be notified by the outside contractor of all work to be performed. Once the work has been completed, the outside contractor should contact the Building Manager prior to leaving the building.