



## **SECTION 4**

# **PERSONAL PROTECTIVE EQUIPMENT**



### 1. INTRODUCTION

Maul Electric, Inc and their clients make every effort to eliminate an employee's exposure to hazards in the work place. Our employees are expected to review the job site to identify and, where possible, eliminate hazards prior to commencing work. Additionally, discussion of identified and potential hazards is an important part of any job planning and execution.

It is not always possible to eliminate all hazards or potential hazards. The best rule of thumb is to expect the unexpected. Properly selected, used, and maintained personal protective equipment has been proven to protect our employees from hazards in the work place. Personal protective equipment use, however, is not an excuse for taking unacceptable risks.

Personal protective equipment must be inspected prior to use and prior to return. It must be kept in a state of good repair and cleanliness. Damaged equipment must be identified and immediately removed from the work site. Equipment temporarily issued by Maul Electric, Inc or their client's must be returned at the end of each workday.

Employees may adjust personal protective equipment for fit. Alteration, change, modification, or use for purposes other than designed and intended is strictly prohibited.

Foreman and Site Supervisors are advised to check with client policy manuals for additional personal protective equipment requirements.

Hazard assessment forms will be filled out prior to commencement of work to determine the job hazards are present or are likely to be present, which necessitate the use of PPE, personal protective equipment to be worn and signed by all employees on that project. The exposure determination shall be made without regards to the use of personal protective equipment. Certifier must sign and date the form.

When it is established that Personal Protective Equipment is needed a training program shall be put in place that will include the following:

- 1) When PPE is necessary
- 2) What PPE is necessary
- 3) Limitations
- 4) Proper care
- 5) Maintenance
- 6) Useful life and disposal

Retraining is required when:

- 1) Change in workplace occurs
- 2) Type of PPE changes
- 3) Employee shows lack or improper use, or understanding

Certification for training must include employee name, dates of training, and the certification subject.



All Personal Protective Equipment Shall be provided to employees at no cost to the employee. Employees are not permitted to use personally owned PPE unless approved by the Site Supervisor or designated safety representative.

### 2. HEAD PROTECTION

- A. OSHA References:** 29CFR1926.951(a)(2), ANSI Z89.2-1971, 29CFR 1910.135, ANSI Z89.1-1969
1. Head protection for Maul Electric, Inc employees will comply with ANSI Standard Z89.2-1971 and will provide protection from falling objects, electric shocks, or burns. (Compliance and testing data should be indicated or stamped into the helmet).
  2. Head protection is required to be worn while performing all mechanical, construction, and maintenance work.
  3. Head protection is required when visiting work sites as described in 2 above.
  4. Head protection is not required in buildings, passenger vehicles, trucks, or enclosed heavy equipment cabs, or other areas that have been designated by Maul Electric, Inc or the client designated representative as not requiring head protection.
  5. Aluminum head protection and bump hats will not be worn.
  6. Head protection will be used and cared for in the following manner:
    - a) Helmets must be worn straight and squarely on the head with the bill and peak facing forward.
    - b) The cradle must be adjusted so that there is a one-inch minimum clearance between head and the shell.
    - c) Helmet shells and suspension systems may be adjusted but not altered or modified (i.e. drilling ventilation holes in helmet or taping suspension together.)
    - d) Helmets must be inspected daily and replaced at the first sign of damage or excess wear.
    - e) Suspensions and helmets may be cleaned with mild soap and water only. The use of solvents may damage the helmet and suspension material, thereby weakening the capability of the equipment.
    - f) The use of warning or hazard labels and stickers on head protection is prohibited.



- 3. HEARING PROTECTION POLICY AND PPE:** The business of Maul Electric, Inc is to supply qualified crafts people and service to our clients. We have few permanent work locations in which engineering and noise monitoring data may be obtained and maintained. Our employees are reminded that hearing protection is required in all client locations or Maul Electric, Inc locations that are marked by signs indicating the need for hearing protection. Further, client designated representatives may require the use of hearing protection via the work permitting system. Where noise exposure readings are not available, employees must be aware of a simple rule. **If you must raise your voice to be heard above background noise or equipment noise, ear protection is required.**

**A. OSHA References: 29 CFR 1926.52, 29 CFR 1926.101, 29CFR 1910.95**

**B. Objectives:**

1. To ensure that no employee will be exposed to noise levels at or above 85dBA without approved hearing protection equipment
2. To provide a Hearing conservation program for all employees regularly exposed to hazardous noise in there assigned duties
3. To identify hazardous noise areas and sources through appropriate monitoring surveys and evaluate protection for specific environments.
4. To clearly identify hazardous noise areas with designated noise signs
5. To maintain a noise-monitoring program that will detect hazardous noise levels of specific job duties and various work areas.
6. To conduct audiometric examinations annually for employees exposed to hazardous noise exposure as required by 1910.95

**C. Responsibilities:**

1. **Designated Site Safety Person**
  - a) Identify hazardous noise areas.
  - b) Monitor each fixed facility job classification to determine noise exposure levels.
  - c) Assure that personnel are trained in the proper usage of the hearing protection equipment and the importance of hearing conservation.
  - d) Coordinate retraining of employees identified with significant threshold shifts.



- e) Conduct periodic field checks to determine if employees are complying with the hearing conservation program.
- f) Make certain the program complies with federal, state and local regulations.
- g) Notify each employee of his or her audiometric test results.

### 2. Supervisors

- a) Insure that all elements of the Hearing Conservation Program are followed.
- b) Enforce the wearing of personal hearing protection in hazardous noise areas
- c) Alert the Safety Director of process/equipment changes which would affect the noise level in the area
- d) Maintain a supply of hearing protectors in the work area
- e) Enforce use of hearing protection devices in areas where applicable

### 3. Employees

- a) Comply with the guidelines of the hearing conservation Policy
- b) Use the provided hearing protection equipment in accordance with the training and instruction received
- c) Notify the supervisor immediately when conditions or practices change and result in increased noise levels
- d) Affected employees will be notified of both monitoring and audiometric testing results, which pertain to the employee.

**D. Exposure Limits:** Hearing protection must be worn when the sound levels exceed the following:

Duration (hours per day)	db-A
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

**NOTE:** Exposure to impulsive or impact noise must not exceed 140 dB peak sound pressure level.



**E. Monitoring for Noise Exposure:**

1. Personnel: Each job classification or fixed facilities will be monitored periodically for 8hr noise exposure levels (at least every 2 years).
2. Area: Each project/facility will be monitored for hazardous noise areas. The area will be re-monitored during and after major process/equipment changes. Areas, which have high noise levels greater than or equal to 85dBA must be posted with appropriate warning signs.

**F. Selection Of Protective Equipment:** Hearing protection equipment should be selected in accordance with 29CFR 1926.101. High quality, disposal earplugs are recommended.

**G. Use Of Hearing Protection:** Hearing protective devices will be provided at no cost to the employee.

1. Disposable foam hearing devices are recommended.
  - a) Roll plugs between clean fingertips.
  - b) Pull back gently on the back of the ear.
  - c) Gently insert, do not force, ear plug into ear.
  - d) The foam earplug will expand.
2. Form fitting earplugs may be used providing a competent individual has provided them.
3. Approved earmuffs may be worn; however eyewear earpieces that break the seal may reduce their effectiveness.
4. Cotton, lambs wool, or other non-approved material will not be used
5. Do not handle ear protection with dirty hands or gloves.

**H. Mandatory Hearing Protection Wear:** Employees involved in the following work activities will wear hearing protection.

1. Working with compressors, jackhammers, pile driving equipment, chain saws, gas, or diesel driven welding machines, powder actuated tools, impact tools.
2. Working on or near steam leaks, working with the above or hand operated impact tools, (i.e. sledge hammers) inside of confined spaces.
3. In any area posted as requiring hearing protection, either by sign or work permit instructions.

**The supervisor and/or designated site safety person shall enforce the wearing of hearing protection in hazardous noise environments**



- I. Medical Surveillance:** fixed facilities (**excluding construction projects**) shall perform audiometric examinations annually on employees exposed to hazardous noise. The audiometric examination will be used to gather baseline data and to detect hearing losses. A Baseline audiogram shall be conducted for each exposed employee within six months of first exposure. Initial baseline testing will be done after at least 14hrs without exposure to workplace noise.

All personnel, excepting construction, who are regularly exposed to occupational noise in the course of performing their assigned job duties, at or above an 8-hour TWA or 85dBA sound level will be included in the Hearing Conservation Program and will receive audiometric testing

When significant threshold shift (STS) is determined, the employee will be notified in writing within 21 days of the STS determination. Hearing protection shall be reevaluated and or refitted and if necessary additional medical evaluations shall be conducted. The Safety Director shall also be informed of the employees STS so the employee may be included in the Hearing Conservation Program.

- J. Effects of Exposure:** Exposure to noise levels above those posted in this policy can cause temporary hearing loss. Extended exposure can and will cause permanent hearing loss. Other effects of exposure can be fatigue and irritability as well as partial loss of hearing in some tones. If you notice any of these effects, report it to your supervisor immediately.
- K. Training:** The objective of the hearing conservation program is the education of employees in the procedures to minimize noise exposure. All Employees will be trained once a year in the Hearing Conservation Program. The following subjects will be covered in the training.
1. Fundamentals of noise
  2. Hearing Loss- Cause and Prevention
  3. Needs and Benefits of the Hearing Conservation Program
  4. Hearing Protection Devices proper use and Care
  5. Explanation of Audiometric Testing
  6. Location of Hazardous Noise Areas
- L. Documentation:** In addition to documentation being maintained on noise surveys, hearing examinations, and training, documentation shall be maintained on the types of hearing protection provided and its application. This documentation will be maintained at the main office.



#### **4. EYE AND FACE PROTECTION POLICY**

- A. References:** 29CFR 1926.102, 29CFR 1910.133, ANSI Z87.1-1968
- B. Policy:** ANSI approved safety glasses, with side shields, shall be worn at all times on every construction and maintenance site. Visitors to these sites shall comply with this policy. Goggles/face shields shall be worn while working with a pneumatic or electrical tool, which may produce dust, chips, or air born objects. Tools such as a jackhammer, chipping gun, grinder, beveling machine, etc., require the use of face shields.
1. Eyewear worn at Maul Electric, Inc sites must comply with ANSI requirements for impact and shatter resistance for both lens and frames.
  2. Contact lenses will not be worn on Maul Electric, Inc sites.
  3. All prescription glasses shall have approved safety lens and frames or must be worn under goggles at all times.
  4. Eyewear will be examined for scratches, pitting and frame damage. Scratches, pitting, and frame damage weaken the impact and shatter resistance of the eyewear. Worn or damaged equipment will be replaced immediately.
  5. Non-conductive eyewear will be worn while working on live, exposed electrical parts.
- C. Selection Guide For Eye Wear And Face Wear:**
1. Acetylene burning, cutting, or welding:
    - a) Welding goggles, eyecup type with tinted lenses
    - b) Welding goggles, cover spec type with tinted lenses
    - c) Welding goggles, cover spec type with tinted plate lens
  2. Chemical Handling
    - a) Full face shield (preferred for severe exposure hazard)
    - b) Goggles, flexible fitting, with hooded ventilation
    - c) First Break hood with safety glasses or goggles.
  3. Electric Arc Welding
    - a) Welding helmet with tinted lenses
  4. Employees are reminded that compliance with client requirements is mandated, provided the clients policy meets or exceeds the Maul Electric, Inc Policy





**D. Selection Guide For Filter Lens Shades For Protection Against Radiant Energy:**

ACTIVITY	SHADE
Shielded metal-arc welding 1/16, 3/32, 1/8, 5/32 inch diameter electrodes	10
Gas shielded arc welding (nonferrous) 1/16, 3/32, 1/8, 5/32 inch diameter electrodes	11
Gas shielded arc welding (ferrous) 1/16, 3/32, 1/8, 5/32 inch diameter electrodes	12
Shielded metal-arc welding 3/16, 7/32, 1/4 inch diameter electrodes	12
Shielded metal-arc welding 5/16, 3/8 inch diameter 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 over 6 inches	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) over 1/2 inch	6 or 8

- E. Eye Wash Facilities:** Where the eyes or the body of any person **may** be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body will be provided within the work area for immediate emergency use. These facilities may be portable, but must be located within 50 feet of the hazard and capable of providing 15 minutes of continuous flow. Client provided facility locations should be noted by Maul Electric, Inc employees and checked for operation prior to commencement of work. Please pay specific attention to the water flow temperature, as many may overheat. If temporary or portable facilities are required, notify your immediate supervisor.



## 5. GENERAL RESPIRATORY PROTECTION PROGRAM

A. **References:** 29 CFR1910.134, 29CFR1926.103

B. **General:** This section provides the Maul Electric, Inc Policy and procedures for the use, selection, care and issuance of respiratory protective equipment. Maul Electric, Inc foreman must consult client-established procedures. Where the client's procedures meet or exceed this policy, the client procedure will be used. This program applies to all employees who are required to wear respirators provided by Maul Electric, Inc during normal work operations, and during some non-routine or emergency operations such as a spill of a hazardous substance.

1. When effective engineering controls are not feasible; Engineering controls are being instituted, but not yet complete or the potential exists for employee exposure to breathing air contaminated with harmful dusts, mists, gases, smokes, sprays or vapors, respiratory protection shall be used.
2. Respiratory protective devices will not be issued to individuals not properly trained in their use, care and selection. Individuals must be fit tested within the last twelve months prior to issuance. Maul Electric, Inc does not provide "in- house" fit testing and training in respiratory protection. Documentation of training and testing by an approved and qualified individual is required prior to assigning any Maul Electric, Inc employee to tasks requiring respiratory protective equipment.
3. Employees who voluntarily wear filtering face piece respirators (dust masks) are not subject to the medical evaluation, cleaning, storage, and maintenance provisions of this program.
4. Respiratory hazard determinations will be conducted for each individual job-site and placed in Appendix B of the Maul Electric, Inc Corporate Safety Manual for that site.
5. Respiratory protection will be based on the requirements of the job-site if it is deemed there is a need to have them on-site.
6. Medical, respirators, and training shall be provided by Maul Electric, Inc to each employee at no cost to the employee.

C. **Selection Of Respiratory Protection:** The Program Administrator will select respirators to be used on Maul Electric, Inc sites, based on the hazards to which workers are exposed and in accordance with all OSHA standards. The Program Administrator will conduct site-specific hazard evaluations for each operation, process, or work area where airborne



contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

1. Identification and development of site specific lists of hazardous substances used in the workplace, by department, or work process.
2. Site specific review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.
3. Exposure monitoring to quantify potential hazardous exposures.
4. Relevant historical data on employee exposures provided by the client.
5. Brands and models of NIOSH approved respirators are to be listed in Appendix H.

**D. Updating The Hazard Assessment:** The Program Administrator must revise and update the hazard assessment as needed (i.e., anytime work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his or her supervisor or the Program Administrator. The Program Administrator will evaluate the potential hazard, arranging for outside assistance as necessary. The Program Administrator will then communicate the results of that assessment back to the employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks and this program will be updated accordingly.

**E. NIOSH Certification:** All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use.



## F. RESPONSIBILITIES

1. **Program Administrator:** The Program Administrator is responsible for administering the respiratory protection program. The Program Administrator must be knowledgeable of the complexity of the program, conduct evaluations, and be properly trained, address appropriate surveillance, and ensure employees leave the area to wash, change cartridges, or if they detect breakthrough or resistance. Other duties of the program administrator include:
  - a) Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
  - b) Selection of respiratory protection options
  - c) Monitoring respirator use to ensure that respirators are used in accordance with their certifications
  - d) Arranging for and/or conducting training.
  - e) Ensuring proper storage and maintenance of respiratory protection equipment
  - f) Conducting qualitative fit testing
  - g) Administering the medical surveillance program
  - h) Maintaining records required by the program.
  - i) Evaluating the program
  - j) Updating written program, as needed.
  
2. **Supervisors:** Supervisors are responsible for ensuring that the respiratory protection program is implemented on their particular jobsite. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. In addition, the program should be monitored for program effectiveness these duties of the supervisor include:
  - a) Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing, and annual medical evaluation
  - b) Ensuring the availability of appropriate respirators and accessories
  - c) Being aware of tasks requiring the use of respiratory protection
  - d) Enforcing the proper use of respiratory protection when necessary
  - e) Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan.
  - f) Ensuring that respirators fit well and do not cause discomfort



- g) Continually monitoring work areas and operations to identify respiratory hazards.
  - f) Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program
3. **Employees:** Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also.
- a) Care for and maintain their respirators as instructed, and store them in a clean sanitary location.
  - b) Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.
  - c) Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.
  - d) Provide feedback to the Program Administrator when asked about fit, selection, use, maintenance so program effectiveness can be verified.

### G. TYPES OF RESPIRATORY PROTECTIVE EQUIPMENT:

1. **Air Purifying Respirators:** These air-purifying respirators are used to filter contaminants from the air. They must be selected for use in accordance with the selection procedures outlined in III B of this section. AIR PURIFYING RESPIRATORS MUST NOT BE USED IN OXYGEN DEFICIENT ATMOSPHERES OR IN AREAS WHERE THE CONCENTRATION OF AIRBORNE CONTAMINANTS EXCEED THE LEVEL FOR WHICH THE CARTRIDGE IS APPROVED
- a) **Filtering Face piece Respirator:** This type of respirator is designed to provide protection from non-hazardous nuisance dusts and non-hazardous vapors.
  - b) **Gas Mask (canister) Respirators:** These respirators may be in use at some client locations.
  - c) **Cartridge Respirators:** These respirators are available in full or half face design. Replaceable cartridges are used to provide filtration of materials. A check valve allows for exhalation of air and closes to prevent intake of unfiltered air. They provide protection against low concentrations of airborne contaminants. It is extremely important that the proper cartridge be selected.
  - d) Filtering face piece respirators, Gas Mask (canister) Respirators and Cartridge Respirators are effective when properly selected, fitted and used. Cartridges, canisters and



dust respirators must be replaced when breathing becomes difficult and/or the wearer detects break through of the filtering device by smelling and/or tasting the contaminant. CAUTION: Many hazardous materials do not possess good warning characteristics. Several will hamper or deaden your sense of smell at higher concentrations. Periodic replacement of cartridge, canister or dust respirator is required.

2. **Self Contained Breathing Apparatus (SCBA):** Selection criteria outlined in III B of this section is required. Warning devices and configuration of SCBA may differ from manufacturer to manufacturer. In addition to proper use of SCBA, training and familiarization with the specific equipment configuration and warning devices of the model are required before use. It is not possible to provide specific manufacturer information on all SCBA that Maul Electric, Inc employees may encounter. The following information is provided in generic terms.
3. **Escape Capsules:** These devices are generally equipped with a clear plastic over the head hood. They are approved for escape purposes only and may not be used for the performance of work requiring respiratory protection.
4. **Air Packs:** Air packs are the standard self-contained breathing apparatus to be used where oxygen or a hazard exists or may exist. Pure self-contained breathing air from a high-pressure cylinder(s) is supplied to the facemask, continuously, to provide air required for breathing. The mask provides good visibility and can be fitted with an anti-fogging nose cup. The plastic lens is subjected to the same testing as chipping goggles for needle puncture and impact. These devices may provide 1/2 hour or hour (estimated) breathing air. It is important to that several factors, i.e. exertion, heat, physical condition of the user, etc. will determine the amount of time the supply of breathing air will last.
5. **Supplied Air Respirators (SAR):** Selection criteria, as indicated in Section B of this procedure, must be applied. When it is necessary to perform duties of a non-emergency nature in contaminated areas the use of an airline must be considered.
  - a) Supplied air respirators (SAR) provide breathing air to the wearer through a hose from an independent 300 CF breathing air cylinder, air compressor or specially filtered air compressor. (See use instructions for compressor and air line requirements).
  - b) An escape or egress bottle must be used in areas where an oxygen deficient atmosphere or contaminants that are



immediately dangerous to life and health exists (IDLH). SAR must never be connected to plant utility air or instrument air systems.

- 6. **Respirator Fitting Requirements:** Maul Electric, Inc will ensure that all employees using tight fitting face piece respirators pass an appropriate qualitative or quantitative fit test prior initial usage, if a different respirator is used, and annually. SARs are required to be fit tested as well. All fit tests will be conducted in accordance with 29 CFR 1910.134 Appendix A.
  - a) Qualitative fit tests (i.e. Irritant smoke, banana oil) may only be used to fit test negative pressure respirators which must achieve a fit factor of 100 or less.
  - b) Quantitative fit tests (i.e. Porta count) are required for negative pressure respirators which must achieve a fit factor greater than 100.

The following table should be used to determine the acceptable fit test for the respirator selected.

<b>ACCEPTABLE FIT-TESTING METHODS</b>		
<b>Respirator</b>	<b>Qualitative</b>	<b>Quantitative</b>
Half Face, Negative Pressure, APR (<100 fit factor)	<u>Yes</u>	<u>Yes</u>
Full Face Negative Pressure, APR (<100 fit factor) used in atmospheres up to 10 times the PEL	Yes	Yes
Full Face, Negative Pressure, APR (>100 fit factor)	No	Yes
PAPR	Yes	Yes
SAR or SCBA used in Negative pressure mode (>100 fit factor)	No	Yes
SAR or SCBA Positive Pressure Mode	Yes	Yes
SCBA- Structural Fire Fighting Positive Pressure	Yes	Yes
SCBA/SAR- IDLH, Positive pressure	Yes	Yes
Mouth bit respirators	Fit-Testing Not Required	
Loose fitting respirators		

**H. Face Seal Protection:** Employees whose job function includes tasks, which require the use of respiratory protective equipment, must be able to achieve a leak tight seal and must have nothing inside the face piece, which interferes with the valve function. The following items are known to interfere with a tight seal:

- 1. Facial abnormalities or absence of dentures.



2. Eyeglasses with temple pieces extending under the sealing surface of the mask.
3. Hairstyles, sideburns, beards and long mustaches that extend into the sealing surface of the mask. (Note: Check clients "facial hair policy")
4. Sweatbands, helmet liners or other headgear or appliances that come between the sealing surface and the face.

Job tasks requiring the use of respiratory protective equipment will not be assigned to employees that cannot obtain and maintain a seal.

- I. **Training:** All Maul Electric, Inc personnel who are required to use a respirator must receive training, at least annually, in the proper selection, use, care and fitting of the respirator. Maul Electric, Inc will secure the services of a qualified consulting firm for the purpose of providing this training and refresher training on an as needed basis.
- J. **Inspection Prior To Use:** All respirators must be inspected prior to use. Specific attention must be paid to cleanliness, condition of mask sealing surface, condition of face plate and face plate seal, cartridges etc. Damaged equipment will not be used and must be identified and returned immediately
- K. **Field Fit Test:** Qualified Maul Electric, Inc employees required to work in respiratory protection will perform a negative and positive pressure fit test prior to entering the hazardous environment.
  1. **Positive Pressure Test:** Cup or other wise close the exhalation valve and exhale gently into the face piece. The fit is considered to be satisfactory, if slight positive pressure can be held without leakage at the seal.
  2. **Negative Pressure Test:** Close off the inlet openings of the cartridge with the palms of your hands. Inhale gently, collapsing the face piece slightly against the face. Do not breathe for approximately 10 seconds. If the face piece remains in the collapsed position, the fit is satisfactory.
- L. **Care and Maintenance:** Respirators shall be regularly cleaned and disinfected. Respirators used by more than one individual will be thoroughly cleaned and disinfected at the end of each individual use and prior to issuance to the next individual. An individual specifically qualified to perform maintenance on respiratory equipment will perform maintenance. Cleaning and disinfecting of respirators will be done in accordance with 29 CFR 1910.134 Appendix B-2.
- M. **Respirator Storage:** Respirators must be stored in a convenient, clean and sanitary location.





**N. Medical Evaluation:** Employees who are either required to wear respirators, or who choose to wear an APR voluntarily, must pass a medical exam before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use. Medical Evaluations will be conducted by a Physician or licensed Health care provider in accordance with 29 CFR 1910.134 (e)

1. The employee will be sent directly to a Physician or Licensed Health care Practitioner for medical evaluation.
2. Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the designated medical clinic physician.
3. All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
4. Any employee required for medical reasons to wear a positive pressure air-purifying respirator will be provided with a powered air-purifying respirator.
5. After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:
  - a) Employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
  - b) Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation;
  - c) A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the physician. The medical condition of employees assigned to work requiring respiratory protection is of concern. Those employees having medical conditions, i.e. upper respiratory infections, severe asthma, known heart conditions, or ruptured ear drums must not be assigned respiratory protection required work.

Program Administrator is required to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. Records of medical evaluations will be retained at Maul Electric,



Inc home office by the Program Administrator. Copies can be obtained from the Program Administrator as needed.

- O. Air Quality:** Breathing air must meet, at a minimum, the requirements of the specification for Grade D breathing air as described in Compressed Gas Association Commodity Specification G-7.1-1966. (Consult 29CFR1910.134 (d) for other air source requirements).
- P. Breathing Air:** Breathing air may be supplied to respirators from cylinders or air compressors.

  1. Cylinders shall be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49CFR part 178).
  2. Compressors for supplying air shall be equipped with safety and standby devices. A breathing air type compressor shall be used. Compressors shall be constructed and situated as to avoid entry of contaminated air into the system and suitable in-line air purifying sorbent beds and filters installed to further assure breathing air quality. A receiver of sufficient capacity to enable the respirator user to escape from a contaminated atmosphere in event of Compressor failure, and alarms to indicate compressor failure and overheating shall be installed in the system. If an oil-lubricated compressor is used, it shall have a high temperature alarm or carbon monoxide alarm or both. If only a high temperature alarm is used, the air from the compressor shall be frequently tested for carbon monoxide to insure that it meets the specifications outlined in this section.
- Q. Air Line Couplings:** Airline couplings shall be incompatible with outlets for other gas systems to prevent inadvertent servicing of airline respirators with non-respirable gases or oxygen.
- R. Containers:** Breathing gas containers shall be marked in accordance with American National Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained (ANSI Z48.1-1954).
- S. Safety:** In areas where the wearer, with failure of the respirator, could be overcome by a toxic or oxygen deficient atmosphere, at least one additional man shall be present. Communications by voice, visual or signal line must be maintained between both or all individuals present. Planning shall be such that one individual will be unaffected by any likely incident and have the proper rescue equipment to be able to assist the other(s) in the event of an emergency.



## Health & Safety Policy and Procedures Manual

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When self-contained breathing apparatus or hose masks with blowers are used in atmospheres immediately dangerous to life or health, standby employees must be present with suitable rescue equipment.

Persons using air line respirators in atmospheres immediately hazardous to life and health shall be equipped with safety harness and safety lines for lifting or removing persons from hazardous atmospheres or other equivalent provisions for the rescue of persons from hazardous atmospheres shall be used. A standby person (s) with suitable self-contained breathing apparatus shall be at the nearest fresh air base for emergency protection. This individual will be responsible to monitor compressor alarms and/or air cylinder pressure and must be in visual, verbal contact with the safety observer.



## **6. PROTECTIVE EQUIPMENT FOR ABRASIVE BLASTING**

### **A. References: 29CFR 1910.94**

### **B. In abrasive blasting operations, the following apply:**

1. Surface to be blasted must be tested for lead content.
2. Continuous flow air line respirator constructed so that it will cover the wearers head, neck and shoulders to protect him from rebounding abrasives will be worn
3. Only respiratory protective equipment approved by the Bureau of Mines, US Department of the Interior (30CFR Part 11) shall be used for protection of personnel against dusts produced during abrasive blasting operations.
4. All abrasive blasting operators shall wear abrasive blasting respirators.
5. When using silica sand in manual-blasting operations where the nozzle and blast are not physically separated from the operator in an exhaust ventilated enclosure, the operator shall wear abrasive-blasting respirators.



## 7. HAND PROTECTION

### A. References: 29 CFR 1926.28

**B. General:** Hand protection against heat, flame, cold, corrosive materials, moisture, abrasion, electricity, sharp surfaces, rough surfaces, etc. is available for use. The selection of the proper work glove for the hazard should follow the following guidelines:

1. Heat and cold protective gloves must be used during any job function where contact is probable with hot objects or extremely cold objects i.e. dry ice, liquid nitrogen, liquid oxygen, etc.
2. Welding operations require the use of welder's leather gloves, protective leather sleeves or jacket and chaps.
3. Handling or contact with chemicals, solvents and oils require the use of neoprene and plastic coated gloves. These gloves must be washed or wiped before removal and changed frequently.
4. General work gloves of leather or leather palmed are required for most job tasks assigned to Maul Electric, Inc
5. Chisel or hand held impact tools should be equipped with hand guards to prevent accidental striking of hands and fingers.
6. Electrically Tested Gloves: Rubber protective equipment for electrical workers must meet the specifications and requirements established in ANSI Standard J6.6.1971. Dates of testing must be stamped on the glove. A visual inspection of these gloves must be performed prior to and after use. An "air" test is required for rubber gloves prior to use. Leather over gloves will be inspected prior to use. Electrically tested gloves that are out of date of inspection or fail visual and/or air testing shall be immediately removed from service.



## 8. BODY HARNESS AND LANYARDS

A. **References:** 29CFR 1926.104, 29CFR 1926.959, 29 CFR 1926.502

B. **General:** The purpose of this section is to define the requirements for safety belts, harnesses, lanyards and lifelines. More detailed information on fall protection is included in the Maul Electric, Inc Fall Protection Policy. **In Accordance with 29 CFR 1926.502 Body belts are not acceptable as part of a personal fall arrest system**

1. Lifelines, safety belts and lanyards shall be used only for the safeguarding of employees. Lifelines, safety belts and lanyards subjected to in service loading immediately removed from service as an employee protective device and will not be placed back in service as an employee protective device.
2. Lifelines will be secured above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5400 pounds. Lifelines will not be anchored or secured to hot piping, electrical conduit or points with sharp edges that may damage the lifeline by cutting or abrasion.
3. A minimum of 3/4 inch or equivalent manila rope with a minimum breaking strength of 5400 pounds will be used. Shock absorbing lanyards are recommended.
4. Safety belt lanyards shall be a minimum of 1/2-inch nylon, or equivalent, with a maximum length to allow a fall of no greater than 6 feet. The rope shall have a minimum breaking strength of no less than 5400. Shock absorbing lanyards are strongly recommended for safety belt use.
5. Safety belt and lanyard hardware must be drop forged or pressed steel, cadmium plated in accordance with type 1, class b plating as specified in Fed spec QQ-P-416. The surface of the hardware must be smooth and free of burrs or sharp edges.
6. All safety belt and lanyard hardware must be capable of withstanding a tensile loading of 4000 pounds, without cracking, breaking or deforming.

C. **Lineman's Body Belts, Safety Straps And Lanyards:** Lineman's body belts, safety straps and lanyards must comply with the requirements outlined in 29CFR 1926.959 (a) and (b). Consult standard for specifics.



### 9. SAFETY NETS

**A. References:** 1926.105

**B. General:** Safety nets must be provided when workplaces are more than 25 feet above the ground or water surface or other surfaces where the use of ladders, scaffold, catch platforms, temporary floors, safety lines or safety belts is impractical. If a safety net required, work will not commence until the net is installed.

1. Nets must extend 8 feet beyond the edge of the work surface where the employees are exposed and installed as close as practical under the work surface, but not more than 25 feet.
2. The net must be hung in a manner that would prevent the employee from coming in contact with surfaces or structures below the net. The clearances will be determined by impact load testing data.
3. The mesh size of nets must not exceed 6 inches by 6 inches. All new nets must meet an accepted performance standard of 17,500 pounds minimum impact resistance as established and certified by the manufacturer and must bear a label establishing proof of the test.
4. The edge ropes of nets must provide a minimum breaking strength of 5000 pounds.
5. Forged steel safety hooks or shackles must be used to fasten the net to its supports.
6. Connections between the net panels must develop the full strength of the net.



### 10. PROTECTIVE EQUIPMENT REQUIREMENTS NEAR OR OVER WATER

- A. Reference:** 29 CFR 1926.106
- B. General:** All Maul Electric, Inc employees working over or near water, where the danger of drowning exists must be provided with U.S. Coast Guard approved life jackets or buoyant work vests. Foremen are reminded to check client procedures for specific locations requiring near water or over water protective equipment.
1. Each life jacket, work vest or life preserver must be inspected for defects, damage (i.e. rips and damaged straps), or any other defect/damage that would alter its strength. All damaged or defective equipment must be removed from the work site immediately.
  2. Ring buoys with a minimum of 90 feet of line attached must be provided and readily available for emergency rescue operations.
  3. The distance between ring buoys must not be greater than 200 feet.
  4. Ropes and ring buoys must be inspected for damage and defect prior to use. Defective equipment must be removed and replaced immediately.
  5. At least one lifesaving skiff must be immediately available at locations where employees are working over or adjacent to water.