

Safety Program Requirements

Safety Program Requirements

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Title	Program Requirements	Training Requirements
Access to Employee Exposure and Medical Records	<ul style="list-style-type: none"> • Identify what records must be maintained • Maintain employee's records confidentially • Ensure access to records by employees, as required • Inform employees of their rights, complete pg. 6 (file name: Access to Employee Exposure and Medical Records FORM), employees need access 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Access to Employee Exposure and Medical Records <p>Employees must be informed of what records are kept, their location, and how to access them.</p> <p>Frequency: initial, annual</p>
Accident Investigation and Reporting	<ul style="list-style-type: none"> • Determine who will investigate accidents, this may include supervisors, management, and employees • Determine accident and near miss reporting procedures • Inform employees of the work-related injuries and illness procedures and their rights to report • Complete accident report as needed, pg. 11– 13 (file name: Accident, Incident, Near Miss Investigation Report FORM) • Note additional state requirements for: AK, HI, WA 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Accident investigation (Supervisor) • Accident Reporting
Aerial Lift	<ul style="list-style-type: none"> • Identify the tasks that require an aerial lift • Write and communicate workplace specific procedures that outline the operation, and limitations, of aerial lifts • Maintain manufacturer's requirements, limits and documentation • Conduct documented daily inspections prior to use, pg. 7 (file name: Aerial Lift Operator Checklist FORM) • Implement fall arrest systems as required • Annually evaluate the aerial lift program to assure it is relevant and functioning properly • Note additional state requirements for: MI 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Aerial Lift - Personal Fall Arrest System <p>Users in operating controls and safe use. (Paychex can provide for classroom education, not skills requirement)</p> <p>Frequency: initial, update as required</p>
Back Safety in the Workplace	<ul style="list-style-type: none"> • Identify risk factors for back injury in the operations <ul style="list-style-type: none"> • Repetitive or prolonged activities • Awkward postures • Unusual size or weight objects • Implement any required controls to minimize or eliminate hazards 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Back Safety • Back Care (Medical)

Safety Program Requirements

Architectural Concrete Plus

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Blood and Body Fluids (Incidental) Exposure	<ul style="list-style-type: none"> Identify risk situations 	Available but not required training: <ul style="list-style-type: none"> Blood and Body Fluids Safety Awareness
Compressed Gas	<ul style="list-style-type: none"> Ensure storage areas are identified and inspected frequently Cylinders must be secure and prevented from tipping Cylinders must be labeled Cylinders must be stored properly Note additional state requirements for: MI 	REQUIRED TRAINING: <ul style="list-style-type: none"> Compressed Gas Employees who handle cylinders. Frequency: initial, update as required
Confined Space Entry (Permit Required)	<ul style="list-style-type: none"> Develop procedures for atmospheric testing, pg. 17 (file name: Confined Space Atmospheric Testing FORM) Assess confined spaces to determine if permit is required, pg. 18 (file name: Confined Space Entry Assessment FORM) Ensure permits are established and posted and that conditions of entry have been met, pg. 20 – 22 (file name: Confined Space Entry Permit FORM) Identify any confined and maintain a listing of these spaces, pg. 23 (file name: Confined Space List FORM) Write and communicate policies and procedures including safe entry requirements, pg. 24 - 25 (file name: Confined Space Written Program FORM) Audit (annually) permits to ensure effectiveness of procedures Retain entry permits for at least one year beyond termination of the job or permit Identify rescue procedures, team members and responsibilities, and provide equipment necessary (rescue, personal protective, safe lighting etc.) Note additional state requirements for: AK, MD, MI, MN, OR, VA 	REQUIRED TRAINING: <ul style="list-style-type: none"> Confined Space Entry Entrants, Attendants, and their supervisors, in entry hazards, communications, and emergency response. (Paychex can provide general entry training, not space specific hazards) Frequency: initial, and per space, update as required

Safety Program Requirements

Architectural Concrete Plus

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Construction Safety	<ul style="list-style-type: none"> • Access each construction job to identify its potential health and safety risks and communicate the identified hazards to employees • Review operations for additional activities which could impact both contractors and employees • Write and communicate policies and procedures • Conduct compliance audits when contractors are on site • Note additional state requirements for: CA, HI, MI, MN, NC, NV, OR, UT, VT 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Overview – Construction <p>Employees will be trained on safety policies and procedures as well as the hazards posed by their work assignment.</p>
Contractor Safety Verification	<ul style="list-style-type: none"> • Evaluate hazards of tasks and activities at your workplace where contractors and temporary employees may have risk or exposure <ul style="list-style-type: none"> • Ensure these hazards are controlled and the persons exposed have appropriate training and equipment • Evaluate hazards of tasks and activities which your employees may encounter at another job site or workplace <ul style="list-style-type: none"> • Ensure these hazards are controlled and your employees have appropriate training and equipment to control these hazards 	<p>No OSHA trainings apply</p>
Demolition	<ul style="list-style-type: none"> • Identify "competent" personnel to prepare demolition plans • Write and communicate policies and procedures that will include a process to ensure that at each demolition site, hazards, safety equipment, and emergency response procedures are evaluated • Provide any needed safety equipment • An engineering survey must be completed to assess the condition of the framing, floors, and walls to prevent a possible premature collapse of the structure • Note additional state requirements for: MI, MN 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Construction Demolition <p>Supervisors and employees will be trained in the recognition of hazards associated with demolition work and in their responsibilities for emergencies. As well as debris chute use.</p> <p>Frequency:initial, update as required</p>

Safety Program Requirements

Architectural Concrete Plus

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Electrical (Comprehensive) >50V	<ul style="list-style-type: none"> • Review hazards and determine level of exposures • Provide testing supplies and safety equipment • Provide warning and alerting devices to protect employees from contact with energy hazards • Write and communicate policies and procedures, pg. 10 – 12 (file name: Electrical Safety Written Program (Example) FORM), employees need access • Note additional state requirements for: AK, MI, MN, OR 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Electrical Safety <p>Hazard recognition and protective measures. Competent person for Ground Fault Protection in Construction. (Paychex can provide general awareness training, not qualification or high voltage exposure)</p> <p>Frequency: initial, update as required</p>
Electrical (General)	<ul style="list-style-type: none"> • Review hazards and determine level of exposures • Ensure electrical services are contracted with licensed electricians, if only cord and plug equipment hazards are encountered by employees. Otherwise ensure that safeguards, equipment, and training is provided to employees who encounter other electrical hazards • Ensure electrical safety requirements are being met • Note additional state requirements for: MN 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Electrical Safety
Emergency Action, Evacuation and Fire Prevention	<ul style="list-style-type: none"> • Identify and evaluate fire hazards • Identify and evaluate exit routes • Provide emergency equipment as needed • Write and communicate policies and procedures including Emergency Action and Fire Prevention Programs, pg. 12 (file name: Emergency Action Plan FORM), employees need access • Review program at least annually • Annual and monthly fire extinguisher inspections • Note additional state requirements for: MI, OR 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Emergency Action • Fire Extinguisher <p>Emergency Action training required for all employees in exiting areas, relocation safe-spot, and (as appropriate) fire hazards.</p> <p>Fire Extinguisher training required if an employee is required to use fire extinguishers, training required annually. (Paychex can provide only voluntary use fire extinguisher training)</p> <p>Frequency: initial, update as required, annual for some businesses</p>

Safety Program Requirements

Architectural Concrete Plus

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Fall Protection	<ul style="list-style-type: none"> • Evaluate hazards falls are evaluated in the workplace • Ensure fall hazards are controlled through guardrail systems or that employees have appropriate training and equipment • Ensure fall protection is inspected prior to use, pg. 12 – 13 (file name: Fall Protection Equipment Inspection Checklist FORM) • Note additional state requirements for: KY, OR, WA 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Fall Protection General Industry Awareness • Fall Protection Construction Awareness <p>Users of systems, components, and inspection</p> <p>Frequency: initial, update as required</p>
Flammable Liquids	<ul style="list-style-type: none"> • Evaluate operations for presence of flammable and combustible liquids • Determine and implement correct storage and dispensing requirements • Determine protective measures and emergency response procedures • Ensure containers are clearly labeled and inspected before use • Arrange for appropriate waste disposal • Note additional state requirements for: MN 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Flammable Liquids for Container
General Safety Awareness	<ul style="list-style-type: none"> • Document any site specific General Safety Rules not covered by any other section of the safety manual, pg. 12 (file name: General Safety Rules FORM), employees need access • Ensure New Employee are given safety training prior to starting work • Note additional state requirements for: CA, HI, OR 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • General Safety Orientation
Hand and Portable Power Tools	<ul style="list-style-type: none"> • Inspect tools before use to ensure they are in good operating condition • Note additional state requirements for: MI, MN 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Hand and Portable Power Tools

Safety Program Requirements

Architectural Concrete Plus

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Hazard Communication	<ul style="list-style-type: none"> • Determine if hazardous chemicals are present in the workplace • Ensure a Hazardous Chemical Inventory List is maintained, pg. 7 (file name: Chemical Inventory List FORM) • Ensure the availability of a Safety Data Sheet (SDS) for each hazardous chemical or mixture in the workplace, employees need access • Ensure proper labeling of chemical containers • Complete a written hazard communication program, pg. 9 - 10 (file name: Hazard Communication Written Program FORM), employees need access • Develop a process to evaluate and document any new hazards or changes • Ensure proper Personal protective equipment is identified • Note additional state requirements for: AK, HI, MD, MI, MN, NC, NM, RI, TN, VT, WA, *OR for Pesticide Worker Protection 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Hazard Communication <p>SDS content, Labeling requirements, Right to Know</p> <p>Frequency: initial, update as required</p>
Lockout/Tagout	<ul style="list-style-type: none"> • Evaluate the potential hazards of specific equipment • Inform absent employee of lock removal, pg. 12 (file name: LOTO Absent Employee Lock Removal Procedure FORM) • Establish a written program and procedures for each piece or type of equipment, pg. 16 – 17 (file name: LOTO Written Procedure FORM), employees need access • Perform annual procedure inspections, pg. 18 (file name: LOTO Written Procedure Inspection Certificate FORM) • Communicate with contractors, as required • Evaluate all new equipment (or changes to old equipment) and processes for LO/TO capability • Note additional state requirements for: MI 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Lockout Tagout <p>3 levels: Authorized, Affected and Others</p> <p>Frequency: initial, update as required</p>

Safety Program Requirements

Architectural Concrete Plus

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Machine Guarding	<ul style="list-style-type: none"> • Identify risk factors for machinery operations • Ensure original guards or equivalent measures are in place • Ensure safeguarding practices are implemented for any non-routine task where existing guarding practices are insufficient to protect operators • Note additional state requirements for: MN, OR 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Machine Guarding <p>Operators where guards must be removed, and specific to forging equipment operators.</p> <p>Frequency: initial, update as required</p>
Noise Exposure and Hearing Conservation	<ul style="list-style-type: none"> • Determine where noise levels exist above regulatory levels, conduct monitoring • Appoint a Hearing Conservation Coordinator • Establish a written Noise Exposure and Hearing Conservation Program, pg. 10 (Hearing Conservation Program Responsibilities) • Establish engineering controls, administrative controls or protective equipment requirements (in that order) to reduce or eliminate the health and safety effects of noise • Notify employees exposed at or above action levels • Ensure employees in noise zones receive baseline and annual audiograms • Record any noise related hearing loss as required on OSHA recordkeeping forms • Ensure protective equipment and materials are available, as needed or required • Post copy of hearing regulation and signs in area where hearing protection must be used, pg. 17 – 25 (file name: Text of Noise and Hearing Conservation Standard FORM) • Note additional state requirements for: WA 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Hearing Protection <p>Users in hazards of noise, types of protection, equipment use</p> <p>Frequency: initial, annual</p>

Safety Program Requirements

Architectural Concrete Plus

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OSHA Recordkeeping	<ul style="list-style-type: none"> • Determine if recordkeeping standards apply • Maintain appropriate records: OSHA 300 pg. 11 (file name: OSHA_300_Log), 300A pg. 12 (file name: OSHA_300A_Log) and 301 pg.13 (file name: OSHA_301 or equivalent form) • Notify OSHA within 8 hours of fatalities and within 24 hours of work related inpatient hospitalization, amputation, or loss of an eye • Post appropriate summaries of the OSHA recordkeeping forms from Feb 1 – April 30 • Encourage employees to report any incidents (injuries, illnesses, and near-miss incidents) • Report the contents and summaries of these documents upon being notified in writing by the Bureau of Labor Statistics that the employer has been selected to participate in a statistical survey of occupational injuries and illnesses • Retain log and summary of all recordable occupational injuries and illnesses (OSHA 300 and OSHA 300A or equivalent) for 5 years • Note additional state requirements for: CA, HI, MI, MN, OR 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • OSHA Recordkeeping (Supervisor)
Personal Protective Equipment	<ul style="list-style-type: none"> • Conduct an annual documented personal protective equipment assessment to identify risk factors for employee exposures, pg. 8 (file name: Certificate of Hazard Assessment FORM), employees need access • Provide protective equipment, as required • Note additional state requirements for: MI, MN, OR 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Personal Protective Equipment <p>(Equipment dependent) Users of equipment in use, storage and protection limits.)</p> <p>Frequency: initial, update as required</p>

Safety Program Requirements

Architectural Concrete Plus

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Portable Ladder Safety	<ul style="list-style-type: none"> • Ensure the appropriate type of ladder is selected based on the nature of the project • Ensure ladder inspections are performed, pg. 7 (file name: Ladder Safety Checklist FORM) • Ensure ladders are properly repaired and maintained in accordance with regulatory standards or are properly disposed of when they are found to be defective (and or are removed from service) • Note additional state requirements for: CA, MI, OR 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Ladder Safety <p>Users of ladders in inspection and equipment use</p> <p>Frequency: initial, update as required</p>
Respiratory Protection	<ul style="list-style-type: none"> • Evaluate the need for respiratory protection • Determine filter change out schedule, pg. 19 (file name: Respirator Filter Change Out Schedule FORM) • Document voluntary respirator use, pg. 20 (file name: Respirator Information for Voluntary Use FORM) • Ensure respirator users are medically fit to use the equipment and perform the duties required, pg. 22 – 26 (file name: Respirator Medical Evaluation Questionnaire FORM) • Provide NIOSH-approved respirators, suitable to the hazard • Train and fit-test employees who use respirators, pg. 28 (file name: Respirator Selection And Fit Testing Record FORM) • Evaluate the facility and program at least annually to ensure it is effective and appropriate • Establish and maintain the written program and documentation required, pg. 68 – 73 (file name: Respiratory Protection Written Program) • Note additional state requirements for: AK 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Respirators – Air Purifying Respirators • Respirators – Filtering Facepieces • Respirators – Supplied Air Respirator <p>Users trained in requirements, medical issues, cleaning and inspection. (Paychex can provide for classroom education, not fit testing)</p> <p>Frequency: initial, annual</p>
Safe Driving	<ul style="list-style-type: none"> • Inspect vehicles prior to operation 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Safe Driving
Safety Checklist	<ul style="list-style-type: none"> • Routine safety inspections and audit of workplace 	<p>No OSHA trainings apply</p>

Safety Program Requirements

Architectural Concrete Plus

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Scaffolds	<ul style="list-style-type: none"> • Ensure only trained and qualified individuals erect or dismantle scaffolding • Ensure scaffolding meets the minimum requirements for loading, strength, position and use for the job, task or activity • Provide the needed equipment and materials for scaffolding • Ensure only certified professional engineers design scaffolds where scaffolding is built or erected for a specific purpose • Ensure inspections are performed and documented • Enforce the use of guardrail systems and/or fall protection equipment • Note additional state requirements for: MI 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Scaffolds <p>User restrictions and precautions</p> <p>Frequency: initial, update as required</p>
Scissors Lift	<ul style="list-style-type: none"> • Identify the tasks that require a scissor lift • Maintain manufacturers requirements, limits and documentation • Conduct daily inspections prior to use, recommended to document inspections, pg. 6 (file name: Scissor Lift Operator Daily Checklist FORM) • Ensure only trained operators use lift equipment, pg. 7 (file name: Scissor Lift Operator Performance Evaluation FORM) 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Scissor Lifts <p>Users in operating controls and safe use. (Paychex can provide for classroom education, not skills requirement)</p> <p>Frequency: initial, update as required</p>
Silica	<ul style="list-style-type: none"> • Determine silica exposure levels of concern • Implement exposure monitoring program for each effected employee. • Utilize engineering and work practice Controls to reduce silica exposure wherever feasible • Establish and Implement a Silica Exposure Control Plan, pg. 16 (file name: Silica Exposure Control Plan) • Implement a medical surveillance program, as needed • Provide personal protective equipment, as needed • Maintain exposure records • General Industry: Post Signs and limit access where required 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Silica Safety Awareness <p>Employees exposed above established limits.</p> <p>Frequency:initial, annual</p>

Safety Program Requirements

Architectural Concrete Plus

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Trenching and Shoring	<ul style="list-style-type: none"> • Determine the type of protective system to be used • Ensure a competent person supervises the installation of the system • Ensure trenches and excavations are inspected daily and after any weather events that may impact the safety of the excavation • Ensure soils-testing is performed daily by a competent person • Ensure trenches and excavations are protected if left unattended • Note additional state requirements for: MI, SC, VA 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Construction Excavation Trenching and Shoring <p>Entrant and Supervisor training, collapse prevention methods. (Paychex can provide general awareness training, but not competent person requirements)</p> <p>Frequency: initial, update as required</p>
Walking and Working Surfaces	<ul style="list-style-type: none"> • Ensure aisles and passageways are of the proper width and appropriately maintained • Ensure all wall, floor, stairways are adequately protected • Ensure floors are not overloaded, and that load limits are indicated • Enforce housekeeping rules • Ensure materials are properly stored and not obstructing aisles, passageways, stairways or other areas where they could cause a hazard • Note additional state requirements for: MI, MN, OR 	<p>Available but not required training:</p> <ul style="list-style-type: none"> • Slips Trips and Falls • Walking and Working Surfaces
Welding, Cutting, Brazing	<ul style="list-style-type: none"> • Based on fire potentials of plant facilities, establish areas for cutting and welding, and establish procedures for cutting and welding • Develop, implement, and communicate Hot Work Permit program, as applicable, pg. 18 – 19 (file name: Hot Work Permit FORM) • Advise all contractors about flammable materials or hazardous conditions, as applicable • Provide resources (fire watchers, equipment, barriers, etc.) as needed or required • Determine the combustible materials and hazardous areas present or likely to be present in the work location, and protective methods to be used • Ensure adequate ventilation • Note additional state requirements for: MI, OR 	<p>REQUIRED TRAINING:</p> <ul style="list-style-type: none"> • Welding <p>Welders require training in the specific type of welding performed, fire protection and Lockout/Tagout.</p> <p>Frequency: initial, update as required</p>

Safety Program Requirements

Architectural Concrete Plus

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Working in Extremes Temperatures	<ul style="list-style-type: none">• Monitor workplace temperatures• Ensure employees and supervisors are able to recognize early signs and symptoms of cold and heat intolerance• Provide engineering controls, work practices and protective equipment to reduce exposure levels to the lowest achievable level• Ensure the availability of water or other appropriate beverages to employees• Note additional state requirements for: CA, WA	Available but not required training: <ul style="list-style-type: none">• Extreme Temperature - Cold• Extreme Temperature - Heat

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Architectural Concrete Plus

Safety Manual

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TABLE OF CONTENTS

Safety and Health Policy Statement

Access to Employee Exposure and Medical Records

Accident Investigation and Reporting

Aerial Lift

Back Safety in the Workplace

Blood and Body Fluids (Incidental) Exposure

Compressed Gas

Confined Space Entry (Permit Required)

Construction Safety

Contractor Safety Verification

Demolition

Electrical (Comprehensive) >50V

Electrical (General)

Emergency Action, Evacuation and Fire Prevention

Fall Protection

Flammable Liquids

General Safety Awareness

Hand and Portable Power Tools

Hazard Communication

Lockout/Tagout

Machine Guarding

Noise Exposure and Hearing Conservation

OSHA Recordkeeping

Personal Protective Equipment

Portable Ladder Safety

Respiratory Protection

Safe Driving

Safety Checklist

Scaffolds

Scissors Lift

Silica

Trenching and Shoring

Walking and Working Surfaces

Welding, Cutting, Brazing

Working in Extremes Temperatures

Architectural Concrete Plus

SAFETY AND HEALTH POLICY STATEMENT

Safety and health in our company must be a part of every operation, and is every employee's responsibility.

We maintain a safety and health program conforming to the best practices of businesses in our industry. To be successful, such a program must embody the proper attitudes toward injury and illness prevention and requires cooperation in all safety and health matters between employees at all levels. Only through a cooperative effort can an effective safety and health program be established and preserved.

The safety and health of every employee is a high priority. Management accepts responsibility for providing a safe working environment and employees are expected to take responsibility for performing work in accordance with safe standards and practices. Safety and health is only achieved through teamwork. Everyone must join together in promoting safety and health and taking every reasonable measure to assure safe working conditions in the company.

PROGRAM OVERVIEW

ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS

REGULATORY STANDARD: OSHA 29CFR1910.1020 and 1913.10

INTRODUCTION

Records that pertain in any way to exposures or to employee specific health information must be maintained confidentially by the company. Employees must understand what records are kept, why, and how to access these records. This would include medical exams, facility surveys for air contaminants, noise surveys, hearing exams, etc.

TRAINING

Employees informed on the types of records, location, and access procedures.

ACTIVITIES

- Identify what records must be maintained
- Maintain employee records confidentially
- Ensure access to records by employees, as required

FORMS

- Access to Employee Exposure and Medical Records
- Release of Medical or Exposure Records Consent Form
- Recordkeeping Requirements for Exposure Records (reference)
- Access to Employee Exposure and Medical Records – Standard and Appendix
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS PROGRAM

1. **Purpose.** This document provides written guidance for specific exposure monitoring, testing results, medical surveillance, and similar documents required by OSHA regulations with regard to employee-specific information. Records that contain health related information specific to an employee or employee exposure must be maintained for specific timeframes.
2. **Scope.** Applies to any medical or exposure monitoring records, and medical surveillance monitoring records maintained by the company.

3. Responsibilities

3.1 Area Management:

- 3.1.1 Determines what records must be maintained. (Reference Recordkeeping Requirements for Medical and Exposure Records form)
- 3.1.2 Ensures medical and exposure records are maintained confidentially.
- 3.1.3 Ensures employees have access to medical and exposure records.

3.2 Employees:

- 3.2.1 Understand where records are kept, why they are required, and how to access them.

3.3 Safety Representative must (as needed):

- 3.3.1 Assist in the implementation of this program.

4. Procedure

4.1 Access Rules.

- 4.1.1 Employee access to records must be provided within 15 working days from the date of request.
 - 4.1.1.1 Except for trade secrets, employers are to disclose the specific chemical identity [chemical name and Chemical Abstract Service (CAS) number] of materials for which exposure records are requested
 - 4.1.1.2 Requests need not be in writing, unless trade secret information is involved in the request.
 - 4.1.1.3 Delays of more than 15 days must be documented in writing and the employee informed (also in writing) of the reason for the delay and include the date of release of the record.

- 4.1.1.4 Access may be to employees to whom the records pertain or to that employee's legal representative. The records of other employees are not to be considered part of this information, unless the information is part of objective data evaluations.
- 4.1.2 OSHA may access these records at any time without written consent of the employee.
- 4.1.3 Health professionals (physicians, occupational health nurses, industrial hygienists, toxicologists, and epidemiologists) who require information for non-emergency medical treatment may request access to medical records with the written consent of the patient or their legal representative.
- 4.1.4 Health professionals (physicians, occupational health nurses, industrial hygienists, toxicologists, and epidemiologists) who require information for emergency or medical treatment of an exposed employee will be granted immediate access to pertinent information about the exposure without delay.
 - 4.1.4.1 If trade secret information is part of this record, confidentiality agreements may be obtained at a future point, however, immediate information will be transmitted as it pertains to the emergency medical treatment.
- 4.1.5 Employers must inform their workers initially and at least annually of their rights to access to medical and exposure records.

5. Safety Information

5.1 Records Retention:

- 5.1.1 Exposure records are generally required to be maintained for 30 years.
- 5.1.2 Medical records are generally required to be maintained for the duration of employment plus 30 years.
- 5.1.3 Biological and Chemical monitoring results are generally maintained for the duration of employment plus 30 years.
- 5.1.4 First aid records and experimental toxicological research records are excluded from the 30-year retention requirements.
- 5.1.5 Safety Data Sheets and Chemical Inventory Information is generally not required to be maintained, provided the specific information on chemical name, manufacturer and date is maintained in the exposure record.
- 5.1.6 Personal medical records for short-term employees (less than one year) do not have to be retained if they are provided to the employee on termination

5.1.7 X-rays (except chest x-rays) may be microfilmed for easier storage. Chest x-rays must be maintained in their original condition.

5.2 Copies of Records

5.2.1 Employees are entitled to view their records at any time.

5.2.2 One copy of the record will be provided within 15 days of a written request at no charge to the employee.

5.2.2.1 X-rays may be viewed at the site or at a convenient off-site location.

5.3 Transfer of Records

5.3.1 Should the company cease to do business during the record retention time frame, the company will transfer all records to the successor employer.

5.3.2 Whenever an employer is ceasing to do business and there is no successor employer to receive and maintain the records subject to this standard, the employer shall notify affected current employees of their rights of access to records at least three (3) months prior to the cessation of the employer's business.

6. Training and Information

Employees must be informed of the types of records maintained by the company, who maintains these records, and the process for accessing their personal records.

7. Definitions.

- *Access* – The right to read, examine, and copy.
- *Exposure Record* - Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained; or Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs;
- *Medical Record* – Documentation concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel, or technician, including: Questionnaires or histories, medical examination results or laboratory test results (including x-rays), medical opinions, descriptions of treatments and prescriptions, detailed first aid descriptions, and employee medical complaints. Health insurance claims and voluntary employee assistance program information (drug or alcohol counseling, and/or personal counseling programs) are not considered part of the medical record if they are maintained in a separate system, nor are voluntary employee assistance program information.

- *Objective Data Evaluations* - a type of exposure evaluation using area or personnel sampling where the data is representative of employee exposures in the work environment.

- *Trade Secret* – Confidential information that pertains to the chemical make up of a substance or mixture that, when disclosed, will have a negative impact on the company's business activities with regard to trademarked or similarly protected products.

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ACCESS TO EMPLOYEE EXPOSURE AND MEDICAL RECORDS (OSHA 1910.1020)

Employees and their designated representative have a right of access to relevant exposure and medical records; and to provide representatives of OSHA a right of access to these records to fulfill responsibilities under the Occupational Safety and Health Act.

Employee medical records include: medical exams, facility surveys for air contaminants, noise surveys, hearing examinations, etc.

Location of records and availability

All exposure and medical records are on file in the _____. A copy of the records is available to the employee and an employee representative. All requests must be in writing, including the employee's signature.

Person responsible for maintaining records

The _____ is responsible for maintaining and providing access to records and to provide information on employee's rights of access of their records.

Location and availability of Section 1910.1020

A copy of section 1910.1020 and its appendices are located on the OSHA website (http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10027) or are printed and posted, and available to employees in the workplace at the following location:

_____.

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RELEASE OF MEDICAL OR EXPOSURE RECORDS CONSENT FORM

I, _____, hereby authorize
(full name of worker/patient)

_____ to release to
(organization holding the medical records)

_____ the following records:
(organization authorized to receive information)

(Describe the specific information desired to be released).

I give my permission for this medical information to be used for the following purpose:

but I do not give permission for any other use or re-disclosure of this information.

This release consent expires on: _____
(date)

ONLY the above listed information is authorized to be released. No other information pertaining to my records is authorized for release.

Full name (printed) of Employee or Legal Representative

Signature of Employee or Legal Representative

Date of Signature: _____

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Recordkeeping Requirements For Exposure and Medical Records

This listing outlines the requirements for recordkeeping for employee exposure and medical records for the regulations listed in the General Industry Standards			
Topic or Record Type	Regulatory Citation	Frequency of Monitoring or Records	Duration of Recordkeeping
Incident Reports	1904	As Incident Occurs	5 years
Training Records	General	As deemed by specific regulation	Until superseded unless otherwise noted
Injury and Illness Logs (300/300A)	1904	Annual	5 years
Noise Monitoring Results	1910.95	Annual	2 years
Noise and Hearing Audiograms	1910.95	Annual	Duration of employment
Process Safety for Highly Hazardous Chemicals	1910.119	As Incident Occurs	5 years
Hazardous Waste Operations and Emergency Response for exposures above PEL	1910.120	Annual or as deemed by physician	Duration of employment plus 30 years
Respirator Use Medical Evaluations	1910.134	Annual	Duration of employment plus 30 years
Respirator Use Fit Test	1910.134	Annual	Until superseded
Commercial Diving Incident and Injury Reports	1910.401-441	As Incident Occurs	Duration of employment plus 30 years
Commercial Diving Medical Records	1910.440	Annual	5 years then to OSHA
Commercial Diving Dive Records	1910.440	Per Dive	1 year
Commercial Diving Decompression Evaluation	1910.440	Per Dive	5 years then to OSHA
Commercial Diving Equipment Evaluations and Inspections	1910.440	Per Use	Until superseded
Air Contaminants Exposures above PEL	1910.1000	Annual or as deemed by physician	Duration of employment plus 30 years
Asbestos Exposure Monitoring	1910.1001	Per Job	30 years
Asbestos Employee Exposures	1910.1001	Per Employee	Duration of employment plus 30 years
Asbestos Training Records	1910.1001	Annual	Duration of employment plus 1 year

Recordkeeping Requirements For Exposure and Medical Records

13 Carcinogens 4-nitrobiphenyl; alpha-Naphthylamine; Methyl chloromethyl ether; 3,3'-Dichlorobenzidine (& salts); bis-Chloromethyl ether; beta-Naphthylamine; Benzidine; 4-Aminodiphenyl; Ethyleneimine; beta-Propiolactone; 2-Acetylaminofluorene; 4-Dimethylaminoazobenzene; N-Nitrosodimethylamine	1910.1003 -1006	Annual	Duration of employment
Vinyl Chloride Monitoring and Medical Surveillance Reports	1910.1007	Annual	Duration of employment plus 20 years (not less than 30 years)
Inorganic Arsenic Monitoring and Medical Surveillance Reports	1910.1008	Annual	Duration of employment plus 20 years (not less than 40 years)
Lead Monitoring and Medical Surveillance Reports	1910.1025	Annual	Duration of employment plus 20 years (not less than 40 years)
Lead Exposure Medical Removal	1910.1025	As occurs	Duration of employment
Cadmium Exposure Monitoring	1910.1027	Annual	30 years
Cadmium Exposure Medical Surveillance	1910.1027	Annual	Duration of employment plus 30 years
Cadmium Exposure Training	1910.1027	Annual	1 year
Benzene Exposure Monitoring	1910.1028	Annual	30 years
Benzene Exposure Medical Surveillance	1910.1028	Annual	Duration of employment plus 30 years
Coke Oven Emission Monitoring and Medical Surveillance	1910.1029	Annual	Duration of employment plus 20 years (not less than 40 years)

Recordkeeping Requirements For Exposure and Medical Records

Bloodborne Pathogens Training	1910.1030	Annual	3 years
Bloodborne Pathogens Exposure Incident Reports which include Hepatitis B Vaccine Status	1910.1030	As occurs	5 years (if no reported health effect) Duration of employment plus 30 years (if reported health effect)
Bloodborne Pathogens Sharps Injury Log	1910.1030	Annual	5 years
Cotton Dust Exposure Monitoring and Medical Surveillance	1910.1043	Annual	20 years
1,2-dibromo-3-chloropropane Exposure Monitoring and Medical Surveillance	1910.1044	Annual	Duration of employment plus 20 years (not less than 40 years)
Acrylonitrile Exposure Monitoring and Medical Surveillance	1910.1045	Annual	Duration of employment plus 20 years (not less than 40 years)
Ethylene Oxide (EtO) Exposure Monitoring	1910.1047	Annual	30 years
Ethylene Oxide (EtO) Medical Surveillance	1910.1047	Annual	Duration of employment plus 30 years
Formaldehyde Exposure Monitoring	1910.1048	Annual	30 years
Formaldehyde Medical Surveillance Records	1910.1048	Annual	Duration of employment plus 30 years
Methylenedianaline Exposure Monitoring	1910.1050	Annual	30 years
Methylenedianaline Medical Surveillance Records and Medical Removal Records	1910.1050	Annual	Duration of employment plus 30 years
1,3-Butadiene Exposure Monitoring Records	1910.1051	Annual	30 years
1,3-Butadiene Medical Surveillance Records	1910.1051	Annual	Duration of employment plus 30 years

Recordkeeping Requirements For Exposure and Medical Records

Methylene Chloride Exposure Monitoring Records	1910.1052	Annual	30 years
Methylene Chloride Medical Surveillance Records	1910.1052	Annual	Duration of employment plus 30 years
Ionizing Radiation (X-ray) Programs	1910.1096	Per program	3 years after superseded date
Ionizing Radiation (X-ray) Surveys	1910.1096	Annual or as needed	3 years
Ionizing Radiation (X-ray) License Agreements; Planned Special Exposures; Individual Monitoring Results; and Waste Disposal Records	1910.1096	Per company	3 years after termination of license agreement
Ionizing Radiation (X-ray) Individual Monitoring Results and Public Individual Monitoring Results	1910.1096	Annual or as needed	3 years after termination of license agreement
Laboratory Safety Chemical Exposure Monitoring	1910.1450	As deemed by specific chemical or regulation	Duration of employment plus 30 years

- Part Title: Occupational Safety and Health Standards
 - Subpart: Z
 - Subpart Title: Toxic and Hazardous Substances
 - **Standard Number: 1910.1020**
 - Title: Access to employee exposure and medical records.
-

1910.1020(a)

"Purpose." The purpose of this section is to provide employees and their designated representatives a right of access to relevant exposure and medical records; and to provide representatives of the Assistant Secretary a right of access to these records in order to fulfill responsibilities under the Occupational Safety and Health Act. Access by employees, their representatives, and the Assistant Secretary is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease. Each employer is responsible for assuring compliance with this section, but the activities involved in complying with the access to medical records provisions can be carried out, on behalf of the employer, by the physician or other health care personnel in charge of employee medical records. Except as expressly provided, nothing in this section is intended to affect existing legal and ethical obligations concerning the maintenance and confidentiality of employee medical information, the duty to disclose information to a patient/employee or any other aspect of the medical-care relationship, or affect existing legal obligations concerning the protection of trade secret information.

1910.1020(b)

"Scope and application."

1910.1020(b)(1)

This section applies to each general industry, maritime, and construction employer who makes, maintains, contracts for, or has access to employee exposure or medical records, or analyses thereof, pertaining to employees exposed to toxic substances or harmful physical agents.

1910.1020(b)(2)

This section applies to all employee exposure and medical records, and analyses thereof, of such employees, whether or not the records are mandated by specific occupational safety and health standards.

1910.1020(b)(3)

This section applies to all employee exposure and medical records, and analyses thereof, made or maintained in any manner, including on an in-house or contractual (e.g., fee-for-service) basis. Each employer shall assure that the preservation and access requirements of this section are complied with regardless of the manner in which records are made or maintained.

1910.1020(c)

"Definitions."

1910.1020(c)(1)

"Access" means the right and opportunity to examine and copy.

1910.1020(c)(2)

"Analysis using exposure or medical records" means any compilation of data or any statistical study based at least in part on information collected from individual employee exposure or medical records or information collected from health insurance claims records, provided that either the analysis has been reported to the employer or no further work is currently being done by the person responsible for preparing the analysis.

1910.1020(c)(3)

"Designated representative" means any individual or organization to whom an employee gives written authorization to exercise a right of access. For the purposes of access to employee exposure records and analyses using exposure or medical records, a recognized or certified collective bargaining agent shall be treated automatically as a designated representative without regard to written employee authorization.

1910.1020(c)(4)

"Employee" means a current employee, a former employee, or an employee being assigned or transferred to work where there will be exposure to toxic substances or harmful physical agents. In the case of a deceased or legally incapacitated employee, the employee's legal representative may directly exercise all the employee's rights under this section.

1910.1020(c)(5)

"Employee exposure record" means a record containing any of the following kinds of information:

1910.1020(c)(5)(i)

Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained;

1910.1020(c)(5)(ii)

Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs;

1910.1020(c)(5)(iii)

Safety Data Sheets indicating that the material may pose a hazard to human health; or

1910.1020(c)(5)(iv)

In the absence of the above, a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent.

1910.1020(c)(6) 1910.1020(c)(6)(i)

"Employee medical record" means a record concerning the health status of an employee which is made or maintained by a physician, nurse, or other health care personnel, or technician, including:

1910.1020(c)(6)(i)(A)

Medical and employment questionnaires or histories (including job description and occupational exposures),

1910.1020(c)(6)(i)(B)

The results of medical examinations (pre-employment, pre-assignment, periodic, or episodic) and laboratory tests (including chest and other X-ray examinations taken for the purpose of establishing a base-line or detecting occupational illnesses and all biological monitoring not defined as an "employee exposure record"),

1910.1020(c)(6)(i)(C)

Medical opinions, diagnoses, progress notes, and recommendations,

1910.1020(c)(6)(i)(D)

First aid records,

1910.1020(c)(6)(i)(E)

Descriptions of treatments and prescriptions, and

1910.1020(c)(6)(i)(F)

Employee medical complaints.

1910.1020(c)(6)(ii)

"Employee medical record" does not include medical information in the form of:

1910.1020(c)(6)(ii)(A)

Physical specimens (e.g., blood or urine samples) which are routinely discarded as a part of normal medical practice, or

1910.1020(c)(6)(ii)(B)

Records concerning health insurance claims if maintained separately from the employer's medical program and its records, and not accessible to the employer by employee name or other direct personal identifier (e.g., social security number, payroll number, etc.), or

1910.1020(c)(6)(ii)(C)

Records created solely in preparation for litigation which are privileged from discovery under the applicable rules of procedure or evidence; or

1910.1020(c)(6)(ii)(D)

Records concerning voluntary employee assistance programs (alcohol, drug abuse, or personal counseling programs) if maintained separately from the employer's medical program and its records.

1910.1020(c)(7)

"Employer" means a current employer, a former employer, or a successor employer.

1910.1020(c)(8)

"Exposure" or "exposed" means that an employee is subjected to a toxic substance or harmful physical agent in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.), and includes past exposure and potential (e.g., accidental or possible) exposure, but does not include situations where the employer can demonstrate that the toxic substance or harmful physical agent is not used, handled, stored, generated, or present in the workplace in any manner different from typical non-occupational situations.

1910.1020(c)(9)

"Health Professional" means a physician, occupational health nurse, industrial hygienist, toxicologist, or epidemiologist, providing medical or other occupational health services to exposed employees.

1910.1020(c)(10)

"Record" means any item, collection, or grouping of information regardless of the form or process by which it is maintained (e.g., paper document, microfiche, microfilm, X-ray film, or automated data processing).

1910.1020(c)(11)

"Specific chemical identity" means a chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

1910.1020(c)(12) 1910.1020(c)(12)(i)

"Specific written consent" means a written authorization containing the following:

1910.1020(c)(12)(i)(A)

The name and signature of the employee authorizing the release of medical information,

1910.1020(c)(12)(i)(B)

The date of the written authorization,

1910.1020(c)(12)(i)(C)

The name of the individual or organization that is authorized to release the medical information,

1910.1020(c)(12)(i)(D)

The name of the designated representative (individual or organization) that is authorized to receive the released information,

1910.1020(c)(12)(i)(E)

A general description of the medical information that is authorized to be released,

1910.1020(c)(12)(i)(F)

A general description of the purpose for the release of the medical information, and

1910.1020(c)(12)(i)(G)

A date or condition upon which the written authorization will expire (if less than one year).

1910.1020(c)(12)(ii)

A written authorization does not operate to authorize the release of medical information not in existence on the date of written authorization, unless the release of future information is expressly authorized, and does not operate for more than one year from the date of written authorization.

1910.1020(c)(12)(iii)

A written authorization may be revoked in writing prospectively at any time.

1910.1020(c)(13)

"Toxic substance or harmful physical agent" means any chemical substance, biological agent (bacteria, virus, fungus, etc.), or physical stress (noise, heat, cold, vibration, repetitive motion, ionizing and non-ionizing radiation, hypo - or hyperbaric pressure, etc.) which:

1910.1020(c)(13)(i)

Is listed in the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS) which is incorporated by reference as specified in Sec. 1910.6; or

1910.1020(c)(13)(ii)

Has yielded positive evidence of an acute or chronic health hazard in testing conducted by, or known to, the employer; or

1910.1020(c)(13)(iii)

Is the subject of a Safety Data Sheet kept by or known to the employer indicating that the material may pose a hazard to human health.

1910.1020(c)(14)

"Trade secret" means any confidential formula, pattern, process, device, or information or compilation of information that is used in an employer's business and that gives the employer an opportunity to obtain an advantage over competitors who do not know or use it.

1910.1020(d)

"Preservation of records."

1910.1020(d)(1)

Unless a specific occupational safety and health standard provides a different period of time, each employer shall assure the preservation and retention of records as follows:

1910.1020(d)(1)(i)

"Employee medical records." The medical record for each employee shall be preserved and maintained for at least the duration of employment plus thirty (30) years, except that the following types of records need not be retained for any specified period:

1910.1020(d)(1)(i)(A)

Health insurance claims records maintained separately from the employer's medical program and its records,

1910.1020(d)(1)(i)(B)

First aid records (not including medical histories) of one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and the like which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job, if made on-site by a non-physician and if maintained separately from the employer's medical program and its records, and

1910.1020(d)(1)(i)(C)

The medical records of employees who have worked for less than (1) year for the employer need not be retained beyond the term of employment if they are provided to the employee upon the termination of employment.

1910.1020(d)(1)(ii)

"Employee exposure records." Each employee exposure record shall be preserved and maintained for at least thirty (30) years, except that:

1910.1020(d)(1)(ii)(A)

Background data to environmental (workplace) monitoring or measuring, such as laboratory reports and worksheets, need only be retained for one (1) year so long as the sampling results, the collection methodology (sampling plan), a description of the analytical and mathematical methods used, and a summary of other background data relevant to interpretation of the results obtained, are retained for at least thirty (30) years; and

1910.1020(d)(1)(ii)(B)

Safety Data Sheets and paragraph (c)(5)(iv) records concerning the identity of a substance or agent need not be retained for any specified period as long as some record of the identity (chemical name if known) of the substance or agent, where it was used, and when it was used is retained for at least thirty (30) years(1); and

Footnote(1) Safety Data Sheets must be kept for those chemicals currently in use that are effected by the Hazard Communication Standard in accordance with 29 CFR 1910.1200(g).

1910.1020(d)(1)(ii)(C)

Biological monitoring results designated as exposure records by specific occupational safety and health standards shall be preserved and maintained as required by the specific standard.

1910.1020(d)(1)(iii)

"Analyses using exposure or medical records." Each analysis using exposure or medical records shall be preserved and maintained for at least thirty (30) years.

1910.1020(d)(2)

Nothing in this section is intended to mandate the form, manner, or process by which an employer preserves a record so long as the information contained in the record is preserved and retrievable, except that chest X-ray films shall be preserved in their original state.

1910.1020(e)

"Access to records" -

1910.1020(e)(1)

"General."

1910.1020(e)(1)(i)

Whenever an employee or designated representative requests access to a record, the employer shall assure that access is provided in a reasonable time, place, and manner. If the employer cannot reasonably provide access to the record within fifteen (15) working days, the employer shall within the fifteen (15) working days apprise the employee or designated representative requesting the record of the reason for the delay and the earliest date when the record can be made available.

1910.1020(e)(1)(ii)

The employer may require of the requester only such information as should be readily known to the requester and which may be necessary to locate or identify the records being requested (e.g. dates and locations where the employee worked during the time period in question).

1910.1020(e)(1)(iii)

Whenever an employee or designated representative requests a copy of a record, the employer shall assure that either:

1910.1020(e)(1)(iii)(A)

A copy of the record is provided without cost to the employee or representative,

1910.1020(e)(1)(iii)(B)

The necessary mechanical copying facilities (e.g., photocopying) are made available without cost to the employee or representative for copying the record, or

1910.1020(e)(1)(iii)(C)

The record is loaned to the employee or representative for a reasonable time to enable a copy to be made.

1910.1020(e)(1)(iv)

In the case of an original X-ray, the employer may restrict access to on-site examination or make other suitable arrangements for the temporary loan of the X-ray.

1910.1020(e)(1)(v)

Whenever a record has been previously provided without cost to an employee or designated representative, the employer may charge reasonable, non-discriminatory administrative costs (i.e., search and copying expenses but not including overhead expenses) for a request by the employee or designated representative for additional copies of the record, except that

1910.1020(e)(1)(v)(A)

An employer shall not charge for an initial request for a copy of new information that has been added to a record which was previously provided; and

1910.1020(e)(1)(v)(B)

An employer shall not charge for an initial request by a recognized or certified collective bargaining agent for a copy of an employee exposure record or an analysis using exposure or medical records.

1910.1020(e)(1)(vi)

Nothing in this section is intended to preclude employees and collective bargaining agents from collectively bargaining to obtain access to information in addition to that available under this section.

1910.1020(e)(2)

"Employee and designated representative access" -

1910.1020(e)(2)(i)

"Employee exposure records."

1910.1020(e)(2)(i)(A)

Except as limited by paragraph (f) of this section, each employer shall, upon request, assure the access to each employee and designated representative to employee exposure records relevant to the employee. For the purpose of this section, an exposure record relevant to the employee consists of:

1910.1020(e)(2)(i)(A)(1)

A record which measures or monitors the amount of a toxic substance or harmful physical agent to which the employee is or has been exposed;

1910.1020(e)(2)(i)(A)(2)

In the absence of such directly relevant records, such records of other employees with past or present job duties or working conditions related to or similar to those of the employee to the extent necessary to reasonably indicate the amount and nature of the toxic substances or harmful physical agents to which the employee is or has been subjected, and

1910.1020(e)(2)(i)(A)(3)

Exposure records to the extent necessary to reasonably indicate the amount and nature of the toxic substances or harmful physical agents at workplaces or under working conditions to which the employee is being assigned or transferred.

1910.1020(e)(2)(i)(B)

Requests by designated representatives for unconsented access to employee exposure records shall be in writing and shall specify with reasonable particularity:

1910.1020(e)(2)(i)(B)(1)

The record requested to be disclosed; and

1910.1020(e)(2)(i)(B)(2)

The occupational health need for gaining access to these records.

1910.1020(e)(2)(ii)

"Employee medical records."

1910.1020(e)(2)(ii)(A)

Each employer shall, upon request, assure the access of each employee to employee medical records of which the employee is the subject, except as provided in paragraph (e)(2)(ii)(D) of this section.

1910.1020(e)(2)(ii)(B)

Each employer shall, upon request, assure the access of each designated representative to the employee medical records of any employee who has given the designated representative specific written consent. Appendix A to this section contains a sample form which may be used to establish specific written consent for access to employee medical records.

1910.1020(e)(2)(ii)(C)

Whenever access to employee medical records is requested, a physician representing the employer may recommend that the employee or designated representative:

1910.1020(e)(2)(ii)(C)(1)

Consult with the physician for the purposes of reviewing and discussing the records requested,

1910.1020(e)(2)(ii)(C)(2)

Accept a summary of material facts and opinions in lieu of the records requested, or

1910.1020(e)(2)(ii)(C)(3)

Accept release of the requested records only to a physician or other designated representative.

1910.1020(e)(2)(ii)(D)

Whenever an employee requests access to his or her employee medical records, and a physician representing the employer believes that direct employee access to information contained in the records regarding a specific diagnosis of a terminal illness or a psychiatric condition could be detrimental to the employee's health, the employer may inform the employee that access will only be provided to a designated representative of the employee having specific written consent, and deny the employee's request for direct access to this information only. Where a designated representative with specific written consent requests access to information so withheld, the employer shall assure the access of the designated representative to this information, even when it is known that the designated representative will give the information to the employee.

1910.1020(e)(2)(ii)(E)

A physician, nurse, or other responsible health care personnel maintaining employee medical records may delete from requested medical records the identity of a family member, personal friend, or fellow employee who has provided confidential information concerning an employee's health status.

1910.1020(e)(2)(iii)

Analyses using exposure or medical records.

1910.1020(e)(2)(iii)(A)

Each employer shall, upon request, assure the access of each employee and designated representative to each analysis using exposure or medical records concerning the employee's working conditions or workplace.

1910.1020(e)(2)(iii)(B)

Whenever access is requested to an analysis which reports the contents of employee medical records by either direct identifier (name, address, social security number, payroll number, etc.) or by information which could reasonably be used under the circumstances indirectly to identify specific employees (exact age, height, weight, race, sex, date of initial employment, job title, etc.), the employer shall assure that personal identifiers are removed before access is provided. If the employer can demonstrate that removal of personal identifiers from an analysis is not feasible, access to the personally identifiable portions of the analysis need not be provided.

1910.1020(e)(3)

"OSHA access."

1910.1020(e)(3)(i)

Each employer shall, upon request, and without derogation of any rights under the Constitution or the Occupational Safety and Health Act of 1970, 29 U.S.C. 651 "et seq.," that the employer chooses to exercise, assure the prompt access of representatives of the Assistant Secretary of Labor for Occupational Safety and Health to employee exposure and medical records and to analyses using exposure or medical records. Rules of agency practice and procedure governing OSHA access to employee medical records are contained in 29 CFR 1913.10.

1910.1020(e)(3)(ii)

Whenever OSHA seeks access to personally identifiable employee medical information by presenting to the employer a written access order pursuant to 29 CFR 1913.10(d), the employer shall prominently post a copy of the written access order and its accompanying cover letter for at least fifteen (15) working days.

1910.1020(f)

"Trade secrets."

1910.1020(f)(1)

Except as provided in paragraph (f)(2) of this section, nothing in this section precludes an employer from deleting from records requested by a health professional, employee, or designated representative any trade secret data which discloses manufacturing processes, or discloses the percentage of a chemical substance in mixture, as long as the health professional, employee, or designated representative is notified that information has been deleted. Whenever deletion of trade secret information substantially impairs evaluation of the place where or the time when exposure to a toxic substance or harmful physical agent occurred, the employer shall provide alternative information which is sufficient to permit the requesting party to identify where and when exposure occurred.

1910.1020(f)(2)

The employer may withhold the specific chemical identity, including the chemical name and other specific identification of a toxic substance from a disclosable record provided that:

1910.1020(f)(2)(i)

The claim that the information withheld is a trade secret can be supported;

1910.1020(f)(2)(ii)

All other available information on the properties and effects of the toxic substance is disclosed;

1910.1020(f)(2)(iii)

The employer informs the requesting party that the specific chemical identity is being withheld as a trade secret; and

1910.1020(f)(2)(iv)

The specific chemical identity is made available to health professionals, employees and designated representatives in accordance with the specific applicable provisions of this paragraph.

1910.1020(f)(3)

Where a treating physician or nurse determines that a medical emergency exists and the specific chemical identity of a toxic substance is necessary for emergency or first-aid treatment, the employer shall immediately disclose the specific chemical identity of a trade secret chemical to the treating physician or nurse, regardless of the existence of a written statement of need or a confidentiality agreement. The employer may require a written statement of need and confidentiality agreement, in accordance with the provisions of paragraphs (f)(4) and (f)(5), as soon as circumstances permit.

1910.1020(f)(4)

In non-emergency situations, an employer shall, upon request, disclose a specific chemical identity, otherwise permitted to be withheld under paragraph (f)(2) of this section, to a health professional, employee, or designated representative if:

1910.1020(f)(4)(i)

The request is in writing;

1910.1020(f)(4)(ii)

The request describes with reasonable detail one or more of the following occupational health needs for the information:

1910.1020(f)(4)(ii)(A)

To assess the hazards of the chemicals to which employees will be exposed;

1910.1020(f)(4)(ii)(B)

To conduct or assess sampling of the workplace atmosphere to determine employee exposure levels;

1910.1020(f)(4)(ii)(C)

To conduct pre-assignment or periodic medical surveillance of exposed employees;

1910.1020(f)(4)(ii)(D)

To provide medical treatment to exposed employees;

1910.1020(f)(4)(ii)(E)

To select or assess appropriate personal protective equipment for exposed employees;

1910.1020(f)(4)(ii)(F)

To design or assess engineering controls or other protective measures for exposed employees; and

1910.1020(f)(4)(ii)(G)

To conduct studies to determine the health effects of exposure.

1910.1020(f)(4)(iii)

The request explains in detail why the disclosure of the specific chemical identity is essential and that, in lieu thereof, the disclosure of the following information would not enable the health professional, employee or designated representative to provide the occupational health services described in paragraph (f)(4)(ii) of this section;

1910.1020(f)(4)(iii)(A)

The properties and effects of the chemical;

1910.1020(f)(4)(iii)(B)

Measures for controlling workers' exposure to the chemical;

1910.1020(f)(4)(iii)(C)

Methods of monitoring and analyzing worker exposure to the chemical; and

1910.1020(f)(4)(iii)(D)

Methods of diagnosing and treating harmful exposures to the chemical;

1910.1020(f)(4)(iv)

The request includes a description of the procedures to be used to maintain the confidentiality of the disclosed information; and

1910.1020(f)(4)(v)

The health professional, employee, or designated representative and the employer or contractor of the services of the health professional or designated representative agree in a written confidentiality agreement that the health professional, employee or designated representative will not use the trade secret information for any purpose other than the health need(s) asserted and agree not to release the information under any circumstances other than to OSHA, as provided in paragraph (f)(7) of this section, except as authorized by the terms of the agreement or by the employer.

1910.1020(f)(5)

The confidentiality agreement authorized by paragraph (f)(4)(iv) of this section:

1910.1020(f)(5)(i)

May restrict the use of the information to the health purposes indicated in the written statement of need;

1910.1020(f)(5)(ii)

May provide for appropriate legal remedies in the event of a breach of the agreement, including stipulation of a reasonable pre-estimate of likely damages; and,

1910.1020(f)(5)(iii)

May not include requirements for the posting of a penalty bond.

1910.1020(f)(6)

Nothing in this section is meant to preclude the parties from pursuing non-contractual remedies to the extent permitted by law.

1910.1020(f)(7)

If the health professional, employee or designated representative receiving the trade secret information decides that there is a need to disclose it to OSHA, the employer who provided the information shall be informed by the health professional prior to, or at the same time as, such disclosure.

1910.1020(f)(8)

If the employer denies a written request for disclosure of a specific chemical identity, the denial must:

1910.1020(f)(8)(i)

Be provided to the health professional, employee or designated representative within thirty days of the request;

1910.1020(f)(8)(ii)

Be in writing;

1910.1020(f)(8)(iii)

Include evidence to support the claim that the specific chemical identity is a trade secret;

1910.1020(f)(8)(iv)

State the specific reasons why the request is being denied; and,

1910.1020(f)(8)(v)

Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity.

1910.1020(f)(9)

The health professional, employee, or designated representative whose request for information is denied under paragraph (f)(4) of this section may refer the request and the written denial of the request to OSHA for consideration.

1910.1020(f)(10)

When a health professional, employee, or designated representative refers a denial to OSHA under paragraph (f)(9) of this section, OSHA shall consider the evidence to determine if:

1910.1020(f)(10)(i)

The employer has supported the claim that the specific chemical identity is a trade secret;

1910.1020(f)(10)(ii)

The health professional employee, or designated representative has supported the claim that there is a medical or occupational health need for the information; and

1910.1020(f)(10)(iii)

The health professional, employee or designated representative has demonstrated adequate means to protect the confidentiality.

1910.1020(f)(11) 1910.1020(f)(11)(i)

If OSHA determines that the specific chemical identity requested under paragraph (f)(4) of this section is not a "bona fide" trade secret, or that it is a trade secret but the requesting health professional, employee or designated representatives has a legitimate medical or occupational health need for the information, has executed a written confidentiality agreement, and has shown adequate means for complying with the terms of such agreement, the employer will be subject to citation by OSHA.

1910.1020(f)(11)(ii)

If an employer demonstrates to OSHA that the execution of a confidentiality agreement would not provide sufficient protection against the potential harm from the unauthorized disclosure of a trade secret specific chemical identity, the Assistant Secretary may issue such orders or impose such additional limitations or conditions upon the disclosure of the requested chemical information as may be appropriate to assure that the occupational health needs are met without an undue risk of harm to the employer.

1910.1020(f)(12)

Notwithstanding the existence of a trade secret claim, an employer shall, upon request, disclose to the Assistant Secretary any information which this section requires the employer to make available. Where there is a trade secret claim, such claim shall be made no later than at the time the information is provided to the Assistant Secretary so that suitable determinations of trade secret status can be made and the necessary protections can be implemented.

1910.1020(f)(13)

Nothing in this paragraph shall be construed as requiring the disclosure under any circumstances of process or percentage of mixture information which is a trade secret.

1910.1020(g)

"Employee information."

1910.1020(g)(1)

Upon an employee's first entering into employment, and at least annually thereafter, each employer shall inform current employees covered by this section of the following:

1910.1020(g)(1)(i)

The existence, location, and availability of any records covered by this section;

1910.1020(g)(1)(ii)

The person responsible for maintaining and providing access to records; and

1910.1020(g)(1)(iii)

Each employee's rights of access to these records.

1910.1020(g)(2)

Each employer shall keep a copy of this section and its appendices, and make copies readily available, upon request, to employees. The employer shall also distribute to current employees any informational materials concerning this section which are made available to the employer by the Assistant Secretary of Labor for Occupational Safety and Health.

1910.1020(h)

"Transfer of records."

1910.1020(h)(1)

Whenever an employer is ceasing to do business, the employer shall transfer all records subject to this section to the successor employer. The successor employer shall receive and maintain these records.

1910.1020(h)(2)

Whenever an employer is ceasing to do business and there is no successor employer to receive and maintain the records subject to this standard, the employer shall notify affected current employees of their rights of access to records at least three (3) months prior to the cessation of the employer's business.

Part Title: Occupational Safety and Health Standards

Subpart: Z

Subpart Title: Toxic and Hazardous Substances

Appendix A – See “Access to Employee Exposure and Medical Records – Release of Medical or Exposure Records Consent Form”

Part Title: Occupational Safety and Health Standards

Subpart: Z

Subpart Title: Toxic and Hazardous Substances

Standard Number: 1910.1020 App B

Title: Availability of NIOSH registry of toxic effects of chemical substances (RTECS)(Non-mandatory)

The final standard, 29 CFR 1910.1020, applies to all employee exposure and medical records, and analyses thereof, of employees exposed to toxic substances or harmful physical agents (paragraph (b)(2)). The term "toxic substance or harmful physical agent" is defined by paragraph (c)(13) to encompass chemical substances, biological agents, and physical stresses for which there is evidence of harmful health effects. The regulation uses the latest printed edition of the National Institute for Occupational Safety and Health (NIOSH) Registry of Toxic Effects of Chemical Substances (RTECS) as one of the chief sources of information as to whether evidence of harmful health effects exists. If a substance is listed in the latest printed RTECS, the regulation applies to exposure and medical records (and analyses of these records) relevant to employees exposed to the substance.

It is appropriate to note that the final regulation does not require that employers purchase a copy of RTECS, and many employers need not consult RTECS to ascertain whether their employee exposure or medical records are subject to the rule. Employers who do not currently have the latest printed edition of the NIOSH RTECS, however, may desire to obtain a copy. The RTECS is issued in an annual printed edition as mandated by section 20(a)(6) of the Occupational Safety and Health Act (29 U.S.C. 669(a)(6)).

The introduction to the 1980 printed edition describes the RTECS as follows:

"The 1980 edition of the Registry of Toxic Effects of Chemical Substances, formerly known as the Toxic Substances list, is the ninth revision prepared in compliance with the requirements of Section 20(a)(6) of the Occupational Safety and Health Act of 1970 (Public Law 91-596). The original list was completed on June 28, 1971, and has been updated annually in book format. Beginning in October 1977, quarterly revisions have been provided in microfiche. This edition of the Registry contains 168,096 listings of chemical substances; 45,156 are names of different chemicals with their associated toxicity data and 122,940 are synonyms. This edition includes approximately 5,900 new chemical compounds that did not appear in the 1979 Registry.(p. xi)

"The Registry's purposes are many, and it serves a variety of users. It is a single source document for basic toxicity information and for other data, such as chemical identifiers and information necessary for the preparation of safety directives and hazard evaluations for chemical substances. The various types of toxic effects linked to literature citations provide researchers and occupational health scientists with an introduction to the toxicological literature, making their own review of the toxic hazards of a given substance easier. By presenting data on the lowest reported doses that produce effects by several routes of entry in various species, the Registry furnishes valuable information to those responsible for preparing safety data sheets for chemical substances in the workplace. Chemical and production engineers can use the Registry to identify the hazards which may be associated with chemical intermediates in the development of final products, and thus can more readily select substitutes or alternate processes which may be less hazardous. Some organizations, including health agencies and chemical companies, have included the NIOSH Registry accession numbers with the listing of chemicals in their files to reference toxicity information associated with those chemicals. By including foreign language chemical names, a start has been made toward providing rapid identification of substances produced in other countries.(p xi)

"In this edition of the Registry, the editors intend to identify "all known toxic substances" which may exist in the environment and to provide pertinent data on the toxic effects from known doses entering an organism by any route described.(p xi)

"It must be reemphasized that the entry of a substance in the Registry does not automatically mean that it must be avoided. A listing does mean, however, that the substance has the documented potential of being harmful if misused, and care must be exercised to prevent tragic consequences. Thus the Registry lists many substances that are common in everyday life and are in nearly every household in the United States. One can name a variety of such dangerous substances: prescription and non-prescription drugs; food additives; pesticide concentrates, sprays, and dusts; fungicides; herbicides, paints; glazes, dyes; bleaches and other household cleaning agents; alkalis; and various solvents and diluents. The list is extensive because chemicals have become an integral part of our existence."

The RTECS printed edition may be purchased from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402 (202-783-3238).

Some employers may desire to subscribe to the quarterly update to the RTECS which is published in a microfiche edition. An annual subscription to the quarterly microfiche may be purchased from the GPO (Order the "Microfiche Edition, Registry of Toxic Effects of Chemical Substances"). Both the printed edition and the microfiche edition of RTECS are available for review at many university and public libraries throughout the country. The latest RTECS editions may also be examined at the OSHA Technical Data Center, Room N2439 - Rear, United States Department of Labor, 200 Constitution Avenue, N.W., Washington, DC 20210 (202-523-9700), or at any OSHA Regional or Area Office (See, major city telephone directories under United States Government - Labor Department).

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TRAINING ATTENDANCE ROSTER ACCESS TO EXPOSURE AND MEDICAL RECORDS

Access to Employee Exposure and Medical Records Training Includes:

- Purpose of Regulation
- What is access
- What records are kept and for how long
- How to access records
- Company and employee rights
- Trade secret protections
- Transfer and disposal of records
- Release consent for records

INSTRUCTOR:

DATE:

LOCATION:

NAME (Please Print)
FIRST - MI - LAST

SIGNATURE

By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.

Name of Interpreter, if utilized: _____

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Accident Investigation and Reporting

PROGRAM OVERVIEW

ACCIDENT INVESTIGATION AND REPORTING SAFETY PROGRAM

REGULATORY STANDARD: General Duty Clause

INTRODUCTION

The accident investigation and reporting program is a tool used to ensure notification of accidents and assist in the correction action process. Accident investigation is primarily a fact-finding procedure - the facts revealed are used to prevent recurrences of similar accidents in the future.

TRAINING

- Supervisors should be trained in accident investigation
- Employees should be trained on when and how to report accidents and incidents

ACTIVITIES

- Determine who is a part of the Accident Investigation Team, which may include supervisors, management, and employees
- Determine accident and near miss reporting procedures
- Inform employees of the work-related injuries and illness procedures and their rights to report
- OSHA Recordkeeping, forms 300 and 301 or equivalent
- Injury trending

FORMS

- Accident, Incident, or Near Miss Investigation Report
- Training Attendance Roster - Accident Investigation
- Training Attendance Roster – Accident Reporting

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

ACCIDENT INVESTIGATION AND REPORTING SAFETY PROGRAM

1. **Purpose.** Accidents and Incidents result from a failure of people, equipment, supplies, or surroundings. A successful accident investigation determines not only what happened, but also attempts to find out how and why the accident occurred. Investigations are an effort to prevent a similar or perhaps more disastrous sequence of events. The company will review and evaluate this safety program:
 - 1.1 When changes occur that prompt revision of this document (within the company or to regulatory documents)
 - 1.2 When facility operational changes occur that require a revision of this document
2. **Scope.** This program applies to the total workplace regardless of the number of workers employed or the number of work shifts.
3. **Responsibilities**
 - 3.1 Management:
 - 3.1.1 Ensure supervisors are trained in accident investigation, as needed or required.
 - 3.1.2 Inform employees of the company's work-related injury or illness procedures and the employees' rights to report work-related injuries and illnesses.
 - 3.1.3 Provide resources, as needed or required, to implement corrective actions based on results of incident investigations.
 - 3.1.4 Review incident reports and any incident trends to establish corrective and preventive actions.
 - 3.1.5 Communicate incident information to other areas of the company where similar incidents may occur, and implement preventive actions to eliminate the potential for future incidents.
 - 3.1.6 Maintain required documentation.
 - 3.1.7 Train appropriate personnel to review and implement Job Hazard Analysis and Trend Analysis as needed.
 - 3.2 Supervisor
 - 3.2.1 Provide or arrange for adequate medical treatment for any injured employee.
 - 3.2.2 Promptly investigate any incidents or near miss incidents that occur.
 - 3.2.3 Provide recommendations to management on corrective actions to prevent recurrence of similar incidents.

3.3 Employees

- 3.3.1 Promptly report incidents or near misses that occur.
- 3.3.2 Report hazardous conditions to your supervisor.
- 3.3.3 Participate in incident investigations, as needed or required.

4. Procedure

- 4.1 Inform employees of the company's work-related injury or illness procedures and the employees' rights to report work-related injuries and illnesses without fear of being discriminated against in any manner or fear of being discharged. Post the OSHA "It's The Law" worker rights poster.
- 4.2 Accident Investigation Team Composition. Supervisors, in conjunction with the safety officer as needed or required, are primarily responsible for the investigation of accidents and incidents. In addition, members of the safety committee or a separate Accident Investigation Team may serve as incident investigators.
- 4.3 Hazard Reporting:
 - 4.3.1 Hazards or potential hazards identified by employees will immediately be reported to management or supervision.
 - 4.3.1.1 Person reporting hazard
 - Notify department Supervisor of the hazard.
 - Initiate lock-out/tag-out, if required, on the machine.
 - 4.3.1.2 Supervisor
 - Notify all affected workers of hazard.
 - Notify Maintenance Department of hazard, if required.
 - Ensure hazard is properly marked and controlled until corrected.
- 4.4 Accident Investigation, Analysis and Reporting. Accident investigation is primarily a fact-finding procedure; the facts revealed are used to prevent recurrences of similar accidents. The focus of accident investigation will be to prevent future accidents and injuries to increase the safety and health of all our employees.
 - 4.4.1 Immediate concerns:
 - 4.4.1.1 Ensure any injured person receives proper care.

- 4.4.1.2 Ensure co-workers and personnel working with similar equipment or in similar jobs are aware of the situation. This is to ensure that procedural problems or defects in certain models of equipment do not exist.
- 4.4.1.3 Start the investigation promptly.
- 4.4.2 Accident Investigation and Reporting Form. OSHA Form 301 (or a standardized investigation report form which details specific company requirements for investigation) will be used to gather data to determine causes and corrective actions. As a minimum the form will contain the following areas of concern.
 - 4.4.2.1 Injured employee's name and any other identifier
 - 4.4.2.2 Employee's address
 - 4.4.2.3 Date and time of injury
 - 4.4.2.4 Shift and department
 - 4.4.2.5 Sex/DOB
 - 4.4.2.6 Length of service (hire date) and length of time at specific job
 - 4.4.2.7 Time shift started
 - 4.4.2.8 Physician's and hospital name (if transported)
 - 4.4.2.9 Indication if employee was hospitalized as an in-patient (i.e. overnight)
 - 4.4.2.10 Type of injury
 - 4.4.2.11 Body part or body system injured
 - 4.4.2.12 Resulting fatalities (date of death)
 - 4.4.2.13 Occupation or task being performed just prior to being injured
 - 4.4.2.14 Description and analysis of accident
 - 4.4.2.15 Indication of the object or substance that directly harmed the employee
 - 4.4.2.16 Name of person completing form, their title, phone number and the date

- 4.4.3 Additional information that is recommended on the form is:
 - 4.4.3.1 Time shift started
 - 4.4.3.2 Overtime length when injury occurred
 - 4.4.3.3 Action taken to prevent recurrence
 - 4.4.3.4 Employee's statement
 - 4.4.3.5 Witnesses' statement
 - 4.4.3.6 Employer's statement
 - 4.4.3.7 Name of person(s) reviewing form and date of review
- 4.5 Accident Investigation Review Team. A member of management responsible will review all Incident Reports for the department/section involved ensuring pertinent information is transmitted to all concerned and remedial action(s) taken.
- 4.6 Accident Investigation Final Report. The report will include but is not limited to the following:
 - 4.6.1 Investigation report form and pertinent data
 - 4.6.2 Photographs/drawings/exhibits of scene
 - 4.6.3 Narrative of accident
 - 4.6.4 Sequence of events
 - 4.6.5 Contributing information
 - 4.6.6 Findings and recommendations of review team
 - 4.6.7 Action items and completion dates
 - 4.6.8 Responsible persons
 - 4.6.9 Follow-up procedures to ensure completion
 - 4.6.10 Distribution list
- 4.7 Safety and Job Hazard Analysis. The company will identify through the use of information sources, screening and job surveys any activities that place employees at risk. After any accident or near miss, the task or job in question will have a job hazard analyses routinely performed by a qualified person(s). This analysis will help to verify that all required actions are being taken to determine if risk factors for a work position have been reduced or eliminated to the maximum extent feasible.

- 4.7.1 Workstation Analysis. Workstation analysis will be conducted to identify risk factors present in each job or workstation.

5. Safety Information:

5.1 Administrative Controls. Once data has been gathered from the Incident Report, administrative controls will be used where needed to eliminate or reduce the frequency and severity of accidents and near misses. Examples of administrative controls include the following:

- 5.1.1 Reducing the production rates and or line speeds where possible.
- 5.1.2 Providing rest pauses to relieve fatigued muscle-tendon groups.
- 5.1.3 Increasing the number of employees assigned to a task to alleviate severe conditions, especially in lifting heavy objects.
- 5.1.4 Using job rotation and as a preventive measure, not as a response to physical symptoms. The principle of job rotation is to alleviate physical fatigue and stress of a particular set of muscles and tendons by rotating employees among other jobs that use different muscle-tendon groups. If rotation is utilized, the job analyses must be reviewed to ensure that the same muscle-tendon groups are not used when they are rotated.
- 5.1.5 Providing sufficient numbers of standby/relief personnel to compensate for foreseeable upset conditions on the line (e.g., loss of workers).
- 5.1.6 Job enlargement. Having employees perform broader functions which reduce the stress on specific muscle groups while performing individual tasks.
- 5.1.7 Machine maintenance/guarding. Ensure regular maintenance is performed on machines and/or tools used by employees are properly guarded and that maintenance is routinely performed.
- 5.1.8 Employee training. Ensure all employees are properly trained in the hazards associated with the job before work is performed unsupervised.

5.2 Medical Management. The Safety Officer or other designated person will manage the safety program. Employees of each work shift should have access to health care providers or designated alternates in order to facilitate treatment, surveillance activities, and recording of information. During an accident investigation the medical management safety program will, as a minimum, address the following issues:

- 5.2.1 Injury and illness recordkeeping
- 5.2.2 Early recognition of problems such as strains and muscle fatigue that could lead to accidents
- 5.2.3 Systematic evaluation and referral

- 5.2.4 Conservative treatment after an accident
- 5.2.5 Conservative return to work after an accident
- 5.2.6 Systematic monitoring
- 5.2.7 Recordability criteria. The accident must be work related. Simply stated, unless the illness was caused solely by a non-work-related event or exposure off-premises, the case is presumed to be work related.
- 5.2.8 Occupational injuries. Injuries are caused by instantaneous events in the work environment. To keep recordkeeping determinations as simple and equitable as possible, back cases are classified as injuries even though some back conditions may be triggered by an instantaneous event and others develop as a result of repeated trauma. Any occupational injury involving any of the following circumstances is to be recorded on the OSHA-Form 300:
 - 5.2.8.1 Medical treatment resulting from significant injury/illness as diagnosed by a physician or other licensed health care professional
 - 5.2.8.2 Loss of consciousness
 - 5.2.8.3 Restriction of work or motion
 - 5.2.8.4 Contaminated needle stick or sharp exposure
 - 5.2.8.5 Work related tuberculosis infection
 - 5.2.8.6 Cases of medical removal as required under specific OSHA Regulatory Standard
 - 5.2.8.7 Transfer to another job
- 5.2.9 When an incident is recorded on the OSHA Form 300, that same incident must also be recorded on OSHA Form 301.
- 5.2.10 Periodic Workplace Walk-throughs. Supervisors, in conjunction with the Safety Officer or Health Care provider as needed or required, will conduct periodic, systematic workplace walk-throughs on a monthly basis (OSHA recommended) to remain knowledgeable about operations and work practices, to identify potential light duty jobs, and to maintain close contact with employees. Safety Officers and Health care providers also should be involved in identifying accident risk factors in the workplace as part of the Accident Investigation Team. A record will be kept documenting the date of the walk-through, area(s) visited, accident risk factors recognized, and action initiated to correct identified problems. Follow-up will be initiated and documented to ensure corrective action is taken when indicated.

5.3 Accident Trend Analysis

- 5.3.1 The information gathered from incident investigations, OSHA logs and hazard reports will help to identify areas or jobs where potential accident or injury conditions could or do exist. This information may be shared with anyone in the company since employees' personal identifiers are not solicited. The analysis of medical records (e.g., sign-in logs and individual employee medical records) may reveal areas or jobs of concern, but it may also identify individual workers who require further follow-up. The information gathered while analyzing medical records will be of a confidential nature, therefore care must be exercised to protect the individual employee's privacy.
- 5.3.2 The information gained from the trend analysis may help determine the effectiveness of the various safety programs initiated to decrease accidents in our facility.
- 5.3.3 Employee survey or Job Hazard Analysis. A survey may be used to provide a standardized measure of the extent of progress in reducing work-related accidents for each area of the plant or facility. This will determine which jobs are exhibiting problems and measure progress of the overall safety program.
 - 5.3.3.1 Design of the survey. A survey of employees will be conducted to measure employee awareness of work-related accident and to report the location, frequency, and type of accidents likely to occur.
 - 5.3.3.2 Surveys normally will not include an employee's personal identifiers. This is to encourage employee participation in the survey.
 - 5.3.3.3 Frequency. Surveys will be conducted anytime deemed necessary by the Accident Investigation Team. Conducting the survey should help detect any major change in the prevalence, incidence, and/or location of reported and unreported accidents.
- 5.3.4 List of Jobs. The company will compile a list of jobs, tasks and activities. This listing should be prioritized, based on the risk factors for type of injury (s) sustained. Jobs will be analyzed to determine the physical procedures used in the performance of each job including lifting requirements, postures, handgrips, frequency of repetitive motion, and general safety requirements of the job. This information will assist health care providers in recommending assignments to light or restricted duty jobs. Supervisors should periodically review and update the lists.

6. Training and Information

- 6.1 The purpose of accident investigation training and education is to ensure those members of the Accident Investigation Team and all of our employees are sufficiently informed about the Accident Investigation Safety Program.

- 6.1.1 Employees should be adequately trained about the company's Accident Investigation Safety Program. Proper training will allow managers, supervisors, and employees to understand the procedures to follow to report an accident, hazards associated with a job or production process, their prevention and control, and their medical consequences.
- 6.1.2 Training program design. The program will be designed and implemented by the Safety Officer, Senior Manager or other designated person. Appropriate special training will be provided for personnel responsible for administering the program.
- 6.1.3 Learning level. The safety program will be presented in language and at a level of understanding appropriate for the individuals being trained. It will provide an overview of the potential risk of illnesses and injuries, their causes and early symptoms, the means of prevention, and treatment.
- 6.1.4 Training for affected employees will consist of both general and specific job training:
 - 6.1.4.1 General Training. Employees will be given formal instruction on the hazards associated with their jobs and with their equipment. This will include information on the varieties of hazards associated with the job, what risk factors cause or contribute to them, how to recognize and report hazardous conditions, and how to prevent accident with their respective jobs. This instruction will be repeated for each employee as necessary.
 - 6.1.4.2 Job-Specific Training. New employees and reassigned workers will receive an initial orientation and hands-on training before being placed in a full-production job. Each new hire will receive a demonstration of the proper use of and procedures for all tools and equipment before assignment.
- 6.1.5 Training for Supervisors. Supervisors are responsible for ensuring that employees follow safe work practices and receive appropriate training to enable them to do this. Supervisors therefore will undergo training comparable to that of the employees. Such additional training as will enable them to recognize and correct hazardous work practices, proper accident reporting/investigation requirements, and to reinforce the company safety program.
- 6.1.6 Training for Managers. Managers will be made aware of their safety and health responsibilities and will receive sufficient training pertaining to issues at each workstation and in the production process as a whole so that they can effectively carry out their responsibilities.
- 6.1.7 Training for Engineers and Maintenance Personnel. Plant engineers and maintenance personnel will be trained in the prevention and correction of job hazards through job and workstation design and proper maintenance, both in general and as applied to the specific conditions of the facility.

6.2 Employee Training and Education. Health care providers will participate in the training and education of all employees, as needed or required. This training will be reinforced during workplace walk-throughs and the individual health surveillance appointments. All new employees will be given such education during orientation. This demonstration of concern along with the distribution of information should facilitate early recognition of accident conditions before their development, an elimination or reduction in accidents, and increased likelihood of compliance with recognition, prevention, and control.

7. Definitions.

- *Accident* - An injury or substance exposure that results in a detrimental health effect to an individual.
- *Incident* – An event that results in an accident, near miss or property damage.
- *Near Miss* – An avoided accident. An incident that could have occurred, but due to mitigating circumstances (or luck) did not occur.

ACCIDENT, INCIDENT OR NEAR MISS INVESTIGATION REPORT

PART 1 IDENTIFICATION INFORMATION

Employee Name	
Date of Accident	Time: AM PM
Occupation	Shift
Department	SS#:
Employee Home Address:	Date of Birth:
	Date of Hire
	Gender: Male ___ Female ___

PART 2 SUPPLEMENTARY INFORMATION

Company			
Mailing Address			
City	State	Zip	
Telephone ()			
Accident Location	<input type="radio"/> Same as establishment?	<input type="radio"/> On premises?	(Check if applies)
Location Where Accident Occurred (if different from above):			
Remarks:			
Was injured person performing regular job at time of accident? <input type="radio"/> Yes <input type="radio"/> No			
Describe activity the person was doing just before they were injured:			
Length of Service: With Employer		On this job	
Time shift started	AM PM	Overtime?	<input type="radio"/> Yes <input type="radio"/> No
Name and address of physician:			
City	State	Zip	
Employee treated in an emergency room? ___ Yes ___ No.		Employee hospitalized overnight? ___ Yes ___ No	
If hospitalized, name and address of hospital:			
City	State	Zip	
Fatality? <input type="radio"/> Yes <input type="radio"/> No		If Yes, date of death	

PART 3 ACCIDENT TREE

NATURE OF INJURY OR ILLNESS:			PART OF BODY AFFECTED:		
Operation Location:	Operation Task:	Employee Task:	Employee Body Position/Activity	Preceding Situation or Event	Type of Accident

PART 4 DESCRIPTION AND ANALYSIS

Fully describe accident:

What factors led to the accident (from Part 3/Tree)?

MACHINERY/EQUIPMENT INVOLVED

Manufacturer		Equip. age
Serial No.	Model	
Function		
Location		
Has machine/equipment been modified? <input type="radio"/> Yes <input type="radio"/> No		If so, when?
Was it guarded? <input type="radio"/> Yes <input type="radio"/> No		
If Yes, describe guarding and how it functions to provide element of safety desired:		
Was guarding properly:	Constructed? <input type="radio"/> Yes <input type="radio"/> No	
	Installed? <input type="radio"/> Yes <input type="radio"/> No	
	Adjusted? <input type="radio"/> Yes <input type="radio"/> No	
If No to any of above, explain:		
Was there any mechanical failure? <input type="radio"/> Yes <input type="radio"/> No		If yes, explain:
If construction related, date of contract:		
Is firm <input type="radio"/> General Contractor		<input type="radio"/> Subcontractor
Name of other contractors		
List any weather conditions that contributed to the incident:		
TRAINING		
Did employee receive specific training or instructions relating to safety and health on the job being performed? <input type="radio"/> Yes <input type="radio"/> No		
Type:		
Instructed by:		
When instructed:	Length of training:	

PERSONAL PROTECTIVE EQUIPMENT		
Did employee use any protective equipment for the job or task performed? <input type="radio"/> Yes <input type="radio"/> No		
Type:		
Did equipment fail? <input type="radio"/> Yes <input type="radio"/> No		
If so, describe:		
CORRECTIVE ACTIONS:		
Were any corrective or preventive actions put into place due to the incident? <input type="radio"/> Yes <input type="radio"/> No		
If so, list them:		
Action Taken	Expected Result	Expected Completion Date
Were corrective actions followed through to completion? <input type="radio"/> Yes <input type="radio"/> No		
If so, list results and dates:		
Action Taken	Expected Result	Expected Completion Date
STATEMENTS CONCERNING ACCIDENT		
EMPLOYEE STATEMENT CONCERNING ACCIDENT		
Name	Title	Date
SUPERVISOR/EMPLOYER'S STATEMENT		
Name	Title	Date
WITNESS STATEMENT		
Name	Title	Date
SAFETY COMMITTEE COMMENTS		
Name	Title	Date
ATTACH ADDITIONAL COMMENTS, REPORTS AND PHOTOS ON NEXT PAGE		

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TRAINING ATTENDANCE ROSTER ACCIDENT INVESTIGATION

Accident Investigation Training for Supervisors Includes:

- Getting the facts
- Investigation procedures
- Interviews and statements
- Photography and Diagrams
- Corrective Actions

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.

Name of Interpreter, if utilized: _____

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TRAINING ATTENDANCE ROSTER ACCIDENT REPORTING

Accident Reporting Training for Employees Includes:

- Why do accidents happen
- What to report and when
- When to call for help
- Emergency Contact information

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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PROGRAM OVERVIEW

AERIAL LIFT SAFETY PROGRAM

REGULATORY STANDARD OSHA – 29 CFR 1926.453

INTRODUCTION

Aerial Lift includes boom-supported aerial platforms, such as cherry pickers or bucket trucks. This safety program is intended to address the issues of employee training, safety requirements, maintenance, and general operation of Aerial Lift.

TRAINING

Employees trained prior to use in both a classroom component and an assessment of the operator performance with the equipment.

ACTIVITIES

- Identify the tasks that require an aerial lift
- Write and communicate workplace specific procedures that outline the operation, and limitations, of aerial lifts
- Maintain manufacturer's requirements, limits and documentation
- Conduct documented daily inspections prior to use
- Implement, maintain, and inspect fall arrest systems as required
- Annually evaluate the aerial lift program to assure it is relevant and functioning properly

FORMS

- Aerial Lift Operator Checklist
- Aerial Lift Operator Evaluation Assessment
- Aerial Lift Training Wallet Cards
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

AERIAL LIFT SAFETY PROGRAM

1. **Purpose.** This document defines the process for managing Aerial Lift.
2. **Scope.** Applies to all locations where Aerial Lift are used or maintained. This procedure covers operator selection, training, equipment operations, and maintenance.

3. Responsibilities

3.1. Management will:

- 3.1.1. Identify the tasks that require an aerial lift.
- 3.1.2. Assure the correct type of equipment is purchased.
- 3.1.3. Document workplace specific procedures that outline the operation, and limitations, of Aerial Lift.
- 3.1.4. Assure operators are trained.
- 3.1.5. Annually evaluate the aerial lift program to assure it is relevant and functioning properly.

4. Procedure.

4.1. Aerial Lift Requirements

- 4.1.1. Any use of an aerial lift must be in accordance with the requirements and limits identified in the owner's manual from the manufacturer. Develop and document appropriate workplace specific rules and procedures, where required.
- 4.1.2. Aerial Lift may be "field modified" for uses other than those intended by the manufacturer, provided the modifications have been verified in writing by the manufacturer or by any other equivalent entity to be in conformity with all applicable provisions of ANSI A92.2 – 1969 and OSHA 1926.453 and to be at least as safe as the equipment was before modification.
- 4.1.3. The insulated portion of an aerial lift shall not be altered in any manner that might reduce its insulating value.
- 4.1.4. Articulating boom and extensible boom platforms, designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls must be plainly marked as to their function.
- 4.1.5. Manufacturers' manuals are available and stored in the weatherproof containers on the lifts or in the mobile units.
- 4.1.6. The aerial lift must have a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when a spotter is used.

4.2. Lift Operations

- 4.2.1. Ensure that equipment is inspected each day prior to use to determine that controls are in safe working condition.
- 4.2.2. Fall arrest system lanyards must be used and attached to the anchor point on the floor of the basket or the boom of the lift. Securing the lanyard to an adjacent pole, structure, or equipment, or to the railings of the basket while working from an aerial lift shall NOT be permitted. If employees are required to leave the basket and are subjected to a fall hazard, a second lanyard must be used to ensure that fall protection requirements are continuous.
- 4.2.3. Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- 4.2.4. Full body harnesses (as part of a personal fall arrest system) will be worn and a lanyard attached to the boom or basket when working.
- 4.2.5. The manufacturer's boom and basket weight limits shall not be exceeded.
- 4.2.6. The brakes shall be set and when outriggers are used, they shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline provided they can be safely installed.
- 4.2.7. The base or body of the aerial lift truck shall not be moved when the boom is elevated in a working position with employees in the basket, except for equipment which is specifically designed for this type of operation.
- 4.2.8. Climbers (or similar spiked shoes) may not be worn while performing work from the aerial lift.
- 4.2.9. Never allow an aerial lift to be used as a crane or material-lifting device.
- 4.2.10. A hard hat shall be worn at all times when operating Aerial Lift.
- 4.2.11. Entry gates or chains shall be closed before operating the lift.
- 4.2.12. For aerial lifts that have both upper and lower controls, the lower controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.
- 4.2.13. Before moving an aerial lift for travel, the boom must be inspected to see that it is properly cradled and outriggers are in the stowed position.
- 4.2.14. When moving the vehicle in reverse, the signal alarm must be audible above the surrounding noise level or a spotter must be used to signal that it is safe.

- 4.2.15. When required to exit or climb out of an elevated aerial lift to a location not otherwise protected by guardrails, floor, or other continuous means of fall protection, operators shall use a second shock-absorbing lanyard to connect to the new location before disconnecting from the aerial lift. When entering an aerial lift from an unprotected location, operators shall connect a shock-absorbing lanyard to the anchorage point in the aerial lift before entering.
- 4.2.16. Employees should not position themselves between overhead hazards, such as joists and beams, and the rails of the basket. If such positioning is required, the fall protection system must account for the shorter distance to the hazard in case of a fall.
- 4.2.17. Never override hydraulic, mechanical, or electrical safety devices.
- 4.2.18. Always treat power lines, wires and other conductors as energized, even if they are down or appear to be insulated.
- 4.2.19. Operators shall maintain safe distances from electrical power lines, conductors or bus bars. Operators must allow for boom or platform movement or electrical line sway or sag. Operators shall follow minimum safe approach distances (MSAD). At no time will an operator position the bucket closer than 10' from any electrical source.

MSAD (Minimum Safe Approach Distance) to Energized (Exposed or Insulated)
Power Lines

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance
0 to 300V	10'
Over 300 to 50KV	10'
Over 50KV to 200KV	15'
Over 200KV to 350KV	20'
Over 350KV to 500KV	25'
Over 500KV to 750KV	35'
Over 750KV to 1000KV	45'

4.3. Records and Documentation:

- 4.3.1. Workplace specific training (initial and retraining) records. An Operator Evaluation Form must be retained.
- 4.3.2. Training records for current operators must be retained for the duration they will operate the lift. Records should be retained for 3 years after this point.
- 4.3.3. Documentation of daily lift inspection must be maintained.

5. Safety Information.

- 5.1. Fuel tanks may not be filled while the engine is running.
- 5.2. Fuel caps must be in place before starting.
- 5.3. Liquid fuels such as gasoline and diesel fuel must be handled in accordance with NFPA standards for Flammable and Combustible Liquids.
- 5.4. The operator must conduct a safety / circle check of the vehicle to determine hazards.
- 5.5. The operator must conduct a worksite inspection.
- 5.6. Perform electrical system safety tests on aerial lift devices per ANSI/SIA A92.2 requirements.
- 5.7. Inspect hydraulic and pneumatic system components (Busting Safety Factor) on aerial lift devices per ANSI/SIA A92.2 requirements.
- 5.8. Conduct welding operations on aerial lift devices per Automotive Welding Society (AWS) Standards.

6. Training and Information.

- 6.1. Training must occur before operators are allowed to operate an aerial lift unsupervised, and such operations may not endanger either the operators or the trainee.
 - 6.1.1. Initial information (classroom, discussion)
 - 6.1.2. Evaluation and instruction on the operation of the aerial lift at the workplace.
- 6.2. Initial Training must provide for:
 - 6.2.1. Operation training provides skills and knowledge related to the lift the operator is authorized to drive. These include: inspections, controls, vehicle stability and capacity and any specific operating limitations.
 - 6.2.2. An evaluation of the operator, in the workplace, performing typical aerial lift tasks must occur initially.

7. Definitions.

- 7.1. *Aerial Lift* – Aerial Lift include the following types of devices used to elevate personnel to job-sites above ground, extensible boom platforms, aerial ladders, articulating boom platforms and vertical towers. The equipment may be powered or manually operated and are deemed to be Aerial Lift whether or not they are capable of rotating about a substantially vertical axis.

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AERIAL LIFT OPERATOR CHECKLIST

Items to Be Inspected	OK		
Emergency controls are in proper working condition (Emergency Stop Device and emergency lowering function)	<input type="checkbox"/>		
Safety devices are functional (Foot pedal, spring lock, etc.)	<input type="checkbox"/>		
All safety indicator lights work properly and notion alarms are functional	<input type="checkbox"/>		
Fire extinguisher on platform	<input type="checkbox"/>		
All controls function properly, are clean and clearly labeled	<input type="checkbox"/>		
Ground operating controls successfully over-ride the aerial controls	<input type="checkbox"/>		
Fuel level is acceptable and the system is not leaking	<input type="checkbox"/>		
Hydraulic level is acceptable and the system is not leaking	<input type="checkbox"/>		
Are there any loose or missing parts (Bolts, fasteners, braces, brackets, etc.)	<input type="checkbox"/>		
Work platform is clean, dry and clear of debris	<input type="checkbox"/>		
Tires, wheels, and lug nuts are in good condition	<input type="checkbox"/>		
No defects such as cracked welds, damaged control cables, damaged wire harness or other obvious damage	<input type="checkbox"/>		
Slide pad is not worn down	<input type="checkbox"/>		
Braking devices are operating properly	<input type="checkbox"/>		
The manufacturer's operations manual is stored on the lift (in all languages of the operators)	<input type="checkbox"/>		
Boom and lift pivot pins are in good working order	<input type="checkbox"/>		
All switch and mechanical guards are in good condition and properly installed	<input type="checkbox"/>		
Platform gate and Guardrails are in place and in good condition	<input type="checkbox"/>		
Other personal protective devices are in good condition	<input type="checkbox"/>		
Stabilizers, outriggers and/or extending axles function properly	<input type="checkbox"/>		
Working lights are operational	<input type="checkbox"/>		
Control Markings are in place and legible	<input type="checkbox"/>		
All manufacturer required inspections of all hydraulic control relief valves and other manufacturer requirements have been completed within the required time period (Check inspection sticker on equipment for validation)	<input type="checkbox"/>		
Battery indicator shows an acceptable level remaining	<input type="checkbox"/>		
Is the total load within the rated capacity	<input type="checkbox"/>		
AERIAL LIFT INSPECTED BY:			
Signature:		Date:	
Aerial lift is safe to operate?		___ Yes No	
Comments:			

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AERIAL LIFT OPERATOR EVALUATION ASSESSMENT

This form (or its equivalent) must be retained for records management

Equipment Operated (make/model):					
Name of Operator:			Employee Identification#:		Date:
Signature of Operator:			Signature of Evaluator:		
YES	NO	Activity	YES	NO	Activity
<input type="checkbox"/>	<input type="checkbox"/>	Performs pre-shift checks			
UNDERSTANDS CONTROLS					
<input type="checkbox"/>	<input type="checkbox"/>	Forward/reverse	<input type="checkbox"/>	<input type="checkbox"/>	Service brake
<input type="checkbox"/>	<input type="checkbox"/>	Steering technique	<input type="checkbox"/>	<input type="checkbox"/>	Instrumentation
<input type="checkbox"/>	<input type="checkbox"/>	Parking brakes	<input type="checkbox"/>	<input type="checkbox"/>	Attachment
TRUCK HANDLING					
<input type="checkbox"/>	<input type="checkbox"/>	Smooth starts/stops	<input type="checkbox"/>	<input type="checkbox"/>	Smooth/controlled turns
<input type="checkbox"/>	<input type="checkbox"/>	Inching/plugging	<input type="checkbox"/>	<input type="checkbox"/>	Clears obstacles safely
<input type="checkbox"/>	<input type="checkbox"/>	Approach is square	<input type="checkbox"/>	<input type="checkbox"/>	Proper maneuvering speed
<input type="checkbox"/>	<input type="checkbox"/>	Proper traveling height	<input type="checkbox"/>	<input type="checkbox"/>	Looks in travel direction
PARKING PROCEDURES					
<input type="checkbox"/>	<input type="checkbox"/>	Lowers lift to lowest level	<input type="checkbox"/>	<input type="checkbox"/>	Dismounts safely
<input type="checkbox"/>	<input type="checkbox"/>	Truck in neutral	<input type="checkbox"/>	<input type="checkbox"/>	Uses wheel chocks on ramps
<input type="checkbox"/>	<input type="checkbox"/>	Applies parking brake	<input type="checkbox"/>	<input type="checkbox"/>	Turns off fuel supply
<input type="checkbox"/>	<input type="checkbox"/>	Power shut off			
LOAD HANDLING					
<input type="checkbox"/>	<input type="checkbox"/>	Lift/lower technique	Comments:		
<input type="checkbox"/>	<input type="checkbox"/>	Smooth starts/stops			
<input type="checkbox"/>	<input type="checkbox"/>	Proper truck speed			
SAFETY					
<input type="checkbox"/>	<input type="checkbox"/>	Uses horn as required	<input type="checkbox"/>	<input type="checkbox"/>	Uses proper operational speed
<input type="checkbox"/>	<input type="checkbox"/>	Wears PFAS, as needed	<input type="checkbox"/>	<input type="checkbox"/>	Stops at major intersections
<input type="checkbox"/>	<input type="checkbox"/>	Uses intersection mirrors, as	<input type="checkbox"/>	<input type="checkbox"/>	Yields right-of-way

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Aerial Lift Training
Wallet Cards
 INSTRUCTIONS
 FOR USE


1. Designate a Trainer/Certifier to conduct the training and testing of all company Aerial Lift Operators.
2. Operator signature is the operator of the lift, the Certified Signature is the person who administered the practical exam.

COMPANY: _____

THIS IS TO CERTIFY THAT _____
 HAS BEEN SUCCESSFULLY TESTED AND TRAINED IN
 AERIAL LIFT OPERATIONS USE AND CARE AND IS
 QUALIFIED TO USE A LIFT.

 OPERATOR SIGNATURE DATE

 CERTIFIER SIGNATURE DATE




COMPANY: _____

THIS IS TO CERTIFY THAT _____
 HAS BEEN SUCCESSFULLY TESTED AND TRAINED IN
 AERIAL LIFT OPERATIONS USE AND CARE AND IS
 QUALIFIED TO USE A LIFT.

 OPERATOR SIGNATURE DATE

 CERTIFIER SIGNATURE DATE




COMPANY: _____

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 OPERATOR SIGNATURE DATE

 CERTIFIER SIGNATURE DATE




COMPANY: _____

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 OPERATOR SIGNATURE DATE

 CERTIFIER SIGNATURE DATE



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TRAINING ATTENDANCE ROSTER AERIAL LIFT

Aerial Lift Training Includes:

- Definition
- Common hazards
- Safe Operating Rules
- Inspections

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

BACK SAFETY IN THE WORKPLACE PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1903. (General Duty Clause)
OSHA - 29 CFR 1910.151 (Medical Services)
Best Practices - Ergonomics

INTRODUCTION

Outlines the methods for identifying back disorder risk factors and for implementing protective measures to prevent back injuries.

TRAINING

Recommended for most workplaces

ACTIVITIES

- Identify risk factors for back injury in the operations
 - Repetitive or prolonged activities
 - Awkward postures
 - Unusual size or weight objects
- Implement any required controls to minimize or eliminate hazards.

FORMS

- Training Attendance Roster, as needed

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

BACK SAFETY IN THE WORKPLACE PROGRAM

1. **Purpose.** This safety program is designed to establish clear company goals and objectives with regard to back safety and will be communicated to all required personnel. The company will review and evaluate this safety program:

- 1.1 When changes occur to 29 CFR that prompt revision of this document
- 1.2 When facility operational changes occur that require a revision of this document
- 1.3 When there is an accident or close-call that relates to this area of safety
- 1.4 Review the safety program any time these procedures fail

2. **Scope.** This program applies to the total workplace regardless of the number of workers employed or the number of work shifts

3. Responsibilities

3.1.1 Management and Supervisor:

- 3.1.1.1 Evaluate the workplace for potential back safety issues
- 3.1.1.2 Implement controls and awareness training to prevent back injuries
- 3.1.1.3 Review this program and needed.

3.1.2 Employees:

- 3.1.2.1 Follow workplace rules and procedures
- 3.1.2.2 Immediately report injuries or symptoms of back disorders

4. Procedure

4.1 Back Disorder Risk Factors. Identification of hazards will be based on risk factors such as conditions of a job process, workstation, or work methods that contribute to the risk of developing problems associated with back disorders. Not all of these risk factors will be present in every job containing stressors nor is the existence of one of these factors necessarily sufficient to cause a back injury. Supervisors will use the following known risk factors to isolate and report suspected problem areas:

- 4.1.1 Repetitive and/or prolonged activities
- 4.1.2 Bad body mechanics such as:
 - 4.1.2.1 Continued bending over at the waist
 - 4.1.2.2 Continued lifting from below the knuckles

- 4.1.2.3 Continued lifting above the shoulders
- 4.1.2.4 Twisting at the waist
- 4.1.2.5 Twisting at the waist while lifting
- 4.1.2.6 Lifting or moving objects of excessive weight
- 4.1.2.7 Lifting or moving object of asymmetric size
- 4.1.2.8 Prolonged sitting with poor posture
- 4.1.2.9 Lack of adjustable :
 - 4.1.2.9.1 Chairs
 - 4.1.2.9.2 Footrests
 - 4.1.2.9.3 Body supports
 - 4.1.2.9.4 Work surfaces at workstations
- 4.1.2.10 Poor grips on handles
- 4.1.2.11 Slippery footing
- 4.1.2.12 Frequency of movement
- 4.1.2.13 Duration and pace
- 4.1.2.14 Stability of load
- 4.1.2.15 Coupling of load
- 4.1.2.16 Type of grip
- 4.1.2.17 Reach distances
- 4.1.2.18 Work height

4.2 Safe Lifting Techniques. First, use a pushcart or other material-handling device! Second, ask a co-worker for help if no device is available! If you must lift alone here are some tips. Before starting to lift or carry anything, check your entire walkway to make sure your footing will be solid. Your shoes should give you good balance, support and traction. Keep loads as close to your body as possible. The following situations show basic lifting techniques to avoid injury:

- 4.2.1 Lifting or lowering from a high place
 - 4.2.1.1 Stand on a platform instead of a ladder

- 4.2.1.2 Lift the load in smaller pieces, if possible
- 4.2.1.3 Slide the load as close to yourself as possible before lifting
- 4.2.1.4 Grip firmly and slide it down
- 4.2.1.5 Get help when you need it to avoid injury
- 4.2.2 Lifting from hard-to-get-at places
 - 4.2.2.1 Get as close to the load as possible
 - 4.2.2.2 Keep back straight, stomach muscles tight
 - 4.2.2.3 Push buttocks out behind you
 - 4.2.2.4 Bend your knees
 - 4.2.2.5 Use leg, stomach, and buttock muscles to lift -- not your back
- 4.2.3 Lifting drums, barrels, and cylinders
 - 4.2.3.1 Use mechanical assists
 - 4.2.3.2 Always be aware that loads can shift
 - 4.2.3.3 Get help if load is too heavy
- 4.2.4 Awkward objects
 - 4.2.4.1 Bend your knees with feet spread
 - 4.2.4.2 Grip the top outside and bottom inside corners
 - 4.2.4.3 Use your legs to lift, keeping back straight
- 4.2.5 Shoveling
 - 4.2.5.1 Make sure your grip and balance are solid
 - 4.2.5.2 Tighten your abdomen as you lift
 - 4.2.5.3 Keep the shovel close to your body
 - 4.2.5.4 Use the strength of your thigh muscles to bring you to an upright position
 - 4.2.5.5 Increase your leverage by keeping your bottom hand low and toward the blade

4.2.6 General safety tips

4.2.6.1 Don't lift objects over your head

4.2.6.2 Don't twist your body when lifting or setting an object down

4.2.6.3 Don't reach over an obstacle to lift a load

4.2.6.4 Pace yourself to avoid fatigue

5. Safety Information.

5.1 Job Hazard Analysis and Work Station Analysis Surveys. Job hazard analysis surveys will be routinely performed by a qualified person for jobs that put workers at risk. This analysis survey will help to verify risk factors and to determine if risk factors for a work position have been reduced or eliminated to the extent feasible.

5.1.1 Upper extremities. For upper extremities three (3) measurements of repetitiveness will be reviewed:

5.1.1.1 Total hand manipulations per cycle.

5.1.1.2 The cycle time.

5.1.1.3 The total manipulations or cycles per work shift.

5.1.2 Force measurements. Force measurements will be noted as an estimated average effort and a peak force (unless quantitative measurements are feasible). They will be recorded as "light," "moderate," or "heavy".

5.1.3 Tools. Tools will be checked for excessive vibration and weight. (The NIOSH criteria document on hand/arm vibration should be consulted.) The tools, personal protective equipment, and dimensions and adjustability of the workstation will be noted for each job hazard analysis.

5.1.4 Postures. Hand, arm, and shoulder postures and movements will be assessed for levels of risk.

5.1.5 Lifting Hazards. Workstations having tasks requiring manual materials handling will have the maximum weight-lifting values calculated. (The NIOSH *Work Practices Guide for Manual Lifting* should be used for basic calculations.)

5.1.6 Videotape Method. The use of videotape, where feasible, will be used as a method for analysis of the work process. Slow-motion videotape or equivalent visual records of workers performing their routine job tasks will be used where practical to determine the demands of the task on the worker and how each worker actually performs each task. A task analysis log/form will be used to break down the job into components that can be individually analyzed.

5.2 Hazard Prevention and Control. Company management understands that engineering solutions, where feasible, are the preferred method of control for ergonomic hazards. The focus of this safety program is to make the job fit the person, not to make the person fit the job. This is accomplished by redesigning the workstation, work methods, or tools to reduce the demands of the job. Such as high force, repetitive motion, and awkward postures. This safety program will whenever possible research into currently available controls and technology. The following examples of engineering controls will be used as models for workstation design and upgrade.

5.2.1 Workstation Design. Workstations when initially constructed or when redesigned will be adjustable in order to accommodate the person who actually works at a given workstation. It is not adequate to design for the "average" or typical worker. Workstations should be easily adjustable and either designed or selected to fit a specific task so that they are comfortable for the workers using them. The workspace should be large enough to allow for the full range of required movements especially where hand held tools are used. Examples include:

5.2.1.1 Adjustable fixtures on work tables so that the position of the work can be easily manipulated.

5.2.1.2 Workstations and delivery bins that can accommodate the heights and reach limitations of various-sized workers.

5.2.1.3 Work platforms that move up and down for various operations.

5.2.1.4 Mechanical or powered assists to eliminate the use of extreme force.

5.2.1.5 Suspension of heavy tools.

5.2.1.6 The use of diverging conveyors off of main lines so that certain activities can be performed at slower rates.

5.2.1.7 Floor mats designed to reduce trauma to the legs and back.

5.2.2 Design of Work Methods. Traditional work method analysis considers static postures and repetition rates. This will be supplemented by addressing the force levels and the hand and arm postures involved. The tasks will be altered where possible to reduce these and the other stresses. Examples of methods for the reduction of extreme and awkward postures include the following:

5.2.2.1 Enabling the worker to perform the task with two hands instead of one.

5.2.2.2 Conforming to the NIOSH *Work Practices Guide for Manual Lifting*.

- 5.2.3 Excessive force. Excessive force in any operation can result in both long-term problems for the worker and increased accident rates. Ways to reduce excessive force will be continually emphasized by first line supervisors and employees. Examples of methods to reduce excessive force include:
 - 5.2.3.1 The use of automation devices.
 - 5.2.3.2 The use of mechanical devices to aid in removing scrap from work areas.
 - 5.2.3.3 Substitution of power tools where manual tools are now in use.
 - 5.2.3.4 The use of articulated arms and counter balances suspended by overhead racks to reduce the force needed to operate and control power tools.
- 5.2.4 Repetitive motion. All efforts to reduce repetitive motion will be pursued. Examples of methods to reduce highly repetitive movements include:
 - 5.2.4.1 Increasing the number of workers performing a task.
 - 5.2.4.2 Lessening repetition by combining jobs with very short cycle times, thereby increasing cycle time. (Sometimes referred to as "job enlargement.")
 - 5.2.4.3 Using automation where appropriate.
 - 5.2.4.4 Designing or altering jobs to allow self-pacing, when feasible.
 - 5.2.4.5 Designing or altering jobs to allow sufficient rest pauses.
- 5.3 Administrative Controls. Administrative controls should be used to reduce the duration, frequency, and severity of exposures to ergonomic stressors that can cause back injury. Examples of administrative controls include the following:
 - 5.3.1 Reducing the total number of repetitions per employee by such means as decreasing production rates and limiting overtime work.
 - 5.3.2 Providing rest pauses to relieve fatigued muscle-tendon groups. The length of time needed depends on the task's overall effort and total cycle time.
 - 5.3.3 Increasing the number of employees assigned to a task to alleviate severe conditions, especially in lifting heavy objects.
 - 5.3.4 Using job rotation, with caution and as a preventive measure, not as a response to symptoms. The principle of job rotation is to alleviate physical fatigue and stress of a particular set of muscles and tendons by rotating employees among other jobs that use different muscle-tendon groups. If rotation is utilized, the job analyses must be reviewed to ensure that the same muscle-tendon groups are not used when they are rotated.

- 5.3.5 Providing sufficient numbers of standby/relief personnel to compensate for foreseeable upset conditions on the line (e.g., loss of workers).
- 5.3.6 Job enlargement. Having employees perform broader functions which reduce the stress on specific muscle groups while performing individual tasks.

6. Training and Information

- 6.1 Types of training. Supervisors will determine whether training required for specific jobs will be conducted in a classroom or on-the-job. The degree of training provided shall be determined by the complexity of the job and the associated hazards.
 - 6.1.1 Initial Training. Prior to job assignment the company shall provide training to ensure that the hazards associated with pre-designated job skills are understood by employees. Also the knowledge and skills required for the safe application and usage of work place procedures and equipment is acquired by all employees. The training shall include the following:
 - 6.1.1.1 Each affected employee shall receive training in the recognition of back injury hazards involved with a particular job, and the methods and means necessary for safe work.
 - 6.1.1.2 Training course content. All new and current workers, who work in areas where there is reasonable likelihood of back injury, will be kept informed through continuing education programs. Initial and refresher training will, as a minimum, cover the following:
 - 6.1.1.2.1 Back hazards associated with the job.
 - 6.1.1.2.2 Lifting techniques.
 - 6.1.1.2.3 Potential health effects of back injury.
 - 6.1.1.2.4 Back injury precautions.
 - 6.1.1.2.5 Proper use of protective clothing and equipment.
 - 6.1.1.2.6 Use of engineering controls.
 - 6.1.1.3 Responsibility. Employees are responsible for following proper work practices and control procedures to help protect their health and provide for the safety of themselves and fellow employees, including instructions to immediately report to the Supervisor any significant back injury.

6.1.2 Refresher Training. Scheduled refresher training will be conducted on an as needed basis.

6.1.2.1 Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in equipment or processes that present a new hazard, or when their work takes them into other hazard areas.

6.1.2.2 Additional retraining shall also be conducted whenever a periodic inspection reveals, or when there is reason to believe that there are deviations from or inadequacies in the employee's knowledge of known hazards and use of equipment or procedures.

6.1.2.3 The retraining shall reestablish employee proficiency and introduce new equipment, new lifting procedures or revised control methods and procedures.

6.1.3 Verification. The company shall verify that employee training has been accomplished and is being kept up to date. The verification shall contain a synopsis of the training conducted, each employee's name, and dates of training.

6.2 New Employee Acclimatization Period. Supervisors will ensure that new or transferred employees are allowed an appropriate acclimatization period. New and returning employees will be gradually integrated into a full work schedule as appropriate for specific jobs and individuals. Employees will be assigned to an experienced trainer for job training and evaluation during this period. Employees reassigned to new jobs should also have an acclimatization period.

7. Definitions.

➤ *None at this time*

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TRAINING ATTENDANCE ROSTER BACK SAFETY

Back Safety Training Includes:

- Types of Injuries and Causes
- Risk Assessment and Planning
- Safe Lifting Techniques
- Special Lifting Hazards

INSTRUCTOR:

DATE:

LOCATION:

NAME (Please Print)
FIRST - MI - LAST

SIGNATURE

By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.

Name of Interpreter, if utilized:

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PROGRAM OVERVIEW

BLOOD AND BODILY FLUID INCIDENTAL EXPOSURE PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.1030 (LIMITED REFERENCES)

INTRODUCTION

Exposure to another person's blood or bodily fluids can potentially place your health at risk. Contracting diseases such as the Human Immunodeficiency (HIV) and Hepatitis B (HBV) viruses is unlikely, but possible, in the performance of emergency first-aid, housekeeping and janitorial staff duties, and similar tasks. This program outlines the protective measures that can be taken during potential exposure situations and training that can be provided to reduce or eliminate these types of exposures.

TRAINING

Recommended for employees who may encounter human blood or body fluids but such exposure is not a part of their normal job duties.

ACTIVITIES

- Identify risk situations
- Train employees, as appropriate

FORMS

- Training Attendance Roster, as needed

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

Incidental Blood and Bodily Fluid Exposure Program

1. **Purpose.** Where employees can be exposed (through injury or illness in the workplace) to the blood and/or bodily fluid of another person, information and training in the potential health effects of such exposures may be provided. This procedure assists in compliance with implementing this type of “incidental” Bloodborne Pathogen Exposure program and references Federal Regulation 29CFR1910.1030.
2. **Scope.** Applies to all locations within company buildings or facilities where incidents involving exposures to a person’s blood or bodily fluids may occur.
3. **Responsibilities**
 - 3.1 Management and Supervisor:
 - 3.1.1 Determine where exposures are present
 - 3.1.2 Ensure employees are trained, based on their level of exposure to blood or Bloodborne pathogens
 - 3.1.3 Implement bio-safety controls, where required
 - 3.1.4 Maintain appropriate documentation (including exposure incident reports and post-exposure follow up records)
 - 3.2 Employees:
 - 3.2.1 Follow established written procedures
 - 3.2.2 Attend training, as needed or required
4. **Procedure**
 - 4.1 Determine where exposures or potential exposures exist
 - 4.2 Provide controls to eliminate or reduce exposures
 - 4.3 Document exposures through accident/incident reports or exposure incident reports and maintain records for 5 years.
5. **Safety Information**
 - 5.1 Document and maintain written processes and procedures in work areas where exposure could potentially occur. This includes:
 - 5.1.1 Any first aid procedures or supplies maintained at the company
 - 5.1.2 PPE (Personal Protective Equipment) that may be used or required
 - 5.1.3 Training provided, as needed

- 5.2 Assure a system is in place for a medical evaluation for any exposed employee who has had contact with the blood or bodily fluids of another person.
- 5.3 Assure incident and/or exposure records are maintained for 5 years for each employee who has an exposure event. Record all exposure incident cases on the OSHA 300 log, if your company is required to maintain such records
- 5.4 These records or reports should include:
 - 5.4.1 Name of the exposed employee
 - 5.4.2 Information (if known) on if the exposed employee has had a Hepatitis B Vaccination previous to the exposure.
 - 5.4.3 Circumstances of the exposure and any PPE used
 - 5.4.3.1 Written opinion of the healthcare provider (PLHCP Statement) and copies of any other documentation provided to the healthcare professional responsible for post-exposure follow up.

6. Training and Information

- 6.1 Training for employees is voluntary and not required.
- 6.2 Training includes:
 - 6.2.1 Information on how bloodborne pathogens and diseases can be contracted by employees during their work.
 - 6.2.2 How exposures are prevented (controls used, PPE, etc.)
 - 6.2.3 Whom to contact at the company and what to do (and what to expect) if an employee has an exposure.
 - 6.2.4 Training records should be maintained for at least 3 years.

7. Definitions

- *Biohazards/Bloodborne Pathogens* - Infectious agents (human pathogens), materials from human sources or primates that may contain pathogens, and organism-produced toxins, venom, allergens, etc. that causes disease in humans.
- *Contact or Exposure* – Blood or body fluids must have the potential to be absorbed into the blood stream (such as through a break in the skin (cut or other skin opening) or through the eyes, nose, mouth to be considered contact. Exposure is considered to be any contact with another person’s blood or bodily fluids (saliva, vomit, urine, feces, etc).

- *Exposure Control Program* - A written program that outlines the exposures that are present (or potentially present) in the workplace and the steps taken to eliminate or control those exposures.
- *OPIM* - Other Potentially Infectious Materials, such as contaminated waste, tissue samples, Human body fluids, including: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids.
- *Potentially Exposed* - An exposure that can reasonably occur at some time.
- *Sharps* - a non-needle sharp or needle device used for withdrawing blood or body fluids, accessing a vein or artery or administering medication or other fluids.
- *Universal Precautions* - An approach to infection control. According to the concept of universal precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens.

BLOOD AND BODILY FLUIDS (INCIDENTAL) EXPOSURE TRAINING ATTENDANCE ROSTER

Training Content: <ul style="list-style-type: none"> • What is a BBP • Types of diseases • Precautions and PPE • Spill Cleanup • Waste Disposal • Exposure Incident Process 	Instructor Name:	Date of Training:
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	JOB TITLE
By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.		

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

COMPRESSED GAS SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.101 - 105

CGA - G-1, 4, 4.1, 5, 6, 8.1, P-1, 2, V-1, SB-2

INTRODUCTION

Some compressed gases are flammable, toxic, or both and all are under pressure. Cylinders must be used, handled, and stored with extreme care. An exploding cylinder can have the same destructive effect as a bomb. The hazards of compressed gases must be evaluated, safety procedures implemented, and proper hazard information must be communicated to all affected workers.

TRAINING

Required for employees who move, handle or use compressed gas cylinders.

ACTIVITIES

- Ensure storage areas are identified and inspected frequently.
- Cylinders must be secure and prevented from tipping.
- Cylinders must be labeled with the type of gas, hazard warnings, and indication if the cylinder is empty or full. All empty cylinders should be grouped together.
- Full oxygen cylinders must be located 20 feet from, or have a half hour rated fire wall separating them from, any flammable gases while in storage.

FORMS

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

Compressed Gas Safety Program

1. **Purpose.** Effective implementation for job safety and health of our employees requires a written safety program fully endorsed and advocated by the highest level of management within the company. This safety program is designed to establish clear company goals and objectives for the use and handling of compressed gases, and will be communicated to all required personnel. The company will review and evaluate this safety program:
 - 1.1 When changes occur to the regulatory standard governing this safety program that prompt revision of this document
 - 1.2 When facility operational changes occur that require a revision of this document
2. **Scope.** It encompasses the total workplace regardless of the number of workers employed or the number of work shifts. This program applies to any compressed gas cylinder larger than 1 liter in size.
3. **Responsibilities**
 - 3.1 Management and Supervisor
 - 3.1.1 Assure safe handling procedures are in place and followed
 - 3.1.2 Ensure containers are labeled, color coded, inspected and that all components are functioning normally. Leaking or defective containers must be immediately removed from service.
 - 3.1.3 Ensure defective containers are returned to the supplier as soon as possible.
 - 3.1.4 Provide the appropriate tools and equipment to handle, use, store and transport cylinders safely.
 - 3.2 Employees
 - 3.2.1 Inspect gas cylinders before use to assure that the proper gas is utilized and that the cylinders are not defective.
 - 3.2.2 Notify management or supervisor immediately if a cylinder or a component is defective.

4. Procedure

4.1 Safe Handling Procedures for Compressed Gases

4.1.1 Filling. Containers will not be filled except by the supplier of the cylinder or with the supplier's consent. Where filling is authorized it will be accomplished in accordance with DOT, OSHA, and CGA Regulatory Standards.

4.1.2 Content identification

4.1.2.1 Warning labels. All employees, whose work operations are or may be in an area where compressed gas may be utilized, shall be instructed in the recognition and use of warning labels. Warning labels are essentially warning devices and must be legible at all times. The following will be addressed as a minimum:

4.1.2.1.1 Removal. When a warning label is attached to a compressed gas cylinder, it is not to be removed without authorization of the person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

4.1.2.1.2 Legibility. In order to be effective, warning labels must be legible and understandable by all authorized employees, affected employees, and other employees whose work operations are or may be in the area. Non-legible or missing labels will be reported to the Safety Officer immediately.

4.1.2.1.3 Durability. Labels and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

4.1.2.1.4 Labels may evoke a false sense of security, and their meaning needs to be understood as part of the overall Compressed Gas Safety Program.

4.1.2.1.5 Labels must be securely attached to cylinders so that they cannot be inadvertently or accidentally detached during use.

4.1.2.2 Labeling. Each container will bear the proper label for the compressed gas contained.

4.1.2.3 Maintenance

4.1.2.3.1 Authorization. Containers and their appurtenances used by the company will be maintained only by the container supplier or authorized representative. Any employee who is not sure of the type of maintenance allowed on containers should contact the Safety Officer for further information.

4.1.2.3.2 Changing prescribed markings. The prescribed markings, supplier/owner markings or symbols stamped into containers will not be removed or changed unless in accordance with pertinent regulatory standards.

4.1.2.3.3 Changing content markings. No employee will deface or remove any markings, labels, decals, tags or stencil marks applied by our supplier and used for the identification of content. Like markings may be affixed if the original becomes illegible or detached.

4.1.2.3.4 Pressure relief devices. No employee will change, modify, tamper with, obstruct, or repair pressure relief devices in container valves or in containers.

4.1.2.4 Painting.

4.1.2.4.1 Containers will not be painted. If a container shows signs of corrosion it will be removed from service and returned to the supplier.

4.1.2.4.2 Cylinder color. All employees should be aware that containers may only be painted by the supplier for the purpose of recognition and segregation. Should the company change suppliers' of compressed gas the color codes could also change, always double-check to ensure you have the correct cylinder for the intended use. Never rely solely on the cylinder color for identification.

4.1.2.5 Contamination or improper contents. Any container found suspected to be contaminated or having its contents suspect will be immediately removed from service and reported to the Safety Officer. The supplier will be immediately notified.

4.1.2.6 Leaking or defective containers.

4.1.2.6.1 Leaking Containers. Supervisors will ensure all employees under their control understand the following. Any employee discovering a leaking container should attempt to take the following actions:

4.1.2.6.1.1 Notify workers in the immediate area of the leak.

4.1.2.6.1.2 If the container could contain hazardous material (or if you're not sure) evacuate personnel in the area to fresh air (preferably up-wind or side-wind relative to the source).

4.1.2.6.1.3 Report the following as soon as possible to the Safety Officer.

4.1.2.6.1.3.1 Contents.

4.1.2.6.1.3.2 Location.

4.1.2.6.1.3.3 Number of employees in immediate area.

4.1.2.6.1.3.4 Circumstances of the release.

4.1.2.6.1.3.5 Condition of container.

4.1.2.6.1.3.6 Other pertinent information as required.

4.1.2.6.2 Defective Containers. Supervisors will ensure all employees under their control understand the following. Any employee discovering a defective or corroded container should attempt to take the following actions:

4.1.2.6.2.1 Notify the Supervisor of the department where the container was discovered.

4.1.2.6.2.2 If the container could contain hazardous material (if you're not sure), evacuate personnel in the area to fresh air (preferably up-wind or side-wind relative to the source).

4.1.2.6.2.3 Report the following as soon as possible to the Safety Officer:

4.1.2.6.2.3.1 Contents

4.1.2.6.2.3.2 Location

4.1.2.6.2.3.3 Number of employees in immediate area

4.1.2.6.2.3.4 Circumstances

4.1.2.6.2.3.5 Condition of container

4.1.2.6.2.3.6 Other pertinent information as required

4.1.2.7 Container usage requirements

4.1.2.7.1 Content Identification. Where company employees are responsible to handle and connect the container for use, the operation will not proceed unless the contents can be verified by legible markings and labels.

4.1.2.7.2 Container caps, valve outlet caps, and plugs.

4.1.2.7.2.1 Container caps. Where removable caps are provided by the gas supplier for valve protection, company employees shall keep such caps on containers at all times except when containers are connected to dispensing equipment.

4.1.2.7.2.2 Valve outlet caps and plugs. Where valve outlet caps and plugs are provided by the supplier, employees will keep such devices on the containers and valve outlets at all times except when containers are connected to dispensing equipment.

4.1.2.7.3 Misuse. No container will be used for anything other than its intended purpose. Containers will not be used as rollers, supports or for any purpose other than to contain the content as received. No employee will allow an unsafe condition such as this to occur without notifying his or her Supervisor.

- 4.1.2.7.4 Containers not in use (configuration). When containers are not being used the valves will remain closed at all times except when operational constraints apply.
- 4.1.2.8 Movement of compressed gas containers
 - 4.1.2.8.1 Trucks. Containers will not be rolled, dragged, or slid. A suitable hand truck, fork truck, roll platform, or similar device will be used to move containers.
 - 4.1.2.8.2 Rough handling. Containers will not be dropped or permitted to strike violently against each other or other surfaces.
 - 4.1.2.8.3 Lifting requirements.
 - 4.1.2.8.3.1 Container caps. Container caps will not be used for lifting containers except for the use of hand trucks which grip the container cap for lifting on to the hand truck. In any case the container will not be lifted higher than six inches above the operating surface.
 - 4.1.2.8.3.2 Magnetic lifting devices. Magnetic lifting devices are prohibited from use with compressed gas containers.
 - 4.1.2.8.3.3 Ropes, chains, or slings. Ropes, chains, or slings are prohibited from use with compressed gas containers unless lugs or lifting attachments are provided by the manufacturer.
 - 4.1.2.8.3.4 Cradles or platforms. Where approved lifting attachments have been provided by the manufacturer, cradles or platforms are authorized for use.
- 4.1.2.9 Container storage requirements
 - 4.1.2.9.1 Posting requirements.
 - 4.1.2.9.1.1 No Smoking. No Smoking signs will be posted in the storage area.
 - 4.1.2.9.1.2 Type gas. Signs designating the type gas stored in the area will be posted.

- 4.1.2.9.2 Grouping requirements. Where different types of gases are stored in the same general area the following apply.
- 4.1.2.9.2.1 Like gases. Gases will be stored with like gases and segregated from dissimilar gases.
 - 4.1.2.9.2.2 Full and empty containers. Full and empty containers will not be intermingled. Separate storage areas will be delineated for each.
- 4.1.2.9.3 Stock rotation. Stock will be rotated so that the oldest material will be the first to be used. The storage layout will be such that old stock can be removed first with a minimum handling of other containers.
- 4.1.2.9.4 Storage rooms. Storage rooms used by the company will be well ventilated and dry. Room temperature will not exceed 125 degrees F. Storage in subsurface location will be avoided.
- 4.1.2.9.5 Separation from combustibles. Containers will not be stored near readily ignitable substances such as gasoline or waste, or near combustibles in bulk, including oil.
- 4.1.2.9.6 External corrosion requirements. Containers will not be exposed to continuous dampness and should not be stored near salt or other corrosive chemicals or fumes. Corrosion may damage the containers and may cause the valve protection caps to stick.
- 4.1.2.9.7 Mechanical damage requirements. Containers shall be protected from any object that will produce a harmful cut or other abrasion in the surface of the metal. Containers will not be stored near elevators, gangways, and unprotected platform edges or in locations where heavy moving objects may strike or fall on them.
- 4.1.2.9.8 Storage and use requirements.
- 4.1.2.9.8.1 Store upright. All compressed gas containers in service or in storage will be stored standing upright where they are not likely to be knocked over.

4.1.2.9.8.2 Restrain. All compressed gas containers in use will be restrained above the midpoint to prevent accidental fall-over of the container.

4.1.2.9.8.2.1 Gas containers with a water volume up to 305 cu. in. (5.0 L) may be stored in a horizontal position.

4.1.2.9.8.3 Container valve end up. Liquefied gas containers except those designed for use in a horizontal position on tow motors, etc., will be stored and used valve end up. Acetylene containers will be stored and used valve end up. Storage of acetylene containers valve end up will minimize the possibility of solvent being discharged. Note: Valve end up includes conditions where the container axis is inclined as much as 45 degrees from the vertical.

4.1.2.9.9 Outdoor storage. Containers may be stored in the open, but will be stored on a clean dry surface to prevent corrosion to the bottom of the container.

4.1.2.9.9.1 Sunlight. Containers may be stored in direct sunlight, except in localities where extreme temperatures prevail (above 125 degrees F.). If our supplier recommends storage in the shade for a particular gas, this recommendation will be observed.

4.1.2.9.9.2 Public area. Containers used or stored in public areas will be protected to prevent tampering.

4.1.2.9.10 Interference with egress. Containers when stored inside will not be located near exits, stairways, or in areas normally used or intended for the safe exit of employees.

4.1.2.10 Connecting containers and withdrawing content

4.1.2.10.1 Trained personnel. Compressed gases will be handled and used only by properly trained employees. Employees must have had initial training in order to handle and use compressed gases.

- 4.1.2.10.2 Content identification. Employees will verify that a label exists and review the label before beginning operations with a compressed gas. Unmarked containers will not be used. Such containers will be reported to the Safety Officer. The container color will never be relied on for identification of a container.
- 4.1.2.10.3 Container caps. Caps will be retained and not removed until the container is placed in service.
- 4.1.2.10.4 Secure containers. The company will ensure that compressed gases will be secured above the midpoint to prevent them from being knocked over.
- 4.1.2.10.5 Pressure regulator. A suitable pressure regulating device will be used where gas is admitted to a system of lower pressure rating than the supply pressure, and where, due to the gas capacity of the supply source, the system rating may be exceeded.
- 4.1.2.10.6 Pressure relief device. A suitable pressure relief device will be used to protect a system using a compressed gas where the system has a pressure rating less than the compressed gas supply source and where, due to the gas capacity of the supply source, the system pressure rating may be exceeded.
- 4.1.2.10.7 Connection requirements. Connections that do not fit will not be forced. Threads on regulator connections or other auxiliary equipment will match those on container valve outlets.
- 4.1.2.10.8 Manifold. Where compressed gas containers are connected to a manifold, the manifold, and its related equipment will be of proper design for the product(s) they are to contain at the appropriate temperatures, pressures, and flows.
- 4.1.2.10.9 Equipment compatibility. Regulators, gauges, hoses, and other appliances provided for use with a particular gas or group of gases, will not be used on containers containing gases having different chemical properties unless information obtained from the supplier indicates that this can be done safely.

- 4.1.2.10.10 Container valve requirements
 - 4.1.2.10.10.1 Container valves will be opened slowly and pointed away from personnel and sources of ignition.
 - 4.1.2.10.10.2 For valves having no hand wheel the wrench provided by, or recommended by the supplier will be used.
 - 4.1.2.10.10.3 On valve containing a hand wheel wrenches will not be used.
 - 4.1.2.10.10.4 Valves will never be forced open or closed. If valves become frozen for whatever reason, the supplier will be contacted to provide instructions.
- 4.1.2.10.11 Dusting clothing, cleaning work areas. Compressed gas will not used to dust off clothing or clean work areas of debris. This may cause serious injury to the eyes or body or create a fire hazard.
- 4.1.2.10.12 Residual empty container pressure. When withdrawing a non-liquefied compressed gas from a container, it should not be reduced to below 20 psig so as to preclude the back flow of atmospheric air or other contaminants into the container. The container valve should be closed tightly to retain this residual pressure.
- 4.1.2.10.13 Check valves. Compressed gases will not be used where the container may be contaminated by the feedback of process materials unless protected by suitable traps or check valves.
- 4.1.2.10.14 Gas tightness. Connections to piping, regulators and other appliances will be kept tight to prevent leakage. Where hose is used, it shall be kept in good condition.
- 4.1.2.10.15 Removing pressure regulator. Before a regulator is removed from a container, the container valve shall be closed and the regulator drained of gas pressure.

4.2 General Safety Rules for Specific Types of Gases

4.2.2 Flammable gases.

- 4.2.2.1 Adjoining exposures. Provisions will be made to protect flammable gases from hazardous exposure to and against hazardous exposure from adjoining buildings, equipment, property, and concentrations of people.
- 4.2.2.2 Heating requirements. Where storage areas are heated, the source will be by steam, hot water, or other indirect means. Heating by flames or fire is prohibited.
- 4.2.2.3 Electrical equipment requirements. Will conform to the provisions of NFPA 70, National Electrical Code, article 501, for Class 1 Division 2 locations.
 - 4.2.2.3.1 Sources of ignition will be forbidden.
 - 4.2.2.3.2 Storage buildings will be well ventilated.
- 4.2.2.4 Combustibles and ignition sources. Flammable gas containers stored inside of buildings with other occupancies will be kept at least 20 feet from combustibles or ignitions sources.
- 4.2.2.5 Capacity limitations. Flammable gas containers stored inside industrial buildings on company property. (Except those in use or those attached for use are limited to a total gas capacity of 2500 cubic feet of acetylene or non-liquefied flammable gas, or a total container content water capacity of 735 pounds for liquefied petroleum gas or stabilized methylacetylene-propadiene).
- 4.2.2.6 Fire protection requirements.
 - 4.2.2.6.1 Fire extinguishers. Adequate portable fire extinguishers of carbon dioxide or dry chemical types will be made available for fire emergencies at company storage locations.
 - 4.2.2.6.2 No smoking signs. Signs will be posted around the storage area of buildings or at the entrance to storage rooms.
 - 4.2.2.6.3 Leak testing. A flame or other ignition source will not be used for detection of flammable gas leaks. Use either a flammable gas leak detector, soapy water, or other suitable solution.

4.2.3 Oxygen (Including oxidizing gases)

- 4.2.3.1 Cleanliness. Oxygen containers, valves, regulators, hose and other oxygen apparatus will be kept free at all times from oil or grease and will not be handled with oily hands, oily gloves, or with greasy equipment.
- 4.2.3.2 Separation of oxygen from combustibles. Oxygen containers in storage will be separated from flammable gas containers or combustible materials (especially oil and grease) a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire resistance rating of at least one-half hour.
- 4.2.3.3 Oxygen-rich atmospheres. The oxygen content in work areas (other than hyperbaric chambers) must not exceed 23 percent by volume.
- 4.2.3.4 Compatibility of materials. Any materials used by the company that come into contact with oxygen in valves, piping, fittings, regulators, and utilization equipment must be suitable for use with oxygen, and at the pressures and conditions involved at the specific use point of material. The handling and use of oxygen above 3000 psi may involve greater fire potential, adequate safety systems analysis need to be made.

4.2.4 Acid and alkaline gases

- 4.2.4.1 Personal protective equipment. Supervisors will ensure that precautions are taken to avoid contacting skin or eyes with acid or alkaline gases. Chemical goggles or face shields, rubber (or other suitable chemically protective material) gloves and aprons will be worn. Long sleeves and trousers will be worn. Open toed shoes or sneakers are prohibited.
- 4.2.4.2 Respiratory equipment. Employees handling and using acid and alkaline gases will have gas masks or self-contained breathing apparatus (SCBA) immediately available for use. SCBA must be used when the concentration of the gas could be higher than the mask canister rating, and or where the oxygen content of the atmosphere could be below 19 percent by volume.
- 4.2.4.3 Emergency showers and eyewash fountains. Supervisors will ensure that areas where acid or alkaline gases are used are equipped with an emergency shower and eyewash fountain.
- 4.2.4.4 Quantity on site. Because of their hazardous nature, Supervisors will limit the quantity of this type of gas to the minimum requirements for the foreseeable future.
- 4.2.4.5 Ventilation. Acid and alkaline gases will only be used in well ventilated areas.

4.2.5 Highly toxic gases

- 4.2.5.1 Respiratory equipment. Employees handling and using highly toxic gases will have gas masks or self-contained breathing apparatus (SCBA) immediately available for use. SCBA must be used when the concentration of the gas could be higher than the mask canister rating, and or where the oxygen content of the atmosphere could be below 19 percent by volume.
- 4.2.5.2 Storage locations. Storage of highly toxic gases will be:
 - 4.2.5.2.1 Outdoors, or in a separate noncombustible building without other occupancy, or in a separate room without other occupancy.
 - 4.2.5.2.2 Of noncombustible construction with a fire-resistance rating of at least one hour.
 - 4.2.5.2.3 Well ventilated to preclude development of hazardous concentrations.
 - 4.2.5.2.4 Protected against tampering.
- 4.2.5.3 Ventilation. Highly toxic gases will be used only in forced ventilated areas or in hoods with forced ventilation, or outdoors. Hazard analysis will be conducted on equipment emitting high concentrations. The gas will be discharged into appropriate scrubbing equipment which will remove or neutralize the toxic effects before entering the effluent gas stream.
- 4.2.5.4 Toxicity. Supervisors will ensure the following. Before using a highly toxic gas, employees must read and understand all warning labels and material data sheet information. All employees working in the immediate area where these gases are handled will be instructed as to the toxicity of the gases and methods of protection against harmful exposure. Employees will not be exposed to concentrations greater than those determined to be safe levels by OSHA 29 CFR 1910.1000 and the threshold limit values guidance by the ACGIH.
- 4.2.5.5 Quantity on site. Because of their hazardous nature, Supervisors will limit the quantity of this type of gas to the minimum requirements for the foreseeable future.

4.2.6 Cryogenic liquefied gases

- 4.2.6.1 Cryogenic liquids are gases which are handled in liquid form at relatively low pressure and extremely low temperatures, usually below -238 degrees F. Because of their low temperature, cryogenic liquids are handled in multi-wall, vacuum-insulated containers, tank trucks, tank cars, and storage tanks to minimize evaporation and venting of the gas. Some cryogenic liquids in small quantities are also handled in open, low pressure thermos type containers in laboratory work.
- 4.2.6.2 Personal protective equipment. Cryogenic liquids and cold gases can cause frostbite injury upon contact with the body. When handling cryogenic liquids Supervisors will ensure that employees use suitable eye protection, such as a face shield, safety glasses, or safety goggles, hand protection, such as insulated loose fitting gloves, and proper clothing to prevent other bodily exposure.
- 4.2.6.3 Ventilation. Cryogenic liquid containers will only be stored and handled in well ventilated areas to prevent excessive concentrations of the gas. Containers are equipped with pressure relief devices which permit venting of gas intentionally.
- 4.2.6.4 Container handling. Cryogenic liquid containers will be handled and stored in an upright position. The containers must not be dropped, tipped over, or rolled on their sides. A four wheeled handling truck will be used to move cryogenic liquid containers over 20 gallons capacity.
- 4.2.6.5 Containers. Containers designed for specific gas storage will not be used for any other type of gas.
- 4.2.6.6 Pressure relief devices. Containers entering this facility will be provided with DOT approved devices to prevent excessive buildup of pressure from warming gas. Where cryogenic liquids or cold gas may be trapped between valves, piping will be equipped with appropriate pressure relief devices.
- 4.2.6.7 Transfer of cryogenic liquids. Only transfer lines designed for cryogenic liquids will be used. Transfer of cryogenic liquids will be performed slowly enough to minimize excess evaporation and stress due to rapid cooling and contraction of warm containers and equipment.
- 4.2.6.8 Liquid oxygen. Liquid oxygen containers, piping and equipment will be kept clean and free of grease, oil, and organic materials. Ignitions sources are not permitted in areas where liquid oxygen is stored or transferred.

- 4.2.6.9 Liquid hydrogen. Ignitions sources are not permitted in areas where liquid hydrogen is stored or transferred. Liquid hydrogen must be stored and transferred under positive pressure to prevent the infiltration and solidification of air or other gases.
- 4.2.6.10 Liquid helium and liquid neon. Liquid helium and liquid neon must be stored and transferred under positive pressure to prevent the infiltration and solidification of air or other gases.
- 4.2.6.11 Liquefied natural gas. Ignitions sources are not permitted in areas where liquefied natural gas is stored or transferred. Liquefied natural gas must be stored and transferred under positive pressure to prevent the infiltration of air or other gases.
- 4.2.6.12 Inert gases. In areas where inert gases are used or stored employees will have self-contained breathing apparatus (SCBA) immediately available for use. SCBA must be used in the even the oxygen in the room is displaced by the inert gas creating an oxygen deficient atmosphere where the oxygen content of the atmosphere could be below 19 percent by volume.

4.3 General Safety Rules for Use of Compressed Gas.

4.3.1 Pre-operation safety rules:

- 4.3.1.1 Read the Safety Data Sheet before use.
- 4.3.1.2 Inspect cylinder for damage before use.
- 4.3.1.3 Ensure "In use" label is present.
- 4.3.1.4 Ensure all labels/warnings are readable.
- 4.3.1.5 Place upright on stable dry surface.
- 4.3.1.6 Ensure cylinder is restrained above mid-point.
- 4.3.1.7 Keep heat, flame, and electrical sources from gas.
- 4.3.1.8 Operate in accordance with established procedures.

4.3.2 Post-operation safety rules:

- 4.3.2.1 Ensure "empty" or like label is present.
- 4.3.2.2 Remove from operation using established procedures.

- 4.3.2.3 Close valve completely and cap cylinder.
- 4.3.2.4 Transport cylinder using a hand-truck.
- 4.3.3 Full cylinder storage rules
 - 4.3.3.1 Read the Safety Data Sheet before use.
 - 4.3.3.2 Do not smoke.
 - 4.3.3.3 Mark cylinder with date of storage.
 - 4.3.3.4 Ensure stock is properly rotated.
 - 4.3.3.5 Use oldest stock first.
 - 4.3.3.6 Inspect cylinder for damage before storage.
 - 4.3.3.7 Store with like kind of gas.
 - 4.3.3.8 Ensure all labels are readable.
 - 4.3.3.9 Ensure valve assembly is tightly capped.
 - 4.3.3.10 Ensure cylinder is restrained above midpoint.
 - 4.3.3.11 Store upright on stable dry surface.
 - 4.3.3.12 Keep electrical devices away from gas.
 - 4.3.3.13 Keep combustible materials away from gas.
 - 4.3.3.14 Keep heat and flame away from gas.
- 4.3.4 Empty cylinder storage rules
 - 4.3.4.1 Read the Safety Data Sheet before use.
 - 4.3.4.2 Do not smoke.
 - 4.3.4.3 Label cylinder "empty" before storage.
 - 4.3.4.4 Ensure valve assembly closed tightly.
 - 4.3.4.5 Ensure valve assembly capped tightly.

- 4.3.4.6 Inspect cylinder for damage before storage.
- 4.3.4.7 Store with like kind of gas cylinders.
- 4.3.4.8 Ensure all labels are readable.
- 4.3.4.9 Ensure cylinder is restrained above midpoint.
- 4.3.4.10 Store upright on stable dry surface.
- 4.3.4.11 Keep electrical devices away from gas.
- 4.3.4.12 Keep combustible materials away from gas.
- 4.3.4.13 Keep heat and flame away from gas.

5. Safety Information

5.1 Visual Inspection of Compressed Gas Cylinders.

- 5.1.1 Employees will use the following for general inspection of compressed gas cylinders. Our supplier has the first responsibility for inspection of cylinders used by the company in accordance with CGA and NFPA guidelines. Only the following inspection criteria will be followed by employees:

Inspect For:	Possible Result:
Dents	Weakening of cylinder wall
Cuts, gouges, or digs	Decrease in wall thickness
Corrosion	Decrease in wall thickness
Pitting	Decrease in wall thickness
Crevice corrosion	Weakening of cylinder wall
Bulges	Weakening of cylinder wall
Neck defects	Leak or cylinder explosion
ARC/Torch burns	Weakening of cylinder wall
Valve ease of movement	Corrosion leading to leak
Valve thread serviceability	Leak during operation

- 5.1.2 Suspect cylinders. Cylinders that are suspected to be deficient in any manner will be removed from service. The supplier will then be notified and a representative of the supplier will be asked to inspect the cylinder. Employees discovering a cylinder suspected to be deficient in any manner should notify the Safety Officer.

- 5.1.3 Cylinders will be stored upright and chained to an external wall when not in use.

5.2 Facility/Department Evaluation

- 5.2.1 An evaluation of our facility(s) will be conducted to identify, designate, and prioritize Compressed Gas use and storage.

- 5.2.2 Existing Compressed Gas Systems. A process hazard analysis will be conducted for existing systems. Existing systems where possible, will be designated and managed as a complete and separate process.
 - 5.2.3 Future Compressed Gas Systems. For new systems, a process hazard analysis will be conducted. The PHA will be used to improve the design and construction of the process from a reliability and quality point of view. The safe operation of the new process will be enhanced by making use of the PHA recommendations before final installations are completed.
- 5.3 Gas System listing
- 5.3.1 Designated gas systems will be stored in locations so as not to cause undue hazards to employees.
 - 5.3.2 All pipes and delivery components will be inspected annually at a minimum.
- 5.4 Compressed Gas Association Safety Manuals
- 5.4.1 To obtain any of the CGA safety manuals you can contact the CGA for a current literature catalog at: www.cganet.com. These include: the Handbook of Compressed Gases; Equipment such as regulators, hose lines, valve connections and pressure relief devices; information on specific gas types and their handling; Insulated cargo tanks, and the protection and safe handling of specific cylinders

6. Training and Information

- 6.1 Initial Training. Initial training will be provided before job assignment. The company shall provide training to ensure that the purpose and function of the Compressed Gas Safety Program is understood by employees and that the knowledge and skills required for the safe application and usage of compressed gases are acquired by employees. The training shall include the following:
 - 6.1.1 Applicable hazards. Each authorized employee shall receive training in the recognition of applicable hazards associated with compressed gases, and the methods and means necessary for safe operation.
 - 6.1.1.1 Purpose and use. Each affected employee shall be instructed in the purpose and use of the compressed gas they will come in contact.
 - 6.1.1.2 Awareness level training. All other employees whose work operations are or may be in an area where compressed gas may be utilized, shall be instructed about the emergency procedure, and about the prohibition(s) relating to compressed gases used in their work area.
 - 6.1.1.3 Warning labels. All employees, whose work operations are or may be in an area where compressed gas may be utilized, will be instructed in the recognition and use of warning labels.

- 6.1.1.4 Storage requirements. Storing and handling requirements will be covered in accordance with this safety program.
 - 6.1.1.5 Handling requirements. Handling requirements will be covered in accordance with this safety program.
 - 6.1.1.6 Moving requirements. Moving requirements will be covered in accordance with this safety program.
 - 6.1.1.7 Connecting and disconnecting requirements. Connecting and disconnecting requirements will be covered in accordance with this safety program.
 - 6.1.1.8 Health hazards regarding specific gases. Health hazard regarding specific gases will be covered in accordance with this safety program.
 - 6.1.1.9 General safety precautions. General safety precautions will be covered in accordance with this safety program.
 - 6.1.1.10 Verification. The company shall verify that employee training has been accomplished and is being kept up to date. The documentation shall contain each employee's name and dates of training.
 - 6.1.1.11 Authorized trainers. The compressed gas suppliers will be requested to provide training as needed or required for all compressed gas users and handlers.
- 6.2 Refresher Training. Refresher will be conducted on an as needed basis. Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in the type of gas used, equipment or processes that present a new hazard, or when there is a change in operating procedures.
- 6.2.1 Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the compressed gas safety procedures.
 - 6.2.2 The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.
- 6.3 Verification. The company shall verify that employee training has been accomplished and is being kept up to date. The documentation includes employee's name and dates of training.

7. Definitions

- CGA – Compressed Gas Association

TRAINING ATTENDANCE ROSTER COMPRESSED GAS

Compressed Gas Training Includes:

- General cylinder hazards
- Storage requirements
- Safe handling procedures
- Specialized gas hazards

INSTRUCTOR:

DATE:

LOCATION:

**NAME (Please Print)
FIRST - MI - LAST**

SIGNATURE

By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.

Name of Interpreter, if utilized: _____

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**Confined Space Entry
[Permit Required]**

PROGRAM OVERVIEW

CONFINED SPACE ENTRY (PERMIT REQUIRED) SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.146; 29 CFR 1926.1200 through 1213

INTRODUCTION: This program allows for evaluation and identification of potential permit required confined spaces (permit space) and the associated potential hazards, while ensuring the communication of potential hazards to the employees. Details of duties for authorized entrants, attendants, rescuers and entry supervisors are presented. The program outlines training requirements, entry permits, atmospheric testing procedures and rescue and emergency services for both General Industry and in Construction

TRAINING:

- Entry Supervisors, Entrants, Emergency/Rescue Team Members, and Attendants require training on the hazards that will be encountered in each permit space and the methods used to isolate, control or in other ways protect employees from the hazards.
- Entry Supervisors will be trained at least to the same level of the employees for whom they are responsible
- Other employees need to be informed to maintain their distance from any permit spaces.

ACTIVITIES:

- Identify any confined spaces present in the work environment and clearly label them as either permit required or non-permit required spaces, and maintain a list
 - In Construction, prior to beginning work, a competent person must identify all confined spaces (permit or non-permit) in which the employees it directs may work
- Ensure permits are prepared and posted and that conditions of entry have been met
- Take effective measure to prevent non-trained employees from entering the permit-required confined spaces
- Write and communicate programs, policies and procedures for safe entry requirements
- Review (annually) permits to ensure effectiveness of procedures and the program
- Retain entry permits for at least one year beyond termination of the job or permit
- Identify rescue procedures, team members and responsibilities, and provide equipment necessary (rescue, personal protective, safe lighting etc.)

FORMS:

- Confined Space Atmospheric Testing Form
- Confined Space Entry Assessment Form
- Confined Space Entry Permit
- Confined Space List Form
- Confined Space Written Program
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

Confined Space Entry (Permit Required) Safety Program

1. **Purpose.** This procedure specifies the necessary steps to ensure safe entry into permit spaces. No entry shall be made into a permit space until a confined space permit is completed, all conditions have been met, and the permit is posted at the site of entry. The company will establish permit space operational procedures through the use of this document. Company management will review and evaluate this safety program:
 - 1.1 On an annual basis, and more frequently as needed or required
 - 1.2 When changes occur to 29 CFR 1910.146 or 29 CFR 1926.1200-1213 that prompt revision of this document
 - 1.3 When facility operational changes occur that require a revision of this document
2. **Scope.** The employer shall evaluate the workplace to determine if any spaces are permit-required confined spaces. This program applies to all permit spaces at the company or construction site to which company employees are exposed. There are two types of confined spaces, permit-required and non-permit required.
 - 2.1 A confined space must meet *all* the following criteria:
 - 2.1.1 It is large enough and so configured that an employee can bodily enter and perform assigned work.
 - 2.1.2 Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.)
 - 2.1.3 Is not designed for continuous employee occupancy.
 - 2.2 A permit required confined space includes the features of a space that does not require a permit and *one or more* of the following:
 - 2.2.1 Contains or has a potential to contain a hazardous atmosphere.
 - 2.2.2 Contains material that has the potential for engulfing an entrant
 - 2.2.3 Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
 - 2.2.4 Contains any other recognized serious safety or health hazard.
3. **Responsibilities.**
 - 3.1 Management/Supervisors
 - 3.1.1 Identify all confined space locations and entry requirements. Maintain a list of all permanent confined spaces in the facility, their associated hazards, and the protective measures required for entry.

- 3.1.2 Restrict access to these permit spaces through permit space training, signage, restricted physical access, or through any combination therein. Take effective measures to prevent non-trained employees from entering the permit-required confined spaces.
 - 3.1.3 Develop safe entry requirements for all permit spaces to ensure the safety and health of all entrants, (accounting for issues such as: atmospheric testing, isolation of energy sources, provision for PPE, rescue plans, communication, etc.)
 - 3.1.4 Designate an Entry Supervisor
 - 3.1.5 Train all persons involved in permit space entry to their level of involvement.
 - 3.1.6 Ensure that all team members required to wear respiratory protection are qualified for respiratory protection use.
 - 3.1.7 Become thoroughly familiar with all hazards associated with the permit space entry.
 - 3.1.8 Annually review permits to ensure effectiveness of procedures.
 - 3.1.9 Retain entry permits for at least one year beyond termination of the job or permit.
 - 3.1.10 Ensure the Written Confined Space Program is available for inspection by employees, their authorized representatives, and authorized government inspectors.
 - 3.1.11 Ensure communication with contractors.
- 3.2 Employees:
- 3.2.1 Maintain safe distances from permit spaces, unless authorized to enter them.
- 3.3 Entry Supervisor:
- 3.3.1 Assist in the planning of permit space entries. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
 - 3.3.2 In conjunction with management, contractors and other qualified personnel, determine appropriate PPE to be worn by entrants.
 - 3.3.3 Complete a site specific Confined Space Permit and verify that the appropriate information has been entered on the permit including all tests specified by the permit have been conducted by qualified persons and all procedures and protective equipment specified by the permit are in place and at the site before endorsing the permit and allowing entry to begin.
 - 3.3.4 Terminate the entry and cancel the permit as required.

- 3.3.5 Verify that rescue services are available and that the means for summoning them are operable.
- 3.3.6 Ensure removal of unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- 3.3.7 Whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, determine that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.
- 3.3.8 Stop work if conditions are considered unsafe and immediately initiate evacuation of the Permit space.
- 3.3.9 Sign Entry Permit and ensure procedures specific to the permit are understood and followed, and that entrant training is completed prior to allowing entry to begin.

3.4 Entrants:

- 3.4.1 Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure, and the protective measures to be taken to prevent exposure to hazards.
- 3.4.2 Properly use protective equipment, including full body harness, as required.
- 3.4.3 Communicate with attendant as necessary to ensure that if contact is lost, all entrants exit the permit space immediately.
- 3.4.4 Alert the attendant whenever:
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - The entrant detects a prohibited condition.
- 3.4.5 Exit from the permit space as quickly as possible whenever:
 - An order to evacuate is given by the attendant or the entry supervisor.
 - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - The entrant detects a prohibited condition.
 - An evacuation alarm is activated.
- 3.4.6 Must read, understand, and follow the requirements of the permits.

3.5 Attendants:

- 3.5.1 Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
- 3.5.2 Be aware of possible behavioral effects of hazard exposure in authorized entrants.
- 3.5.3 Continuously maintain an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants under this section accurately identifies who is in the permit space.
- 3.5.4 Remain in a pre-designated location outside the permit space during entry operations until relieved by another attendant.

Note: When the Confined Space Entry Safety Program allows attendant entry for rescue, attendants may enter a permit space to attempt a rescue if they have been trained and equipped for rescue operations as required by the "rescue and emergency services" section of this program and if they have been relieved from attendant duty.

- 3.5.5 Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space. If contact is lost, all entrants must exit the permit space immediately.
- 3.5.6 Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space, as well as the activities outside the permit space to maintain a safe environment for the entrants.
- 3.5.7 Order the authorized entrants to evacuate the permit space immediately under any of the following conditions.
 - If the attendant detects a prohibited condition.
 - If the attendant detects the behavioral effects of hazard exposure in an entrant.
 - If the attendant detects a situation outside the space that could endanger the entrants.
 - If the attendant cannot effectively and safely perform all the duties required under this section.
- 3.5.8 Summon rescue and other emergency services as soon as the attendant determines that entrants may need assistance to escape from permit space hazards. Be familiar with location of nearest phone, fire alarm, eyewash and safety shower, or other defined criteria on the permit check list.

3.5.9 Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:

- Warn the unauthorized persons that they must stay away from the permit space.
- Advise the unauthorized persons that they must exit immediately if they have entered the permit space.
- Inform the authorized entrants and the entry team leader if unauthorized persons have entered the permit space.

3.5.10 Performs non-entry rescues as specified by the rescue procedure.

3.5.11 Performs no duties that might interfere with the attendant's primary duty to monitor and protect the entrants.

3.6 Emergency/Rescue Team Members:

3.6.1 Ensure that each member of the rescue service is provided with, and is trained to use properly, the personal protective equipment and rescue equipment necessary for making rescues from permit spaces.

3.6.2 Each member of the rescue service will be trained to perform the assigned rescue duties, including first aid and cardiopulmonary resuscitation (CPR). At least one member of the rescue service holding current certification in first aid and in CPR will be available.

3.6.3 Each member of the rescue service will also receive the training required of authorized entrants.

3.6.4 Each member of the rescue service will practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, mannequins, or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces will, with respect to opening size, configuration, and accessibility, simulate the types of permit spaces from which any anticipated rescue is to be performed.

3.6.5 Non-company rescue personnel. When non-company rescue personnel are designated to perform permit space rescue, the company will:

- Inform the rescue service of the hazards they may confront when called on to perform rescue.
- Provide the rescue service with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

In Construction, the employer who designates rescue and emergency services, must:

- Evaluate a prospective rescuer's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified.
- Evaluate a prospective rescue service's ability in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified.
- Select the rescue team or service from those evaluated that:
 - Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard identified;
 - Is equipped for and proficient in performing the needed rescue services
 - Agree to notify the employer immediately in the event that the rescue service becomes unavailable;

3.6.6 To facilitate non-entry rescue, retrieval systems or methods will be used whenever an entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems used will meet the following requirements:

- Each authorized entrant will use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, or above the entrant's head. Wristlets may be used in lieu of the chest or full body harness if it is *demonstrated that the use of a chest or full body harness is infeasible or creates a greater hazard* and that the use of wristlets is the safest and most effective alternative.
- The other end of the retrieval line will be attached to a mechanical device (such as a winch, block and tackle or similar device for retrieval that is capable of being operated by manpower) or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device will be available to retrieve personnel from vertical type permit spaces more than 5 feet deep.
- In Construction, equipment that is unsuitable for retrieval must not be used, including, but not limited to, retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or retrieval lines that will not work due to internal configuration of the permit space,

3.6.7 If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information will be made available to the medical facility treating the exposed entrant.

3.7 Host Employers:

- 3.7.1 Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section
- 3.7.2 Apprise the contractor of the elements, including the hazards identified and the host employer's experience with the space, that make the space in question a permit space
- 3.7.3 Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working
- 3.7.4 In addition in Construction, the host employer must coordinate entry operations with the contractor(s), when both host employer personnel and contractor personnel will be working in or near permit spaces; and when any activities performed could foreseeably result in a hazard in the permit space.
- 3.7.5 Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

3.8 Contractors

- 3.8.1 Obtain any available information regarding permit space hazards and entry operations from the company.
- 3.8.2 Coordinate entry operations with the host employer, when both company personnel and contractor personnel will be working in or near permit spaces ; and when any activities performed could foreseeably result in a hazard in the permit space.
- 3.8.3 Inform the host employer of the permit space safety program that the contractor will follow and of any hazards confronted or created in permit spaces within this facility or others belonging to the company, either through a debriefing or during the entry operation.

4. Procedure.

4.1 *Confined Space Identification:*

The facility or construction site will be evaluated to determine if any spaces are non-permit required confined spaces and/or permit required confined spaces. If the workplace contains confined spaces, the company will:

- 4.1.1 Create a confined space list. The facility will create and maintain a detailed list that identifies permanent locations meeting the criteria for a confined space. (Confined Space List form)

- 4.1.2 On Construction sites, post signs or otherwise inform. Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space. Signs can be used for this purpose. A sign reading "DANGER PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER" or similar language will be used.

4.2 *Confined Space Written Program (site-specific).*

If employees will enter permit spaces, a Confined Space Written Program will be developed and implemented. The written program will be available for inspection by employees and their authorized representatives. (Confined Space Written Program form)

In Construction, the written permit space program must comply with 1926.1204 and be implemented at the construction site. NOTE: The employer cannot avoid duties of the standard merely by refusing to decide whether its employees will enter a permit space. OSHA will consider this failure to decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.

4.3 *Entry Permit and Permit System:*

- 4.3.1 Before permit space entry is authorized, an entry permit must be completed (Confined Space Entry Permit).
- 4.3.2 Before entry begins, the entry supervisor identified on the permit will sign the entry permit to authorize entry.
- 4.3.3 The completed permit will be made available at the time of entry to all authorized entrants, by posting it at the entry portal or by any other equally effective means so that the entrants can confirm that pre-entry preparations have been completed.
- 4.3.4 The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.
- 4.3.5 The entry supervisor will terminate entry and cancel the entry permit when:
- The entry operations covered by the entry permit have been completed.
 - A condition that is not allowed under the entry permit arises in or near the permit space.
 - In Construction, a permit may be suspended until the space has been re-assessed before allowing re-entry when a condition that is not allowed under the entry permit arises in or near the permit space and the condition is temporary in nature and does not change the configuration of the space nor create any new hazards within it;

- 4.3.6 Each canceled entry permit will be retained for at least 1 year after its termination or cancellation to facilitate the annual review of the permit space program. Any problems encountered during an entry operation will be noted on the pertinent permit so that appropriate revisions to the permit space safety program can be made.

4.4 *Permit Space Program Requirements:*

Under the permit space program the company will:

- 4.4.1 Implement the measures necessary to prevent unauthorized entry.
- 4.4.2 Identify and evaluate the hazards of permit spaces before employees enter them.
- 4.4.3 Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
- Specifying acceptable entry conditions.
 - In Construction, each authorized entrant or that employee's authorized representative must be provided the opportunity to observe any monitoring or testing of the permit space
 - Isolating the permit space.
 - Purging, inserting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards.
 - In Construction, when an employer is unable to reduce the atmosphere below 10 percent LFL, the employer may only enter if the employer inserts the space so as to render the entire atmosphere in the space non-combustible, and the employees use PPE to address any other atmospheric hazards (such as oxygen deficiency), and the employer eliminates or isolates all physical hazards in the space.
 - Provide pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards.
 - Verify that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.
- 4.4.4 Provide the following equipment at no cost to employees, maintain that equipment properly, and ensure that employees are trained in the proper use of the equipment:
- Testing and monitoring equipment needed to determine if hazardous conditions exist or to verify that they do not exist.
 - Ventilating equipment needed to obtain acceptable air quality entry conditions.

- Communications equipment necessary for communication between personnel involved in the entry operation.
- Personal protective equipment insofar as feasible. (Where engineering and work practice controls do not adequately protect employees), and in construction, must also meet requirements for the use of PPE in a permit space (For example, if respirators are required, then the respirator requirements in 1926.103 (Respiratory Protection) must be met.
- Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency.
- Barriers and shields to protect workers from pedestrian and vehicular traffic.
- Ladders, needed for safe ingress and egress by authorized entrants.
- Rescue, Retrieval, and Emergency equipment needed to extract or treat injured personnel, except to the extent that the equipment and/or service is provided by rescue services that are immediately available.
- Any other equipment necessary for safe entry into and rescue from permitted spaces at our facility.

4.4.5 *Evaluation of Permit Space Conditions.*

The company will evaluate permit space conditions as follows when entry operations are conducted:

- Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin, except that, if isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), pre-entry testing will be performed to the extent feasible before entry is authorized and, if entry is authorized, entry conditions will be continuously monitored in the areas where authorized entrants are working.
 - In Construction, test or monitor the permit space to determine if acceptable entry conditions are being maintained during the course of entry operations. Continuous monitoring of atmospheric hazards may be required unless the employer can demonstrate that the equipment for continuously monitoring a hazard is not commercially available or that periodic monitoring is of sufficient frequency to ensure that the atmospheric hazard is being controlled at safe levels. If continuous monitoring is not used, periodic monitoring is required with sufficient frequency to ensure that acceptable entry conditions are being maintained during the course of entry operations.
- When testing for atmospheric hazards, use the following protocol; first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

- Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces. Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who request that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate.
- Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted.

4.4.6 *Attendant requirements:*

- Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.
- Attendants may be assigned to monitor more than one permit space provided their duties can be effectively performed for each permit space that is monitored. Likewise, attendants may be stationed at any location outside the permit space to be monitored as long as their duties can be effectively performed for each permit space that is monitored.

4.4.7 If *multiple spaces* are monitored by a single attendant, the permit will be annotated to provide the means and procedures by which the attendant is to respond to an emergency affecting one or more of the permit spaces being monitored.

4.4.8 *Rescue procedures* will be developed for the following:

- Summoning rescue and emergency services
- Rescuing entrants from permit spaces
- Providing necessary emergency services for rescue
- Preventing unauthorized personnel from attempting a rescue

4.4.9 *Entry Permit issuance, use, and cancellation* will be as follows:

- When employees of contractor personnel or non-company employees are working simultaneously as authorized entrants in a permit space, the verifying official of the permit (or pre-designated representative) will ensure that all parties concerned are aware of the accepted entry procedures for the specific operation. This will ensure entry operations are properly coordinated.
- The verifying official of the permit (or pre-designated representative) will ensure that all parties concerned are aware of the accepted procedures necessary for concluding the entry after entry operations have been completed (such as closing off a permit space and canceling the permit).

- The company will immediately review and as necessary halt and revise entry operations when there is reason to believe that the measures taken under the permit space safety program may not protect employees. The focus will be directed at the correction of deficiencies found to exist before subsequent entries are authorized. Examples of circumstances requiring the review of the permit space safety program are:
 - Any unauthorized entry of a permit space.
 - The detection of a permit space hazard not covered by the permit.
 - The detection of a condition prohibited by the permit.
 - The occurrence of an injury or near-miss during entry.
 - A change in the use or configuration of a permit space.
 - Employee complaints about the effectiveness of the safety program.

4.4.10 *Annual Review:*

An annual review of the permit space safety program will be conducted using the canceled permits retained to ensure that employees participating in entry operations are protected from permit space hazards. In Construction, if no entry is performed during a 12-month period then no review is necessary.

4.5 *Alternate Conditions and Procedures:*

The alternate procedures listed in 4.5.2 may be followed if the permit space conditions below are met:

4.5.1 Conditions

- It can be demonstrated that the only hazard posed by the permitted space is an actual or potentially hazardous atmosphere.
- It can be demonstrated that continuous forced air ventilation alone is sufficient to maintain the space safe for entry.
- Monitoring and inspection data supports the demonstrations listed above.
- If an initial entry of the permit space is necessary to obtain monitoring and inspection data, the worst case will be assumed and the full provisions of permit-required confined space entry procedures will be implemented.
- Entry can be performed by company personnel, once determinations and supporting data are documented, and are made available to each employee who enters the permit space.

4.5.2 Alternate Procedures

- Any conditions making it unsafe to remove an entrance cover will be eliminated before the cover is removed.
- When entrance covers are removed, the opening will be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
- Before an employee enters the space, the internal atmosphere will be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, will be provided an opportunity to observe the pre-entry testing. The parameter limits are listed in Section 5.4.
- There may be no hazardous atmosphere within the space whenever any employee is inside the space.
- Continuous forced air ventilation will be used, as follows:
 - - An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;
 - The forced air ventilation will be so directed as to ventilate the immediate areas where an employee is or will be present within the space and will continue until all employees have left the space;
 - The air supply for the forced air ventilation will be from a clean source and may not increase the hazards in the space.
- The atmosphere within the space will be periodically tested as necessary to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee who enters the space will be provided with an opportunity to observe the periodic testing.
- If a hazardous atmosphere is detected during entry:
 - Each employee will leave the space immediately;
 - The space will be evaluated to determine how the hazardous atmosphere developed; and
 - Measures will be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

- The employer will verify that the space is safe for entry and that the pre-entry measures have been taken through a written certification that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space.

4.6 *Permit Required Confined Space Reclassification:*

A space classified as a permit-required confined space will be reclassified as a non-permit confined space under the following conditions:

- 4.6.1 If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a confined space for as long as the non-atmospheric hazards remain eliminated.
- 4.6.2 If it is necessary to enter the permit space to eliminate hazards, such entry will be performed under the assumption that a hazard exists. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated, the permit space may be reclassified as confined space for as long as the hazards remain eliminated.
 - In Construction, control of atmospheric hazards through forced air ventilation alone can constitute elimination of the hazards provided that if the ventilation system stops working, entrants are made aware of the situation and can exit the space safely.
- 4.6.3 It will be documented that all hazards in a permit space have been eliminated, through a permit that contains as a minimum; the date, the location of the space, and the signature of the person making the determination. The permit will be made available to each employee entering the space.
- 4.6.4 If hazards arise within a permit space that has been declassified to a confined space, each employee in the space will immediately exit the space and the supervisor will be notified. The company will then reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable provisions of this safety program.

4.7 *Non-Permit Confined Space Reevaluation.*

When there are changes in the use or configuration of a non-permit required confined space that might increase the hazards to entrants, the company will reevaluate that space and, if necessary, reclassify it as a permit-required confined space.

5. **Safety Information.**

- 5.1. *Procedures for Atmospheric Testing.* Atmospheric testing for permit space entry is required for two distinct purposes: Evaluation of the hazards of the permit space and verification that acceptable entry conditions for entry into that space exists.

5.1.1. *Evaluation testing.* The company will ensure that the atmosphere of a permit space is analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise. This is required to ensure that appropriate permit entry procedures specific to the operation can be developed and acceptable entry conditions stipulated for that specific space. Evaluation and interpretation of these data, and development of the entry procedure, will be done by, or reviewed by, a technically qualified professional (e.g., OSHA consultation service, or certified industrial hygienist, registered safety engineer, certified safety professional, certified marine engineer, etc.) based on evaluation of all serious hazards.

5.1.2. *Verification testing.* The atmosphere of a permit space which may contain a hazardous atmosphere will be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. Results of testing (i.e., actual concentration, etc.) will be recorded on the permit in the space provided adjacent to the stipulated acceptable entry CONDITION.

5.2 *Duration of testing.*

Measurement of values for each atmospheric parameter will be made for at least the minimum response time of the test instrument specified by the manufacturer.

5.3 *Testing Stratified Atmospheres.*

When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope will be tested a distance of approximately 4 feet (1.22 m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress will be slowed to accommodate the sampling speed and detector response.

5.4 *Order and Parameters of Atmospheric Testing:*

The internal atmosphere will be tested, with a calibrated direct-reading instrument, for the following conditions in the order given:

- Oxygen content. (19.5% - 23.5% is required, any percentage less or more requires action to be taken)
- Flammable gases and vapors in excess of 10% of the lower flammable limit (LFL).
- Potential toxic air contaminants
- Airborne combustible dusts at a concentration that meets or exceeds its LFL.

6. Training and Information.

- 6.1 The company will develop a standardized training format to meet the requirement for a safe permit space entry.
- 6.2 Training will be provided to each affected employee:
 - 6.2.1 Before the employee is first assigned duties that require a permit space entry.
 - 6.2.2 Before there is a change in assigned duties.
 - 6.2.3 Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained.
 - 6.2.4 Whenever the employer has reason to believe that there are deviations from the permit space entry procedures required by this instruction or inadequacies in the employee's knowledge or use of these procedures.
- 6.3 The training will establish employee proficiency in the duties required by this instruction and will introduce new or revised procedures, as necessary, for compliance with this instruction or when future revisions occur.
- 6.4 The company will verify that the training required by this section has been accomplished. The documentation will contain each employee's name, the signatures or initials of the trainers, and the dates of training. The documentation will be available for inspection by employees and their authorized representatives.

7. Definitions.

- *Confined Space* - There are two types of confined spaces, non-permit required and permit required.
 - A non-permit required confined space must meet *all* the following criteria:
 - It is large enough and so configured that an employee can bodily enter and perform assigned work.
 - Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.)
 - Is not designed for continuous employee occupancy.
 - A permit required confined space includes the features of non-permit required spaces and *one or more* of the following:
 - Contains or has a potential to contain a hazardous atmosphere.
 - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
 - Contains any other recognized serious safety or health hazard.

- *Entry* - the act of physically entering the space for work activity. Entry begins when any part of the entrant's body breaks the plane of the opening to a confined space with the intent of entry into the confined space or when the possibility of falling into the confined space exists.

- *Confined Space Entry Permit* - A permit document designed to outline necessary safety procedures and equipment required for safe entry into designated confined spaces.

CONFINED SPACE ATMOSPHERIC TESTING

Page ___ of ___

Permit Number:

Permit Validity Period:

Site/Location:

Date:

Time:

Confined space identification code (if identified):

Notes:

INSTRUMENT OPERATORS

Tester Name		Signature		Date		Time		<input type="checkbox"/> am	<input type="checkbox"/> pm
Tester Name		Signature		Date		Time		<input type="checkbox"/> am	<input type="checkbox"/> pm
Tester Name		Signature		Date		Time		<input type="checkbox"/> am	<input type="checkbox"/> pm
Tester Name		Signature		Date		Time		<input type="checkbox"/> am	<input type="checkbox"/> pm
Tester Name		Signature		Date		Time		<input type="checkbox"/> am	<input type="checkbox"/> pm

ATMOSPHERIC TESTING DATA

Testing Requirement	Initial Instrument Reading (Pencil)	Time Interval	Action Levels		Time	Time	Time	Time
			Level	Unit	Reading	Reading	Reading	Reading
Oxygen content	%O ₂							
Flammable concentration	<10%LEL							
H ₂ S	<10PPM							
Cl ₂	<0.5PPM							
CO	<35PPM							
SO ₂	<2PPM							
Toxic concentration	PPM							
	(PEL=)							
Test for								
Test for								
Test for								

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DIAGRAM OR PHOTOS OF SPACE (Indicate Portals)

--

CONFIGURATION OF SPACE

<input type="checkbox"/> VESSEL	<input type="checkbox"/> PIT	<input type="checkbox"/> VAULT	<input type="checkbox"/> SILO	<input type="checkbox"/> HOPPER	<input type="checkbox"/> BIN
<input type="checkbox"/> TANK	<input type="checkbox"/> RAIL CAR	<input type="checkbox"/> TANK CAR	<input type="checkbox"/> SEWER	<input type="checkbox"/> WELL	<input type="checkbox"/> TUNNEL
<input type="checkbox"/> DIGESTER	<input type="checkbox"/> TANKER	<input type="checkbox"/> PIPELINE	<input type="checkbox"/> SHIPS HOLD	<input type="checkbox"/> OTHER:	

DIMENSIONS OF SPACE

DEPTH/HEIGHT:		WIDTH/INNER DIAMETER:		LENGTH:	
VOLUME/CAPACITY:		SHAPE:			
<input type="checkbox"/> ELEVATED	<input type="checkbox"/> ABOVE GROUND	<input type="checkbox"/> BELOW GROUND		<input type="checkbox"/>	

ANTICIPATED RESCUE

<input type="checkbox"/> VERTICAL EXTRACTION	<input type="checkbox"/> HORIZONTAL EXTRACTION	<input type="checkbox"/> OTHER:
--	--	---------------------------------

REMARKS/RECOMMENDATIONS

Computer File Name:

--

 APPROVED **AUTHORIZATION**

I certify that I have conducted a confined space assessment of the above designated space. To the best of my knowledge, I believe the information contained herein to be true and accurate as of the time of the assessment.

NAME:		TITLE:	
SIGNATURE:		DATE:	TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM
FURTHER DETAILED ON ATTACHMENT(S) <input type="checkbox"/> YES <input type="checkbox"/> NO			

ASSESSMENT FORM RETENTION INFORMATION

PERMANENT RETENTION FILE:

FILE LOCATION:	DATE FILED:	TIME: <input type="checkbox"/> AM <input type="checkbox"/> PM
ATTACHMENT(S) INCLUDED: <input type="checkbox"/> YES <input type="checkbox"/> NO		FILED BY:

CONFINED SPACE ENTRY PERMIT

Permit Number:

Site:

Permit Validity Period:

Date	Time:
From: _____ To: _____	From: _____ To: _____

Confined space identification code (if identified): _____

Notes: _____

AUTHORIZED PERSONNEL

Workers Authorized Entry	Attendants and Shift	Attendants and Shift for Fire Watch (hot work)

KNOWN HAZARDS

Initials	(indicate specific hazards with initials)	
	Oxygen deficiency	(less than 19.5%)
	Oxygen enrichment	(more than 23.5%)
	Flammable gases or vapors	(more than 10% of LEL)
	Airborne combustible dust	(meets or exceeds LFL)
	Toxic gases or vapors	(more than PEL)
	Mechanical hazards	
	Electrical hazards	
	Engulfment hazards	
	Materials harmful to skin	

EMPLOYEE TRAINING AND PRE-ENTRY BRIEFING

Safe Entry and Rescue Training Conducted on: _____

Mandatory Pre-Entry Briefing Conducted on: _____

Does this job require any special training: Yes No

➤ If yes, type of training required: _____

Trainer Name: _____ Signature: _____

CONTRACTOR NOTIFICATION

Contractor Notified of: _____	Permit Conditions: Yes <input type="checkbox"/> No <input type="checkbox"/>
	Potential Hazards: Yes <input type="checkbox"/> No <input type="checkbox"/>

COMMUNICATION

	Intrinsically Safe? Yes <input type="checkbox"/> No <input type="checkbox"/>
	Visually Inspected? Yes <input type="checkbox"/> No <input type="checkbox"/>

LIGHTING REQUIREMENTS					
			Intrinsically Safe?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
			Visually Inspected?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
SPECIAL TOOLS/EQUIPMENT					
			Intrinsically Safe?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
			Visually Inspected?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
SITE PREPARATION REQUIREMENTS					
Work area isolated with signs and or barriers?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
All energy sources locked/tagged out?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
All input lines capped/blinded?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
If vessel; drained, flushed, neutralized, cleaned, and purged?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Ventilation initiated 30 min. before entry?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Fire extinguishers on hand?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Fall hazards considered and prepared for?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Engulfment hazards considered and prepared for?			Yes <input type="checkbox"/>	No <input type="checkbox"/>	
PRE-ENTRY ATMOSPHERIC TESTING					
Tester:	Name:	Signature:			
	Title:	Date:	Time:	<input type="checkbox"/> am	<input type="checkbox"/> pm
INITIAL TESTING DATA					
Testing Requirement	Instrument Reading (Pencil)	Last Time Taken (Pencil)	Time Interval	Action Levels	
				Level	Unit
Oxygen content	%O2				
Flammable concentration	<10%LEL				
H2S	<10PPM				
Cl2	<0.5PPM				
CO	<35PPM				
SO2	<2PPM				
Toxic concentration	PPM				
	(TLV=_____)				
Heat stress					
Test for					
EMERGENCY/RESCUE PROCEDURES					
Location of written Emergency/Rescue Plan:					
Type of Emergency/Rescue Team required:					
On-site: Yes <input type="checkbox"/> No <input type="checkbox"/>		Contact:		Phone:	
Off-site: Yes <input type="checkbox"/> No <input type="checkbox"/>		Contact:		Phone:	
Additional Information					

PERSONAL PROTECTIVE EQUIPMENT REQUIRED

Air purifying respirator? Type:	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Self-Contained Breathing Apparatus Required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Atmospheric Monitor Required?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

➤ If yes, type:

AREA SAFETY EQUIPMENT REQUIRED

SPACE REVIEW INFORMATION

Current use of Space:

Previous use of Space:

Previous Problems:

Previous Permit Reviewed:	Date:	Time:	<input type="checkbox"/> am <input type="checkbox"/> pm	Initials:
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PERMIT AUTHORIZATION

I acknowledge that I have inspected the work area for safety and reviewed all safety precautions recorded on this permit.

Name:	Signature:	
Title: ENTRY SUPERVISOR	Date:	Time: (am) (pm)
Name:	Signature:	
Title:	Date:	Time: (am) (pm)

PERMIT RETENTION INFORMATION

Permanent Retention File:	Location:
Date Filed:	Filed By:

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CONFINED SPACE LIST

DESIGNATION OR NAME/LOCATION OF SPACE	ASSESSED?		POTENTIAL HAZARDS	PERMIT REQUIRED ?	
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Completed by: _____

Date: _____

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CONFINED SPACE WRITTEN PROGRAM

Date:

Project Name:

Workplace Description: Sewer lines, manholes, pipes, containers, silos, tanks, chassis mounted containers/tanks, other confined space _____

Details and description of the space:

Potential hazards. (*Examples - struck by, engulfed, burned by, overcome by, heat stress, slipping and falling, presence of toxic or explosive/flammable gases, oxygen deficiency, etc.*)

Employees could be exposed to the following:

Hazard Controls: Atmospheric testing, ventilation, continued monitoring.

The following methods will be used to control each of the potential hazards:

Permit Type: (check as appropriate)

- Confined Space Entry Permit:** All spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. Any employee required or permitted to pre-check or enter a permit-required confined space shall have successfully completed, as a minimum, the training as required. A written copy of operating and rescue procedures as required by these procedures shall be at the work site for the duration of the job. The Confined Space Entry Permit must be completed before approval can be given to enter a permit-required confined space. The permit shall be kept at the job site for the duration of the job. If circumstances cause an interruption in the work or a change in the alarm conditions for which entry was approved, a new Confined Space Entry Permit must be completed.

- Entry Without a Permit:** Certification. Confined spaces may be entered without the need for a written permit provided that the space can be maintained in a safe condition for entry by mechanical ventilation alone, as provided in 1910.146(c)(5). All spaces shall be considered permit-required confined spaces until the pre-entry procedures demonstrate otherwise. Any employee required or permitted to pre-check or enter an enclosed/confined space shall have successfully completed, as a minimum, the training as required. A written copy of operating and rescue procedures as required shall be at the work site for the duration of the job. The Confined Space Entry Assessment Form must be completed by the LEAD WORKER before entry into a confined space. The check list shall be kept at the job site for duration of the job. If circumstances dictate an interruption in the work, the permit space must be re-evaluated and a new assessment form or permit must be completed, as appropriate

Attendants: (include names of multiple attendants if the attendants will change throughout the project)

Entry Supervisor: (Person conducting air monitoring)

The attendant(s) is/are:

Entry supervisor is:

Rescue Procedures: (check as appropriate)

- When necessary, the attendant shall call the fire department as previously arranged.
- Internal: (describe arrangements)

- Other: (describe arrangements)

Completed by: _____
Title: _____

Date: _____

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PROGRAM OVERVIEW

CONSTRUCTION SAFETY PROGRAM

REGULATORY STANDARD: OSHA – 29 CFR 1910
OSHA – 29 CFR 1926

INTRODUCTION: Outlines the safety requirements for a construction company. It provides guidance for tool selection, housekeeping, PPE, fall protection, and for the identification and control of other general construction industry hazards.

TRAINING:

- Employees will be trained on safety policies and procedures as well as the hazards posed by their work assignment for each construction site or job.

ACTIVITIES:

- Every construction job is unique and each must be assessed to identify its potential health and safety risks and communicate the identified hazards to employees
- Review operations for additional activities which could impact both contractors and employees
- Write and communicate policies and procedures
- Conduct compliance audits when contractors are on site

FORMS:

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

Construction Safety Program

1. **Purpose.** Effective implementation for job safety and health of our employees requires a written safety program fully endorsed and advocated by the highest level of management within the company. This safety program is designed to establish clear company goals and objectives and will be communicated to all required personnel. It encompasses the total workplace regardless of the number of workers employed or the number of work shifts. The company will review and evaluate this safety program:
 - 1.1 When changes occur to 29 CFR that prompt a revision.
 - 1.2 When changes occur to any related regulatory document that prompts a revision of this document.
 - 1.3 When facility operational changes occur that require a revision of this document.
2. **Scope.** This program applies to all construction job sites and company employees.
3. **Responsibilities.**
 - 3.1 Management:
 - 3.1.1 Provide sufficient human and financial resources to address federal, state, and local safety and health compliance.
 - 3.1.2 Assign compliance and general safety and health responsibilities to the Safety Officer (or other specifically designated person).
 - 3.1.3 Establish employee safety and health management goals.
 - 3.1.4 Review company safety and health management performance at least annually.
 - 3.1.5 Hold managers accountable for safety and health performances through annual performance appraisals or at the completion of each job.
 - 3.2 Project Managers:
 - 3.2.1 Assess each job to identify overall safety and health hazards and reassess as new components of the job begin.
 - 3.2.2 Develop safety rules and job procedures necessary to eliminate or control hazards.

- 3.2.3 Conduct employee orientation and on-the-job training.
 - 3.2.4 Conduct scheduled employee safety meetings.
 - 3.2.5 Conduct on-going informal hazard identification checks, inspections and scheduled formal audits.
 - 3.2.6 Report all incidents as required.
 - 3.2.7 Investigate and document all accidents per accident investigation procedures.
 - 3.2.8 Support and enforce all company, department, and job specific safety rules, policies and procedures and utilize disciplinary procedures as described in the company's Employee Handbook.
 - 3.2.9 Maintain required safety documentation (training, incident reports, equipment records, inspection/audit information, etc.).
- 3.3 Job Site Supervisor:
- 3.3.1 Implement safe conditions, work practices enforcement of safety rules, laws and procedures in the daily supervision of all employees.
 - 3.3.2 Ensure that each employee is provided with and wears the prescribed personal protective equipment that is necessary for the task at hand.
 - 3.3.3 Ensure that all employees are informed of the safety rules for the job site or work location.
 - 3.3.4 Enforce all safety rules and regulations.
 - 3.3.5 Instruct employees on the recognized hazards of the job and how to avoid and report unsafe conditions.
 - 3.3.6 Ensure that all regulatory standards for repair and maintenance of equipment are followed.
 - 3.3.7 Ensure that all defective or damaged equipment is tagged and removed from the work site immediately until repaired or replaced.
 - 3.3.8 Assist in the scheduled safety inspections as directed by the safety officer or other designated person.
 - 3.3.9 Assist in the new hire orientation of all new employees before permitting them to enter the job site.
 - 3.3.10 Assist the safety officer in the investigation of all accidents.
 - 3.3.11 Serve on the company Employee Safety Committee.

- 3.3.12 Maintain required safety documentation (training, incident reports, equipment records, inspection/audit information, etc.).
- 3.4 Safety Officer (as needed or required):
 - 3.4.1 Develop programs as necessary to comply with federal, state, and local employee safety and health regulations.
 - 3.4.2 Coordinate provision of employee and management safety and health training.
 - 3.4.3 Maintain all required documentation (training, incident reports, equipment records, inspection/audit information, etc.).
 - 3.4.4 Participate in the Employee Safety and Health Committee.
 - 3.4.5 Prepare safety and health management status reports including Workers' Compensation loss summary, compliance summary, and trend analysis of audit results, accident and incident causes, safety alerts, and other reported safety concerns.
- 3.5 Employees:
 - 3.5.1 Follow all safety and job rules and procedures.
 - 3.5.2 Use only tools, equipment, and materials for which training and authorization have been given.
 - 3.5.3 Report all incidents and accidents as required.
 - 3.5.4 Report all observed unsafe conditions and behaviors.
 - 3.5.5 Participate in all employee safety and health training programs.

4. Procedure.

- 4.1 General construction safety work rules:
 - 4.1.1 Employees are to follow all task and job site policies, and procedures.
 - 4.1.2 Employees are to refrain from running, horseplay, practical jokes, and other activities, which could lead to the injury of the employee or others.
 - 4.1.3 Employees are to report to work in appropriate attire and condition to ensure constant awareness of surroundings and activities.
 - 4.1.4 Employees under the influence of alcohol or drugs will be removed from the work site immediately.
 - 4.1.5 Employees will only use, repair, or adjust tools and machinery if trained and authorized by supervisory personnel.

- 4.1.6 Employees will maintain good housekeeping in all work areas and follow housekeeping schedules as required by job procedures and department policies.
 - 4.1.7 Employees must report all unsafe conditions or behaviors to their supervisor immediately.
 - 4.1.8 Employees must report all injuries to their supervisor immediately.
 - 4.1.9 Employees are expected to assist in keeping the work site as free of debris as possible.
 - 4.1.10 Employees are not allowed on the work site with firearms, explosives or unlawful weapons. Employees with such possessions on their person or property will be removed from the job site immediately.
 - 4.1.11 Loose or ragged clothing shall not be worn while working around machinery.
 - 4.1.12 Rings and/or other jewelry should be removed while working around machinery.
 - 4.1.13 Know the location of emergency exits, first aid kits, fire extinguishers, fire alarms.
 - 4.1.14 Do not use compressed air for dusting or cleaning clothing.
 - 4.1.15 Attend and participate in the weekly “tool box” safety meetings.
 - 4.1.16 Wear only the approved personal protective equipment.
 - 4.1.17 Fall protection is required when exposed to falls greater than 6 feet.
 - 4.1.18 Never ride mobile scaffolding.
 - 4.1.19 All scaffolding must be properly constructed, with toe-boards, mid-rails, and handrails over 10 feet.
 - 4.1.20 All scaffolding must be inspected daily by the designated “competent person”.
 - 4.1.21 All ladders shall be inspected before use.
 - 4.1.22 Ladders are only to be used within appropriate compliance guidelines.
 - 4.1.23 Do not operate any machine unless trained and authorized to do so.
 - 4.1.24 All gas cylinders shall be chained in an upright position.
 - 4.1.25 Never remove a safety guard from machinery or equipment.
- 4.2 Specific jobsite construction industry safety work rules are located in the section labeled “General Safety” in this manual.

5. Safety Information.

5.1 Jobsite Safety Audits

5.1.1 Jobsite hazard assessment:

5.1.1.1 The Safety Officer or Project Manager conducts a General Hazard Assessment during the planning phase of a new project and updates the assessment as the job progresses. The completed assessment form is maintained in the main office, or where similar records are maintained.

5.1.2 Jobsite safety audits:

5.1.2.1 The Safety Officer or Job Site Supervisor will conduct formal jobsite safety audits on an annual basis for long term projects or on an as needed basis for shorter term projects to evaluate the overall safety of the jobsite.

5.1.2.2 Findings will be reviewed with the employees or the Subcontractor contact.

5.1.2.3 The Safety Officer or Project Manager will use recently completed audit reports during subsequent audits to ensure appropriate corrective actions are implemented as necessary.

5.1.3 Daily walk through safety audits:

5.1.3.1 The Safety Officer or Job Site Supervisor will walk through assigned areas on an as needed basis to identify any unsafe condition or behavior.

5.1.3.2 Hazards are to be corrected immediately.

5.1.3.3 If a hazard cannot be corrected immediately, a Hazard Alert Form will be completed and submitted to all affected subcontractors. Those subcontractors will inform employees of the hazards and appropriate precautionary measures. In such cases, the Job Site Supervisor must recheck the area in a reasonable time frame to ensure the hazard is appropriately corrected.

5.1.3.4 Work affected by any hazard that could cause serious injury must be halted until the hazard is corrected.

5.2 Accident and Incident Investigation

5.2.1 Reporting incidents is critical to the effectiveness of any injury and illness prevention program. The purposes of incident reporting are as follows:

5.2.1.1 Provide documentation for claims

- 5.2.1.2 Provide information to focus employee safety and health management efforts
- 5.2.1.3 Provide historical data to measure progress
- 5.2.1.4 Allow for continuous improvement

5.3 Reporting Procedures

- 5.3.1 Employees must report all incidents and accidents to the Job Site Supervisor (or the Safety Officer or Project Manager) that will complete the following forms. Portions of the report form may be completed by the employee or a Supervisor designee.
- 5.3.2 The employee's Supervisor must complete all portions relating to the accident/incident investigation and must also ensure the full completion of all portions.
- 5.3.3 The Safety Officer or Project Manager must review and sign the completed form.
- 5.3.4 Copies of the report must be forwarded to the following people, as needed or required:
 - 5.3.4.1 Safety Officer
 - 5.3.4.2 Claims Coordinator
 - 5.3.4.3 Internal Human Resources Representative

5.4 Accident Investigation or Employee Incident Report flow:

- 5.4.1 The employee reports the incident to his/her Supervisor as soon as he/she is aware of the event.
- 5.4.2 The Safety Officer or Job Site Supervisor conducts an investigation and completes the Incident Report as soon as possible and forwards the report to the Project Manager or management.
- 5.4.3 The Manager reviews the report to ensure the completion of a thorough investigation and sends copies to the appropriate personnel.
- 5.4.4 Once the reports are completed and forwarded to the appropriate personnel, the following personnel will be undertake the listed activities to reduce the risk of recurrence:
 - 5.4.4.1 Safety Officer:
 - 5.4.4.1.1 Regularly reviews Incident Reports to identify trends.

- 5.4.4.1.2 Compiles an Incident Trend Summary Report which is presented to the Senior Manager or to the Employee Safety and Health Committee who initiates organization-wide corrective actions to address the identified trends.
- 5.4.4.1.3 Works with the Project Manager and/or Job Site Supervisor to ensure the correction of identified hazards.
- 5.4.4.2 Claims Officer:
 - 5.4.4.2.1 Uses the Incident Reports to complete the necessary Worker's Compensation forms and to initiate claims management activities.
- 5.4.4.3 Project Manager:
 - 5.4.4.3.1 Follows up with the Supervisor and employees to ensure the correction of identified incident/accident causes.
 - 5.4.4.3.2 Shares relevant information with the Supervisor in other areas of their departments to ensure similar hazardous situations are addressed.
 - 5.4.4.3.3 Ensures the provision of sufficient resources to make the necessary corrections and changes. Such resources may include equipment, materials, money, time, and support for policy changes.
- 5.4.4.4 Senior Manager:
 - 5.4.4.4.1 Reviews Incident Reports as needed to determine the types of incidents occurring within the organization and the identified hazards in order to make appropriate decisions regarding safety and health management efforts.
 - 5.4.4.4.2 Reviews the Incident Report Trend Summary Report provided by the Safety Officer to identify overall facility needs and to provide the leadership necessary to ensure workplace safety and health.
- 5.4.4.5 Employee Safety and Health Committee (as needed or required):
 - 5.4.4.5.1 The Committee will be composed of both management and non-management personnel.
 - 5.4.4.5.2 The Safety Officer is responsible for maintaining a list of current Committee members.

5.5 Recordkeeping. At a minimum the company will maintain the following records:

Record	Responsible Person	Location	Duration
Employee Safety Orientation	Safety Officer or other designated person	Main Office Employee File or with similar records	Until superseded
Employee Safety Training Records	Safety Officer or other designated person	Main Office Employee File or with similar records	Until superseded
Inspection Records and Audit Reports (w/corrective actions noted)	Safety Officer or other designated person	Main Office or with similar records	Until superseded or all action items are closed (whichever is longer)
Accident Reports (w/ corrective actions noted)	Safety Officer or other designated person	Main Office or with similar records	5 years
OSHA 300 Log and 301 Forms	Safety Officer or other designated person	Main Office or with similar records	5 years
Employee and Subcontractor Disciplinary Records regarding Safety/OSHA Compliance	Human Resources or other designated person	Human Resources Office or with similar records	Until Obsolete

6. Training and Information.

6.1 New employees:

6.1.1 All new employees will receive an orientation provided by the Safety Officer or Job Site Supervisor prior to their exposure to work place hazards.

6.1.2 The initial orientation documentation will be maintained by the Safety Officer or Job Site Supervisor and stored in the main office or the employee file (or where similar training records are maintained).

6.2 Transfer employees:

6.2.1 Employees transferring within the company will be trained in the items and exposures which previous training did not cover. The Safety Officer or Job Site Supervisor will provide this training prior to the employee's exposure to new hazards. Updated training will be documented on the employee's training record and stored in the main office or the employee file (or where similar training records are maintained).

6.3 Specific job/task training:

6.3.1 Employees must be trained to perform specific tasks in the construction job site such as forklifts, scaffold erection and confined space entry.

- 6.3.2 The Job Site Supervisor will identify which tasks require specific training and ensure this training is completed prior to permitting the employee to perform that task.
- 6.3.3 Training will be provided by the Safety Officer or Job Site Supervisor and documented on the employee's training record and stored in the main office or the employee file (or where similar training records are maintained).
- 6.4 Ongoing training:
- 6.4.1 Every construction job is unique. The Safety Officer or Job Site Supervisor must assess each job to identify its potential health and safety risks. Appropriate control methods will be communicated via:
- 6.4.1.1 New job orientation
 - 6.4.1.2 Daily morning tailgate meetings
 - 6.4.1.3 Weekly site updates/training
 - 6.4.1.4 Scheduled skills training programs

7. Definitions.

- *Incident* - An incident is an unplanned event resulting in a minor injury (e.g. a small bruise) or minor property damage (e.g. a broken box with lightly damaged, mostly usable contents) or has the potential to result in injury or property damage (a near miss). Incidents do not usually result in a claim.
- *Accident* - An accident is an unplanned event resulting in an injury requiring treatment (in-house first aid or outside medical attention) or more substantial property damage. Accidents usually result in a claim.

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PROGRAM OVERVIEW

CONTRACTOR SAFETY VERIFICATION PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR General Duty Clause

INTRODUCTION: It is the responsibility of the host employer (i.e. the company) to ensure the safety of all workers conducting business on the site. When contractors or temporary employees perform work that involves activities that may put personnel at risk, the company must ensure these contractors have appropriate training, equipment, and work conditions to accomplish the task(s) in a safe manner. An evaluation may be required to ensure that the training and equipment is adequate to control exposure hazards. This program provides a framework for these evaluations.

TRAINING:

- None required

ACTIVITIES:

- Evaluate hazards of tasks and activities at your workplace where contractors and temporary employees may have risk or exposure. Ensure these hazards are controlled and the persons exposed have appropriate training and equipment.
- Evaluate hazards of tasks and activities which your employees may encounter at another job site or workplace. Ensure these hazards are controlled and your employees have appropriate training and equipment to control these hazards.

FORMS:

- Contractor or Contract Employee Safety Training Requirements
- Contractor Safety Information
- Contractor Safety Inspection Report

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

Contractor Safety Verification Program

- 1. Purpose.** This program is designed to establish a screening process so that the company may hire and use contractors (or temporary employees) who accomplish the desired job tasks without compromising the safety and health of employees at this facility. The contractor must assure that contract employees are trained on the hazards related to the job, of performing the job safely, and other applicable provisions of the OSHA Regulatory Standards. This safety program describes a systematic approach that will be used to evaluate contractor personnel used at this facility, and provides recommendations and guidelines for selecting contractors. Company management will review and evaluate this safety program:
 - 1.1 On an annual basis, or more frequently as needed
 - 1.2 When changes occur to 29 CFR, that prompt revision of this document
 - 1.3 When facility operational changes occur that require a revision of this document
 - 1.4 When there is an accident or near-miss incident that relates to this area of safety
 - 1.5 When changes occur to any related document that prompts a revision of this document
 - 1.6 Anytime the safety program procedures fail
- 2. Scope.** This program applies to all company sites and facilities where contractors or sub-contractors are utilized for company business or operations.
- 3. Responsibilities.**
 - 3.1 Management/Supervisors:
 - 3.1.1 Ensure contractors are informed of the company emergency action and fire prevention program(s) and the actions contractor employees are required to take during an emergency situation.
 - 3.1.2 Assure that contractors have the required training and equipment to comply with applicable federal, state and local safety regulations. Documented training and equipment maintenance records may be required to be produced by contractors in some instances.
 - 3.1.3 Perform periodic inspections of contractor work and records to assure compliance with applicable regulations.
 - 3.1.4 Assign or designate responsibility to a company employee to act as the primary liaison between the company and the contractor for safety-related issues.
 - 3.1.5 Periodically hold meetings with contractors or contract employees to discuss on-going safety issues.

3.2 Employees:

- 3.2.1 Report any hazardous conditions or situations to company management or your supervisor, as needed or required

3.3 Safety Officer:

- 3.3.1 Assist in the development and implementation of this program as needed or required.
- 3.3.2 Act as the liaison between the company and contractors, if designated to do so.

4. Procedure.

- 4.1 Emergency Action and Fire Prevention Program. All contract employers will be informed, prior to the initiation of the contractors' work at the site, of the applicable provisions of the facility emergency action safety program and all other information as required by the relevant OSHA Standard.

- 4.2 Contractor Pre-Qualification Policy. Contractors may be required to produce evidence that they are aware of regulatory compliance requirements for specific tasks or activities at company sites or locations. To evaluate contractor performance during or prior to the awarding of contract work, the company may utilize the Contractor Safety Information form, or an equivalent document, to assure adequate levels of past safety performance. As a means to assure that contract employees follow the safety rules of the facility, including safe work practices required by relevant regulations and policies the following criteria and information relating to the contractor will be reviewed and complied with before any contract for work on site is approved:

- 4.2.1 Information relating to contract employers' safety performance and programs
- 4.2.2 Methods of informing the contractor (and our personnel) of known potential hazards related to the contractor's work and applicable provisions of the facility emergency action safety program
- 4.2.3 Safe work practices to control the entrance, presence and exit of contract employers and contract employees in covered process areas, or other areas where known hazards exist
- 4.2.4 Evaluation of contractor performance in complying with specific safety standards
- 4.2.5 Contract employee injury and illness logs related to safety standards
- 4.2.6 A list of unique hazards presented by contractors' work or potential hazards generated by the contractor in the workplace will be communicated to company management and other company employees who would require this information to maintain a safe workplace.

4.3 Routine Contractor Compliance Inspections. Routine contractor compliance inspections will be conducted periodically when contractors are on site. The inspection will be conducted to discover conditions and work practices that do not conform to best management practices regarding contractor safety compliance. The Contractor Safety Inspection Report form, or an equivalent document, may be used to facilitate the inspection process.

4.3.1 Contractor Safety Inspection Team. The company contractor inspection team will be comprised of selected members of management/supervisors and hourly personnel.

4.3.2 Inspection Intervals. The Safety Officer or other designated person will coordinate inspection dates and times with all assigned inspection team members. Inspections will be conducted on an as needed basis while work is in progress, or at least annually for long-term work.

4.3.3 Inspection report. The Safety Officer or other designated person will develop a contractor safety report based on the inspection items noted during the inspection. The following items will be accomplished:

4.3.3.1 The pertinent sections of the report will be distributed immediately to personnel responsible for correcting deficiencies noted during the inspection.

4.3.3.2 The pertinent sections of the report will be distributed to all supervisors and key management personnel affected by the contractor's operation. Supervisors will brief the employees on the results. Any employee requesting to be placed on the distribution list will be accommodated.

4.3.3.3 The Safety Officer or other designated person will develop a statistical analysis of deficiencies noted to determine jobs/areas that have a high incidence of contractor non-compliance. These areas will be emphasized during future inspections and meetings. This analysis will become a determining factor in future awards of work to the contractor.

4.3.3.4 Any deficiencies noted will be immediately corrected by the contractor or a "stop work" order will be issued.

5. Safety Information.

5.1 Contractor Safety Meetings. A well ordered flow of information is essential to a good Contractor Safety Verification Program. Company management through contractor meetings at all levels intends to ensure that all contractors awarded work will maintain a high degree of safety compliance at all times.

5.1.1 Contractor meeting agendas. The Safety Officer will develop agendas serving various topics of importance to the Contractor Safety Verification Program. The agendas will be flexible. They will be intended to ensure the highest degree of compliance to existing regulations.

- 5.1.2 Contractor meeting schedules. Contractor safety meetings will be conducted on a regular basis and when operational changes to equipment, facilities, or the job occur that impacts the Contractor Safety Verification Program.
 - 5.1.3 Departmental staff meetings. Contractor safety topics will be included in the agenda of selected staff meetings. The Safety Officer will keep department heads informed of contractor safety performance developments in their area. Department heads may ask the Safety Officer to provide contractor safety briefings as required.
 - 5.1.4 Supervisor meetings. Contractor safety issues will be included in the agenda of selected meetings during times when contractors are used in their departments. Department heads will ensure that selected Contractor Safety Verification Program information is transmitted to supervisors for inclusion in meetings. Supervisors may ask the Safety Officer or another designated person to provide contractor safety briefings as required.
- 5.2 Specific Safety Standards Requiring Contractor Safety Compliance. The following standards will be reviewed if the contractor (or temporary employee) engages in activities that could fall under the jurisdiction of the specific standard:

Confined Space	29 CFR 1910.146
Fall Protection	29 CFR 1910.66, 119, 128, 129, 130, 131
Forklift	29 CFR 1910.178
Hazard Communication	29 CFR 1910.1200
Hazardous Waste Operations	29 CFR 1910.120
Lockout Tagout	29 CFR 1910.147
Process Safety	29 CFR 1910.119
Respiratory Protection	29 CFR 1910.134
Welding Safety	29 CFR 1910.252

6. Training and Information.

- 6.1 All contractors will ensure that their employees are properly trained about the hazards of the workplace (including, but not limited to known fire, explosion and or toxic hazards, uncontrolled energy, and confined spaces). To facilitate this process, the company may utilize the Contractor/Contract-Employee Safety Training Requirements form, or an equivalent document, to provide documented evidence of training.
 - 6.1.1 Contractors (including temporary employment agencies) used by the company are required to provide training to their employees in the work practices necessary for their specific job. Additionally, the company Safety Officer or other designated company personnel, in coordination with the contractor, will conduct process hazard analyses to identify, evaluate, and control processes involving highly hazardous chemicals.

- 6.1.2 Whenever there are outside contractor's present, coordination with company management, supervisors or other designated company personnel is mandated. For example, the company will inform the contractor (and vice versa) when equipment cannot be touched, re-energized or restarted.
- 6.1.3 Based on interviews with the contractors and/or any previous employers, company management will ensure, through periodic evaluations, that the training provided to contractor employees by the contractor is equivalent to the training required for direct hire employees. The burden of training for contractor employees remains with the contractor.
- 6.1.4 Contractors used by the company must:
 - 6.1.4.1 Assure their employees are trained in safe work practices needed to perform the job.
 - 6.1.4.2 Assure their employees are instructed in the known potential fire, explosion, or toxic release hazards related to the job and the applicable provisions of the facility emergency action safety program.
 - 6.1.4.3 Document the required training and the means to verify their employees have understood the training.
 - 6.1.4.4 Assure their employees follow the facility safety rules and work practices.
 - 6.1.4.5 Advise the company of unique hazards presented by the contractor's work.

7. Definitions.

- *None at this time*

CONTRACTOR/CONTRACT EMPLOYEE SAFETY TRAINING REQUIREMENTS

PURPOSE: *The purpose of this questionnaire is to provide this employer with necessary safety information about your prospective temporary employee to aid in the decision to hire him or her.*

Agency Name:			
Address:			
Safety Director:			
Fax #:			Phone #:
Employee Name:			
Address:			
Fax #:			Phone #:
Job to be placed in:			
Department:			
Supervisor:			Phone #:
Previous Safety Training			
➤ Identify below the types of training attended within past 3 years.			
<input type="checkbox"/> Accident Investigation	<input type="checkbox"/> Ergonomics		
<input type="checkbox"/> Bloodborne Pathogens Safety	<input type="checkbox"/> Office Safety		
<input type="checkbox"/> Compressed Gas Safety	<input type="checkbox"/> Woodworking Safety		
<input type="checkbox"/> Electrical Safety Work Practices	<input type="checkbox"/> Job Hazard Analysis		
<input type="checkbox"/> Eye Protection	<input type="checkbox"/> Hazardous Substances		
<input type="checkbox"/> Flammable & Combustible Liquids Safety	<input type="checkbox"/> Laboratory Safety		
<input type="checkbox"/> Hand Protection	<input type="checkbox"/> Confined Space Entry		
<input type="checkbox"/> HAZWOPER	<input type="checkbox"/> Hazard Communication		
<input type="checkbox"/> Head Protection	<input type="checkbox"/> Emergency Response Procedures		
<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Machine Guarding		
<input type="checkbox"/> Housekeeping	<input type="checkbox"/> Hand & Power Tool Safety		
<input type="checkbox"/> Industrial Fire Safety	<input type="checkbox"/> Ladder Safety		
<input type="checkbox"/> Lead Safety	<input type="checkbox"/> Process Safety		
<input type="checkbox"/> Respiratory Protection	<input type="checkbox"/> Barricades		
<input type="checkbox"/> Safety Belts & Lifelines or Fall Protection	<input type="checkbox"/> Electrical Safety		
<input type="checkbox"/> Scaffolding	<input type="checkbox"/> Sling, Rigging & Crane Safety		
<input type="checkbox"/> Slips, Trips and Falls Safety	<input type="checkbox"/> Working in Hot Conditions		
<input type="checkbox"/> Welding Safety	<input type="checkbox"/> Trenching and Excavations Safety		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>		

COMPANY USE ONLY

Job to be placed in:		
Department:		
Supervisor:		Phone #:

Recommended Safety Training

➤ The training listed below must be completed before job assignment.

<input type="checkbox"/> Accident Investigation	<input type="checkbox"/> Ergonomics
<input type="checkbox"/> Bloodborne Pathogens Safety	<input type="checkbox"/> Office Safety
<input type="checkbox"/> Compressed Gas Safety	<input type="checkbox"/> Woodworking Safety
<input type="checkbox"/> Electrical Safety Work Practices	<input type="checkbox"/> Job Hazard Analysis
<input type="checkbox"/> Eye Protection	<input type="checkbox"/> Hazardous Substances
<input type="checkbox"/> Flammable & Combustible Liquids Safety	<input type="checkbox"/> Laboratory Safety
<input type="checkbox"/> Hand Protection	<input type="checkbox"/> Confined Space Entry
<input type="checkbox"/> HAZWOPER	<input type="checkbox"/> Hazard Communication
<input type="checkbox"/> Head Protection	<input type="checkbox"/> Emergency Response Procedures
<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Machine Guarding
<input type="checkbox"/> Housekeeping	<input type="checkbox"/> Hand & Power Tool Safety
<input type="checkbox"/> Industrial Fire Safety	<input type="checkbox"/> Ladder Safety
<input type="checkbox"/> Lead Safety	<input type="checkbox"/> Process Safety
<input type="checkbox"/> Respiratory Protection	<input type="checkbox"/> Barricades
<input type="checkbox"/> Safety Belts & Lifelines or Fall Protection	<input type="checkbox"/> Electrical Safety
<input type="checkbox"/> Scaffolding	<input type="checkbox"/> Sling, Rigging & Crane Safety
<input type="checkbox"/> Slips, Trips and Falls Safety	<input type="checkbox"/> Working in Hot Conditions
<input type="checkbox"/> Welding Safety	<input type="checkbox"/> Trenching and Excavations Safety
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

Key Personnel Review

Name:	Title:	Phone #:
Signature:	Date:	Time:
Name:	Title:	Phone #:
Signature:	Date:	Time:

AUTHORIZATION		YES	NO
Approved?		<input type="checkbox"/>	<input type="checkbox"/>
Further detailed on attachment:		<input type="checkbox"/>	<input type="checkbox"/>

I acknowledge that I have conducted a review of the information contained in this questionnaire and approve the employee for temporary hire in the above described position.

Name:	Date:	Time:
Signature:	Title:	

QUESTIONNAIRE RETENTION INFORMATION

Permanent Retention File:	Location:
Date Filed:	Filed By:

CONTRACTOR SAFETY INFORMATION

PURPOSE: The purpose of this questionnaire is to provide this employer with necessary information about your company's safety program. All items must be completed.

Company Name:			
Address:			
Safety Director:			
Fax #:		Phone #:	

Accident/Injury Experience

Using last year's OSHA 300 Log or Worker's Compensation Documentation, fill in the following:

Number of recordable injuries/illnesses	
Number of restricted work days	
Number of lost work days	
Number of fatalities	
Employee hours worked last year	
Number of injuries/illnesses requiring hospitalization	

Overall Safety Program Compliance	YES	NO
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Overall Safety Program Compliance	YES	NO
Does your company have a written safety program?
∅ Is the program revised/updated annually?
Does your written program contain a statement that your company abides by all federal (OSHA), state and local rules and regulations relating to safe work practices?
Do you have a new hire safety orientation program?
∅ Do you have handbooks for any of the below safety programs?
∅ Have you included copies of any of the handbooks?
∅ Does your new hire program include any training on the following?		
.. Head Protection		.. Emergency Response Procedures
.. Eye Protection		.. Hazardous Substances
.. Hearing Protection		.. Machine Guarding
.. Respiratory Protection		.. Barricades
.. Safety Belts & Lifelines or Fall Protection		.. Electrical Safety
.. Scaffolding		.. Sling, Rigging & Crane Safety
.. Housekeeping		.. Hand & Power Tool Safety
.. Welding Safety		.. Trenching and Excavations Safety
.. Hand Protection		.. Confined Space Entry
.. Bloodborne Pathogens Safety		.. Office Safety
.. Compressed Gas Safety		.. Woodworking Safety
.. Flammable & Combustible Liquids Safety		.. Laboratory Safety
.. Industrial Fire Safety		.. Ladder Safety
Do you have a Supervisor safety training program? Outline included?
Do you conduct regular safety meetings?
∅ How often?		∅ Are records kept?
∅ How often?		∅ Are records kept?
Do you generate accident investigation reports?
Do you perform project safety inspections?
∅ Who conducts them?		∅ How often?
∅ Job Title.		

Key Personnel		
List the key on-site people you would use for this project and list the last three (3) projects they will be involved with in this capacity.		
Name		
Job Title		
Project 1.		
Project 2.		
Project 3.		
<hr/>		
Name		
Job Title		
Project 1.		
Project 2.		
Project 3.		
<hr/>		
Name		
Job Title		
Project 1.		
Project 2.		
Project 3.		
<hr/>		
RECOMMENDATIONS		
Recommended for Award?		YES NO
Name:	Date:	Time:
Signature:	Title:	
Comments		
<hr/>		
AUTHORIZATION		YES NO
Approved?	
Further detailed on attachment:	
I acknowledge that I have conducted a review of the information contained in this questionnaire and approve the contractor for the above described work.		
Name:	Date:	Time:
Signature:	Title:	
<hr/>		
ASSESSMENT QUESTIONNAIRE RETENTION INFORMATION		
Permanent Retention File:	Location:	
Date Filed:	Filed By:	

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CONTRACTOR SAFETY INSPECTION REPORT

JOB NAME:	JOB #:
SUPERINTENDENT:	DATE:

PERSON(S) MAKING INSPECTION:	
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SUBCONTRACTORS ONSITE (List Name & Trade):

CATEGORY	ADEQUATE UPON INSPECTION	NEEDS CONSIDERATION	IMMEDIATE ATTENTION REQUIRED	N/A	ACTION TAKEN
Job Information					
• OSHA 300 forms posted and complete?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• OSHA poster posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Phone no. for the nearest medical center posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Toolbox talks up to date?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Work areas properly signed and barricaded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Housekeeping					
• General neatness of work area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Projecting nails removed or bent over?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Waste containers provided and used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Passageways and walkways clear?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Cords and leads off the floor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fire Prevention					
• Adequate fire extinguishers, checked and accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Phone no. of fire department posted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• "No Smoking" posted and enforced near flammables?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Electrical					
• Extension cords with bare wires or missing ground prongs taken out of service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Ground fault circuit interrupters being used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Terminal boxes equipped with required covers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

CATEGORY	ADEQUATE UPON INSPECTION	NEEDS CONSIDERATION	IMMEDIATE ATTENTION REQUIRED	N/A	ACTION TAKEN
Hand, Power & Powder Actuated Tools					
• Hand tools inspected regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Guards in place on machines?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Right tool being used for job at hand?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Operators of powder-actuated tools are licensed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fall Protection					
• Safety rails and cables are secured properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Employees have D-ring of belts in center of back?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Employees exposed to fall hazards are tied off?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Employees below protected from falling objects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ladders					
• Ladders extend at least 36" above the landing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Ladders are secured to prevent slipping, sliding or falling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Ladders with split or missing rungs taken out of service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Stepladders used in fully open position?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• No step at top two rungs of stepladder?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Scaffolding					
• All scaffolding inspected daily?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Erected on sound rigid footing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Tied to structure as required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Guardrails, intermediate rails, toe boards and screens in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Planking is sound and sturdy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Proper access provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Employees protected from falling objects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Floor & Wall Openings					
• All floor or deck openings are planked over or barricaded?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Perimeter protection is in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Deck planks are secured?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Materials stored away from edge?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Trenches, Excavation & Shoring					
• Competent person on hand?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Excavations are shored or sloped back?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Materials are stored at least two feet from trench?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Ladders provided every 25 feet in trench?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Equipment is a safe distance from edge of trench or excavation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

CATEGORY	ADEQUATE UPON INSPECTION	NEEDS CONSIDERATION	IMMEDIATE ATTENTION REQUIRED	N/A	ACTION TAKEN
Material Handling					
• Materials are properly stored or stacked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Employees are using proper lifting methods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Tag lines are used to guide loads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Proper number of workers for each operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Welding & Burning					
• Gas cylinders stored upright?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Proper separating distance between fuels and oxygen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Burning/welding goggles or shields are used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Fire extinguishers are nearby?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Hoses are in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cranes					
• Outriggers are extended and swing radius barricade in place?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Operator is familiar with load charts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Hand signal charts are on crane?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Crane operator logs are up-to-date?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Employees kept from under suspended loads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Chains and slings inspected and tagged as required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Concrete Construction					
• Employees are protected from cement dust?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Exposed skin is covered?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Runways are adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Personal Protective Equipment					
• Hard hats are being worn?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Safety glasses are being worn?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Respirators are used when required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Hearing protection being worn when required?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Traffic vests being worn?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Unsafe Acts or Practices Observed (List):					
COMMENTS:					
AUTHORIZED SIGNATURE:			DATE:		

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PROGRAM OVERVIEW

DEMOLITION SAFETY PROGRAM

REGULATORY STANDARD: OSHA 29 CFR 1926 Subpart T

INTRODUCTION: Addresses demolition activities performed without explosives. Before starting any demolition project, careful preparations must be made to ensure the safety of workers on the job and other individuals within the vicinity of the demolition site. These preparatory operations involve the overall planning of the demolition job, including the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to perform the work safely.

TRAINING:

- Supervisors and employees will be trained in the recognition of hazards associated with demolition work and in their responsibilities for emergencies.
- Any person involved with debris chute use must be trained in the safe use requirements.

ACTIVITIES:

- Identify “competent” personnel to prepare demolition plans
- Write and communicate policies and procedures that will include a process to ensure that at each demolition site, hazards, safety equipment, and emergency response procedures are evaluated
- Provide any needed safety equipment
- An engineering survey must be completed to assess the condition of the framing, floors, and walls to prevent a possible premature collapse of the structure

FORMS:

- Pre-Demolition Safety Checklist
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

Demolition Safety Program

1. **Purpose.** This program covers all employees when engaged in the dismantling, razing, or wrecking of any fixed building or structure or any part thereof. This includes all partial dismantling and razing activities where structural members of the structure are not removed. This program also covers activities involving rehabilitation, repair, or remodeling including those where no removal of load supporting structural members takes place.
2. **Scope.** This program applies to all employees and contractors engaged in demolition activities as defined by this program.
3. **Responsibilities.**

3.1 Management will:

- 3.1.1 Plan for the wrecking of the structure, the equipment to do the work, labor requirements, and protection of the public.
- 3.1.2 Ensure an engineer or similarly “qualified person” establishes a plan for any demolition job by completing an engineering survey before demolition operations begin.
- 3.1.3 Make available the telephone numbers of the local police, ambulance and fire departments at each job site.
- 3.1.4 Establish a fire plan before any demolition job.
 - 3.1.4.1 Outline assignments of key personnel.
 - 3.1.4.2 Provide an evacuation program for workers on the site.
- 3.1.5 Provide training to employees prior to start of demolition work when necessary.
- 3.1.6 Assigned duties only to personnel capable of performing duties assigned.

3.2 Employees will:

- 3.2.1 Attend all training.
- 3.2.2 Follow established safety rules.
- 3.2.3 Perform only the work capable of performing.
- 3.2.4 Immediately report hazards and hazardous conditions to management.

3.3 Safety Officer will:

- 3.3.1 Assist in the development and implementation of this program.

4. Procedure.

4.1 Preparatory Operations:

- 4.1.1 Before the start of every demolition job, the company will take steps to safeguard the health and safety of workers at the job site. These preparatory operations involve the overall planning of the demolition job, including:
 - 4.1.1.1 The methods to be used to bring the structure down,
 - 4.1.1.2 The equipment necessary to do the job, and
 - 4.1.1.3 The measures to be taken to perform the work safely.
- 4.1.2 All planning work shall be performed by an engineer or similarly “qualified person” experienced in all phases of the demolition work to be performed.
- 4.1.3 Engineering Survey. Before starting all demolition operations, an engineering survey of the structure shall be conducted by an engineer or similarly “qualified person” to:
 - 4.1.3.1 Determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked.
 - 4.1.3.2 Flooring and walls shall be shored or braced when employees are required to work within a structure to be demolished which has been damaged by fire, flood, explosion, or other cause.
 - 4.1.3.3 Identify Utility Location
 - 4.1.3.3.1 All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started.
 - 4.1.3.3.1.1 In each case, any utility company, which is involved, shall be notified in advance.
 - 4.1.3.3.1.2 If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.

- 4.1.3.4 Evaluate Medical Services and First Aid capabilities
 - 4.1.3.4.1 The nearest hospital, infirmary, clinic, or physician shall be located.
 - 4.1.3.4.1.1 The job supervisor shall be provided with instructions for the most direct route to these facilities.
 - 4.1.3.4.1.2 Proper equipment for prompt transportation of an injured worker, as well as a communication system to contact any necessary ambulance service, must be available at the job site.
 - 4.1.3.4.1.3 The telephone numbers of the hospitals, physicians, or ambulances shall be conspicuously posted.
- 4.1.3.5 Determine Safety Equipment Needs
 - 4.1.3.5.1 The required number and type of respirators, lifelines, warning signs, safety nets, special face and eye protection, hearing protection, and other worker protection devices shall be determined.
 - 4.1.3.5.2 A comprehensive program is necessary for any confined space entry.
- 4.1.3.6 A written copy of the survey must be maintained.
- 4.1.4 Determine if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.
- 4.1.5 Where a hazard exists from fragmentation of glass, such hazards shall be removed.
- 4.1.6 Where a hazard exists to employees falling through wall openings, the opening shall be protected to a height of approximately 42 inches.
 - 4.1.6.1 When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above.

- 4.1.6.1.1 Signs, warning of the hazard of falling materials, shall be posted at each level. The signs shall not be removed in this lower area until debris handling ceases above.
 - 4.1.6.2 All floor openings, not used as material drops, shall be covered over with material substantial enough to support the weight of any load which may be imposed. Such material shall be properly secured to prevent its accidental movement.
 - 4.1.6.3 Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward.
 - 4.1.6.3.1 Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.
- 4.1.7 Employee entrances to multistory structures being demolished shall be completely protected by sidewalk sheds or canopies, or both, providing protection from the face of the building for a minimum of 8 feet. All such canopies shall be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof), and shall be capable of sustaining a load of 150 pounds per square foot.
- 4.1.8 Fire Program. The Fire Program shall outline the assignments of key personnel in the event of a fire and provide an evacuation program for workers on the site.
 - 4.1.8.1 All potential sources of ignition shall be evaluated and the necessary corrective measures taken.
 - 4.1.8.2 Electrical wiring and equipment for providing light, heat, or power shall be installed by an electrician or other electrically competent person and inspected regularly.
 - 4.1.8.3 Equipment powered by an internal combustion engine shall be located so that the exhausts discharge well away from combustible materials and away from workers.
 - 4.1.8.4 When the exhausts are piped outside the building, a clearance of at least six inches shall be maintained between such piping and combustible material.
 - 4.1.8.5 All internal combustion equipment shall be shut down prior to refueling. Fuel for this equipment shall be stored in a safe location.

- 4.1.8.6 Sufficient firefighting equipment shall be located near any flammable or combustible liquid storage area.
- 4.1.8.7 Only approved containers and portable tanks shall be used for the storage and handling of flammable and combustible liquids.
- 4.1.8.8 Heating devices shall be situated so that they are not likely to overturn and shall be installed in accordance with their listing, including clearance to combustible material or equipment. Temporary heating equipment, when used, shall be maintained by competent personnel.
- 4.1.8.9 Smoking is not permitted at or near hazardous operations or materials. Where smoking is permitted, safe receptacles shall be provided for smoking materials.
- 4.1.8.10 Roadways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other materials. When storing debris or combustible material inside a structure, such storage shall not obstruct or adversely affect the means of exit.
- 4.1.8.11 A suitable location at the job site shall be designated and provided with programs, emergency information, and equipment, as needed.
- 4.1.8.12 Access for heavy fire-fighting equipment shall be provided on the immediate job site at the start of the job and maintained until the job is completed.
- 4.1.8.13 Free access from the street to fire hydrants and to outside connections for standpipes, sprinklers, or other fire extinguishing equipment, whether permanent or temporary, shall be provided and maintained at all times, as follows:
 - 4.1.8.13.1 Pedestrian walkways shall not be so constructed as to impede access to hydrants.
 - 4.1.8.13.2 No material or construction shall interfere with access to hydrants, Siamese connections, or fire-extinguishing equipment.
- 4.1.8.14 A temporary or permanent water supply of volume, duration, and pressure sufficient to operate the fire-fighting equipment properly shall be made available. Standpipes with outlets shall be provided on large multi story buildings to provide for fire protection on upper levels. If the water pressure is insufficient, a pump shall also be provided.
- 4.1.8.15 An ample number of fully charged portable fire extinguishers shall be provided throughout the operation. All motor-driven mobile equipment shall be equipped with an approved fire extinguisher.

4.1.8.16 An alarm system (telephone system, siren, two-way radio, etc.), shall be established in such a way that employees on the site and the local fire department can be alerted in case of an emergency.

4.1.8.16.1 The alarm code and reporting instructions shall be conspicuously posted and the alarm system shall be serviceable at the job site during the demolition.

4.1.8.16.2 Fire cutoffs shall be retained in the buildings undergoing alterations or demolition until operations necessitate their removal.

4.2 Stairs, Passageways, and Ladders:

4.2.1 Only those stairways, passageways, and ladders, designated as means of access to the structure of a building, shall be used. Other access ways shall be entirely closed at all times.

4.2.2 All stairs, passageways, ladders and incidental shall be periodically inspected and maintained in a clean safe condition.

4.2.3 In multistory buildings, when a stairwell is being used, it shall be properly illuminated by either natural or artificial means, and completely and substantially covered over at a point not less than two floors below the floor on which work is being performed. Access to the floor where the work is in progress shall be through a properly lighted, protected, and separate passageway.

4.3 Chutes:

4.3.1 No material shall be dropped to any point lying outside the exterior walls of the structure unless the area is effectively protected.

4.3.2 All material chutes, or sections thereof, at an angle of more than 45 deg. from the horizontal, shall be entirely enclosed, except for openings equipped with closures at or about floor level for the insertion of materials.

4.3.2.1 The openings shall not exceed 48 inches in height measured along the wall of the chute.

4.3.2.2 At all stories below the top floor, such openings shall be kept closed when not in use.

4.3.3 A substantial gate shall be installed in each chute at or near the discharge end. A competent employee shall be assigned to control the operation of the gate, and the backing and loading of trucks.

4.3.4 When operations are not in progress, the area surrounding the discharge end of a chute shall be securely closed off.

- 4.3.5 Any chute opening, into which workers dump debris, shall be protected by a substantial guardrail approximately 42 inches above the floor or other surface on which the men stand to dump the material. Any space between the chute and the edge of openings in the floors through which it passes shall be solidly covered over.
- 4.3.6 Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toe board or bumper, not less than 4 inches thick and 6 inches high, shall be provided at each chute opening.
- 4.3.7 Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

5. Safety Information.

5.1 Removal of Materials through Floor Openings:

- 5.1.1 Any openings cut in a floor for the disposal of materials shall be no larger than 25 percent of the aggregate of the total floor area, unless the lateral supports of the removed flooring remain in place. Floors weakened or otherwise made unsafe by demolition operations shall be shored to carry safely the intended imposed load from demolition operations.

5.2 Removal of Walls, Masonry Sections, and Chimneys:

- 5.2.1 Masonry walls, or other sections of masonry, shall not be permitted to fall upon the floors of the building in such masses as to exceed the safe carrying capacities of the floors.
- 5.2.2 No wall section, which is more than one story in height, shall be permitted to stand alone without lateral bracing, unless such wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.
- 5.2.3 Employees shall not be permitted to work on the top of a wall when weather conditions constitute a hazard.
- 5.2.4 Structural or load-supporting members on any floor shall not be cut or removed until all stories above such a floor have been demolished and removed. The cutting of floor beams for the disposal of materials or for the installation of equipment is permitted, if the requirements of 1926.853 and 1926.855 are met.
- 5.2.5 Floor openings within 10 feet of any wall being demolished shall be planked solid, except when employees are kept out of the area below.

- 5.2.6 In buildings of "skeleton-steel" construction, the steel framing may be left in place during the demolition of masonry. All steel beams, girders, and similar structural supports shall be cleared of all loose material as the masonry demolition progresses downward.
 - 5.2.7 Walkways or ladders shall be provided to enable employees to safely reach or leave any scaffold or wall.
 - 5.2.8 Walls, which serve as retaining walls to support earth or adjoining structures, shall not be demolished until such earth has been properly braced or adjoining structures have been properly underpinned.
 - 5.2.9 Walls, which are to serve as retaining walls against which debris will be piled, shall not be so used unless capable of safely supporting the imposed load.
- 5.3 Manual Removal of Floors:
- 5.3.1 Openings cut in a floor shall extend the full span of the arch between supports.
 - 5.3.2 Before demolishing any floor arch, debris and other material shall be removed from such arch and other adjacent floor area.
 - 5.3.2.1 Planks not less than 2 inches by 10 inches in cross section, full size undressed, shall be provided for, and shall be used by employees to stand on while breaking down floor arches between beams.
 - 5.3.2.2 Such planks shall be so located as to provide a safe support for the workers shall the arch between the beams collapse.
 - 5.3.2.3 The open space between planks shall not exceed 16 inches.
 - 5.3.3 Safe walkways, not less than 18 inches wide, formed of planks not less than 2 inches thick of wood, or of equivalent strength if metal, shall be provided and used by workmen when necessary to enable them to reach any point without walking upon exposed beams.
 - 5.3.4 Stringers of ample strength shall be installed to support the flooring planks. The ends of such stringers shall be supported by floor beams or girders, and not by floor arches alone.
 - 5.3.5 Planks shall be laid together over solid bearings with the ends overlapping at least 1 foot.
 - 5.3.6 When floor arches are being removed, employees shall not be allowed in the area directly underneath, and such an area shall be barricaded to prevent access to it.

- 5.3.7 Demolition of floor arches shall not be started until they, and the surrounding floor area for a distance of 20 feet, have been cleared of debris and any other unnecessary materials.
- 5.4 Removal of Walls, Floors, and Material with Equipment:
- 5.4.1 Mechanical equipment shall not be used on floors or working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.
 - 5.4.2 Floor openings shall have curbs or stop-logs to prevent equipment from running over the edge.
- 5.5 Storage:
- 5.5.1 The storage of waste material and debris on any floor shall not exceed the allowable floor loads.
 - 5.5.2 In buildings having wooden floor construction, the flooring boards may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger the stability of the structure.
 - 5.5.3 When wood floor beams serve to brace interior walls or freestanding exterior walls, such beams shall be left in place until other equivalent support can be installed to replace them.
 - 5.5.4 Floor arches, to an elevation of not more than 25 feet above grade, may be removed to provide storage area for debris: Provided that such removal does not endanger the stability of the structure.
 - 5.5.5 Storage space into which material is dumped shall be blocked off, except for openings necessary for the removal of material. Such openings shall be kept closed at all times when material is not being removed.
- 5.6 Removal of Steel Construction:
- 5.6.1 When floor arches have been removed, planking in accordance with 1926.855(b) shall be provided for the workers engaged in razing the steel framing.
 - 5.6.2 Cranes, derricks, and other hoisting equipment used shall meet the requirements specified in 29 CFR 1926 Subpart N.
 - 5.6.3 Steel construction shall be dismantled column length by column length, and tier by tier (columns may be in two-story lengths).
 - 5.6.4 Any structural member being dismembered shall not be overstressed.

5.7 Mechanical Demolition:

- 5.7.1 No workers shall be permitted in any area, which can be adversely affected by demolition operations, when balling or clamming is being performed. Only those workers necessary for the performance of the operations shall be permitted in this area at any other time.
- 5.7.2 The weight of the demolition ball shall not exceed 50 percent of the crane's rated load, based on the length of the boom and the maximum angle of operation at which the demolition ball will be used, or it shall not exceed 25 percent of the nominal breaking strength of the line by which it is suspended, whichever results in a lesser value.
- 5.7.3 The crane boom and loadline shall be as short as possible.
- 5.7.4 The ball shall be attached to the loadline with a swivel-type connection to prevent twisting of the loadline, and shall be attached by positive means in such manner that the weight cannot become accidentally disconnected.
- 5.7.5 When pulling over walls or portions thereof, all steel members affected shall have been previously cut free.
- 5.7.6 All roof cornices or other such ornamental stonework shall be removed prior to pulling walls over.
- 5.7.7 During demolition, continuing inspections by an engineer or similarly "qualified person" shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

5.8 Special Structures Demolition:

- 5.8.1 Safe Work Practices when Demolishing a Chimney, Stack, Silo or Cooling Tower.
 - 5.8.1.1 Inspection and Planning. When preparing to demolish any chimney, stack, silo, or cooling tower, an experienced person shall perform a careful, detailed inspection of the structure.
 - 5.8.1.1.1 When possible, architectural/engineering drawings shall be consulted.
 - 5.8.1.1.2 Particular attention shall be paid to the condition of the chimney or stack for any structural defects such as weak or acid-laden mortar joints, and any cracks or openings.

- 5.8.1.1.3 The interior brickwork in some sections of industrial chimney shafts can be extremely weak. If the stack has been banded with steel straps, these bands shall be removed only as the work progresses from the top down.
- 5.8.1.1.4 Sectioning of the chimney by water, etc. shall be considered.
- 5.8.1.2 Safe Work Practice. When hand demolition is required, it shall be carried out from a working platform.
 - 5.8.1.2.1 Experienced personnel must install a self-supporting tubular scaffold, suspended platform, or knee-braced scaffolding around the chimney. Attention shall be paid to the design, support, and tie-in (braces) of the scaffold.
 - 5.8.1.2.2 A competent person shall be present at all times during the erection of the scaffold.
 - 5.8.1.2.3 Adequate working clearance shall be maintained between the chimney and the work platform.
 - 5.8.1.2.4 Access to the top of the scaffold shall be provided by means of portable walkways.
 - 5.8.1.2.5 The platforms shall be decked solid and the area from the work platform to the wall shall be bridged with a minimum of two-inch thick lumber.
 - 5.8.1.2.6 A back rail 42 inches above the platform, with a midrail covered with canvas or mesh shall be installed around the perimeter of the platform to prevent injury to workers below.
 - 5.8.1.2.6.1 Debris netting may be installed below the platform.
 - 5.8.1.2.6.2 Excess canvas or plywood attachments can form a wind-sail that could collapse the scaffold.
 - 5.8.1.2.7 When working on the work platform, all personnel shall wear hard hats, long-sleeve shirts, eye and face protection, such as goggles and face shields, respirators, and safety belts, as required.
 - 5.8.1.2.8 Care shall be taken to assign the proper number of workers to the task. Too many people on a small work platform can lead to accidents.

- 5.8.1.2.9 When using a creeping bracket scaffold to "climb" the structure in place of erecting a self-supporting tubular steel scaffold. The following considerations shall be made:
 - 5.8.1.2.9.1 Careful inspection of the masonry and a decision as to the safety of this alternative must be made by an engineer or similarly "qualified person".
 - 5.8.1.2.9.2 It is essential that the masonry of the chimney be in good enough condition to support the bracket scaffold.
 - 5.8.1.2.9.3 The area around the chimney shall be roped off or barricaded and secured with appropriate warning signs posted. No unauthorized entry shall be permitted to this area. (It is good practice to keep a worker, i.e., a supervisor, operating engineer, another worker, or a "safety person," on the ground with a form of communication to the workers above).
 - 5.8.1.2.9.4 Special attention shall be paid to weather conditions when working on a chimney.
 - 5.8.1.2.9.4.1 No work shall be done during inclement weather such as during lightning or high wind situations.
 - 5.8.1.2.9.4.2 The work site shall be wetted down, as needed, to control dust.
- 5.8.1.3 Debris Clearance. If debris is dropped inside the shaft, it can be removed through an opening in the chimney at grade level.
 - 5.8.1.3.1 The opening at grade must be kept relatively small in order not to weaken the structure.
 - 5.8.1.3.2 When removing debris by hand, an overhead canopy of adequate strength shall be provided. If machines are used for removal of debris, proper overhead protection for the operator shall be used.

- 5.8.1.3.3 Excessive debris shall not be allowed to accumulate inside or outside the shaft of the chimney as the excess weight of the debris can impose pressure on the wall of the structure and might cause the shaft to collapse.
- 5.8.1.3.4 The supervisor shall determine when debris is to be removed, halt all demolition during debris removal, and make sure the area is clear of cleanup workers before continuing demolition.
- 5.8.1.4 Demolition by Deliberate Collapse. Deliberate collapse requires extensive planning and experienced personnel, and shall be used only when conditions are favorable.
 - 5.8.1.4.1 There must be a clear space for the fall of the structure of at least 45 degrees on each side of the intended fall line and 1½ times the total height of the chimney.
 - 5.8.1.4.2 There shall be no sewers or underground services on the line of the fall.
 - 5.8.1.4.3 Lookouts must be posted on the site and warning signals must be arranged.
 - 5.8.1.4.4 The public and other workers at the job site must be kept well back from the fall area.
- 5.8.2 Demolition of Pre-Stressed Concrete Structures.
 - 5.8.2.1 During the Engineering Survey, an engineer or similarly “qualified person” shall determine if the structure to be demolished contains any prestressed members (refer to table 14.2).
 - 5.8.2.2 The company will inform all workers on the demolition job site of the presence of prestressed concrete members within the structure, and instruct them in the safe work practice which must be followed to safely perform the demolition. Workers shall be informed of the hazards of deviating from the prescribed procedures and the importance of following their supervisor's instruction.

Table 14.2. Categories of Pre-Stressed Construction

There are four main categories of pre-stressed members. The category or categories shall be determined before attempting demolition. Any pre-stressed structure may contain elements of more than one category.	
Category 1	Members are pre-stressed before the application of the superimposed loads, and all cables or tendons are fully bonded in the concrete or grouted within ducts.
Category 2	Like Category 1, but the tendons are left ungrouted. This type of construction can sometimes be recognized from the access points that may have been provided for inspection of the cables and anchors. More recently, unbonded tendons have been used in the construction of beams, slabs, and other members; these tendons are protected by grease and surrounded by plastic sheathing, instead of the usual metal duct.
Category 3	Members are pre-stressed progressively as building construction proceeds and the dead load increases, using bonded tendons as in Category 1.
Category 4	Like Category 3, but using unbonded tendons as in Category 2.

5.8.3 Precast units stressed separately from the main frames of the structure, with end anchors and grouted and ungrouted ducts shall be lowered to the ground, if possible, before being broken up.

5.8.3.1 A professional engineer shall be consulted before carrying out this work.

5.8.3.2 After lowering the units can be turned on their side with the ends up on blocks after any composite concrete is removed. This may suffice to break the unit and release the prestress; if not, a sand bag screen, timbers, or a blast mat as a screen shall be erected around the ends and demolition commenced, taking care to clear the area of any personnel.

5.8.4 Monolithic Structures. A professional engineer experienced in prestressed work shall be consulted before any attempt is made to expose the tendons or anchorages of structures in which two or more members have been stressed together. Temporary supports may be required so that the tendons and the anchorage can be cautiously exposed.

5.8.5 Progressively Pre-stressed Structures. A professional engineer experienced in prestressed work shall be consulted before any attempt to demolish progressively prestressed structures.

5.8.5.1 Demolition of progressively prestressed structures shall be made in strict accordance with the engineer's method of demolition. (The stored energy in this type of structure is large. In some cases, the inherent properties of the stressed section may delay failure for some time, but the presence of these large prestressing forces may cause sudden and complete collapse with little warning).

6. Training and Information.

6.1 Employees performing demolition work will be capable of performing their assigned duties and appropriately trained in the use of any equipment used to perform those duties.

7. Definitions.

- *Demolition* - The dismantling, razing, or wrecking of any fixed building or structure or any part thereof, including dismantling and razing activities where structural members of the structure are not removed, and all activities involving rehabilitation, repair, or remodeling including those where no removal of load supporting structural members takes place.

- *Qualified Person* – A professional engineer (civil/structural) who by knowledge and experience is capable of the assessing and carrying out the duties assigned.

PRE-DEMOLITION SAFETY INSPECTION CHECKLIST

Jobsite Address:

Date:

Superintendent:

Inspector(s):

INSTRUCTIONS: Check appropriate box and provide comments when necessary

Area Inspected	YES	NO	N/A
Engineering Survey completed by a competent person in writing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Utilities identified, shut off, list contact names & numbers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Hazardous materials/chemicals removed from any pipes, tanks, or equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Have hazardous materials (asbestos, lead, etc) been identified, removed and disposed of by required methods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Has condition of nearby structures been documented prior to demolition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Shoring of adjacent structures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

Area Inspected	YES	NO	N/A
Job site secured with yellow caution tape or temporary fencing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
“No Trespassing”, “Warning – Keep Out”, and/or “Authorized personnel Only” signs posted.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Sidewalk sheds erected protecting pedestrians from falling debris.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Material chutes provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Personal Protective Equipment required (specify required type).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gloves:			
Hard Hats:			
Face Shields/Safety Glasses/Goggles:			
Respirators:			
Hearing Protection:			
Other (list):			
Equipment/tools used for job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List:			
Tools & handheld equipment stored in a secure place during off hours.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			
Are fire prevention plans and procedures in place and properly communicated to work crew?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:			

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PROGRAM OVERVIEW

ELECTRICAL (COMPREHENSIVE) SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.331 - 335

OSHA - 29 CFR 1926.302, 1926.416-417

INTRODUCTION

This program is designed to assist the company to ensure that work practices performed on or near electrical equipment and energy sources are evaluated to determine if proper safety precautions are implemented. This program applies to all employees and contractors of the company who are exposed to live electrical energy at levels of >50V and less than 240V that cannot be locked out and de-energized. It outlines employee training, work practices, equipment use and details the safeguards for personal protection.

TRAINING

- Employees exposed to hazards >50V must be trained and understand the magnitude of the hazard and the protective measures and controls used
- Employees exposed to higher voltages (>110V) must be qualified and have appropriate licenses or documented training.
- Employees exposed to high voltage (>240V) must be licensed electricians or otherwise specifically qualified, and use arc-flash protective gear. (Note that this program does not review the requirements for this level of exposure).
- Welders must be trained in electrical safety, regardless of the voltage encountered
- Specialized equipment (high voltage, CDT, etc.) may require additional training or restrictions put into place to limit exposures

ACTIVITIES

- Review hazards and determine level of exposures
- Provide testing supplies and safety equipment
- Run electrical systems to reduce the use of extension cords to truly temporary use
- Provide warning and alerting devices to protect employees from contact with energy hazards
- Write and communicate policies and procedures

FORMS

- Electrical Written Program
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

ELECTRICAL (COMPREHENSIVE) SAFETY PROGRAM

1. Purpose. This program outlines the processes to protect employees in their workplaces from hazards associated with live electrical energy. These processes may include, but are not limited to the following:

- 1.1. Design of electrical systems, electrical utilization equipment, and installations Safety related work practices
- 1.2. Safety related maintenance requirements
- 1.3. Safety requirements for special equipment and processes
- 1.4. Additionally, any contractors that will perform electrical work at the company will be required to have an Electrical Safety Program in place.

2. Scope. This program applies to all employees and contractors at the company who are exposed to live electrical energy at levels of >50V.

3. Responsibilities

3.1 Management

- 3.1.1 Ensure a written program is in place appropriate to the hazards. This program considers voltage, energy level, circuit conditions, and the identification of any electrical safety controls
- 3.1.2 Ensure any modifications to existing equipment meet Electrical Safety Standards
- 3.1.3 Ensure installations of new equipment are assessed or inspected to assure they meet the electrical safety standard requirements.
- 3.1.4 Review the written program at least annually to assure it remains accurate and applicable.
- 3.1.5 Assure employees who work on live electrical equipment or components, or who are exposed to electrical hazards are “qualified” under the requirements of the standard and appropriately trained, based on the risks presented.
- 3.1.6 Ensure all contractors who work with electrical parts, components or hazards have a written Electrical Safety Program in place, prior to their beginning work.
- 3.1.7 Provide Electrical Personal Protective Equipment to the employees, as needed.

3.2 Engineering and Design or Purchasing

- 3.2.1 Ensure any modifications to existing equipment meet Electrical Safety Standards
- 3.2.2 Ensure installations of new equipment are assessed or inspected to assure they meet the electrical safety standard requirements.
- 3.2.3 Ensure all contractors who work with electrical parts, components or hazards have a written Electrical Safety Program in place, prior to their beginning work.

3.3 Contractors

- 3.2.1 Provide the company with a copy of their written Electrical Safety Program and/or employee training records, upon request.

4 Procedure.

- 4.1 There may be conditions where voltages less than 50 volts may require an Electrical Safety Program. These would include, but are not limited to, conditions where electrical burns, explosion due to electric arcs, or low voltage, high current systems require safe work practices.
- 4.2 Selection and Use of Work Practices. Work practices are designed to prevent shock and other injuries from either direct or indirect contact with live electrical parts and energy.
 - 4.2.1 Live parts (>50V) must be de-energized (Lockout/Tagout) before employees work on them, unless it is demonstrated that additional or increased hazards are introduced, or where de-energizing is infeasible due to design or operational limitations. In such cases a specific and detailed procedure will be in writing and followed for the energy control of that operation. The detailed procedure must include:
 - Statement of intention
 - Specific steps to shut down, isolate, block and secure machine or equipment
 - Procedures for placement, removal and transfer of devices
 - Specific responsibilities for devices
 - Requirements for equipment testing and verify effectiveness of measures
 - 4.2.2 In all cases overhead power lines must be de-energized if there is a possibility of contact with them by any part of the body, tool or equipment that could create a conduit of energy through the person or equipment.
 - If “unqualified” persons must work underneath or near energized lines, they must be located far enough away from the line so that any tool or equipment used cannot contact the line. At a minimum, the distances must be 10 feet for 50kV or less and an additional 4 inches for every additional 10kV of power over 50kV. Minimum approach distance is 20 feet, if the power level in the line is unknown.

- “Qualified” persons may not approach or take un-insulated conductive objects (including lift equipment) any closer to overhead lines than the following:

Table 2

Voltage Range	Minimum Distance
300V and less	Contact should be avoided
300-750V	1 foot
750-2kV	1 foot 6 inches
2kV-15kV	2 feet
15kV-37kV	3 feet
37kV-87.5kV	3 feet 6 inches
87.5kV-121kV	4 feet
121kV-140kV	4 feet 6 inches

- If the employees are within approach distances, they must still be insulated by protective equipment (i.e. arc flash gear) or equivalent protective materials.
 - Elevated equipment (or equipment capable of being elevated) must maintain a clearance of at least 10 feet from overhead lines. Vehicles in transit with their structures lowered to their lowest level may reduce the clearance to 4 feet (plus 4 inches for every additional 10kV over 50kV). Insulated barriers, if used, must protect from the voltage that may be encountered. Aerial lifts used by “qualified” persons for work on overhead lines may have clearances reduced to the distances in Table 2 (above).
 - Employees on the ground may not have contact with such equipment or any of its attachments unless they are insulated or the approach distances of the equipment are limited to those outlined in the table above.
 - Where equipment is intentionally grounded because of potential contact, areas must be barricaded for a minimum 10 ft. radius.
- 4.2.3 Illumination and light must be provided to enable the employees to work safely. Blind reaching into a part, panel, equipment or circuitry system is prohibited.
- 4.2.4 Confined-space electrical work must utilize shields, barriers or insulating materials to avoid inadvertent contact with live energy sources and parts. Doors, panels, etc. must be secured.
- 4.2.5 Any conductive material must be handled in a manner that prevents contact with energized parts and materials. Procedures and work practices may need to be implemented when long-dimension objects (e.g. tree trimming poles) are used or handled in such areas.
- 4.2.6 Jewelry and similar clothing items (e.g. scarves) must be covered or removed, if contact with energized parts is possible.

4.2.7 Housekeeping duties should not be performed near live parts without additional precautions put into place. De-energizing should take place to prevent inadvertent contact with energized parts by “un-qualified” people.

4.2.8 Interlocks may not be defeated unless it is done by a “qualified” person.

5 Safety Information

5.1 General

5.1.1 Qualified Employees - Only “Qualified” individuals are allowed to work on or near energized equipment.

5.1.2 Policies or Procedures – Written electrical policies or procedures are established to ensure that electrical products, wiring, and devices are designed, installed, maintained, and utilized safely. Safe work practices and procedures are written and followed for regularly conducted tasks related to electrical exposures.

5.1.3 Level of Exposure - Hazard/Risk analyses are performed prior to any task. The work area is assessed to determine the level of exposure, requirements of the task and the corresponding risk to employees from any exposed energized parts or equipment.

5.1.4 Non-routine Tasks - Perform non-routine or emergency work only under the direction of qualified personnel, or after a thorough hazard/risk analysis (such as Job Hazard Analysis) of existing conditions. Write procedures, as required. Utilize Lock-Out/Tag-Out (LOTO) procedures, as required.

5.1.5 Medical and First aid - First aid kits must be maintained. When doing field work at least two people with 1st aid and CPR must be available, if more than 4 minute response – all employees must be trained.

5.2 Safety Related Work Practices

5.2.1 Each person is expected to work within the limits of their expertise and training and follow established practices, which are developed according to the hazards and tasks performed. Examples are:

- Do not leave exposed electrical hazards unattended
- Replace covers or protect energized components from inadvertent contact

5.2.2 Utilize proper insulation and/or protective equipment and proper tools corresponding to the level of exposure.

5.2.3 Safety related work practices must be implemented for both qualified and non-qualified persons working with or near energized parts, materials, equipment or sources. This includes premises wiring, wiring from a connection to a supply, other types of wiring and installation of optical fiber cable when cables are run in the same conduit, raceway (or equivalent system) with any live electrical wiring.

- 5.2.4 Power generation, transmission and distribution work performed by qualified persons are exempted from this section. Additionally, work in vehicles (ships, watercraft, railways, aircraft and RVs) when such work is for signaling or communications equipment is also exempt.
- 5.2.5 Ladders must be secured to prevent them from being dislodged when live energy at any voltage. Where unqualified persons can access, ladders must be kept minimum of 10 feet away from live energized lines at 50KV or less, (at higher V add 4 inches for every 10KV).
- 5.2.6 Toolbox talks, job briefings, and contractor communication must be provided each day, covering:
- Routine work - Hazards, procedures, precautions, controls, PPE
 - Complicated work – hazards, recognition of conditions
 - Work rules must be communicated and activities discussed to ensure employee and contractor safety is not compromised.

5.3 Use of Equipment

- 5.3.1 Visual inspection must occur before use. Inspection includes looking for loose parts, deformed pins, and damage to the jacket or insulation. If equipment remains in place, it does not require inspection unless it is relocated or impacted.
- 5.3.2 Damaged equipment must be repaired or replaced prior to use. Repairs may require testing to assure electrical continuity and safety.
- 5.3.3 Flexible cords for equipment requiring grounding must contain a grounding connector. The plugs may not be altered or changed to allow insertion into a non-grounded receptacle.
- 5.3.4 Highly conductive environments (wet or damp locations or hazardous atmospheres) must use only equipment approved for that environment (specifically GFCI or equivalent). Employees must not plug equipment in to receptacles in such locations if their hands are wet and equipment is energized. Insulating materials may be required when electrical energy can be conducted through the hands or fingers.
- 5.3.5 Locking connectors must be secured after connection, where required.
- 5.3.6 Power and Lighting Circuits must use the switches, breakers or disconnects to open, reverse or close circuits when live energy is present. Cable connectors not specifically designed for this purpose may not be used, unless it is an emergency. After de-energizing, circuits may not be manually re-energized until it has been determined that it can be accomplished safely (overloads rather than fault conditions are exempt from this requirement). Over-current protection may *not* be modified.

5.3.7 Test equipment may be used only by a “qualified” person. Visual inspection of the test equipment must take place before each use. If defects or damage is found, it must be removed from service until repaired or replaced. Test equipment (and their accessories) must be designed and rated for the level of energy they will be testing for.

5.3.8 Where flammable or ignitable vapors, gases or dusts are present at any time electrical equipment capable of igniting these materials may not be used.

5.4 Safeguards for Personal Protection:

5.4.1 PPE (Personal Protective Equipment) appropriate to the level of electrical hazard that may be encountered must be provided and used. PPE must be maintained in a safe and reliable condition. It must be inspected or tested periodically. If the insulating capability of protective equipment could be damaged during use the insulating material must be protected (i.e. outer leather gloves over insulated inner gloves).

5.4.2 Non-conductive head protection must be provided if head injury is possible from contact with electrical circuits or conductors.

5.4.3 Eye or face protection is required when arcs or flashes may occur or if electrical explosion could create flying objects.

5.4.4 Fall protection is required for qualified persons at 4 feet for live electrical work, or for any pole or tower work. Positioning straps must pass electrical tests and flammability tests, and must be limited to 2 feet fall distance. Lanyard strength must be adjusted upward if employee weight is >310 lbs.

5.5 Insulated tools and equipment are used when contact with live energy is possible. If the insulating capability of tools and equipment could be damaged during use the insulating material must be protected.

5.5.1 Fuse removal tools must be rated for the circuit voltage

5.5.2 Ropes and hand-lines must be non-conductive

5.5.3 Protective shields will be put in place or used to prevent contact with live parts or energized materials. “Non-qualified” persons must be suitably protected during service or repair from contact with live electrical energy or energy hazards.

5.5.4 Hydraulic and pneumatic tools must be rated for electrical if potential to contact live circuitry, and protect against loss of insulating value (as hydraulics can create a vacuum in the line).

5.5.5 Live line tools must be wiped down and inspected each day before use.

5.5.6 Live line tools must be removed from service every 2 years and either replaced or tested to ensure integrity.

- 5.6 Generators may only supply equipment located on the generated or directly through receptacles mounted on the generator. Generators mounted on vehicles must be bonded to vehicle frame.
- 5.7 Warning and alerting devices, such as signs, tags symbols, barricades or attendants will be used to protect employees from contact with energy hazards. Barricades must be used in conjunction with signs when access to a work area must be restricted. Where such barricades do not provide sufficient protection, attendants will be posted.

6 Training and Information

- 6.1 All employees with exposures will receive general electrical safety awareness training
- 6.2 "Qualified" individuals will have appropriate licenses or documented training
- 6.3 Employees exposed to 50 volts or more to ground (and their first-line supervisors) require additional training that is commensurate with the risk encountered
- 6.4 Welders must be trained, regardless of the voltage they may encounter
- 6.5 Training must be classroom or on-the-job and the degree of training must be commensurate with the risk to the employee. Training includes:
 - 6.5.1 The content of the portions of the electrical safety standard that applies to the work
 - 6.5.2 Safety related work practice required for the respective job or task
- 6.6 Additional requirements for unqualified persons that are necessary for their safety, including methods to recognize energized from non-energized parts, how to determine nominal voltage of exposed live parts and the clearance distances.

7. Definitions.

- *Conductor* - A wire or other conduit that conducts electricity
- *De-energized* - Free from any electrical connection to an energy source
- *Designs Electrical Systems and Equipment* - Engineers or other technical professionals responsible for implementing design safety standards for electrical equipment.
- *Electrical Personal Protective Equipment and Devices* - Protective equipment that is specifically designed to protect individuals from shock, arc blast, arc flash, etc.
- *Electrical Safety Program* - The program that directs activity appropriate for the voltage, energy level, and circuit conditions, and include safety-related work practices.
- *Energized* - Electrically connected to an energy source.

- *Over-Current Protection* - A device that protects equipment or conductors from current in excess of the rating for the equipment or conductors.
- *Qualified Person* - A person trained and knowledgeable to recognize and avoid electrical hazards of equipment or a specific work method.
- *Safety Related Work Practices* - Methods that are consistent with the nature and extent of electrical hazards that are meant to safeguard employees from injury while working on or near exposed electric conductors or circuit parts that are (or can become) energized.
- *Un-Qualified Person* - An individual that is not permitted to work on electrical equipment because they do not have the necessary skills and/or training to perform the work safely.

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ELECTRICAL SAFETY WRITTEN PROGRAM (_____)

This procedure identifies the Electrical Safety Program that is in place covering all electrical work performed by the company. This procedure provides overall program guidance and should be used in conjunction with all procedures and practices employed by the company to help insure electrical equipment and electrical work is accomplished safely.

Philosophy: *Achieve and reinforce a zero incident philosophy through prudent equipment design and installations, and safe electrical work practices.*

All employees within The company shall follow the electrical safety procedures and other directives set forth by the company.

It is the company's responsibility to insure that only *qualified* individuals work on or near energized electrical equipment. It shall be further required that *non-qualified* individuals who work on electrical equipment be trained and understand the limits placed on them while working on this equipment. It is further required that all *non-qualified* individuals are protected from inadvertent contact with energized components.

- **Personal Responsibility** - Each person should be responsible for his or her own safety and for the safety of others. Each person is expected to correct or report unsafe conditions or acts that are observed. Each person is expected to know, understand, and use applicable safety procedures and work instructions as tools to guide all tasks. Each person shall use the approved tools and personal protective equipment as required for the job.
- **Qualified Person** – Each qualified person shall demonstrate, through training or education, the required technical skills to perform their job responsibilities safely. The qualified person shall be knowledgeable in the use of electrical safe work practices, and the proper selection and use of Personal Protective Equipment (PPE).
- **Supervisory Responsibility** – Each Supervisor must set an example by demonstrating the proper attitude and behavior toward safety. The Supervisor's conduct is reflected in the conduct of those he or she supervises. Each Supervisor should empower the people under his or her direction to be proactive in continuously improving their own safety and the safety of others. Each Supervisor shall insure that the people under his or her direction have the necessary knowledge and skills to complete assigned tasks safely.
- **Management Responsibility** – Personal Protective Equipment and other associated equipment and tools are provided to employees working on electrical equipment. Each manager shall provide the required resources to insure that employees and Supervisors receive the required training as directed by prudent electrical safety practices. Each manager shall insure that only recommended tools, instruments and Personal Protective Equipment be used when working on electrical equipment.
 - Managers should designate a technically competent qualified person to advise them in the development, implementation and maintenance of electrical safe work practices.

Program Principles. The company Electrical Safety Program shall include the following principles, but are not limited to:

- Inspection/evaluation of electrical equipment
- Maintain the electrical equipment's insulation and enclosure integrity
- Plan every job and document first time procedures
- Deenergize, if possible
- Anticipate unexpected events
- Identify and minimize the hazard
- Protect the employee from shock, burn, and blast and other hazards that are due to the working environment.
- Use the right tools for the job.
- Assess peoples abilities
- Auditing these principles

Program Controls. The company has established the following controls to insure electrical safety. These controls may include, but are not limited to:

- **Shut Down Energy Source (Deenergized).** No work shall be conducted where exposures to hazards associated with electrical energy exists until an attempt is first made to shut down the source of energy.
- **Parts Are Considered Energized Until Proven Otherwise.** Every electrical conductor or circuit part is considered energized until proven otherwise.
- **No Barehanded Contact.** No bare-hand contact is to be made with exposed energized electrical conductors or circuit parts.
- **Deenergizing Is a Dangerous/Hazardous Task.** De-energizing an electrical conductor or circuit part and making it safe to work on, can itself be a potentially hazardous task.
- **Development of Procedures.** Procedures shall be developed relevant to the equipment, hazards and operations. This will include training so employees can apply them to accomplish each task.
 - Use procedures as “tools” to identify the hazards and develop plans to eliminate/control the hazards.
- **Qualified Employees.** Employees will be qualified for the task to which they are assigned.
 - Train employees to qualify them for working in an environment influenced by the presence of electrical energy.
- **Hazard/Risk Analysis.** A hazard/risk analysis will be performed for each task involving any approach to energized conductors and/or circuit paths.
- **Overall Safety Environment.** The overall safety environment will be considered when working on electrical equipment (e.g., clearances, illumination, working on elevated areas, etc.). Identify and use precautions appropriate to the working environment.
- **Safety Discussions.** Affected groups will hold periodic safety discussions to reinforce safety procedures and heighten awareness. Annually a safety stand down may be held to further emphasis issues, training and incidents.
- **Job Plan; Hazards and Procedures.** Each non routine job or one that does not have an established procedure will require a *Job Plan or Job Hazard Analysis*. Each Job Plan will include a discussion of existing hazards and the procedures appropriate for the tasks involved in the job.

Training.

- All qualified persons in the company are expected to meet the training requirements that include information and experience relating to electrical hazards and electrical safe work practices.
- Employees will be provided with electrical safety awareness training, as appropriate and electricians will have licenses and/or appropriate training.

Policies.

- **Standards Policy.** Equipment shall be properly labeled and identified. As conditions change or revisions are made, equipment identification must be updated.
- **As-Built Documentation Policy (Change Management).** Drawings used in planning electrical work must reflect the current condition of equipment and installations, single-line diagrams, process and instrument (P&I) diagrams, schematics, and underground drawings must all be up-to-date so that proper planning can take place. In addition, up-to-date drawings help to identify potential hazards. Inaccurate drawings can compromise the safe execution of an electrical task, no matter how well planned the task might be. These drawings shall be maintained in an up-to-date condition. As-built changes shall be recorded, and file copies shall be changed appropriately.
- **Evaluation, Installation and Use of Equipment.**
 - Approval. The conductors and equipment required shall be acceptable only if approved and listed by Nationally Recognized Testing Laboratory
 - Hazards. Electrical equipment shall:
 - Be free from recognized hazards that are likely to cause serious injury to employees.
 - Be suitable for installation; conform to codes, listings or labeling for its intended purpose.
 - Be installed in accordance with any manufacturer's instructions.
 - Have identification of any disconnecting means and circuits
 - Have required working space around the equipment
 - Have required illumination of the work space
 - Provide for the guarding of live parts
 - Be in compliance with other consensus standards (ANSI, NFPA, IEC)
 - Installation of large equipment or processes shall be approved as appropriate by a recognized inspection process, and may include certification from municipal or public inspectors.
- **Abandoned Lines, Wires, or Cables.** Electrical lines, wires, and cables that are removed from service or not connected should be removed. If removal is not feasible they must be de-energized, taped and then tagged, to indicate the location of the other end. Underground wiring abandoned in place must be maintained in drawings for reference and so indicated on the drawing. Temporary wiring installed to provide power during construction must be removed when no longer required.
- **Excavation Policy.** A thorough investigation must be conducted prior to beginning any excavation work. The investigation includes examining drawings, receiving information from utility or municipal resources, and inspecting the area with devices that can detect underground obstacles. The utility and service companies **must** authorize or provide information on underground services prior to the beginning of work.

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PROGRAM OVERVIEW

ELECTRICAL (GENERAL) SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.331 - 335

OSHA - 29 CFR 1926.302, 1926.416-417

INTRODUCTION

Outlines the general electrical requirements for buildings where employee exposures do not exceed the use of cord and plug equipment. Companies must inspect facilities to ensure compliance with general electrical safety practices. All other types of exposure hazards are contracted or performed by licensed electricians or similarly qualified persons for repair and testing work.

TRAINING

Employee training is recommended.

ACTIVITIES

- Review hazards and determine level of exposures.
- Ensure electrical services are contracted with licensed electricians, if only cord and plug equipment hazards are encountered by employees. Otherwise ensure that safeguards, equipment, and training is provided to employees who encounter other electrical hazards.
- Ensure service panel boxes (circuit breakers and fuses) have covers that remain closed.
- Ensure service panel boxes have clear and unobstructed access for use in emergencies.
- Ensure outlet receptacles and overhead junction boxes have cover plates so that wires are not exposed.
- Ensure that outlets within 3 feet of water sources (sinks, drinking fountains, etc) are GFCI protected.

FORMS

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

ELECTRICAL (GENERAL) SAFETY PROGRAM

1. **Purpose.** This program outlines the processes to protect employees in their workplaces from hazards associated with electrical energy, for companies that use licensed electricians and contractors for their electrical service needs.

2. **Scope.** This program applies to all employees who use only cord-and-plug type equipment and have no other likely electrical exposures in the workplace.

3. Responsibilities

3.1 Management

3.1.1 Ensure any modifications to existing equipment meet Electrical Safety Standards.

3.1.2 Ensure installations of new equipment are assessed or inspected to assure they meet the electrical safety standard requirements.

3.1.3 Assure employees have exposures only to cord and plug equipment. Any person who has further exposure to live electrical energy must be “qualified” under the requirements of the regulatory standard and appropriately trained, based on the risks presented.

3.1.4 Ensure all contractors who work with electrical parts, components or hazards have a written Electrical Safety Program in place, prior to their beginning work.

3.2 Contractors

3.2.1 Provide the company with a copy of their written Electrical Safety Program and/or employee training records, upon request.

4. Procedure.

4.1 Ensure cord and plug equipment is in good working condition.
Inspect for:

4.1.1 Housing integrity (no cracks or breaks)

4.1.2 Wiring integrity (no broken insulation or exposed wires)

4.1.3 Grounding pins (the third prong on the plug) are in place.

4.2 Ensure electrical service panel boxes are clear and unobstructed. Panel box doors must remain in a closed position and any open knockouts must be covered or closed.

4.3 Ensure all outlets in the facility have cover/face plates so that wires are not exposed.

- 4.4 Ensure any electrical outlets within 3 feet of a tap, faucet, sink or similar water source are GFCI protected.
- 4.5 Extension cords must be used only as temporary power supplies, and are not a replacement for permanent wiring. Extension cords must be used on a GFCI circuit only.

5. Safety Information.

5.1 General

- 5.1.1 Qualified Employees - Only "Qualified" individuals are allowed to work on or near energized equipment. A process must be in place to ensure that employees performing electrical tasks are qualified and trained as appropriate.
- 5.1.2 Safe Work Practices - Each person is expected to work within the limits of their expertise and training and follow established practices, which are developed according to the hazards and tasks performed. Examples are:
 - 5.1.2.1 DO NOT leave exposed electrical hazards unattended
 - 5.1.2.2 Replace covers or protect energized components from inadvertent contact
 - 5.1.2.3 Utilize proper insulation and/or protective equipment and proper tools corresponding to the level of exposure.

5.2 Safety Related Work Practices

- 5.2.1 Selection and Use of Work Practices. Work practices are designed to prevent shock and other injuries from either direct or indirect contact with live electrical parts and energy.
 - 5.2.1.1 Employees are expected to have exposure only to cord and plug equipment, and not live energized parts of equipment. Any other exposure to live energy requires training and qualifications to ensure adequate protection. Employees are instructed to contact their supervisor or manager if there are any electrical issues or concerns in the workplace.
 - 5.2.1.2 Any conductive material must be handled in a manner that prevents contact with energized parts and materials. Procedures and work practices may need to be implemented when long-dimension objects (e.g. tree trimming poles) are used or handled in such areas.
 - 5.2.1.3 Portable ladders must be non-conductive if used near energized materials.

5.2.2 Use of Equipment

5.2.2.1 Portable equipment (cord and plug type) must be handled so that it is not damaged. Flexible cords may not be used to raise, lower, pull, move or hang equipment where the insulating jacket could be damaged.

5.2.4.1.1 Visual inspection must occur before use. Inspection includes looking for loose parts, deformed pins, and damage to the jacket or insulation. If equipment remains in place, it does not require inspection unless it is relocated.

5.2.4.1.2 Damaged equipment must be repaired or replaced prior to use. Repairs may require testing to assure electrical continuity and safety.

5.2.4.1.3 Plugs must be the appropriate type for the receptacle. Devices to circumvent this are prohibited (i.e. a three-prong adapter that allows the equipment to be plugged into a two-prong receptacle).

5.2.4.1.4 Highly conductive environments (wet or damp locations or hazardous atmospheres) must use only equipment approved for that environment. Employees must not plug equipment in to receptacles in such locations if their hands are wet and equipment is energized. Insulating materials may be required when electrical energy can be conducted through the hands or fingers.

5.2.4.2 Power and Lighting Circuits must use the switches, breakers or disconnects to open, reverse or close circuits when live energy is present. Over-current protection may *not* be modified.

5.2.4.3 Where flammable or ignitable vapors, gases or dusts are present at any time electrical equipment capable of igniting these materials may not be used.

5.2.5 Safeguards for Personal Protection

5.2.5.1 Insulated tools and equipment are used when contact with live energy is possible. If the insulating capability of tools and equipment could be damaged during use the insulating material must be protected.

6. Training and Information

None required.

7. Definitions

- *Conductor* - A wire or other conduit that conducts electricity
- *De-energized* - Free from any electrical connection to an energy source
- *Electrical Personal Protective Equipment and Devices* - Protective equipment that is specifically designed to protect individuals from shock, arc blast, arc flash, etc.
- *Electrical Safety Program* - The program that directs activity appropriate for the voltage, energy level, and circuit conditions, and include safety-related work practices.
- *Energized* - Electrically connected to an energy source.
- *Over-Current Protection* - A device that protects equipment or conductors from current in excess of the rating for the equipment or conductors.
- *Qualified Person* - A person trained and knowledgeable to recognize and avoid electrical hazards of equipment or a specific work method.
- *Safety Related Work Practices* - Methods that are consistent with the nature and extent of electrical hazards that are meant to safeguard employees from injury while working on or near exposed electric conductors or circuit parts that are (or can become) energized.
- *Un-Qualified Person* - An individual that is not permitted to work on electrical equipment because they do not have the necessary skills and/or training to perform the work safely.

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**Emergency Action,
Evacuation, and Fire
Prevention**

PROGRAM OVERVIEW

EMERGENCY ACTION, EVACUATION AND FIRE PREVENTION SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29CFR1910.36, .38, .157, .165
NFPA-10

INTRODUCTION

This program is intended to assist in establishing requirements to ensure that fire and other potential emergency situations are evaluated and safety procedures implemented.

TRAINING

- All employees and supervisors will be trained in emergency actions and their responsibilities including how emergencies are communicated. Training is required initially, and as changes to the workplace, program or employee responsibilities occur
- Conduct drills, if required
- Emergency Response Team members must be trained based on the types of emergencies they will be expected to encounter. Fire fighting techniques, first aid treatment or both may be required, depending upon the duties and responsibilities of the team
- Employees designated to use fire extinguisher users must be trained annually in the general principles of fire extinguisher use and the hazards involved in incipient (beginning) stage fire fighting

ACTIVITIES

- Identify and evaluate fire hazards
- Identify and evaluate exit routes
- Identify fire wardens and response teams and define responsibilities, if applicable
- Provide emergency equipment as needed
- Write and communicate policies and procedures including Emergency Action and Fire Prevention Programs

FORMS

- Emergency Action Plan
- Fire Drill or Evacuation Assessment
- Training Attendance Roster – Emergency Action
- Training Attendance Roster – Fire Extinguisher

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

EMERGENCY ACTION, EVACUATION AND FIRE PREVENTION SAFETY PROGRAM

1. **Purpose.** This program outlines the requirements for the Emergency Action and Evacuation Program in the workplace. It is a federal requirement that all companies have Emergency Action Plans (plans must be in writing for companies with more than 10 employees).
2. **Scope.** This program applies to all workplaces, facilities, and sites at the company.
3. **Responsibilities**
 - 3.1 Management
 - 3.1.1 Determine flight or fight response for the company (i.e. will all employees evacuate during fire or spill emergencies, or will some employees be required as part of their job duties to fight a fire, contain a spill or provide medical treatment).
 - 3.1.2 Write Emergency Action Plan (EAP), including specific procedures or responsibilities for employees and wardens.
 - 3.1.3 Communicate programs to employees and staff.
 - 3.1.4 Ensure evacuation alarm systems and notifications are in place, and are distinctive and consistent throughout the site. It is recommended that evacuation programs be periodically tested through physical drills (partial evacuation drills and/or full evacuation drills) or via table-top drills or discussions.
 - 3.1.5 Ensure all employees are appropriately trained to the responsibilities they are expected to take during an emergency situation, including how to report a fire or other emergency and what to do during an evacuation.
 - 3.1.6 If evacuation wardens are designated and trained, it is recommended that there be a ratio of at least one warden for every 20 employees.
 - 3.1.7 Ensure that fire extinguishers (if located on-site) are inspected, maintained, tested and of the proper size and type for the area hazards. If employees are expected to use them, annual training is required.
 - 3.1.8 If utilized, provide on-site emergency response teams with appropriate equipment and training to perform their expected duties. Maintain training documentation for response team members, and documentation for equipment inspection and maintenance.
 - 3.1.9 Inspect Fire Doors annually, and keep all fire doors closed. If they must be held open due to production or operation-specific requirements, they must be fitted with automated releases in accordance with state building codes. Maintain documentation for the life of the fire door.

3.2 Employees

3.2.1 Attend initial training, and refresher training as required.

3.2.2 Evacuate, or perform expected tasks prior to evacuation, during an emergency.

3.3 Wardens (evacuation assistance as appropriate or designated)

3.3.1 Attend appropriate training.

3.3.2 Follow established procedures to assist in the safe and orderly evacuation of employees.

3.3.3 Report either the all-clear or problems to the incident commander or other designated person at the command post.

3.4 On-site Response Teams (as appropriate or designated)

3.4.1 Provide emergency response to fires, spills or medical emergencies, as designated.

3.4.2 Attend appropriate training to maintain appropriate certifications.

3.4.3 Ensure emergency response equipment is functioning and adequate to the response(s) required.

4. Procedure.

4.1 Emergency Action Plan

4.1.1 May be combined with Fire Prevention Plan, if required, into one document that serves both purposes.

4.1.2 Must be in writing, kept at the workplace and available for employees to review. Companies with 10 or fewer employees may communicate the program orally, rather than in writing.

4.1.3 Programs must include:

4.1.3.1 Procedures for reporting a fire or other emergency.

4.1.3.2 Procedures for emergency evacuation, including types of evacuations and assigned evacuation routes. (Posted, color coded evacuation route maps are highly recommended for each area of the building or structure.)

- 4.1.3.3 Procedures to be followed by employees who remain to operate or shut down critical operations before they evacuate (power systems, water supplies, ammonia tanks, chemical processes that must be shut down in sequence, etc.).
- 4.1.3.4 Procedures, assigned areas and responsibilities of evacuation wardens, if utilized.
- 4.1.3.5 Procedures to account for all employees after evacuation.
- 4.1.3.6 Procedures to be followed by employees who perform rescue or medical duties (on-site response teams).
- 4.1.3.7 The name or job title of the person(s) who may be contacted by employees who need more information about the program, or an explanation of their duties and responsibilities under the program.
- 4.1.4 An alarm system must be maintained, if present. The system must have a distinctive signal for each type of alarm (i.e. evacuation alarms must sound the same throughout the site).
- 4.1.5 Wardens (or evacuation assistance) must be designated and properly trained to assist in a safe and orderly evacuation of other employees.
- 4.1.6 Programs should address the types of emergencies that are reasonably likely to occur (fire, chemical spills, severe weather, etc.).

4.2 Evacuation and Notification

- 4.2.1 Alarms and Signals to notify employees of an emergency evacuation are distinctive in sound and consistent throughout the site.
 - 4.2.1.1 Alarms may be automatic or verbally provided in person or through a public address system, but they must be able to be understood by all employees.
 - 4.2.1.2 The same sound or wording must be used throughout the site.
 - 4.2.1.3 Employees must be trained or informed of the sounds or wording used.
- 4.2.2 Evacuation Routes will be established for each area of the building or site.
 - 4.2.2.1 Employees will be trained and informed of their work-area route.
 - 4.2.2.2 It is highly recommended that maps be posted at each area of the building to assist employees and others in determining their evacuation routes. Maps should be color coded, with the evacuation route in red.

- 4.2.2.3 Off-site job locations will have evacuation routes determined and communicated to employees who work at these off-site locations.
- 4.2.3 Relocation Points will be established for employees to congregate during an evacuation. Designated relocation points assist in assuring that all employees are accounted for.
 - 4.2.3.1 Employees will be trained in their respective relocation point during initial (or refresher) training.
 - 4.2.3.2 Supervisors or other specifically designated people at each relocation point will be responsible for assuring that all employees have been accounted for.
 - 4.2.3.2.1 An accounting for the relocation point will be made to the incident commander or other designated person at the command post.
 - 4.2.3.3 Off-site job locations will have relocation points determined and communicated to employees who work at these off-site locations before the job commences or the employee reports to the site.
 - 4.2.3.4 Where appropriate, severe weather relocation points (shelters or arrangements with neighboring facilities) will be communicated to employees during the training.
- 4.2.4 Return to Work Signals will be provided once it is safe for employees to re-enter the workplace. Each supervisor or other designated person at each relocation point will be aware of the signal used, and be watchful for it.
- 4.2.5 Evacuation Wardens
 - 4.2.5.1 “Sweep” the assigned area to assure that all employees are appropriately evacuated.
 - 4.2.5.2 Carry out any other assigned duties, prior to evacuating.
 - 4.2.5.3 Report either “all clear” or any problems to the incident commander or other person designated under the company’s EAFP prior to reporting to their assigned relocation point.

5. Safety Information.

5.1 Means of Egress (exits and exit paths)

- 5.1.1 All employees must be able to safely exit the building in a direct path and within a reasonable time frame.

- 5.1.2 There are specific requirements for exits, paths to exits, exit signs, aisle widths and for stairways. These “life safety” codes must be considered during renovation, construction or when re-arranging a work area..
- 5.1.3 All exits, aisles and exit paths, and stairways must be kept clear and unobstructed. No storage is allowed that will restrict the access or use of the exit path below the required widths. No storage is allowed that will block or obstruct stairs or exit doors.
- 5.1.4 All exits and the paths to them must be clearly visible or have visible signs that indicate the location of the exit.
- 5.1.5 Locks or fastening devices to keep exit doors closed and locked from the inside (preventing the use of the door as an exit) are prohibited in almost every workplace structure (mental and correctional institutions are two exceptions). Doors that could be mistaken for an exit, but are not exits must be marked “Not an Exit” or “Closet” or with similar markings so that they will not be mistaken for an exit in an emergency.
- 5.1.6 Emergency lighting, signs and exits must meet requirements for the number of exits, the location and size of signs and the amount of illumination required.

5.2 Fire Alarms and Detection

- 5.2.1 Fire alarms are required in buildings where the location of the fire will not provide adequate warning to employees and other occupants (i.e. multi-floor buildings or segregated work spaces).
- 5.2.2 Alarms must be loud enough to be heard above the ambient noise level of the work area and activate in time to provide adequate warning for the work area occupants to safely evacuate.
- 5.2.3 Alarms and signals must be tested or maintained to assure they remain in working order.
- 5.2.4 Buildings undergoing construction and renovation (where employees are still working and occupying the work areas) must have appropriate (or alternate) alarms and fire prevention systems that are at least equal to those required for the occupancy and type of hazards in the area. This includes hazards inherent to the work area and tasks performed, as well as any additional hazards caused by the construction or renovation.

5.3 Fixed Fire Suppression Equipment

- 5.3.1 All fixed suppression equipment must be maintained and tested by trained persons. The local fire department may provide or be able to be contracted to perform this maintenance and testing. Specific employees may be designated and trained for this service, depending upon the maintenance and testing requirements for the system.

5.3.2 There are various types of fixed suppression equipment. Each type must be specifically designed for the types of fires likely to be encountered. These types are:

5.3.2.1 Automatic sprinklers that discharge water into an area when heat or smoke causes the valve (sprinkler head) to open. Sprinkler heads must be kept free from any obstruction (at least 18" clearance vertically and horizontally).

5.3.2.2 Standpipe systems include fixed water supplies (risers) with a hose and nozzle. These systems are usually recessed in walls or found in stairwells. Standpipe systems are for use by trained fire-fighting personnel only.

5.3.2.3 Dry chemical systems are discharged in rooms or over a specific process (like an electrical system). Pre-discharge alarms are required where vision could be obscured that would affect employee evacuation.

5.3.2.4 Gaseous agents are normally used in enclosed rooms and spaces. Depending on the agent used to suppress the fire, pre-discharge alarms are required. Where employee evacuation can not occur within a specific time frame, specific agents are prohibited from being used as suppression agents.

5.3.2.5 Water spray and foam systems are usually utilized for a specific process hazard (like a kitchen grease pit or solvent tank). They discharge a chemical-foam that will "blanket" the fire or area with foam to "smother" the fire.

5.4 Portable Fire Extinguishers

5.4.1 The Two Extinguisher Rule: Fire extinguishers are for controlling small, incipient fires. NEVER should more than two (2) extinguishers be used to control a fire. If the fire is not controlled with two extinguishers, it is no longer considered an incipient fire and should ONLY be extinguished by trained Firefighters or by fixed fire suppression systems.

5.4.2 Classes. There are five classes or types of Fire Extinguishers. Each class has distance requirements that are required for employees to access them. These types and distances are:

5.4.2.1 Class A – used on ordinary combustibles (wood, paper, cloth, etc.). Extinguishers must be 75 ft. or less from the hazard.

5.4.2.2 Class B – used for flammable or combustible liquids (gasoline, paint, solvents, propane). Distance must be 50 ft. or less from the hazard.

- 5.4.2.3 Class C – used for electrical equipment and must be 50 ft. or less from the hazard.
 - 5.4.2.4 Class D – used for metals (magnesium, potassium and sodium). Extinguishers must be 75 ft. or less from the hazard.
 - 5.4.2.5 Class K – used for fires that involve cooking oils, trans-fats, or fats in cooking appliances and are typically found in restaurant and cafeteria kitchens.
- 5.4.3 General. Extinguishers must be located so they are clearly visible, readily accessible to the employees or persons designated and trained to use them, and located so they are protected from damage by moving equipment.
- 5.4.3.1 Extinguishers must be maintained in a fully charged and operable condition, and kept in their designated locations.
 - 5.4.3.2 Extinguishers must be appropriate to the type (or class) of fire hazard likely to be found in the work area.
 - 5.4.3.3 Standard signs and floor markings may be utilized to increase visibility.
 - 5.4.3.4 Extinguishers should be located along normal paths of travel but protected from the direct line of traffic to avoid injury to personnel or mechanical damage.
 - 5.4.3.5 Extinguishers are not required in workplaces where all employees will be required to evacuate the facility (total evacuation) upon the initial alarm sounding, unless extinguishers are required by a specific regulatory standard (i.e. welding, confined space, and some flammable liquid usages).
- 5.4.4 Inspection and Testing. Extinguishers must be visually inspected monthly. Extinguishers must be maintained annually. Extinguishers must be physically (hydrostatically) tested every 5 years or 12 years depending on the type of extinguisher. When removed from service for maintenance or testing, or due to corrosion or damage, they must be replaced with an equivalent protective system.
- 5.4.4.1 Documentation of the inspection, maintenance and testing may be kept with the extinguisher or in a separate system, provided the records are accessible to employees or agencies that may be required to review these records. Documentation must be kept for the life of the extinguisher.
- 5.4.5 Employee Training

- 5.4.5.1 Where extinguishers are located, but employees will not be required to use them, employees should be informed that they are for trained fire fighter use only.
- 5.4.5.2 Where employees will be required to use extinguishers, employees must be trained annually in the general principles of fire extinguisher use and the hazards involved in incipient (beginning) stage fire fighting.

5.5 Fire Brigades and On-Site Response Medical Teams (as appropriate)

- 5.5.1 Fire Brigades and Medical Response teams must be trained to the level or type of emergency they will likely encounter. In most cases, verified training is required, and documentation must be maintained with periodic or annual refresher training.
- 5.5.2 Team members must be physically capable of performing their duties (including the use of respiratory protection, where required). Employees with known physical conditions (heart disease, emphysema or epilepsy) or known mental or physical disabilities that would impair their ability to perform the expected duties may be required to be approved by a licensed physician prior to being allowed to participate on the team.
- 5.5.3 Teams must be provided with adequate equipment and protective clothing to perform their duties.
- 5.5.4 Equipment and clothing must be maintained in good working order. Equipment removed from service must be promptly repaired or replaced, or else team members must be informed that the equipment is no longer available.
- 5.5.5 Teams must be organized, with either elected or appointed leaders, and have specific written procedures that outline their responsibilities (and limitations) with regard to emergency response at the workplace.

5.6 Hot Work, Open Flame Work or Spark Producing Equipment

- 5.6.1 Permission and Permits. Any hot work or work with open flames should be performed only with the permission of company management. (Approvals may be required by the landlord or building owner, if different than company ownership.) Such work should be done only under specific restrictions and limitations to prevent fires or other hazards. This information and any restrictions or limitations should be documented. A signed permit system is recommended that outlines the details of the work and the restrictions or limitations.
- 5.6.2 Permanent Hot Work/Open Flame Permission - Permanent permission should be obtained for areas where hot work/open flame is regularly used, such as metal and welding shops or special laboratories and work areas.

- 5.6.2.1 Areas should be physically inspected by individuals who are knowledgeable about the hazards of the area and appropriate fire protection systems for these hazards. Annual re-inspection for the duration of the permit/permission is recommended, at a minimum.
- 5.6.3 Temporary Hot Work/Open Flame Permission - Allows only specified personnel to perform a single operation. Areas where one-time use of flames is required (such as maintenance and construction operations, in areas such as buildings, sheds, yard areas, and streets and parking lots) should have areas physically inspected for fire hazards by a knowledgeable person.
- 5.6.4 Special Situations and Equipment
 - 5.6.4.1 Thermogrip Solder Tongs, Electric Soldering Irons, Flameless Heat Guns are prohibited in areas where flammable vapors or gases, or combustible dusts are present.
 - 5.6.4.2 Electric or Other Spark/Heat-Producing Tools in High-Fire Hazard Areas require special permission.
 - 5.6.4.3 Pressure Vessels - All burning or welding operation, emergency or otherwise, are prohibited on any pressure vessel unless specific approval has been obtained from a qualified engineering specialist or the lead welder.
 - 5.6.4.4 Contractors - shall obtain Hot Work/Open Flame Permits through the manager or supervisor in charge of the job or process.

6. Training and Information.

- 6.1 Emergency Action Plans and Evacuation Programs must be reviewed with each employee:
 - 6.1.1 When the program is developed or when it is changed
 - 6.1.2 Upon initial assignment to a work area
 - 6.1.3 When the workplace changes (construction or remodeling) that require a different evacuation route
 - 6.1.4 When an employee's responsibilities under the program change.
- 6.2 Fixed Suppression Systems. Employees where fixed suppression equipment agents activate (non-water systems) must be specifically trained in the alarm signal, and any protective equipment and controls needed to ensure their safety. They must have (and be trained to) specific evacuation programs from the area of discharge.

- 6.3 Emergency Response Team members must be trained based on the types of emergencies they will be expected to encounter. Fire fighting techniques, first aid treatment or both may be required, depending upon the duties and responsibilities of the team.
- 6.4 Fire extinguisher users must be trained annually in the general principles of fire extinguisher use and the hazards involved in incipient (beginning) stage fire fighting.

7. Definitions.

- *Brigades* – A workplace team of employees who are specifically designated to respond and fight incipient fires.
- *Fixed Suppression Equipment* – Fire extinguishing systems that are affixed in place. For example: sprinkler systems.
- *Command Post* – A designated location that is set up for communications and direction of emergency responders.
- *Incident Commander* – The person designated to direct the activities of an emergency response. This person normally remains at the command post.

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EMERGENCY ACTION PLAN

COMPANY NAME:		DATE:	
SITE ADDRESS:		PLAN COMPLETED BY:	

Emergency Escape Procedures and Escape Route Assignments: (optional - attach evacuation route map)

Procedures to be followed by employees who remain to operate critical operations before they evacuate:

Procedures to account for employees after evacuation is complete (e.g. crew leader counts crew – reports status to emergency services):

Employee rescue or medical duties:

Methods to report fires and other emergencies:

Person(s) to contact for questions regarding site Emergency Action Plan or employee duties under Plan (name and phone number):

Emergency Type	Notification Method <small>(Automatic, Pull Box, Phone)</small>	Site Contact	Emergency Services Number	Designated Meeting/Evacuation location(s)
FIRE				For Fire:
TORNADO				
EARTHQUAKE				For Tornado:
CHEMICAL SPILL/RELEASE				For Earthquake:
MEDICAL EMERGENCY				

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FIRE DRILL OR EVACUATION ASSESSMENT

Evacuation Start time:		Evacuation End time:		Total time for evacuation process:		
Evacuation Routes Marked:		<input type="checkbox"/> Yes <input type="checkbox"/> No		Exit Signs Visible or Evacuation Routes Posted:		
				<input type="checkbox"/> Yes <input type="checkbox"/> No		
Was the building completely evacuated?					<input type="checkbox"/> Yes	<input type="checkbox"/> No
Was the evacuation signal heard in every area of the building?					<input type="checkbox"/> Yes	<input type="checkbox"/> No
Did all employees meet at their designated relocation point?					<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have procedures for the handicapped been addressed?					<input type="checkbox"/> Yes	<input type="checkbox"/> No
Did all equipment (stairwell doors, alarms, etc.) function properly?					<input type="checkbox"/> Yes	<input type="checkbox"/> No
Problem or Issue Noted And Corrective Action To Be Taken:						
Name of Person Responsible for Corrective Action:					Completed Date:	
Additional Comments/Requirements:						
Evaluator's Name:				Signature:		

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TRAINING ATTENDANCE ROSTER FIRE EXTINGUISHER

Fire Extinguisher Training Includes:

- Types of extinguishers
- Inspection methods
- PASS system
- When you should not fight a fire

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	

By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

FALL PROTECTION SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.21 Subpart D, 132
- 29 CFR 1926.501 Subpart M

INTRODUCTION

Fall protection systems are required when working from heights greater than 6 feet in construction and greater than 4 feet in general industry, above hazardous equipment and working in an aerial lift bucket. This program establishes procedures for fall hazard control, inspections, equipment maintenance, workplace evaluations and employee training.

TRAINING

- Employees trained initially in the type of fall protection system used. Training includes classroom instruction in the hazards of fall protection and the type of protective systems used.
- Annual re-training is required in some states.

ACTIVITIES

- Determine if fall hazards are present in the workplace. Ensure these hazards are controlled through fall protection systems and that employees have appropriate alternative fall protection equipment and training.

FORMS

- Fall Hazard Evaluation
- Fall Protection Equipment Inspection Checklist
- Training Certificate
- Training Attendance Roster for Construction
- Training Attendance Roster for General Industry

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

FALL PROTECTION SAFETY PROGRAM

1. **Purpose.** The hazards of potential falls at heights of 4 feet and above (or 6 feet and above at construction sites) will be addressed in this document. This safety program describes a systematic approach that must be used to protect and prevent people from falling. This safety program also lists some of the most common fall hazards, and provides recommendations and guidelines for selecting fall arrest systems. The company will review and evaluate this safety program:

- 1.1 When changes occur to 29 CFR, that prompt revision of this document
- 1.2 When facility operational changes occur that require a revision of this document
- 1.3 When there is an accident or close-call that relates to this area of safety
- 1.4 Review the safety program any time fall protection procedures fail

2. **Scope.** This program encompasses the total workplace regardless of the number of workers employed or the number of work shifts. It also applies to fall hazards on off-site jobs or activities to which company employees are exposed.

3. Responsibilities

3.1 Management/Supervisors

- 3.1.1 Assess the workplace, or each job site, for fall hazards.
- 3.1.2 Provide fall protection equipment, as needed or required.
- 3.1.3 Enforce the use of appropriate fall protection systems and equipment.
- 3.1.4 Ensure employees are properly trained in the use of fall protection systems and equipment.
- 3.1.5 Ensure equipment is inspected prior to each use, when subjected to falls or impact loads, and on a frequent and regular basis.
- 3.1.6 As required, write fall protection procedures and ensure they are followed.
- 3.1.7 Ensure fall protection systems are installed and set up by a professional engineer or other qualified person.
- 3.1.8 For Contractors - Inform the contractor of the company's Fall Protection Safety Program. The contractor must agree to follow the company's policy with regard to any of any hazards confronted or created in conducting operations involving fall protection within company owned facilities.

3.2 Employees

3.2.1 Attend appropriate training.

3.2.2 Utilize fall protection systems and equipment, as needed or required.

3.2.3 Inspect equipment before each use. Equipment that has been subjected to a fall or impact-load must be removed from service until inspected by the manufacturer or designated professional engineer.

3.2.4 Report hazards and hazardous conditions to your Supervisor immediately.

4. Procedure

4.1 Facility/Department Evaluation. The workplace will be assessed before each assigned job for potential fall hazards. (The Fall Hazard Evaluation Form may be used to document fall hazards.)

4.2 Proper fall arrest systems will be used for jobs requiring fall protection when elimination of the hazard(s) is not possible.

4.3 If anchor points are required, involve qualified Engineers when load rating of anchorage points must be determined or is in doubt.

4.4 Fall Protection Options.

4.4.1 Personal Fall Arrest Systems (PFAS). A PFAS consists of a full-body harness, lanyard, anchor point and may include a lifeline, and energy shock absorber.

4.4.1.1 Before using a PFAS, the supervisor and/or the user must address such issues as:

- The user must be trained to recognize fall hazards and to use fall arrest systems.
- Components of the PFAS must be compatible with the manufacturer's instructions.
- Appropriate anchorage points and attachment techniques must be reviewed.
- Free fall distance must be considered so that a worker will not strike a lower surface or object before the fall is arrested.
- The full-body harness and all of its components must be inspected before each use.

- 4.4.1.2 Standard Harnesses. Harnesses for general purpose work should be Class III, constructed with a sliding back D-ring. Standard harnesses are suitable for continuous fall protection while climbing, riding, or working on elevated personnel platforms. They are suitable for positioning, fall arrest, and the rescue and evacuation of people who are working at elevated heights.
- 4.4.1.3 Retractable Lifeline Lanyard. A retractable lifeline lanyard is a fall arrest device used in conjunction with other components of a fall arrest system. A properly inspected and maintained retractable lifeline lanyard, when correctly installed and used as part of the fall arrest system, automatically stops a person's descent in a short distance after the onset of an accidental fall. Retractable lifeline lanyards should be used by one person at a time.
- 4.4.1.4 Anchor Points
- Anchor points will not deteriorate when located in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
 - Capable of withstanding the ultimate load of 5,000 lbs. per employee attached.
- 4.4.2 Guardrail Systems - A barrier erected along an unprotected or exposed side, edge, or other area of a walking-working surface to prevent workers from falling to a lower level.
- 4.4.3 Safety Net System – A horizontal or semihorizontal, cantilever-style barrier that uses a netting system to stop falling workers before they make contact with a lower level or obstruction.
- 4.4.4 Positioning System – A system of equipment and connectors that, when used with a body harness or body belt, allows a worker to be supported on an elevated vertical surface, such as a wall or window sill, and work with both hands free.
- 4.4.5 Travel Restraint System – A combination of an anchorage, anchorage connector, lanyard (or other means of connection), and body support to eliminate the possibility of a worker going over the unprotected edge or side of a walking-working surface.
- 4.4.6 Residential Construction, Commercial Leading Edge work and Commercial Precast Concrete Erection can use alternative fall protection measures such as controlled access zones or a safety monitoring systems when the employer can demonstrate that it is infeasible or creates a greater hazard to use conventional methods.
- 4.4.6.1 Fall Protection Plan. The employer must develop and implement a fall protection plan which meets the following provisions.

- The fall protection plan must be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date.
- Any changes to the fall protection plan must be approved by a qualified person.
- A copy of the fall protection plan with all approved changes must be maintained at the job site.
- The implementation of the fall protection plan must be under the supervision of a competent person.
- The fall protection plan must document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety nets systems) are infeasible or why their use would create a greater hazard and identify each location where conventional fall protection methods cannot be used. These locations must then be classified as controlled access zones.

4.4.6.2 Controlled Assess Zones. When used to control access to areas where leading edge and other operations are taking place the controlled access zone must be defined by a control line or by any other means that restricts access.

- When control lines are used, they must be erected not less than 6 feet (1.8 m) nor more than 25 feet (7.7 m) from the unprotected or leading edge, except when erecting precast concrete members.
- When erecting precast concrete members, the control line must be erected not less than 6 feet (1.8 m) nor more than 60 feet (18 m) or half the length of the member being erected, whichever is less, from the leading edge.
- The control line must extend along the entire length of the unprotected or leading edge and must be approximately parallel to the unprotected or leading edge.
- The control line must be connected on each side to a guardrail system or wall.
- Control lines must consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
 - Each line must be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.

- Each line must be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) [50 inches (1.3 m) when overhand bricklaying operations are being performed] from the walking/working surface.
- Each line must have a minimum breaking strength of 200 pounds.
- On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones must be enlarged, as necessary, to enclose all points of access, material handling areas, and storage areas.
- On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work must be removed.

4.4.6.3 Safety Monitoring Systems. The employer must designate a competent person to monitor the safety of other employees and the employer must ensure that the safety monitor complies with the following requirements:

- The safety monitor must be competent to recognize fall hazards;
- The safety monitor must warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;
- The safety monitor must be on the same walking/working surface and within visual sighting distance of the employee being monitored;
- The safety monitor must be close enough to communicate orally with the employee; and
- The safety monitor must not have other responsibilities which could take the monitor's attention from the monitoring function.
- Mechanical equipment must not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations low-slope roofs.

- No employee, other than an employee engaged in roofing work [on low-sloped roofs] or an employee covered by a fall protection plan, must be allowed in an area where an employee is being protected by a safety monitoring system.
- Each employee working in a controlled access zone must be directed to comply promptly with fall hazard warnings from safety monitors.

5. Safety Information

5.1 Inspection and Maintenance. To ensure that fall protection systems are ready and able to perform their required tasks, a program of inspection and maintenance will be implemented and maintained. The following as a minimum, will comprise the basic requirements of the inspection and maintenance program:

- 5.1.1 Equipment manufacturer's instructions will be incorporated into the inspection and preventive maintenance procedures.
- 5.1.2 All fall protection equipment will be inspected prior to each use or in accordance with the manufacturers guidelines.
- 5.1.3 Any fall protection equipment subjected to a fall or impact-load will be removed from service immediately and inspected by a qualified person (sent back to the manufacturer).
- 5.1.4 Check all equipment for mold, damage, wear, mildew, or distortion.
- 5.1.5 Hardware should be free of cracks, sharp edges, or burns.
- 5.1.6 Ensure that no straps are cut, broken, torn or scraped.
- 5.1.7 Special situations such as radiation, electrical conductivity, and chemical effects will be considered.
- 5.1.8 Equipment that is damaged or in need of maintenance will be tagged as unusable, and will not be stored in the same area as serviceable equipment.
- 5.1.9 Anchors and mountings will be inspected before each use for signs of damage.

6. Training and Information

6.1 Training is required for all employees who will use a PFAS. Training will include:

- 6.1.1 When fall protection is required
- 6.1.2 What equipment is necessary
- 6.1.3 A description of fall hazards in the work area

- 6.1.4 Procedures for using personal fall arrest systems
 - 6.1.5 Equipment limitations
 - 6.1.6 The elements encompassed in total fall distance
 - 6.1.7 Prevention, control and fall arrest systems
 - 6.1.8 Inspection and storage procedures for the equipment
 - 6.1.9 Maintenance and Care
 - 6.1.10 Employee must demonstrate an understanding of the training.
- 6.2 Refresher training. Refresher training must encompass all the requirements for initial training, and be provided whenever there is reason to believe the employee's knowledge is insufficient or the employee would benefit from additional training.
- 6.2.1 Retraining will be provided for employees whenever (and prior to) a change in their job assignments, a change in the work place, type of fall protection equipment used, or when a known hazard is added to the work environment which affects the Fall Protection Safety Program.
 - 6.2.2 When the employer has reason to believe the employee cannot demonstrate an understanding of the training.

7. Definitions

- *Anchorage* - A secure point of attachment for lifelines, lanyards or deceleration devices.
- *Body belt* – A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.
- *Body harness* - Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.
- *Connector* – A device which is used to couple (connect) parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system, such as a carabineer, or it may be an integral component of part of the system.
- *Deceleration device* - Any mechanism with a maximum length of 3.5 feet, such as a rope grab, rip stitch lanyard, tearing or deforming lanyards, self-retracting lifelines, etc. which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.
- *Energy shock absorber* - A device that limits shock-load forces on the body.
- *Free fall* - The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

- *Free fall distance* - The vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall (maximum of 6 feet). This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.
- *Lanyard* - A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline or anchorage.
- *Lifeline* - A component consisting of a flexible line for connection to an anchorage at one end to hang vertically or for connection to anchorages at both ends to stretch horizontally and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- *Personal fall arrest system* - A system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.
- *Retractable lifeline lanyard*- A fall arrest device that allows free travel without slack rope, but locks instantly when a fall begins.
- *Self-retracting lifeline/lanyard* - A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.
- *Snap-hook* - A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. Snap-hooks are generally one of two types:
 - The locking type with a self-closing, self-locking keeper which remains closed and locked until unlocked and pressed open for connection or disconnection.
 - The non-locking type with a self-closing keeper which remains closed until pressed open for connection or disconnection. As of January 1, 1998, the use of a non-locking snap-hook as part of personal fall arrest systems and positioning device systems is prohibited.

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FALL HAZARD EVALUATION

Designation:		Location:	
Date Assessed:	Related Operating Procedures Reviewed: <input type="checkbox"/> Yes <input type="checkbox"/> No	Location Marked and Entry Controlled: <input type="checkbox"/> Yes <input type="checkbox"/> No	
FALL HAZARD ASSESSMENT CHECKLIST			
Can an employee enter the area without restriction and perform work?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are fall prevention systems such as cages, guardrails, toeboards, man lifts in place?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have slipping and tripping hazards been removed or controlled?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have visual warnings of fall hazards been installed?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Can the distance a worker could fall be reduced by installing platforms, nets etc.?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are any permanently installed floor coverings, gratings, hatches, or doors missing?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does the location contain any other recognized safety and or health hazards?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is the space designated as a Permit Required Confined Space?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have anchor points been designated and load tested?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Assessment Information: (indicate specifics with initials)			
Initial	Hazard	Remarks/Recommendations	
	Total potential fall distance:		
	Number of workers involved:		
	Frequency of task:		
	Obtainable anchor point strength:		
	Required anchor point strength: (not less than 5000 lbs)		
Additional Requirements:			
♦ <i>Potential environmental conditions that could impact safety:</i>			
Initial	Condition	Remarks/Recommendations	
♦ <i>Possible required structural alterations:</i>			
Initial	Alteration	Remarks/Recommendations	
♦ <i>Possible task modification that may be required:</i>			
Initial	Task	Remarks/Recommendations	

♦ Breakdown of vertical and horizontal movement: (sketch out work task):

♦ Training requirements:

Initial	Requirement	Remarks/Recommendations

♦ Personal protective equipment required:

Initials	Requirement	Remarks/Recommendations

Approved

AUTHORIZATION

I acknowledge that I have conducted a Fall Hazard Assessment of the above designated location and have detailed the findings of the assessment on this form.

* Further detailed on attachment:

Yes No

Name:		Signature:	
Title:		Date:	Time:

ASSESSMENT FORM RETENTION INFORMATION		ATTACHMENTS	
Permanent Retention File:	Location:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Date Filed:	Filed By:		

FALL PROTECTION EQUIPMENT INSPECTION CHECKLIST

Equipment Assessed:	Assessor:	Date:
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Safety Belt and Harness Inspection

Visual inspections of fall protection equipment shall be conducted before each use. If any defects described in this checklist are found, the equipment must not be used. Beginning at one end, holding the body side of the belt/harness toward you, grasp the belt with your hands, placing them six to eight inches apart. Bend the belt into an inverted “U” and examine the surface for damaged or broken fibers, pulled stitches, cuts, abrasions or chemical damage. **FOLLOW THIS PROCEDURE ALONG THE ENTIRE LENGTH ON THE INSIDE AND OUTSIDE OF THE BELT/HARNESS.**

CONDITION	PASS	FAIL
Inspect for frayed or broken strands. Broken webbing strands appear as tufts on the webbing surface. Check for thread separation or rotting both inside as well as outside of the body pad.	<input type="checkbox"/>	<input type="checkbox"/>
Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. The roller should turn freely on frame. Check for distortion or sharp edges.	<input type="checkbox"/>	<input type="checkbox"/>
The tongue or billet of the belts receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. Belts using punched holes without grommets should be checked for torn or elongated holes causing slippage of the buckle tongue. Check for excessive elongation or distortion.	<input type="checkbox"/>	<input type="checkbox"/>
Rivets should be tight and unmovable with fingers. Body site rivet base and outside rivet burr should be flat against the material. Bent rivets will fail under stress.	<input type="checkbox"/>	<input type="checkbox"/>
Note the condition of “D” ring rivets and “D” ring metal wear pads (if any). Discolored, pitted or cracked rivets indicated chemical corrosion.	<input type="checkbox"/>	<input type="checkbox"/>
Friction buckles must be inspected for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment points of the center bar.	<input type="checkbox"/>	<input type="checkbox"/>
Sliding bar buckles must have the buckle frame and sliding bar inspected for cracks, distortion and sharp edges. The sliding bar should move freely. The knurled edge will slip if worn smooth. Inspect the corners and ends of the sliding bar carefully.	<input type="checkbox"/>	<input type="checkbox"/>

NEVER CUT OR PUNCH ADDITIONAL HOLES IN THE SAIST STRAP OR STRENGTH MEMBERS

Safety Strap, Lanyard and Hardware Inspection

Only use snaps and “D” rings which are compatible with each other. When inspecting lanyards, begin at one end and work to the opposite end. Slowly rotate the lanyard so that the entire circumference is checked.

CONDITION	PASS	FAIL
Inch by inch visual inspection for fiber laceration or stitch damage is done by flexing the strap in an inverted “U”.	<input type="checkbox"/>	<input type="checkbox"/>
Strap buckles shall be inspected in the same banner as waist belt/harness buckles. (Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. The roller should turn freely on frame. Check for distortion or sharp edges.)	<input type="checkbox"/>	<input type="checkbox"/>
Snap hooks shall be checked for distortion of the hook or frame attachment to the belt. The keeper (latch) should seat into the snap nose without binding or obstruction and the keeper spring should have sufficient force to close the keeper firmly.	<input type="checkbox"/>	<input type="checkbox"/>
The thimble must be movable in the eye of the splice and the splice shall have no loose or cut strands. The thimble must be free of sharp edges, distortion or cracks.	<input type="checkbox"/>	<input type="checkbox"/>
All rivets shall be tight, free of distortion or wear and without cracks, sharp edges or corrosion.	<input type="checkbox"/>	<input type="checkbox"/>
Inspect wire rope lanyards for cuts or broken strands and unusual wearing patterns.	<input type="checkbox"/>	<input type="checkbox"/>
Inspect fiber rope lanyards for weakened areas by examining changes in the original diameter.	<input type="checkbox"/>	<input type="checkbox"/>
Inspect closely the forged steel “D” rings for cracks or other defects. Inspect the assembly of the “D” rings to the body pad or “D” ring saddle. If the “D” ring can be moved vertically, independent of the body pad or “D” saddle, the belt should be replaced. The “D” ring bar shall be at a 90 degree angle with the long axis of the belt and should pivot freely.	<input type="checkbox"/>	<input type="checkbox"/>

Webbing Inspection

Type of webbing	Heat	Chemical	Molten Metal or Flame	Paint or Solvents
Cotton	Scorches at 200 degrees to 250 degrees F, and turns a yellow color. Turns brown at 285 degrees F and is destroyed.	Changed in color depend on chemical exposure. Changes to light color or turns brown. Fibers may break when pulled or stressed.	Charred black marks or brown pockmarks. Holes through the webbing.	Paint which has saturated the webbing causing hardening and fiber breaks. Paints containing lead will attack webbing fibers.
Nylon and Cordura	In excessive heat nylon becomes brittle and has a shriveled, brownish appearance. The fibers will break when flexed. Should not be used above 200 degrees F.	Change in color usually appearing as a brownish smear or smudge. Transverse cracks when the belt is bent over. Loss of elasticity.	Webbing strands fuse together. Hard shiny spots which are brittle. Will not support combustion.	Paint which penetrates and dries restricts movement of fibers. Drying agents and solvents in some paints will appear as chemical damage.
Polyester, Dacron	Same as nylon except do not use above 180 degrees F.	Same as nylon.	Same as nylon except will support combustion.	Same as nylon.

CERTIFICATE OF TRAINING

This certificate verifies that _____
Employee Name

has successfully completed

Fall Protection Training

on _____
Date

Company Name

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TRAINING ATTENDANCE ROSTER FALL PROTECTION AWARENESS For Construction

Fall Protection Safety Training Includes:

- When Required
- Workplace Assessment
- Primary/Conventional Fall Protection (Guardrail, Safety Net, and PFAS)
- Alternate Methods (Fall Protection Plan, Warning line, Monitoring System, Controlled Access Zone, Fences, Barricades, and Covers
- Components of a PFAS and how to wear a PFAS
- Calculation of Fall Distance
- Equipment Inspection and Maintenance

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	
By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.		

Name of Interpreter, if utilized: _____

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TRAINING ATTENDANCE ROSTER FALL PROTECTION AWARENESS For General Industry

Fall Protection (General Industry) Safety Training Includes:

- Workplace Assessment
- Guardral Systems
- Safety Net
- Positioning and Travel Restraint Systems
- When PFAS Required
- Components of a PFAS and how to wear a PFAS

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	
By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed.		

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

FLAMMABLE LIQUIDS SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.106

NFPA 30 Flammable and Combustible Liquids

INTRODUCTION

General requirements for the handling and storing of flammable liquids in containers and portable tanks. This program details the requirements for venting, grounding and bonding, and labeling containers. It defines the requirements for spill and fire control and establishes training requirements. This program does not address flammable liquids in fixed tank storage, service stations, processing plants, refineries, chemical plants, and distilleries.

TRAINING

Any employee working in a bulk storage area (>25 gallons which is not stored inside an approved cabinet) or who dispenses flammable liquids should understand the hazard potential and protective measures to be taken. Training should occur upon initial assignment and as changes occur that increase exposures.

ACTIVITIES

- Evaluate operations for presence of flammable liquids
- Determine and implement correct storage requirements
- Determine protective measures and emergency response procedures
- Ensure containers are clearly labeled and inspected before use

FORMS

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

FLAMMABLE LIQUIDS SAFETY PROGRAM

1. **Purpose.** The provisions in this program are intended to reduce the hazard associated with the handling, use and storage of flammable liquids to a degree consistent with reasonable safety. Compliance with this standard does not eliminate all hazards in the use flammable liquids. The company will review and evaluate this safety program:
 - 1.1 When changes occur to 29 CFR 1910.106 that prompt revision of this document.
 - 1.2 When facility operational changes occur that require a revision of this document.
 - 1.3 When there is an accident or close call that relates to this topic.
2. **Scope.** The program applies to all locations where flammable liquids are used, handled or stored in containers and portable tanks.
3. **Responsibilities**
 - 3.1 Management/Supervisors
 - 3.1.1 Determine total volume and capacity of flammable liquids stored within the facility.
 - 3.1.2 Ensure storage containers and cabinets or areas meet the requirements based on the total volumes and storage types.
 - 3.1.3 Ensure containers are properly labeled.
 - 3.1.4 Ensure dispensing of liquids is performed properly.
 - 3.1.5 Provide spill control and fire control systems for the storage and dispensing areas.
 - 3.1.6 Ensure that written emergency instructions and appropriate signs are posted at the entrance to all storage and dispensing location, or in a conspicuous manner in the area.
 - 3.2 Employees
 - 3.2.1 Handle flammable liquids in accordance with written procedures and this program.
 - 3.2.2 Label containers and tanks, as needed or required.
 - 3.2.3 Perform spill or fire control procedures, as training and responsibilities require.

4. Procedure

4.1 Flammable liquids: Any liquid having a flashpoint at or below 199.4 °F and divided into four categories:

- 4.1.1 Category 1 - liquids having flashpoints below 73.4 °F and a boiling point at or below 95 °F.
- 4.1.2 Category 2 - liquids having flashpoints below 73.4 °F and a boiling point above 95 °F.
- 4.1.3 Category 3 - liquids having flashpoints at or above 73.4 °F and at or below 140 °F. When a Category 3 liquid with a flashpoint at or above 100 °F is heated for use to within 30 °F of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint below 100 °F.
- 4.1.4 Category 4 - liquids having flashpoints above 140 °F and at or below 199.4 °F. When a Category 4 flammable liquid is heated for use to within 30 °F of its flashpoint, it shall be handled in accordance with the requirements for a Category 3 liquid with a flashpoint at or above 100 °F.

4.2 General Requirements

- 4.2.1 Flammable liquids will be kept in covered containers when not actually in use.
- 4.2.2 *NO SMOKING* signs will be posted in all locations where flammable or combustible liquids are used or stored.
- 4.2.3 The transfer of flammable liquids will be done using appropriate bonding and grounding of containers.
- 4.2.4 There will be no sources of ignition (flame or spark producing) in any area where flammable liquids are used, or within 20 ft. unless separated by a partition.
- 4.2.5 Maintenance operations involving hot work - such as welding or cutting operations, use of spark-producing power tools, and chipping operations shall be permitted only under direct supervision. An inspection of the area shall be conducted to be sure that it is safe for the work to be done and that safe procedures will be followed for the work specified.

4.3 Incidental Storage or Use of Flammable Liquids

The quantity of liquid that may be located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building shall not exceed:

- 4.3.1 25 gallons of Category 1 flammable liquids in containers
- 4.3.2 120 gallons of Category 2, 3, or 4 flammable liquids in containers

4.3.3 660 gallons of Category 2, 3, or 4 flammable liquids in a single portable tank.

4.4 Container and Portable Tank Storage

4.4.1 Storage Container Size

Container Type	Category 1	Category 2	Category 3	Category 4
Glass or approved plastic	1 pt	1qt	1 gal	1 gal
Safety Can	2 gal	5 gal	5 gal	5 gal
Metal Drum DOT Spec	60 gal	60 gal	60 gal	60 gal
Portable Tanks	660 gal	660 gal	660 gal	660 gal

4.4.2 Static Bonding and Grounding

4.4.2.1 Ensure all containers are electrically boded and grounded to prevent static spark discharges whenever flammable or combustible liquids are transferred.

4.4.2.2 Ensure electrical bond is made before any filling holes are opened or the flow started. Maintain bond until flow is completed and all filling holes are closed.

4.4.3 Transfer of Flammable/Combustible Liquids

4.4.3.1 Use gravity flow or an approved pump to transfer flammable or combustible liquids. The use of compressed air in the container is prohibited.

4.4.4 Labeling

4.4.4.1 All dedicated safety cans shall display the name of the contents, either painted on or by use of pressure sensitive labels.

4.4.4.2 A GHS compliant chemical hazard label shall be affixed to all safety cans.

4.5 Drum Storage

4.5.1 Leaking, Open and Deteriorated Drums. If a drum containing a liquid cannot be moved without rupture, immediately contact your supervisor or manager. The emergency response team will be summoned for any spill condition.

4.5.2 Grounding and bonding. Buildup of static electricity charges on containers and people is a dangerous source of sparks that can touch off flash fires wherever flammable liquids are being transferred or used.

- 4.5.2.1 Grounding. A readily accessible connection to an earth ground will be installed in all company storage and dispensing areas.
- 4.5.2.2 Bonding. A readily accessible connection from a grounded drum to a container being filled will be installed on all drums or bulk containers used to dispense flammable liquids. This procedure is not necessary when self-bonding containers are used. If it is unclear if the container is self-bonding, use a bonding strap in the dispensing process.
- 4.5.3 Drip pans. Drip pans should be positioned below each drum faucet to catch spills or any possible drippings from a worn or damaged faucet.
- 4.5.4 Drum venting. Drums containing flammable liquids will be vented to relieve pressure buildup due to heat and also to prevent creation of a vacuum when liquid is being drained off or the drum is subjected to sudden cooling.
- 4.5.5 Drum faucets. Drum faucets will be of the self-closing type. Non self-closing types will not be used by the company.

4.6 Flammable Liquid Storage Cabinet Requirements

- 4.6.1 Maximum capacity. Not more than 60 gallons of Category 1, 2, or 3 flammable liquids, nor more than 120 gallons of Category 4 flammable liquids may be stored in a storage cabinet.
- 4.6.2 Fire resistance. Storage cabinets used by the company must be designed and constructed to meet NFPA 30 and NFPA 251-1969 requirements.
- 4.6.3 Labeling. Cabinets must be labeled in conspicuous lettering, "Flammable - Keep Fire Away."
- 4.6.4 ONLY approved flammable liquid storage cabinets shall be used. Approvals must be from a nationally recognized testing laboratory such as FM or UL.
- 4.6.5 No more than three cabinets per fire area.
- 4.6.6 Ventilation – may be required under certain conditions - See NFPA 30 for details. If no venting is required, the vent openings should be kept tightly capped with the metal bungs provided for this purpose.
- 4.6.7 Grounding is not required unless dispensing operations are present or where conditions exist that could result in the concentration of vapors.

4.7 Storage Rooms or Areas

FIRE PROTECTION	FIRE RESISTANCE	MAXIMUM FLOOR AREA	TOTAL ALLOWABLE QTY PROVIDED GALS/SQ FT/FLOOR AREA
YES	2 Hour	500 sq. ft.	10
NO	2 Hour	500 sq. ft.	5
YES	1 Hour	150 sq. ft.	4
NO	1 Hour	150 sq. ft.	2
Note: Fire protection system will be sprinkler, water spray, carbon dioxide, or other approved system.			

- 4.7.1 Where openings to other rooms or buildings exist, they will be provided with noncombustible liquid tight raised sills or ramps at least 4 in. in height or the room will be 4 in. below the surrounding floor or an open grated trench draining to a safe location will be used.
- 4.7.2 Openings to rooms will be provided with approved self-closing fire doors. (Doors may be left open during material handling operations if they are designed to close automatically in a fire).
- 4.7.3 Windows, if any, will be fire windows and will be designed to close automatically in a fire.
- 4.7.4 Electrical wiring and equipment located in inside storage rooms shall meet the standard requirements.
- 4.7.5 The ventilation inside the room will be configured to provide at least six air changes per hour. This will be accomplished either by gravity or mechanical exhaust. Note: If no mechanical exhaust is provided, then it is almost certain that the required exchange rate is not being met. All storage rooms will be reviewed to ensure an air inlet exists and additional NFPA guidelines for proper design.
- 4.7.6 If mechanical ventilation exists, it will be controlled by a switch located outside the door. The ventilation and lighting fixtures will be operated by the same switch.
- 4.7.7 An aisle of at least three feet wide will be maintained.
- 4.7.8 Containers over 30 gallons capacity shall not be stacked one upon the other
- 4.7.9 Dispensing shall be by approved pump or self-closing faucet only.

4.8 Storage Inside Buildings

- 4.8.1 Egress. Flammable liquids must not be stored so as to limit use of exits, stairways, or areas normally used for the safe egress of people.
- 4.8.2 Aisles of at least 3 feet wide must be provided where necessary for reasons of access to doors, windows or standpipe connections.

- 4.8.3 Leaking containers. Leaking containers must be removed to a storage room or taken to a safe location outside the building and the contents transferred to an undamaged container.
- 4.8.4 *Office areas.* Storage is prohibited except where required for maintenance and operation of building and operation of equipment. Such storage must be kept in closed metal containers stored in a storage cabinet or in safety cans or in an inside storage room not having a door that opens into that portion of the building used by the public.

4.9 Storage in Outside Buildings

- 4.9.1 Where quantity stored exceeds 1,100 gallons, a minimum distance of 10 feet between buildings and nearest container of flammable or combustible liquid must be maintained.
- 4.9.2 Spill containment. The storage area must be graded in a manner to divert possible spills away from buildings or other exposures or must be surrounded by a curb at least 6 inches high. When curbs are used, provisions must be made for draining of accumulations of ground or rainwater or spills of flammable or combustible liquids. Drains must terminate at a safe location and must be accessible to operation under fire conditions.
- 4.9.3 Security. The storage area must be protected against tampering or trespassers where necessary and must be kept free of weeds, debris and other combustible material not necessary to the storage.

4.10 Tank Storage

- 4.10.1 Aboveground and underground Flammable Liquid storage tanks must be installed and maintained in accordance with OSHA, EPA, NFPA, State and Local requirements including design, placement, ventilation, spacing, etc.
- 4.10.2 Local fire inspection personnel will be consulted when determining aboveground tank placement and fire control configurations.

5. Safety Information

5.1 Spill Control

- 5.1.1 Spill control equipment will be maintained in each area where storage and/or dispensing is conducted.
- 5.1.2 Employee trained in spill response and control measures are authorized to use spill control equipment as needed or required, to contain or control and clean up spills of flammable or combustible liquids.
- 5.1.3 Employees not trained in spill response and control measures will summon the appropriate person or agency to provide containment, control and clean up.

- 5.1.4 Spilled materials are generally considered as waste and may need to be disposed of as a hazardous waste and may need special controls, documentation and procedures.

5.2 Fire Control

- 5.2.1 Suitable fire control devices, such as small hose or portable fire extinguishers, shall be available at locations where flammable liquids are stored. At least one portable fire extinguisher having a rating of not less than 12-B units shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage. At least one portable fire extinguisher having a rating of not less than 12-B units must be located not less than 10 feet, nor more than 25 feet, from any Category 1, 2, or 3 flammable liquid storage area located outside of a storage room but inside a building.
- 5.2.2 Sprinklers. When sprinklers are provided, they will be installed in accordance with OSHA and NFPA requirements.
- 5.2.3 Open flames and smoking shall not be permitted in flammable liquid storage areas.

5.3 Housekeeping

- 5.3.1 General. Maintenance and operating practices must be in accordance with established procedures that will tend to control leakage and prevent the accidental escape of flammable or combustible liquids. Spills must be cleaned up promptly.
- 5.3.2 Access. Adequate aisles must be maintained for unobstructed movement of personnel and so that fire protection equipment can be brought to bear on any part of flammable or combustible liquid storage, use, or any unit physical operation.
- 5.3.3 Waste and residue. Combustible waste material and residues in a building or unit operating area must be kept to a minimum, stored in covered metal receptacles and disposed of daily.

6. Training and Information

Employees working with flammable liquids should receive initial training applicable to their areas of responsibility. Training will establish employee proficiency in hazard control methods and procedures, as necessary.

7. Definitions

- Closed container - sealed by means of a lid or other device that neither liquid nor vapor will escape from it at ordinary temperatures
- Container - any can, barrel, or drum.
- Portable tank - a closed container having a liquid capacity over 60 U.S. gallons and not intended for fixed installation
- Safety can - an approved container, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.

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TRAINING ATTENDANCE ROSTER FLAMMABLE LIQUIDS

Flammable Liquids Training Includes:

- General Requirments
- Classes and Types
- Labels and MSDS
- Storage and Housekeeping
- Spills and Fire Controls
- Hazards and PPE

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	
By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed		

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

GENERAL SAFETY AWARENESS PROGRAM

REGULATORY STANDARD: *OSHA General Duty Clause*

INTRODUCTION

This program assists in establishing clear company goals and objectives for safety. It provides for the identification, evaluation and mitigation of safety hazards. It establishes employee training requirements and details general work rules, recordkeeping, emergency evacuation planning, audits and inspections and records retention.

TRAINING

Recommended training for an overview of workplace hazards.

ACTIVITIES

- Ensure the workplace is maintained free of a hazard to which employees of the employer were exposed
- Inspect the workplace for hazards that are likely to cause death or serious physical harm
- Ensure processes are in place to correct hazards

FORMS

- First Aid Kit Supply List
- General Safety Rules
- New Employee Safety Orientation Training
- Training Attendance General Safety Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

GENERAL SAFETY AWARENESS PROGRAM

1. **Purpose.** This document provides a written general safety program for the company. This program is designed to establish clear company goals and objectives and will be communicated to all employees.

2. **Scope.** Applies to all employees at company facilities and sites.

3. Responsibilities

3.1 Management

3.1.1 Identify and evaluate any safety hazards.

3.1.2 Prioritize and address safety hazards based on risk level.

3.1.3 Provide reasonable solutions to reduce or eliminate recognized safety hazards.

3.1.4 Enforce federal, state and company safety rules and regulations in the workplace.

3.2 Employees

3.2.1 Report safety concerns and hazards to your Supervisor.

3.2.2 Participate in the resolution of the recognized safety hazards, as needed or required.

3.2.3 Conduct their work activities in a safe manner.

3.2.4 Abide by all the safety rules and regulation established by the company.

3.2.5 Assist in maintaining their work area in a clean and neat condition.

4. Procedure

4.1 General Work Rules

4.1.1 General Duty Clause

4.1.1.1 OSHA's general duty clause states that companies must provide a place of employment that is free from recognized hazards.

4.1.1.2 Each employee is responsible to comply with the standards and regulations that are applicable to their work activities.

4.1.2 Housekeeping

- 4.1.2.1 Every safety management program includes standards for general housekeeping. Housekeeping ensures that materials and contaminants do not accumulate and cause hazards to employee safety and health.
- 4.1.2.2 Workplaces will be cleaned on a regular basis.
- 4.1.2.3 Restrooms will be kept in a sanitary condition.
- 4.1.2.4 Materials will be stored in designated areas and not allowed to accumulate in places where employee safety could be at risk (i.e. aisles, corridors, stairwells, near exits, around machinery or equipment where employees work, etc.).
- 4.1.2.5 Tools and equipment will be stored in their appropriate places.
- 4.1.2.6 Chemicals will be handled according to their instructions. Spills or leaks will be cleaned up immediately and prevented from reoccurring.
- 4.1.2.7 Protective equipment will be used, as needed or required.

4.2 Written Standard Operating Procedures

4.2.1 Job Hazard Analysis (Identifying Hazards) - Each job task will be reviewed for safety hazards. Recognized safety hazards will be prioritized and addressed based on their risk level.

4.2.2 Written Procedures

- 4.2.2.1 Develop written procedures outlining the steps to take to reduce or eliminate recognized safety hazards. These procedures must identify when the use of personal protective equipment (PPE) is necessary.
- 4.2.2.2 All companies must have:
 - 4.2.2.2.1 Emergency Evacuation and Fire Prevention Programs (written if >10 employees).
 - 4.2.2.2.2 Hazard Communication Program in workplaces where chemicals are used or stored.
- 4.2.2.3 Written procedures are required if there are exposures to:
 - 4.2.2.3.1 Blood or bloodborne pathogens
 - 4.2.2.3.2 Hazardous chemical exposures

- 4.2.2.3.3 Confined spaces
- 4.2.2.3.4 Control of hazardous energy (Lock-out/Tag-Out)
- 4.2.2.3.5 Live electrical energy (>50 volts)
- 4.2.2.3.6 Noise levels >85 dBa
- 4.2.2.3.7 Laboratories
- 4.2.2.3.8 Forklifts
- 4.2.2.3.9 PPE required activities
- 4.2.2.3.10 Physical hazards
- 4.2.2.3.11 Radiation
- 4.2.2.3.12 Respiratory hazards
- 4.2.2.3.13 Shipping and handling of hazardous materials
- 4.2.2.3.14 Lasers (>Class 2)

4.3 Recordkeeping (Accident and Incident Investigation and Reporting)

- 4.3.1 Incidents are work-related activities that cause concern for the health or safety of employees. All accidents and injuries (and work-related illnesses) are considered incidents.
- 4.3.2 Reporting of incidents is required for many companies. Specific information about incidents must be identified and recorded on specific OSHA forms.
- 4.3.3 Investigation may be required to determine some information that is required to be reported.
- 4.3.4 Exemptions from Recordkeeping exist for some industries in general and for employers with fewer than 10 employees. For a full listing of exempted industries, see the OSHA website at www.OSHA.gov, or reference the listing in the OSHA Recordkeeping Exemption Listing form associated with this program.

4.4 Emergency Evacuation Planning

- 4.4.1 All companies must have a program for emergency evacuation of their employees.
- 4.4.2 Companies with more than 10 employees must have this information in writing.

- 4.4.3 Companies should post their evacuation routes to assist employees and others during an evacuation situation.
 - 4.4.4 A review of the emergency action program must occur for every employee when the program is developed, upon initial assignment or new hire, when the employee's responsibilities under the program change and whenever the program is changed.
 - 4.4.5 Any employees that have specific duties and requirements under the program (i.e. assisting others, locking sensitive information, area searchers or wardens, etc.) must be specifically trained in their duties and responsibilities.
- 4.5 Hazard Communication
- 4.5.1 Every employee exposed or potentially exposed to hazardous chemicals in the workplace must be trained and informed of the hazards of those chemicals and the measures to be used to protect themselves from exposure. This training must occur initially and whenever changes to hazards in the workplace occur.
 - 4.5.2 Safety Data Sheets are required for all hazardous chemicals or mixtures used or stored in the workplace.
 - 4.5.3 A hazardous chemical inventory list must be maintained at the workplace (either one master listing or individual area listings) that list the hazardous materials by name (as it appears on the SDS) the manufacturer's name and phone number and any "common names" that the company may call the product (if they are different than the SDS name).
 - 4.5.4 A written program must be present in the workplace describing how the requirements of the regulation are implemented.
 - 4.5.5 All hazardous chemicals must have labels indicating the name, manufacturer and hazards of the hazardous components of the product.
- 4.6 Electrical Safety
- 4.6.1 Any exposure greater than 50 volts requires electrical safety training and information be provided to employees. Employees with such exposure require the knowledge to understand the magnitude of the hazard they are exposed to and the measures needed to prevent injury from such exposure.
 - 4.6.2 All electrical installations and equipment must meet the installation and maintenance requirements under the National Electrical Code.
 - 4.6.2.3 Companies must ensure that electrical service panel boxes and equipment shutoffs are clear and unobstructed at all times for use during an emergency.

4.6.2.4 Electrical service panel boxes must have covers and those covers must remain in the closed position when the panel is not being accessed.

4.6.2.5 Electrical sources and outlets within 3 feet of any water source (such as a sink or drinking fountain) must be GFCI (Ground Fault Circuit Interrupt) protected.

4.7 Audits and Inspections

4.7.1 Safety audits are formal reviews of employee activities, workplace processes and systems, and documentation. Audits normally use pre-established or written protocols or inspection reports to assure that the written procedures and process flows indicate what the employees are supposed to do, and that employees are following the procedures as written. Audits will normally have a final written summary report of the non-conformances that is presented to management. Each finding or non-conformance will have corrective actions assigned by management to correct the deficiency in the system.

4.7.2 Inspections are informal reviews of employee activities, workplace processes, systems and documentation. Inspections may use pre-established written checklists, or may be even less-formal. The checklists are normally in a yes/no format that indicates whether or not the activity or process is compliant with what is required. Inspection findings are generally discussed with area supervisors or management, and the retention of the checklist (to assure that the items have been corrected before the next inspection) is normally the only documentation maintained.

4.7.3 Some regulations require that procedures or activities be inspected, and that the inspection documentation be retained for a specified period of time. However, inspection reports are generally kept only until all action items are addressed or they are superseded by subsequent inspection reports.

4.8 Safety Committee

4.8.1 Some states require safety committees if companies have more than 20 employees. It is generally recommended that any company with more than 20 employees establish a safety committee.

4.8.2 Committees should meet at least quarterly and be comprised of at least 3 employees. A member of management and/or the safety officer may serve as additional members of the committee. The committee chairperson should not be a member of management or the company Safety Officer.

4.8.3 Safety committees should discuss safety concerns at the company. They may be charged with performing area inspections, injury report reviews and investigations, training, or other safety-related duties that are appropriate to the business needs of the company.

4.9 Records Retention

- 4.9.1 Training Records are maintained until they are superseded by new training.
- 4.9.2 Audit Reports are kept for 5 years or until all findings are corrected, whichever is longer.
- 4.9.3 Inspection Reports are kept until all findings are corrected, the reports are superseded by new reports, or for a duration specified by a specific regulation, whichever is longer.
- 4.9.4 OSHA 300 logs and associated Injury and Illness Records are kept for 5 years.
- 4.9.5 Certain hazardous chemical exposure records (e.g. cancer causing agents, benzene, asbestos, and mercury) and biological exposure records (e.g. needle stick injuries of contaminated blood or body fluids) are kept for the duration of employment plus 30 years.
- 4.9.6 Other safety records are generally kept only until the actions that are required to be taken are complete.

5. Safety Information

5.1 Ventilation

5.1.1 General building ventilation systems are usually adequate to remove particulate matter and circulate fresh air throughout the building. Ventilation concerns are generally caused by:

5.1.1.3 faulty filters in fresh air ducts

5.1.1.4 corridors leading from outside areas (where dust and particulate matter can be drawn into the building)

5.1.1.5 enclosed rooms where several printers or copiers are located in a small space (due to paper dust and/or toner dust being generated).

5.2 Lighting. The role of proper lighting is to provide a safe, comfortable and efficient visual environment. The following safe lighting criteria will be used to evaluate lighting conditions in office areas.

5.2.1 Bare light sources will not be placed in the visual working field of any employee. Light sources will be properly shielded in these instances.

5.2.2 The luminance and reflectance of surfaces of furnishings, shades, louvers, acoustic screens, will be considered to reduce their reflectance.

5.2.3 Windows will be covered where appropriate.

5.2.4 Wall surface colors and degree of reflectance will be appropriate to the work area.

- 5.2.5 Furniture should be arranged so that the luminaire is beside rather than in front of the operator. Light will then be directed across the work surface rather than into the worker's eyes.
- 5.3 Eye Strain. Adjusting the screen for the minimum amount of glare and best contrast will reduce the amount of eyestrain our employees' experience.
- 5.3.1 Monitor/VDT problems. Correct placement of the VDT can relieve stress on the neck and shoulders. Adjust the monitor so screens can be read with the head up and facing forward (at about eye level). Employees with bifocals should be able to read without tilting their head. Distance is key in that employees should not have to move to focus.
- 5.3.2 Glare and contrast. The two major sources of eye strain from working with a VDT are glare and poor contrast. Most offices have diffused overhead lighting to reduce screen glare, but glare from windows or other light sources, like lamps, should be shielded. Blinds can be closed to reduce light glare. Desks and work areas can be repositioned to reduce glare, or the brightness and contrast controls on a VDT can be adjusted.
- 5.3.3 Minimizing Eye Strain. Reading from a VDT for hours at a time can be very hard on the eyes. The characters on a VDT screen are not as sharp as print on paper--they are almost always a little bit fuzzy. They are also always moving, and even though they may not move enough to notice, they move enough to make focusing difficult. Employees should be encouraged to take micro breaks or switch to other non-computer based tasks to reduce eye strain.
- 5.3.4 Supervisor involvement. Encourage employees to have their eyes examined annually--more often if they are having vision problems or if their eyes feel tired at the end of the day. Even when VDT work does not cause a vision problem, the strain of reading from a monitor for long periods will make it difficult for employees to continue ignoring uncorrected or undercorrected vision problems they might already have.
- 5.4 Ergonomic Improvements. Ergonomic improvements can dramatically improve worker safety and productivity. Employees are most likely to work efficiently and accurately when they do not have to strain. Supervisors should be given adequate training in recognition and control of ergonomic improvements.
- 5.4.1 Problem recognition. Supervisors should know the symptoms of Cumulative Trauma Disorders (CTD) and recognize when the stress involved in a particular job has the potential for contributing to a CTD. Make sure employees are working in the best way possible.

- 5.4.2 Cumulative trauma disorders. The most common CTDs are *Tendinitis* (inflammation of a tendon, usually at the wrist or elbow), *Carpal Tunnel Syndrome (CTS)* (caused by pressure on the nerve in the wrist) symptoms include numbness, difficulty holding objects and restricted movement), and *lower back problems* (strains caused improper lifting, or improper seating or poor work station design).
- 5.4.3 Data entry. Data entry is probably the biggest contributor to CTS. With the fingers resting on the home keys of the keyboard, and shoulders relaxed, the employee's wrists and forearms should be in a straight line and more or less parallel to the floor. Surface or chair height adjustments may help (so employees type or write with body erect with feet flat on the floor).
- 5.3.3.1 The edge of the seat should not contact the back of the knees. Arm rests and keyboard wrist rests can be provided to relieve the pressure on the upper body. Footrests can assist in relieving strain on the back. Keyboard placement or copy stands, and telephone headsets may improve working postures. Back supports or lumbar supports on chairs can help prevent strain. Repetitive force and lifting can be minimized to prevent injury, or frequent breaks can be offered. Employees should be encouraged to take "stretch breaks" even if only for a minute or two.
- 5.3.4 Supervisor involvement. Make changes slowly, one at a time, and follow up on the effects. Observation and open communication with employees are our two most valuable tools for reducing the risks of ergonomic disorders in the workplace. If an employee has symptoms of a CTD, encourage him or her to get medical attention and work with the employee to find out if changes should be made in the job design.
- 5.4 Disciplinary Actions for Willful Unsafe Acts. Employees who willfully endanger themselves or the safety of their co-workers will be subject to the disciplinary action procedures stipulated by company policy or the Employee Handbook.

6. Training and Information

6.1 Employee Orientation and General Safety Training

- 6.1.1 All new employees should be provided with a general safety orientation upon initial assignment. This orientation will include:
- 6.1.1.1 A review of the employee responsibilities with regard to workplace safety and an overview of the general safety workplace rules.
- 6.1.1.2 The hazards that may be encountered in the workplace.
- 6.1.1.3 The process for reporting hazards, accidents, injuries and near-misses.

6.1.1.4 It is additionally recommended that the orientation include information on office safety and ergonomics.

6.1.2 Employees who transfer or change jobs within the company will be provided with work area specific training in the hazards they may encounter.

7. Definitions

- *SDS* - Safety Data Sheets.
- *CTD* - Cumulative Trauma Disorder is a medical condition caused by repetitive forces or motion.
- *CTS* - Carpal Tunnel Syndrome is a medical disease that affects the nerves in the wrist.
- *VDT* - Visual Display Terminals like computer monitoring equipment.

FIRST AID KIT SUPPLY LIST

All first aid must meet these minimum supply requirements and must be labeled. All labeling should be legible and permanent and should be written with, at the least, a six-point font. Class A kits are designed to deal with the most common types of workplace injuries. Class B kits are designed with a broader range and quantity of supplies to deal with injuries in more complex or high-risk environments.

Below is a table listing the minimum required components for both Class A and Class B kits. The quantity and size specifications given are the minimum necessary to comply with the ANSI 2015 standard.

Minimum Supply Requirements	Minimum Quantity Class A Kits	Minimum Quantity Class B Kits
Adhesive Bandage 1 x 3 in.	16	50
Adhesive Tap 2.5 yd. (total)	1	2
Antibiotic Application 1/57 oz.	10	25
Breathing Barrier	1	1
Burn Dressing (Gel Soaked) 4 x 4 in.	1	2
Burn Treatment 1/32 oz.	10	25
Cold Pack 4 x 5 in.	1	2
Eye Covering (with Means of Attachment) 2.9 sq. in.	2	2
Eye/Skin Wash	1 fl. oz. total	4 fl. oz. total
First Aid Guide	1	1
Hand Sanitizer 1/32 oz.	6	10
Medical Exam Gloves	2 pair	4 pair
Roller Bandage (2 inch) 2 in. x 4 yd.	1	2
Roller Bandage (4 inch) 4 in. x 4 yd.	0	1
Scissors	1	1
Splint 4.0 x 24 in.	0	1
Sterile Pad 3 x 3 in.	2	4
Tourniquet 1 in. (width)	0	1
Trauma Pad 5 x 9 in.	2	4
Triangular Bandage 40 x 40 x 56 in.	1	2

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GENERAL SAFETY RULES

The company establishes the following safety rules as General Safety Rules for all departments:

Never take chances. If you're unsure, you're unsafe!

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EXAMPLE of GENERAL SAFETY RULES

The company establishes the following safety rules as General Safety Rules for all departments/sections:

- Never operate any machine or equipment unless you are authorized and trained to do so. Obtain full instructions and training from your Supervisor before operating an unfamiliar machine.
- Do not operate defective equipment or broken hand tools. Report them to your Supervisor immediately. Frayed or damaged electrical cords should be replaced.
- Never start on any hazardous job without being completely familiar with the safety techniques that apply to it. Check with your Supervisor if in doubt.
- Make sure all safety attachments are in place and properly adjusted before operating any machine.
- Do not operate any machine or equipment at unsafe speeds. Shut off equipment that is not in use.
- Wear all protective garments and equipment necessary to be safe on the job. Wear proper shoes; sandals or other open-toed or thin-soled shoes should not be worn.
- Do not wear loose, flowing clothing or long hair while operating moving machinery.
- Never repair or adjust any machine or equipment unless you are specifically authorized to do so by your Supervisor or specifically trained to do so.
- Never oil, clean, repair, or adjust any machine while it is in motion.
- Never repair or adjust any electrically driven machine without specific Lock-Out/Tag-Out training.
- Put tools and equipment away when they are not in use.
- Do not lift items that are too bulky or too heavy to be handled by one person. Ask for assistance.
- Keep all aisles, stairways, and exits clear of materials, storage, equipment, and spillage.
- Do not place equipment and materials so as to block emergency exit routes, fireboxes, sprinkler shutoffs, machine or electrical control panels, or fire extinguishers.
- Stack all materials neatly and make sure piles are stable.
- Keep your work area, machinery and all company facilities that you use clean and neat.
- Do not participate in horseplay, or tease or otherwise distract fellow workers. Do not run on company premises - always walk.
- Power-truck operators must be properly trained and licensed to operate the vehicle.
- Filing cabinets, desks, storage cabinets, and other storage devices should have drawers closed when not in use to prevent tripping hazards.
- Extension cords are temporary measures only and should not replace permanent wiring. Cords should be placed so that they are flush to the ground and do not present a tripping hazard. Electrical outlets should be properly used and never overloaded.
- Burned out light bulbs should be replaced immediately.
- Never take chances. If you're unsure, you're unsafe!

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NEW EMPLOYEE SAFETY ORIENTATION TRAINING LIST

Employee's Name:	Date Assigned:	Department:
Job Title:		
Supervisor's Name:	Date of Review:	Signature:

Instructions to Supervisor: Check all boxes that apply. Review the duty requirements of the new employee and select the safety topics that the employee must be trained on.

SAFETY TOPIC		SAFETY TOPIC	
<input type="checkbox"/>	Access to Employee Exposure and Medical Records	<input type="checkbox"/>	Lockout / Tagout
<input type="checkbox"/>	Accident Reporting	<input type="checkbox"/>	Machine Guarding
<input type="checkbox"/>	Aerial Lift - Personal Fall Arrest System	<input type="checkbox"/>	Mechanical Power Presses
<input type="checkbox"/>	Back Safety	<input type="checkbox"/>	Overview - Construction
<input type="checkbox"/>	Bloodborne Pathogens Including PPE	<input type="checkbox"/>	Pallet Jack - Electrical
<input type="checkbox"/>	Blood and Body Fluids Safety Awareness	<input type="checkbox"/>	Personal Protective Equipment
<input type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Radiation Safety Awareness
<input type="checkbox"/>	Confined Space Entry	<input type="checkbox"/>	Respirators <input type="checkbox"/> Air Purifying <input type="checkbox"/> Filtering Face Pieces <input type="checkbox"/> Supplied Air
<input type="checkbox"/>	Construction Demolition	<input type="checkbox"/>	Safe Driving
<input type="checkbox"/>	Construction Excavation Trenching and Shoring	<input type="checkbox"/>	Safety Committee Members
<input type="checkbox"/>	Cranes, Hoists, and Slings (Internal)	<input type="checkbox"/>	Scaffolds
<input type="checkbox"/>	Electrical Safety	<input type="checkbox"/>	Scissors Lifts
<input type="checkbox"/>	Emergency Action	<input type="checkbox"/>	Slips, Trips and Falls
<input type="checkbox"/>	Ergonomic <input type="checkbox"/> General Industry <input type="checkbox"/> Office	<input type="checkbox"/>	Walking & Working Surfaces
<input type="checkbox"/>	Extreme Temperature <input type="checkbox"/> Cold <input type="checkbox"/> Heat	<input type="checkbox"/>	Welding
<input type="checkbox"/>	Eyewash and Safety Shower	Other Topics	
<input type="checkbox"/>	Fall Protection Construction	<input type="checkbox"/>	
<input type="checkbox"/>	Fall Protection General Industry	<input type="checkbox"/>	
<input type="checkbox"/>	Fire Extinguisher	<input type="checkbox"/>	
<input type="checkbox"/>	First Aid (Basic)	<input type="checkbox"/>	
<input type="checkbox"/>	Flammable Liquids for Container Storage	<input type="checkbox"/>	
<input type="checkbox"/>	Forklift	Supervisor Topics	
<input type="checkbox"/>	Forklift, Order Picker and PFAS	<input type="checkbox"/>	Accident Investigation
<input type="checkbox"/>	General Safety Orientation	<input type="checkbox"/>	Crisis & Disaster Planning
<input type="checkbox"/>	Hand and Portable Power Tools	<input type="checkbox"/>	JHA Job Hazard Analysis
<input type="checkbox"/>	Hazard Communication	<input type="checkbox"/>	Marking Industrial Hazards
<input type="checkbox"/>	Hazardous Chemicals in the Laboratory	<input type="checkbox"/>	OSHA Recordkeeping
<input type="checkbox"/>	Hearing Protection	<input type="checkbox"/>	Return To Work
<input type="checkbox"/>	Ladder Safety	<input type="checkbox"/>	Rim Wheel Servicing
<input type="checkbox"/>	Lasers	<input type="checkbox"/>	Safety Program Overview
<input type="checkbox"/>	Lead Exposure	<input type="checkbox"/>	

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**TRAINING ATTENDANCE ROSTER
GENERAL SAFETY**

Topic:

INSTRUCTOR:

DATE:

LOCATION:

NAME (Please Print)
FIRST - MI - LAST

SIGNATURE

By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed

Name of Interpreter, if utilized: _____

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**Hand and Portable
Power Tools**

PROGRAM OVERVIEW

HAND AND PORTABLE POWER TOOLS SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.241 – 244
- 29 CFR 1926.300 – 305

INTRODUCTION

Tools can present a variety of hazards including cuts, lacerations, blindness from flying particles, and serious contusions if caught in rotating parts or nip points. Tools must be inspected and, when required, employees trained in the proper use, inspection and maintenance of the tools and their guarding systems. Personal protective equipment (such as safety glasses or gloves) may frequently be required, even if guarding systems are in place.

TRAINING

- Training is recommended for power tool use
- Training and licensing is required for tools that use explosive charges (powder-actuated)

ACTIVITIES

- Inspect tools before use to ensure they are in good operating condition.
- Look for items such as housing integrity, complete insulation on cord systems, and that grounding pins have not been removed from plug-sets.

FORMS

- Hand and Portable Tool Guarding and Safety Requirements
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

HAND AND PORTABLE POWER TOOLS SAFETY PROGRAM

1. **Purpose.** The company requires that hand and portable power tools be purchased, maintained, and used only by qualified personnel who understand the limitations and requirements for the safe use of such tools. This safety program will be reviewed and evaluated:
 - 1.1 On an annual basis or more frequently as needed.
 - 1.2 When changes occur to 29 CFR 1910.221 - 244 that prompt revision of this document.
 - 1.3 When facility operational changes occur that require a revision of this document.
2. **Scope.** Applies to all locations where portable hand and power tools are used or maintained.
3. **Responsibilities**
 - 3.1 Management/Supervisors
 - 3.1.1 Purchase only those electrical tools that have been listed by a Nationally Recognized Testing Laboratory (NRTL) such as Underwriter's Laboratory (UL).
 - 3.1.2 Ensure that procedures are in place to conduct visual inspections of tools prior to use.
 - 3.1.3 If testing is required (e.g., GFCI testing before each use) procedures will be in place to ensure compliance.
 - 3.1.4 Ensure that employees using tools understand and follow manufacturer's instructions, routinely inspect tools, and use them only for the purpose for which they were designed.
 - 3.1.5 Be aware of and make available, as appropriate, ergonomically designed tools for repetitive tasks and for those jobs for which a job hazard analysis or ergonomic assessment indicates a need for such tools.
 - 3.1.6 Ensure that a maintenance program is in place to identify and repair defective or unsafe tools. Repairs to portable electrical tools may only be made by an authorized manufacturer's tool service/repair group or by the approved company sources.
 - 3.1.7 Training may be conducted as part of an apprenticeship program or in other recognized training forums.
 - 3.1.8 Employees who indicate they have had prior training will be required to demonstrate understanding and capabilities prior to being assigned to work.
 - 3.1.9 Retain manufacturer's instructions for training/reference purposes.

3.1.10 Ensure that periodic assessments and inspections of tools and tool use are performed.

3.2 Employees

3.2.1 Use only company provided or approved tools. Tools brought from home must have prior permission from the company and may be subject to inspection.

3.2.2 Attend training, as needed or required, for tool use.

3.2.3 Report incidents, accidents or signs and symptoms of injury to your supervisor.

4. Procedure

4.1 General Requirements

4.1.1 No one will use an unsafe/defective tool. Tools that are damaged or defective will be removed from service.

4.1.2 Hand and power tools that may generate sparks or high temperatures will not be used in areas that are hazardous due to the presence of flammable or combustible materials.

4.1.3 The company is responsible for supplying proper power and specialized application tools for employee use.

4.1.4 Only qualified/trained personnel will operate powder-actuated tools.

4.1.5 Before a job is started, the supervisor or designee will ensure that the employee is fully aware of the hazards associated with the particular tool to be used.

4.1.6 Either Ground Fault Circuit Interrupter (GFCI) Protection or an Assured Equipment Grounding Conductor Program will be provided for all 120V (or greater) powered tools.

4.1.7 Adapters that interrupt the continuity of the equipment grounding conductor will not be used (e.g., 3-wire to 2-wire adapter.)

4.1.8 Double-insulated tools do not require an equipment grounding conductor (3rd wire) in the cord, but they do require GFCI protection.

4.1.9 Modifications will not be made to any tool or related equipment. Follow site or business unit established procedures when repairs are necessary.

4.1.10 Do not abuse power cords or hoses. Never carry tools by the cord or hose or yank to disconnect. Protect cords and hoses from heat, oil, and sharp edges.

- 4.1.11 Cords and hoses will be routed in such a manner as to not create a tripping hazard.
- 4.2 Types of Tools Appropriate for Use
 - 4.2.1 Ensuring the type of tool is appropriate for the job requires:
 - 4.2.1.1 Recognition of applicable hazards associated with the work to be completed.
 - 4.2.1.2 Tool determination and additional requirements.
 - 4.2.1.3 Procedures for removal of a tool from service.
 - 4.2.1.4 Where tools are used which could present a hazard to anyone other than the user, all other employees will be instructed concerning hazards.
 - 4.2.2 Tool identification. Tools having identification numbers will be checked for legibility.
- 4.3 Pre-Use Safety
 - 4.3.1 Use the correct tool for the job.
 - 4.3.2 Remove adjusting keys and wrenches before connecting to the power supply.
- 4.4 Pre-Use Inspection
 - 4.4.1 Prior to each use, visually inspect all portable electric tools and accessories for damages or defects, per the following:
 - 4.4.1.1 Portable electric tools-check:
 - 4.4.1.1.1 Tool general condition.
 - 4.4.1.1.2 Cord for damage or deterioration.
 - 4.4.1.1.3 Cord grip tightness.
 - 4.4.1.1.4 Plug cap condition (grounding prong integrity).
 - 4.4.1.1.5 Inspect extension cords and equipment for loose parts and damaged cords.
 - 4.4.1.1.6 Portable GFCI's - Test per manufacturer's specifications.
 - 4.4.1.2 Before using the tool, check workplace for nails, defects, or similar hazards/imperfections.

- 4.4.1.3 Attachment Plug/Connector Body/Cord; check for:
 - 4.4.1.3.1 General condition
 - 4.4.1.3.2 Cord grip tightness
 - 4.4.1.3.3 Grounding Prong integrity
 - 4.4.1.3.4 Polarization integrity
 - 4.4.1.3.5 Condition of outer cord jacket. Cord will not be spliced and must be replaced if outer jacket is damaged
 - 4.4.1.3.6 Boot and visible parts of body for damage, loose parts, or deterioration
 - 4.4.1.3.7 Portable lights-check
 - 4.4.1.3.8 Handle, guard and other visible parts for damage, loose parts or deterioration
 - 4.4.1.3.9 Lamp (should be rough-service type)
 - 4.4.1.3.10 Low voltage lights (12 volts) to ensure that transformer has not been by-passed. Check lamp voltage rating.

4.5 In-Use Safety

- 4.5.1 Dress appropriately for the job
 - 4.5.1.1 Do not wear loose clothing or dangling jewelry.
 - 4.5.1.2 Confine long hair in a hair-net, cap, or fasten securely to the back of the head.
 - 4.5.1.3 Use extreme care when wearing gloves.
 - 4.5.1.4 Safety glasses are the minimum requirement when using any tool; additional PPE requirements may be necessary depending upon tool being used and job application (e.g., face shield, side shields, goggles, etc.)
 - 4.5.1.5 Use hearing protection if required.
- 4.5.2 Use all tools per manufacturer's recommendations.
- 4.5.3 Keep cutting tools in good condition. Sharpen/replace when necessary.

- 4.5.4 Never use fingers to pull or dislodge chips or turnings from tools or parts. Use pliers, rakes, or hooks.
 - 4.5.5 In some areas, compressed gas lines have been installed for specific uses. Be sure that air powered tools are hooked up only to lines supplied for the purpose.
 - 4.5.6 Do not set down or carry a portable power tool in any way so that the starting-trigger or button can be accidentally struck.
 - 4.5.7 Appropriate precautions will be utilized when tools are used in a wet location (e.g., electrically insulated gloves).
- 4.6 Post-Use Safety
- 4.6.1 Disconnect tools when not in use.
 - 4.6.2 Never lubricate, clean, repair, or adjust a tool while it is connected to a power source.
 - 4.6.3 After a job is finished, clean all scrap and debris from the work table and surrounding area. Use proper receptacles.
 - 4.6.4 Take care of all tools. Keep them sharp and clean. Follow manufacturer's instructions for lubricating, changing accessories, and inspection.
- 4.7 Repair
- 4.7.1 All electric tool repairs will be made by a factory authorized tool repair service or company designated portable power tool repair service.
 - 4.7.2 The only exception is cord plugs and connector bodies that may be replaced by a qualified person with an electrical background. Upon completion of plug or body replacement, ground integrity will be tested.
 - 4.7.3 No repairs will be made to portable GFCIs.

5. Safety Information

5.1 Specialized Applications

- 5.1.1 Hand and power tools that may generate sparks or high temperatures will not be used in areas that are hazardous due to the presence of flammable or combustible materials. Use of non-sparking tools will be required unless monitoring ensures levels below 25% of the lower explosive limit (LEL). For more information, reference Portable Electronic Devices in Hazardous Areas.
- 5.1.2 Training for use of a powder actuated tool is provided by the manufacturer (usually HILTI).

- 5.1.2.1 A license is issued after training; individuals using powder actuated tools must have the license on their person when using the tool.
- 5.1.2.2 A record of training will be kept in personnel training files or equivalent recordkeeping system.

5.2 Power Tool Precautions

- 5.2.1 Power tools can be hazardous when improperly used. The company uses several types based on the power source they use such as electric, liquid fuel, hydraulic, pneumatic, and powder-actuated. The following precautions will be taken by employees to prevent injury.
 - 5.2.1.1 Power tools will always be operated within their design limitations.
 - 5.2.1.2 Eye protection, gloves, and safety footwear are recommended during operation.
 - 5.2.1.3 Store tools in an appropriate dry location when not in use.
 - 5.2.1.4 Work only in well illuminated locations.
 - 5.2.1.5 Tools will not be carried by the cord or hose.
 - 5.2.1.6 Cords or hoses will not be yanked to disconnect it from the receptacle.
 - 5.2.1.7 Cords and hoses will be kept away from heat, oils, and sharp edges or any other source that could result in damage.
 - 5.2.1.8 Tools will be disconnected when not in use, before servicing, and when changing accessories such as blades, bits, and cutters.
 - 5.2.1.9 Observers will be kept at a safe distance at all times from the work area.
 - 5.2.1.10 Work will be secured with clamps or a vice where possible to free both hands to operate tools.
 - 5.2.1.11 To prevent accidental starting, employees should be continually aware not to hold the start button while carrying a plugged in tool.
 - 5.2.1.12 Tools will be maintained in a clean manner and properly maintained in accordance with the manufacturer's guidelines.
 - 5.2.1.13 Ensure that proper shoes are worn and that the work area is kept clean to maintain proper footing and good balance.
 - 5.2.1.14 Ensure that proper apparel is worn. Loose clothing, ties, or jewelry can become caught in moving parts.

- 5.2.1.15 Tools that are damaged will be removed from service immediately and tagged "Do Not Use". They will be reported and turned over to the job site supervisor or Safety Officer for repair or replacement.
- 5.2.1.16 Cracked saws. All cracked saws will be removed from service.
- 5.2.1.17 Grounding. Portable electric power tools will meet the electrical requirements of this safety program and 29 CFR 1910.331 - 335.
- 5.2.1.18 Compressed air used for cleaning. Compressed air will not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.

5.3 Methods of Guarding

5.3.1 One or more methods of guarding will be provided where required to protect the operator and other employees in the area from hazards such as those created by point of operation, in-running nip points, rotating parts, flying chips and sparks. Examples of guarding methods are barrier guards, two-hand tripping devices, electronic safety devices, etc. The guard will be such that it does not offer an accident hazard in itself. Employees will:

- 5.3.1.1 Inspect tools without guards for signs of guard removal. If it is evident that a guard is required, tag-out the tool and obtain a replacement. Tools will not be energized during inspection.
- 5.3.1.2 Inspect tools having guards for proper operation and maintenance prior to use. Tools will not be energized during inspection.
- 5.3.1.3 Never remove a guard during use.

5.4 Self Assessment:

Each division/work unit should conduct a self-assessment to assess compliance with this standard and develop action plans to correct deficiencies. See Section 6 for more information.

6. Training and Information

6.1 Powder Actuated Tools

- 6.1.1 Users of powder-actuated tools must be licensed and trained.
- 6.1.2 Training may be conducted as part of an apprenticeship program or in other recognized training forums.
- 6.1.3 Employees who indicate they have had prior training will be required to demonstrate understanding and capabilities prior to being assigned to work.

6.1.4 Manufacturer's instructions will be retained for training/reference purposes.

6.2 Initial and Re-Training

6.2.1 This safety program will be provided to and read by all employees receiving training. Training will be conducted on an as needed basis or when the following conditions are met:

6.2.1.1 Re-training will be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignments, a change in the type of tools used, or when a known hazard is added to the work environment.

6.2.1.2 Additional re-training will also be conducted whenever a periodic inspection reveals (or whenever there is sufficient reason to believe) there are deviations from or inadequacies in the employee's knowledge or use of tools.

6.2.1.3 The re-training will reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.

6.3 Verification

The company will verify that employee training has been accomplished and is being kept up to date. The documentation will contain each employee's name and dates of training.

7. Definitions

- *Powder Actuated Tools* – A tool that uses an explosive charge to drive a bolt or nail. Normally used in concrete construction or steel erection. Electrically powered nail guns are not considered a powder actuated tool.

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HAND AND PORTABLE POWER TOOL GUARDING AND SAFETY REQUIREMENTS

Table Of Contents

Portable Circular Saws
Power Abrasive Wheel Tools
Vertical Portable Grinders
Portable Belt Sanding Machines
Pneumatic Power Tools and Hoses
Explosive Actuated Fastening Tools
Power Lawn Mowers
Jacks

- **Portable Circular Saws**

- All portable, power-driven circular saws having a blade diameter greater than 2 in. will be equipped with guards above and below the base plate or shoe.
- The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. (Does not apply to circular saws used in the meat industry for meat cutting purposes).
- For authorized use the following conditions must be met.
 - An upper guard must cover the entire blade of the saw.
 - A retractable lower guard must cover the teeth of the saw.
 - Except when it makes contact with the work material, the lower guard must automatically return to the covering position when the tool is withdrawn from the work.

- **Power Abrasive Wheel Tools**

- Abrasive wheels shall be used only on tools/equipment provided with safety guards. (A safety guard is an enclosure designed to restrain the pieces of the grinding wheel and furnish all possible protection in the event that the wheel is broken in operation.)
 - Exceptions. These requirements do not apply to the following classes of wheels and conditions:
 - Wheels used for internal work while within the work being ground.
 - Mounted wheels used in portable operations 2 inches and smaller in diameter. Mounted wheels, usually 2 inch diameter or smaller, and of various shapes, may be either organic or inorganic bonded abrasive wheels. They are secured to plain or threaded steel mandrels. (Organic wheels are wheels which are bonded by means of an organic material such as resin, rubber, shellac, or other similar bonding agent.)
 - Types 16, 17, 18, 18R, and 19 cones, and plugs, and threaded-hole pot balls where the work offers protection.
 - Guard covers. Employees will ensure that a safety guard covers the spindle end, nut, and flange projections. The safety guard shall be mounted so as to maintain proper alignment with the wheel and the strength of the fastenings shall exceed the strength of the guard.
 - Exception. Safety guards on all operations where the work provides a suitable measure of protection to the operator may be so constructed that the spindle end, nut, and outer flange are exposed. Where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted.
 - Exception. The spindle end, nut, and outer flange may be exposed on portable machines designed for and used with type 6, 11, 27, and 28 abrasive wheels, cutting off wheels, and tuck pointing wheels. (Tuck pointing wheels, usually Type 1, are reinforced organic bonded wheels which have diameter, thickness and hole size dimension. They are subject to the same limitations of use and mounting as Type 1 wheels. Limitation: Wheels used for tuck pointing should be reinforced, organic bonded. Tuck pointing is the removal, by grinding, of cement, mortar, or other nonmetallic jointing material. The term reinforced as applied to grinding wheels shall define a class of organic wheels which contain strengthening fabric or filament. The term reinforced does not cover wheels using such mechanical additions as steel rings, steel cup backs or wire or tape winding.)
 - Type 1 straight wheels have diameter, thickness, and hole size dimensions and should be used only on the periphery. Type 1 wheels shall be mounted between flanges. Limitation: Hole dimension (H) should not be greater than two-thirds of wheel diameter dimension (D) for precision, cylindrical, center-less, or surface grinding applications. Maximum hole size for all other applications should not exceed one-half wheel diameter.

- Cup wheels. Cup wheels (Types 6 and 11) shall be protected by:
 - Safety guards as specified.
 - Special "revolving cup guards" which mount behind the wheel and turn with it. They shall be made of steel or other material with adequate strength and shall enclose the wheel sides upward from the back for one-third of the wheel thickness. The mounting features shall conform to all regulations. It is necessary to maintain clearance between the wheel side and the guard. The clearance shall not exceed one-sixteenth.
 - Type 6 cup wheels have specific diameter, thickness, hole-sizes, rim thickness, and back thickness dimensions. Grinding is always performed on rim face, W dimension. Limitation: Minimum back thickness, E dimension, should not be less than one-fourth T dimension. In addition, when unthreaded hole-wheels are specified, the inside flat, K dimension, must be large enough to accommodate a suitable flange.
 - Type 11 flaring cup wheels have double diameter dimensions D and J, and in addition have thickness, hole size, rim and back thickness dimensions. Grinding is always performed on rim face, W dimension. Type 11 wheels are subject to all limitations of use and mounting listed for Type 6 straight sided cup wheels definition
- General safety precautions.
 - Before being mounted it should be inspected closely and sound- or ring- tested to be sure that it is free from cracks or defects. To test, wheels should be tapped gently with a light non-metallic instrument. If they sound cracked or dead they could fly apart in operation and so must not be used. A sound and undamaged wheel will give a clear metallic tone or ring.
 - Employees will not locate themselves directly in front of the wheel as it accelerates to full operating speed.
 - Employees will always use eye protection.
 - Power will be turned off when not in use.
 - Hand held grinders are never placed in vises.
 - Mounting and inspection of abrasive wheels.
 - Immediately before mounting, all wheels shall be closely inspected and sounded by the user using the ring test to make sure they have not been damaged in transit, storage, or otherwise. The spindle speed of the machine shall be checked before mounting of the wheel to be certain that it does not exceed the maximum operating speed marked on the wheel.
 - Grinding wheels shall fit freely on the spindle and remain free under all grinding conditions. A controlled clearance between the wheel hole and the machine spindle (or wheel sleeves or adaptors) is essential to avoid excessive pressure from mounting and spindle expansion. To accomplish this, the machine spindle shall be made to nominal (standard) size plus zero minus .002 inch, and the wheel hole shall be made suitably oversize to assure safety clearance under the conditions of operating heat and pressure.
 - All contact surfaces of wheels, blotters, and flanges shall be flat and free of foreign matter.
 - When a bushing is used in the wheel hole it shall not exceed the width of the wheel and shall not contact the flanges.
 - Excluded machinery. Natural sandstone wheels and metal, wooden, cloth, or paper discs having a layer of abrasive on the surface are not covered by these requirements.

- **Vertical Portable Grinders**

- Supervisors will ensure all employees are thoroughly familiar with and use strict work practices in accordance with the manufacturer instructions. Safety guards used on machines known as right angle head or vertical portable grinders shall have a maximum exposure angle of 180 and the guard shall be located between the operator and the wheel during use. Adjustment of guard shall be such that pieces of an accidentally broken wheel will be deflected away from the operator. (See 29 CFR 1910.243, Figure P-4.)
- Other portable grinders. The maximum angular exposure of the grinding wheel periphery and sides for safety guards used on other portable grinding machines shall not exceed 180 and the top half of the wheel shall be enclosed at all times.
- Portable grinding is a grinding operation where the grinding machine is designed to be hand held and may be easily moved from one location to another.

- **Portable Belt Sanding Machines**

- Supervisors will ensure that all belt sanding machines used by their personnel be provided with guards at each nip point where the sanding belt runs onto a pulley. These guards will effectively prevent the hands or fingers of the operator from coming in contact with the nip points. The unused run of the sanding belt shall be guarded against accidental contact.

- **Pneumatic Power Tools and Hoses**

- Supervisors will ensure all employees are thoroughly familiar with and use strict work practices in accordance with the manufacturer instructions. Prior to use the following requirements will be complied with:
- Tool retainer. A tool retainer will be installed on each piece of utilization equipment which, without such a retainer, may eject the tool.
- Air-hoses. Hose and hose connections used for conducting compressed air to utilization equipment will be compatible with the pressure and service to which they are subjected.

- **Explosive Actuated Fastening Tools**

- General safety precautions: Supervisors will ensure all employees are thoroughly familiar with and use strict work practices in accordance with the manufacturer instructions.
 - Operators and assistants using tools shall be safeguarded by wearing eye protection.
 - Head and face protection shall be used as required by working conditions.
 - Before using a tool, the employee will inspect it to determine to his satisfaction that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.
 - When a tool develops a defect during use, the operator shall immediately cease to use it until it is properly repaired.
 - Tools will not be loaded until just prior to the intended firing time. Neither loaded nor empty tools are to be pointed at any workmen.
 - No tools shall be loaded unless being prepared for immediate use and will not be left unattended.
 - Misfire instructions (general).
 - Know the manufacturers instructions.
 - Hold the tool in the operating position for at least 30 seconds.
 - Try to operate the tool a second time.
 - Wait another 30 seconds, holding the tool in the operating position; then proceed to remove the explosive load in strict accordance with the manufacturer instructions.
 - A tool will never be left unattended in a place where it would be available to unauthorized persons.
 - Fasteners will not be driven into very hard or brittle materials including but not limited to cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick, or hollow tile.
 - Driving into materials easily penetrated will be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying-missile hazard on the other side.
 - Low-velocity tools. Only tools meeting the design specifications of 29 CFR 1910.243 will be used. Employees contemplating purchase of low-velocity tools will consult the OSHA Regulatory Standard before final tool selection. The manufacturer's inspection criteria will be followed for pre-use inspection.
 - Low-velocity piston type tools. Only tools meeting the design specifications of 29 CFR 1910.243 will be used. Employees contemplating purchase of low-velocity piston type tools will consult the OSHA Regulatory Standard before final tool selection. The manufacturer's inspection criteria will be followed for pre-use inspection.
 - A low-velocity piston tool is a tool that utilizes a piston designed to be captive to drive a stud, pin, or fastener into a work surface. It will not cause such stud, pin, or fastener to have a mean velocity in excess of 300 feet per second when measured 6.5 feet from the muzzle end of the barrel.
 - Fasteners will not be driven directly into materials such as brick or concrete closer than 3 inches from the unsupported edge or corner or into steel surfaces closer than one-half inch from the unsupported edge or corner, unless a special guard, fixture, or jig is used. (Exception: Low-velocity tools may drive no closer than 2 inches from an edge in concrete or one-fourth inch in steel.)
 - When fastening other materials, such as a 2X4 inch wood section to a concrete surface, it is permissible to drive a fastener of no greater than 7/32 inch shank diameter not closer than 2 inches from the unsupported edge or corner of the work surface.
 - Fasteners will not be driven through existing holes without positive guides for accurate alignment.
 - No fastener will be driven into a spalled area caused by an unsatisfactory fastening.
 - Tools will not be used in an explosive or flammable atmosphere.
 - All tools will be used with the correct shield, guard, or attachment recommended by the manufacturer. Protective shields or guards are devices or guards attached to the muzzle end of the tool, which is designed to confine flying particles
 - Any tool found not in proper working order will be immediately removed from service and turned over to the job site supervisor for repair in accordance with the manufacturer's specifications.

- High-velocity tools. Only tools meeting the design specifications of 29 CFR 1910.243 will be used. Employees contemplating purchase of high-velocity tools will consult the OSHA Regulatory Standard before final tool selection. The manufacturer's inspection criteria will be followed for pre-use inspection.

- High-velocity tools are tools or machines which, when used with a load, propels or discharges a stud, pin, or fastener, at velocities in excess of 300 feet per second when measured 6.5 feet from the muzzle end of the barrel, for the purpose of impinging it upon, affixing it to, or penetrating another object or material. (A stud, pin, or fastener is a fastening device specifically designed and manufactured for use in explosive-actuated fastening tools.)

- A hammer-operated piston tool--low-velocity type, is a tool which, by means of a heavy mass hammer supplemented by a load, moves a piston designed to be captive to drive a stud, pin, or fastener into a work surface, always starting the fastener at rest and in contact with the work surface.

- **Power Lawnmowers**

- Supervisors will ensure all employees are thoroughly familiar with and use strict work practices in accordance with the manufacturer instructions. General requirements:

- Power lawnmowers will have power-driven chains, belts, and gears so positioned or otherwise guarded to prevent the operator's accidental contact therewith during normal starting, mounting, and operation of the machine.

- A shutoff device will be provided to stop operation of the motor or engine. This device will require manual and intentional reactivation to restart the motor or engine.

- All positions of the operating controls will be clearly identified.

- The words "Caution. Be sure the operating control(s) is in neutral before starting the engine" shall be clearly visible at an engine starting control point on self-propelled mowers.

- The mower blade will be enclosed except on the bottom and the enclosure shall extend to or below the lowest cutting point of the blade in the lowest blade position.

- Guards which must be removed to install a catcher assembly will be affixed to the mower near the opening stating that the mower will not be used without either the catcher assembly or the guard in place.

- The word "Caution" (or stronger wording) will be placed on the mower at or near each discharge opening.

- Proper precautions will be taken when refueling mowing equipment.

- Mowing equipment will never be left unattended while running.

- Will constantly be mindful of persons working near the operation of the mower.

- **Jacks**

- Jack. A jack is an appliance for lifting and lowering or moving horizontally a load by application of a pushing force. Jacks may be either lever and ratchet or screw and hydraulic types.

- The operator will make sure that the jack used has a rating sufficient to lift and sustain the load. The rating of a jack is the maximum working load for which it is designed to lift safely that load throughout its specified amount of travel.

- To raise the rated load of a jack, the point of application of the load, the applied force, and the length of lever arm should be those designated by the manufacturer for the particular jack considered.

- The rated load will be legibly and permanently marked in a prominent location on the jack by casting, stamping, or other suitable means.

- In the absence of a firm foundation the base of the jack will be blocked. If there is a possibility of slippage of the cap, a block shall be placed in between the cap and the load.

- The operator will watch the stop indicator, which shall be kept clean, in order to determine the limit of travel. The indicated limit will never be overrun.

- After the load has been raised, it will be cribbed, blocked, or otherwise secured at once.

- Hydraulic jacks exposed to freezing temperatures shall be supplied with adequate antifreeze liquid.

- All jacks shall be properly lubricated at regular intervals.

TRAINING ATTENDANCE ROSTER HAND AND PORTABLE POWER TOOLS

Hand and Portable Power Tool Training Includes:

- General Requirments
- Types of Tools
- Hazards
- Protection and Guarding
- Abrasive, Electric, Pneumatic and Powder Actuated Tools, and Jacks

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	
By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed		

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

HAZARD COMMUNICATION SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.1200

INTRODUCTION

The Hazard Communication Standard requires employers to inform employees of the hazards and identities of workplace chemicals to which they are exposed. This program specifies the requirements for evaluation of chemical hazards in the workplace and establishes means for communicating hazard information to all affected workers including chemical Safety Data Sheets (SDS), labeling, a Written Hazard Communication Program, employee training and communication requirements for contractors and vendors.

TRAINING

- Employees and contractors must be made aware of the hazards they may encounter and the precautions they must take to protect themselves from these hazards.
- Employees or contractors must be trained on initial assignment and whenever any new physical, chemical or health hazards are introduced, when non-routine tasks or procedures are required, or when employees are working with or near unlabeled piping systems that contain hazardous chemicals.

ACTIVITIES

- Determine if hazardous chemicals are present in the workplace
- Ensure the availability of a SDS for each hazardous chemical or mixture in the workplace
- Ensure a Hazardous Chemical List is maintained
- Evaluate the hazards for each chemical or mixture used and/or stored in the workplace
- Ensure proper labeling of chemical containers in accordance with Globally Harmonized System (GHS) requirements.
- Complete the Written Hazard Communication Program
- Employees trained
- Process to evaluate and document any new hazards or changes

FORMS

- Hazardous Chemical List
- Training Attendance Roster
- Written Hazard Communication Program

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

HAZARD COMMUNICATION PROGRAM

1. **Purpose.** To provide an effective, written hazard communication program in compliance with company, State and Federal regulatory requirements. Hazard Communication applies to all chemicals and mixtures purchased, manufactured, used, and/or stored by the company to which employees, contractors, tenants or visitors may be exposed. (Laboratories, as defined by OSHA regulations, are not covered under this program.)
2. **Scope.** This program applies to all operations at company facilities and job-sites. This program does not apply to articles, food or beverage items. Consumer products are exempt if they are used at the same frequency, duration, and concentration as home use.
3. **Responsibilities.**

3.1 Management must:

- 3.1.1 Perform a hazard determination. The company is required to determine the hazards of any products or chemicals they manufacture and/or sell.
- 3.1.2 Ensure a Hazardous Chemical List is maintained either for the company as a whole, or for each department or work area.
- 3.1.3 Evaluate the hazards for each chemical or mixture used or stored in the workplace.
- 3.1.4 Maintain a Written Hazard Communication Program.
- 3.1.5 Assure labels and other forms of warning are affixed to chemical containers, as appropriate, meeting Globally Harmonized System (GHS) label requirements.
- 3.1.6 Train and inform employees on initial assignment and whenever a new physical, chemical or health hazard is introduced into the workplace, or when non-routine tasks or procedures are required.
- 3.1.7 Develop and implement a method of communication between any contractors and the company which describes and outlines.

3.2 Employees must:

- 3.2.1 Attend Hazard Communication Training upon initial assignment, and when changes to the workplace hazards occur (through process changes or a change of work assignment).
- 3.2.2 Re-label any containers into which hazardous chemicals or mixtures are transferred.

3.2.3 Inform management of any changes to chemicals or chemical uses.

4. Procedure.

4.1 Determine if hazardous chemicals are present in the workplace.

4.2 Written Hazard Communication Program (See the included form for the Written Hazard Communication Program.) This program must contain or describe:

4.2.1 A list of hazardous chemicals

4.2.2 Criteria and Label information

4.2.3 Safety Data Sheets (SDS)

4.2.4 Employee information and training

4.2.5 Procedures for evaluating the hazards of any non-routine tasks (e.g. one-time chemical uses) and for evaluating any unlabeled pipes in the work area that contain hazardous chemicals.

4.2.6 Multi-employer workplaces (Provisions for contractors)

4.3 Hazardous Chemical List (See the included Form for a Hazardous Chemical List)

Create a list of all hazardous chemicals used in the workplace. If necessary, use the chemical SDSs to determine whether or not a chemical is a hazardous chemical.

4.4 Chemical Labeling

4.4.1 Manufacturer/GHS Compliant labeling: All containers must be labeled with the product identifier, signal word, hazard statement, pictogram(s), precautionary statement, and manufacturer name, address, and phone number. Such labels may not be defaced or covered.

4.4.2 Workplace labeling: May be used for process materials and must contain the chemical identity and appropriate hazard warnings.

4.4.3 Portable Container labels: should be on all containers at all times. However, labels are not required for portable containers provided they are immediately used by the employee on that work-shift *and* remain in the direct control of the employee at all times.

4.4.4 All labels must be in legible English. Other languages may be used, provided a label in English is also provided.

- 4.4.5 Pipes or piping systems that contain a hazardous chemical shall be identified to employees by at least one (1) readily accessible label, sign, placard, written operating instructions, process sheet, batch ticket or substance identification system.

4.5 Safety Data Sheets

- 4.5.1 Ensure the availability of a SDS for each hazardous chemical or mixture in the workplace and are:

- 4.5.1.1 Readily accessible and available by employees on each work shift

- 4.5.1.2 Written in English

- 4.5.1.3 Obtained from the manufacturer or supplier of the chemical or material before it is used at the workplace, if one did not accompany the shipment

- 4.5.1.4 Kept for the duration of its use or storage, at a minimum, and for 30 years after discontinuing chemical use.

- 4.5.2 SDSs are prepared by the chemical manufacturer following the GHS requirements.

4.6 Multi-employer workplaces (Provisions for contractors) must be informed about:

- 4.6.1.1 Onsite access to and maintenance of a current SDS

- 4.6.1.2 Labeling procedures

- 4.6.1.3 Protective and precautionary measures

- 4.7 Maintain a process to evaluate and document any new hazards or changes to the workplace that would affect the above requirements, including any non-routine tasks or procedures, or unlabeled piping systems that contain hazardous chemicals.

5. **Safety Information**

Trade Secret Information - Trade Secrets are products which, when the chemical identity of the product is revealed, would jeopardize the manufacturer's competitive advantage. Trade secret materials (and requests to reveal trade secret information) must comply with the requirements of OSHA 1910.1200(i) and Appendix D.

6. **Training and Information**

- 6.1 Employees must be trained on initial assignment and whenever any new physical, chemical or health hazards are introduced, when non-routine tasks or procedures are required, or when employees are working with or near unlabeled piping systems that contain hazardous chemicals.

6.2 Training includes

- 6.2.1 Identification of the work areas where hazardous chemicals are used.
- 6.2.2 The location and availability of the written program, hazardous chemical list, and SDSs.
- 6.2.3 Information on the methods and observations used to detect the presence or release of chemicals (monitors, alarm systems, odors, visual appearance, etc.) including any “non-routine” tasks that employees may be asked to periodically perform which are beyond their regularly assigned duties.
- 6.2.4 The physical, health, simple asphyxiation, combustible dust, and pyrophoric gas hazard information of the chemicals present
- 6.2.5 The measures employees can take to protect themselves from identified chemical hazards (procedures, personal protective equipment, etc.)
- 6.2.6 The labeling system used in the workplace
- 6.2.7 The details of the Written Hazard Communication Program

7. Definitions

- *Hazard Statement* - statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- *Laboratory* - A facility where relatively small quantities of hazardous chemicals are used on a non-production basis. The following conditions must be met:
 - Chemical manipulations are carried out on a "laboratory scale"
 - Multiple chemical procedures or chemicals are used
 - The procedures involved are not part of a production process, nor in any way simulate a production process
 - "Protective laboratory practices and equipment" are available and in common use to minimize the potential for employee exposure to hazardous chemicals
- *Pictogram* - a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.
- *Precautionary statement*- a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.
- *Process Materials* - Chemicals that are routinely used in a chemical process or as part of a mixture for a chemical process.

- *Product Identifier* - the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical.
- *Safety Data Sheets (SDS)* - reference documents that outline the product information, hazards and other required elements for hazardous chemicals or materials. These documents are produced by the manufacturer of the chemical or material and must be maintained at any workplace where they are used or stored.
- *Signal Word* – a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in this section are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

HAZARDOUS CHEMICAL LIST

Name of Chemical (as it appears on the SDS or Chemical Label)	Common Name (what this company calls the material – if different than the SDS)	Manufacturer or Supplier Name	Manufacturer Emergency Contact Information Or Phone Number

Completed by: _____ Date: _____

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WRITTEN HAZARD COMMUNICATION PROGRAM

The purpose of this written program is to document how the Hazard Communication requirements are met.

General:

_____ is responsible for the initial and ongoing activities to keep this Hazard Communication Program current.

The location of the written program is: _____

The location of the list of hazardous chemicals is: _____

The location of the Safety Data Sheets (SDSs) is: _____

The list of hazardous chemicals, the written program, and the SDSs are required to be accessible to employees at all times. If electronic access is provided, describe the process for accessing this information: _____.

If an SDS is not received at the time of purchase or shipment, an SDS will be obtained either through the manufacturer's website, by calling the manufacturer or supplier, or by writing the company. If the SDS is not available, OSHA may be contacted or notified.

_____ is responsible for ensuring that SDSs are received.

Hazard Warning Labels:

Original manufacturer's labels are generally used to ensure updated information on chemical hazards is made available.

_____ is responsible for ensuring that all hazardous chemicals in the workplace have appropriate labels (original manufacturer's labels, or written/printed labels (such as HMIS, NFPA or NAFTA code labels) affixed by our company. If alternative systems to the hazard warning statements are used, describe the system used: _____.

_____ is responsible for ensuring any containers shipped or taken off our company premises have appropriate labels, which include the identity of the chemical, appropriate hazard warning statements, and the name and address of manufacturer or responsible party.

SDS for Company Made or Manufactured Chemicals:

_____ is responsible for ensuring that SDSs are created and written for every hazardous chemical that the company makes, mixes or manufactures.

_____ is responsible for ensuring that any SDSs are shipped to another company who purchases or is provided with our company-specific chemicals or mixtures.

Non-Routine Tasks and Unlabeled Pipes:

_____ is responsible for ensuring that any **new or non-routine tasks** are identified and training is appropriately provided. SDSs and chemical label reviews are used as part of this hazard evaluation and identification.

The methods used to inform employees of the hazards of **non-routine tasks**, and the hazards associated with chemicals contained in **unlabeled pipes** in their work areas are as follows:

Contractors:

_____ is responsible for supplying an SDS, upon request. Contractors working at our sites or locations will be provided with an SDS for any chemical used or stored at the facility, upon request. Describe the methods used to provide on-site access to SDS:

Describe how you communicate information about your labeling system, if different than that used by contractors or subcontractors for types of labeling: _____

Methods used to inform any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies: _____

Off-Site Work:

Employees working at other sites may request an SDS for any chemical they may be exposed to. During training or orientation, our employees are informed of how to request information on the elements of that location's written hazard communication program, including Safety Data Sheet information, labeling, non-routine work hazards and unlabeled pipes.

_____ is responsible for ensuring that this occurs, as needed.

Information and Training:

_____ is responsible for identifying employees who need training.

_____ is responsible for conducting training upon initial assignment.

The hazard communication training must cover the following items, at a minimum:

- Information on the operations where hazardous chemicals are present
- The location and availability of this written program, list of hazardous chemicals, and SDS
- How to detect releases of hazardous chemicals (monitoring equipment, visual determination, odor, equipment sensors, etc).
- The physical and health hazards of chemicals in the work area, including any unlabeled chemical pipes.
- The measures that employees can take to protect themselves from these hazards.

The details of the Hazard Communication Program, including the explanation of the labeling system and SDS.

_____ is responsible for ensuring that these elements are covered in the training program.

Completed by: _____

Date: _____

PROGRAM OVERVIEW

LOCK-OUT/TAG-OUT (LO/TO) SAFETY PROGRAM

REGULATORY STANDARD - OSHA - 29 CFR 1910.147

INTRODUCTION

OSHA's Control of Hazardous Energy (Lockout/Tagout) standard covers working on or around equipment where employees may be exposed to the unexpected energization, motion or start-up of machines or equipment. This program details the minimum performance requirements and has provisions for employee training, group lockout/tagout, inspection certifications, protective materials & hardware, application & test of controls, and procedures for shift or personnel changes. The standard does not apply to cord and plug connected electrical equipment where the plug is under the control of the servicing mechanic, or hot tap (i.e. welding) operations.

TRAINING

- Training will be provided to Authorized, Affected and Other employees, based on their exposure to LO/TO and Hazardous Energy Control procedures
- Training is required upon initial assignment, when changes in job responsibilities occur, when there are changes to the process or equipment, or whenever deficiencies or deviations from established procedures are noted
- When tag-out only systems are used, all employees will be trained on the limitations of tags

ACTIVITIES

- Evaluate the potential hazards of specific equipment
- Establish a written program and procedures for each piece or type of equipment
- Communicate with contractors, as required
- Train employees (3 levels: Authorized, Affected and Other)
- Verify Lock/Tag application process
- Evaluate all new equipment (or changes to old equipment) and processes for LO/TO capability
- Perform annual procedure inspections, as required

FORMS

- LOTO Absent Employee Lock Removal Procedure
- LOTO Determination of Applicability
- LOTO Equipment List
- LOTO Written Procedure (template)
- LOTO Written Procedure Inspection Certificate
- LOTO Written Procedure Acknowledgement
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

LOCK-OUT/TAG-OUT (LO/TO) SAFETY PROGRAM

1. **Purpose.** This program covers working on or around equipment where employees may be exposed to the unexpected energization, motion or start-up of machines or equipment. This program assists in compliance with 29CFR1910.147 regulations for the control of hazardous energy.
2. **Scope.** This standard applies to all locations and covers the servicing and/or maintenance of machines and other equipment and processes. The standard does not apply only to cord and plug connected electrical equipment where the plug is under the control of the servicing mechanic, or hot tap (i.e. welding) operations. Stand alone equipment like generators and automobiles have lockout restrictions that apply.

3. Responsibilities

3.1 Management

- 3.1.1 Evaluate the potential hazards of specific equipment
- 3.1.2 Establish a written program
- 3.1.3 Establish written LO/TO procedures for each individual or group of similar machines in place
- 3.1.4 Communicate with contractors regarding the company's Lock-Out/Tag-Out Program and exposures
- 3.1.5 Train employees (3 levels: Authorized, Affected and Other)
- 3.1.6 Verify Lock/Tag application process
- 3.1.7 Account for new equipment and processes
- 3.1.8 Establish group lockout process as needed
- 3.1.9 Implement Lock Removal for Absent Employee procedures
- 3.1.10 Perform annual and periodic inspections, as required
- 3.1.11 Account for shift and personnel changes, as needed or required

4. Procedure

4.1 Written Program

- 4.1.1 This document serves as the written lock-out/tag-out program for the company. Before performing service or maintenance on equipment or machinery where energy or motion could release and cause injury, the energy sources must be isolated and "locked out".

4.2 Written Procedures

- 4.2.1 Up-to-date written procedures are in place and followed for the isolation of an energy source (including locking, blocking and tagging). Procedures must be written for both routine and non-routine service and maintenance work, and including production work such as set-up, cleaning and un-jamming. These procedures must include sufficient detail to provide each employee with control over all hazardous energy they may be exposed to (such as electrical, mechanical, gravitational, hydraulic, pneumatic, chemical, thermal, or other hazards). A template-form is included with this program to assist in writing the required procedures.
- 4.2.2 Informing contractors of company devices and procedures
- 4.2.3 Informing employees about differences in the contractor's devices and procedures and about company procedures
- 4.2.4 Assuring procedures are in place to maintain LO/TO requirements during shift changes or personnel changes to maintain the integrity and continuity of LO/TO requirements

4.3 Application of Locks and Tags or Other Energy Control Devices

4.3.1 The Six Steps of LO/TO

- 4.3.1.1 Preparation for Shutdown – the Authorized Employee must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled and the methods and means to control the energy. This knowledge should include a review of the written procedure.
- 4.3.1.2 Machine or Equipment Shutdown – Shutdown machine or equipment using the established written procedures (normal operating procedures) after notifying Affected Employees in the area of the shut-down.
- 4.3.1.3 Machine or Equipment Isolation - Locate and isolate all energy sources.
- 4.3.1.4 Hazardous Energy Control Device Application – Apply or affix Lock and Tag (or other device) so that equipment is held in a “safe” or “off” position.
- 4.3.1.5 Stored Energy – Relieve, disconnect or restrain all energy sources so that they are made safe.
- 4.3.1.6 Verification of Isolation – The authorized employee will verify the isolation and de-energizing of the machine or equipment by trying to activate the machine.

4.3.2 Tags without Locks

4.3.2.1 Tags will accompany LO/TO specific locks at all times, unless:

4.3.2.1.1 If locks cannot be used, tags must be supplemented by other means to ensure an equivalent level of safety to that of a lock application (Example: removing a control switch, circuit breaker or valve handle).

4.3.2.1.2 Where locks are not used, the supplemental means (and its written procedure) must be reviewed with each authorized and affected employee at least annually.

4.3.2.1.3 When equipment is being taken out of service (i.e. abandoned in place or no longer used), non-LO/TO locks and tags will be used. The tag will contain the words "Out of Service" and an appropriate description.

4.3.3 Other Energy Control Devices

4.3.3.1 Blocks, chains, wedges, adapter pins, self-locking fasteners may be used to block machines or equipment from unexpected energization. (For example: A block may be used to wedge open a mechanical power press during tool changes to prevent the machine from cycling).

4.3.3.2 Automotive repair personnel should consult with the vehicle service guidelines to determine if removal of the ignition key is sufficient to ensure energy hazards are controlled, or if batteries must be disconnected during diagnostic or repair activities.

4.3.3.3 Generators and similar stand alone equipment must have the energy sources controlled, through disconnect of the spark plug or lock out of the controls for the engine.

4.3.4 Release from LO/TO or Restoring Equipment to Service

4.3.4.1 Check the work area to ensure that tools and other non-essential items have been removed and that the machine or equipment components are intact.

4.3.4.2 Check the area to ensure that employees have been safely moved away from the work area.

4.3.4.3 Verify that the machine controls are in neutral or off.

4.3.4.4 Remove the lock-out/tag-out device(s).

4.3.4.5 Reenergize the machine or equipment. NOTE: the removal of some forms of blocking may require reenergizing of the machine before safe removal.

- 4.3.4.6 Notify area employees that the servicing or maintenance work is completed and the machine is ready for use.

4.4 Lock Removal for Absentee Employee Process

- 4.4.1 Each LO/TO device shall be removed from the energy isolating device by the employee who applied the device.
- 4.4.2 When the Authorized Employee who applied the LO/TO device is not available to removed it, the device may be removed under the direction of a single designated person at the company provided this designated person follow specific procedures. At a minimum, these include:
 - 4.4.2.1 Verification that the Authorized Employee who applied the device is not at the facility
 - 4.4.2.2 Efforts are made to contact the Authorized Employee to inform them that their LO/TO device has been removed
 - 4.4.2.3 There are methods followed to ensure the Authorized Employee knows their device was removed BEFORE they resume work
- 4.4.3 The Safety Officer will either serve as the responsible person or management will designate an individual to serve in this capacity.
- 4.4.4 To assist in the consistent application of the absentee lock removal process, a form has been provided with this program.

4.5 Tag Application

- 4.5.1 Use only company approved LO/TO locks, tags, blocks and other devices
 - 4.5.1.1 Attach tags with nylon cable ties or an equivalent strength material
 - 4.5.1.2 Attach tags to the locks
 - 4.5.1.3 Tags will contain the following information:
 - 4.5.1.3.1 Name of equipment being secured
 - 4.5.1.3.2 Name of person securing
 - 4.5.1.3.3 Date of application (securing)
 - 4.5.1.3.4 How to contact person securing
 - 4.5.1.3.5 Reason for being secured (e.g. taken out of service, repair, etc.)

4.5.1.3.6 A statement prohibiting removal or tampering with the lock or tag

4.5.2 Tags must include a statement such as “Do Not Start”, “Do Not Open”, “Do Not Close”, “Do Not Energize” or “Do Not Operate”.

4.6 New Equipment Design or Major Modifications to Existing Equipment

4.6.1 Machinery must be able to be locked out or made lockable when they are:

4.6.1.1 Replaced or undergo major repairs

4.6.1.2 Renovated or modified

4.6.1.3 Purchased and installed

4.6.2 New equipment installations must be capable of being locked out as an integral part of the machine (i.e. without the use of chains, etc.).

4.7 Group Lock-Outs

4.7.1 Group Lock outs will incorporate the use of a group lockout device. Devices may include a lockable container (like a strong-box) to hold the process lock keys and tag-out records for large jobs and long duration work, or a multiple lock adapter (that will not release until all locks have been removed) for single machines that require more than one lock. These group devices are used as controls where there are complex situations involving many different people who all require the machine or process to be locked before they work on it.

4.7.1.1 One "Primary Authorized Person" will be assigned, and vested as responsible, for all the locks on the project and assuring continuity of energy control for the entire group.

4.7.2 A master locking device provides protection from the main energy source. The “Primary Authorized Person” is solely responsible for applying and removing this device.

4.7.3 Each authorized employee involved in the group lockout must affix a personal lock-out or tag-out device to the machine, equipment or into group lockbox or onto the device when their work begins and remove it when their work is completed.

4.8 Shift/Personnel Change Procedures

4.8.1 Specific procedures to account for shift or personnel changes must ensure the continuity of LO/TO protection, and must include a provision for the transfer of devices between off-going and on-coming employees. This will minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment or the release of stored energy.

4.9 Required Periodic Inspections

- 4.9.1 Inspect LO/TO procedures and actual lock-outs (at least annually) to assure they meet regulatory requirements. The inspection is led by a “LO/TO Authorized” employee who has been trained in that procedure. This person must be someone other than the one performing the lock-out. The inspections requirements include:
 - 4.9.1.1 Checking training records to verify people have been trained to the level necessary.
 - 4.9.1.2 That the procedure document was reviewed within the last calendar year. Reviews must ensure the procedures are adequate, understandable and being followed.
 - 4.9.1.3 All employees authorized to use that procedure participate in this review (group meeting reviews are acceptable).
 - 4.9.1.4 Field check the actual lock-out to assure the equipment is being locked out properly. The inspector and the person locking the equipment are required to participate, at a minimum.
 - 4.9.1.5 Asking operators how they would lock/tag equipment, and verify by demonstration.
 - 4.9.1.6 Note and correct any deficiencies.
 - 4.9.1.7 Document this assessment using the inspection certificate form provided with this program, or an equivalent record. Both the inspector and the person performing the LO/TO must sign the assessment certificate.
- 4.9.2 If the procedure is found lacking or deficient, it must be revised and all employees who would use that procedure must be retrained to the new procedure before servicing or maintaining that equipment.
- 4.9.3 Each procedure that is used for “normal” or “routine” lock-outs must be reviewed at least once per year. “Non-routine” lock-outs must have a procedure reviewed before the procedure is used, if it hasn’t been used in the last calendar year.

5. **Safety Information**

5.1 Specific Requirements for Electrical LO/TO with Greater than 50 volts to Ground:

- 5.1.1 Only an “Electrical Qualified Person” (Electricians or persons specifically trained by an electrician) can operate the equipment or otherwise verify that the equipment can not be restarted.
- 5.1.2 Only an “Electrical Qualified Person” can use test equipment to test the circuit elements and electrical parts of the equipment, including exposure to back-feed or inadvertently induced voltage.

- 5.1.3 Only an “Electrical Qualified Person” can conduct tests and inspections to verify that the equipment can be safely re-energized.
- 5.1.4 Locks must be accompanied by tags
- 5.1.5 Safe de-energizing and re-energizing procedures must be determined before service or maintenance is performed and approved in writing by an “Electrical Qualified Person” before the actual LO/TO is performed.

5.2 Records

5.2.1 Training records will be maintained. Training records include:

5.2.1.1 The name of the employee trained

5.2.1.2 The date of training

5.2.1.3 As needed, information on the specific procedure to which the employee is trained (i.e. a non-routine task).

5.2.2 Copies of training materials (i.e. the specific written procedure and signed inspection certificate) used for non-routine tasks must be kept.

6. Training and Information

6.1 LO/TO Training – General

6.1.1 Training will be provided to Authorized, Affected and Other employees, based on their exposure to LO/TO and Hazardous Energy Control procedures.

6.1.2 Training is required:

6.1.2.1 upon initial assignment

6.1.2.2 when changes in job responsibilities occur

6.1.2.3 when new equipment is brought into an area

6.1.2.4 when new processes that present new hazards are introduced

6.1.2.5 when there are changes in the hazardous energy control procedures

6.1.2.6 when deficiencies or deviations from established procedures are noted

6.1.2.7 when an inspection or review reveals deficiencies

6.1.3 There are three specific levels of training required:

- 6.1.3.1 Authorized employees will receive formal LO/TO training:
 - 6.1.3.1.1 The training should also be supplemented by localized application, procedure or equipment-specific instruction, which includes written procedures and hands-on instruction in LO/TO application.
 - 6.1.3.1.2 The training should enable the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace and the methods and means necessary for energy isolation and control.
- 6.1.3.2 Affected employees will receive a mid-range level of training to inform them of the purpose of the program, and their limitations and responsibilities under the program.
- 6.1.3.3 Training for Other employees can be verbally or by another method, and will inform employees about the procedure and program, about the prohibition relating to attempts to start machines or equipment that are locked out or tagged out, and in recognizing LO/TO devices and their purpose.
- 6.1.4 All levels of training should include information on who serves as the responsible person designated for the Lock Removal for Absent Employee process.

6.2 Tag-Out Only Systems

- 6.2.1 When tag-out only systems are used, all employees will be trained on the limitations of tags, including:
 - 6.2.1.1 Tags are warning devices only and do not provide physical restraint
 - 6.2.1.2 Tags may not be removed, except by the person who applied it.
 - 6.2.1.3 Tags must be legible and understandable by all employees
 - 6.2.1.4 Tags must stand up to the conditions where they are applied (wet, cold, heat, etc.)
 - 6.2.1.5 Tags must be secure so they do not inadvertently fall off or get removed
 - 6.2.1.6 Tags may evoke a “false sense of security” and must not be used as a sole-system when locks or other devices can be applied.

6.3 Re-training

- 6.3.1 Re-training is required for both Authorized and Affected Employees when:

- 6.3.1.1 Employee lock-outs are performed incorrectly, reviews reveal deficiencies, or when there is reason to believe there are inadequacies in the employees knowledge of the energy control procedures
- 6.3.1.2 A change in job assignment requires re-training
- 6.3.1.3 Modifications to equipment occur which affects the LO/TO procedure or present a new hazard
- 6.3.1.4 A procedure has been changed since the last time the employee performed LO/TO on that equipment or machinery.

7. Definitions

- *Authorized Employee* - A person who locks-out or tags-out machines or equipment in order to perform servicing or maintenance (set up operators and tools changes).
- *Affected Employee* – A person whose job requires them to work in an area or operate machinery or equipment on which servicing or maintenance is being performed under lock-out or tag-out.
- *Capable of Being Locked-Out* - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which (or through which) a lock can be affixed, or it has a locking mechanism built into it. Other energy-isolating devices are "capable of being locked-out" if energy isolation can be achieved without the need to dismantle, rebuild or replace the isolating device, or permanently alter its capability.
- *Energized* – Connected to an energy source or containing residual or stored energy
- *LO/TO or Energy-Isolating Device* - A mechanical device that physically prevents the transmission or release of energy, including, but not limited to the following:
 - a manually-operated electrical circuit breaker, a disconnect switch, or a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, where no pole can be operated independently
 - a line valve
 - a block
 - any similar device used to block or isolate energy
 - Push buttons, selector switches and other control-circuit type devices are not energy-isolating devices.
- *Energy source* - Any source of mechanical, hydraulic, pneumatic, chemical, natural, thermal or other energy
- *Other employees* - All persons who are or may be in an area when LO/TO procedures or devices may be utilized.
- *Primary Authorized Person* - An authorized person with the primary responsibility for group lockout applications.

- *Qualified* - Familiar with the construction and operation of the equipment and the hazards involved.
- *Servicing and/or Maintenance* – Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes where the employee may be exposed to the **unexpected** energization or startup of the equipment, or a release of hazardous energy.

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LOTO ABSENT EMPLOYEE LOCK REMOVAL PROCEDURE

_____ is the single, designated person to contact when a lock or other device requires removal by someone other than the authorized employee who applied the device.

List the steps taken to verify that the absent employee is not at the facility:

List the steps taken to contact the absent employee (if different from above):

List the steps taken to ensure the absent employee knows their device has been removed (if different from above):

Completed by: _____ Date: _____

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LOTO DETERMINATION OF APPLICABILITY

Equipment Designation:	Location:
------------------------	-----------

Date Assessed:	Related Operating Procedures Reviewed: <div style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>	Related Maintenance Procedures Reviewed: <div style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>
----------------	--	--

LOCK OUT TAG OUT ASSESSMENT CHECKLIST

Is there a potential for stored, residual, or reaccumulation of energy after shutdown?	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
Does the unit have multiple energy sources that cannot be readily identified and isolated?	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
The isolation and lock out of energy sources will not completely deenergize or deactivate the unit!	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
The unit is not isolated from its energy source and locked out during servicing or maintenance!	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
A single lockout device will not achieve a locked out condition!	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
The lockout device is not under the exclusive control of an "Authorized Employee"!	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
The servicing or maintenance creates hazards for other employees!	<input type="checkbox"/> Yes *	<input type="checkbox"/> No
Have accidents involving unexpected activation/reenergization occurred during servicing?	<input type="checkbox"/> Yes *	<input type="checkbox"/> No

***Written procedures must be developed if any "Yes" answers have been given!**

ASSESSED ENERGY SOURCES: (indicate specific sources with initials)			
Initials	Energy Source	Magnitude and Unit of Measure	Method to Dissipate or Restrain
	Chemical:		
	Hydraulic:		
	Pneumatic:		
	Mechanical:		
	Electrical:		
	Thermal:		
	Radioactive:		
	Kinetic:		
	Other:		

TYPES AND LOCATIONS OF OPERATING CONTROLS: * Further Detailed on Attachment: Yes No

Types of Operating Controls	Location on Unit

TYPES AND LOCATIONS OF ENERGY ISOLATING DEVICE(S):* Further Detailed on Attachment: Yes No

Types of Energy Isolating Devices	Location(s)

METHODS TO VERIFY ISOLATION OF THE UNIT: * Further Detailed on Attachment: Yes No

Verification Method	Location(s)

DIAGRAM OR PHOTOS OF UNIT:		Schematic/Blue Print Attached? <input type="checkbox"/> Yes <input type="checkbox"/> No	
WRITTEN PROCEDURES AUTHOR:	To be Developed by (date)	To be Implemented by (date)	
REMARKS:			
<input type="checkbox"/> Approved			
<u>AUTHORIZATION</u>			
I acknowledge that I have conducted a Lockout Tagout Assessment of the equipment or machine named above and have detailed the findings of the assessment on this form.			
* Further detailed on attachment: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Name:		Signature:	
Title:		Date:	Time:
<u>ASSESSMENT FORM RETENTION INFORMATION</u>			<u>ATTACHMENTS</u>
Permanent Retention File:	Location:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Date Filed:	Filed By:	*See Following Pages	

LOTO EQUIPMENT LIST

LO/TO equipment must be:

- Used for LO/TO only
- Identified (either through marking and labeling or training) as LO/TO devices
- Durable and capable of withstanding the environment and pressures applied to them
- Standardized (same color, unique shape, same size/type of print, etc.).
- Substantial in that locks may not be easily removable (without the use of tools or excessive force) and that tags must not be accidentally removed or fall off.
- Identifiable to the person who applied them, either by name or number system.

The locks/tags and other devices specified below are the **only** authorized LO/TO devices to be used at the company and SHALL NOT be used for locking equipment other than for LO/TO and Energy Control purposes.

LO/TO Equipment	Stock #
Personal Safety Padlock	
Tag (general) –laminated write on w/grease-pencil	
Tag (multi-part) - can be laminated with or without pictures - but wording may not be altered.	
Plastic Bag	
Tie Strap	
Multiple Lock Adapter (Scissor)	
Multiple Lock Hasp/Adapter	
High Voltage Tag (Specifically Trained Personnel Use ONLY)	
Safety Devices (circuit breakers & plastic covers etc.)	
Valves, Cords and Other Equipment	

Completed by: _____ Date: _____

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LOTO WRITTEN PROCEDURE

LO/TO Procedure for Machinery Name or Type:

Purpose: This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energizing or start-up of the machine or equipment or release of stored energy could cause injury.

Specific Restrictions and Compliance Steps for the above named machine(s) are:

All employees are required to comply with the restrictions and limitations imposed upon them during the use of LO/TO. The authorized employees are required to perform the LO/TO in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize or use that machine or equipment.

Sequence of LO/TO

1. Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Names/Job Titles of affected employees and how to notify:

2. The types and magnitude of energy hazards, and methods to control them are listed.

Check the type of energy hazards associated with this equipment or machine:

- | | |
|--------------------------------------|--|
| <input type="checkbox"/> Electrical | <input type="checkbox"/> Natural (Wind, Gravity, Etc.) |
| <input type="checkbox"/> Chemical | <input type="checkbox"/> Pneumatic |
| <input type="checkbox"/> Hydraulic | <input type="checkbox"/> Thermal |
| <input type="checkbox"/> Mechanical | <input type="checkbox"/> Kinetic |
| <input type="checkbox"/> Other _____ | |

List the magnitude of the hazard if known (>50Volts, 500 lbs of force, etc.)

List the devices that are used to control the energy hazards:

3. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).
List the location of the operating controls for the machine or equipment:

4. De-activate the energy source so that the machine or equipment is isolated from the energy source(s).
5. Lock out the energy source(s) with lock(s).
6. List the components that contain the energy (such as: capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam or water pressure, etc.)

and the methods to dissipate or restrain the energy (such as grounding, repositioning, blocking, bleeding down, etc) :

7. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. **CAUTION:** *return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.*

Method of verifying the isolation of the equipment:

8. The machine or equipment is now locked out.

Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

1. Check the machine or equipment and the immediate area around to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Check the work area to ensure that all employees have been safely positioned or removed from the area.
3. Verify that the controls are in neutral.
4. Remove the lockout device(s) and reenergize the machine or equipment. NOTE: the removal of some forms of blocking may require reenergizing of the machine before safe removal.
5. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

Completed by: _____

Date: _____

LOTO WRITTEN PROCEDURE INSPECTION CERTIFICATE

Company or Department Name:

Internal Procedure number (if applicable):

Last Updated:

Machinery/Equipment Name or Type:

Persons trained as "Authorized" for this procedure:

<i>Name</i>	<i>Employee Identification Number</i>

Elements of Inspection:

Preparation for Shutdown - knowledge of the type and magnitude of the hazardous energy

Machine or Equipment Shutdown - performed using established procedure

Machine or Equipment Isolation - all energy sources located and isolated

Hazardous Energy Control Device Application - affixed to the energy isolation device by authorized individuals

Stored Energy - all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained and otherwise rendered safe

Verification of Isolation - authorized employee will verify the isolation and de-energizing of the machine or equipment has been accomplished.

Verification:

A field-check of the utilization of this procedure was performed on the following "Authorized" individuals (enter name and/or other employee identification):

<i>Name</i>	<i>Employee Identification Number</i>

Authorization:

This field check was performed by the following person authorized to use this procedure and not the person being field-checked:

<i>Name</i>	<i>Date</i>

Deficiencies noted during field-check (if any):

Verification Statement:

The inspected individuals demonstrated adequate knowledge of locking/tagging this piece of equipment. Any deficiencies noted above have been corrected and proper techniques have been verified.

Signature of field-check Inspector:

Signature of LO/TO Employee:

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LOTO WRITTEN PROCEDURE ACKNOWLEDGEMENT

NAME OF MACHINE OR Procedure	Date Procedure Originally Written	Annual Review Date	Authorized Employee Signature

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PROGRAM OVERVIEW

MACHINE GUARDING SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.212 - 219

INTRODUCTION: This program specifies the requirements for safeguarding machines and equipment in order to protect employees from contact with potential machine hazards. The program defines types & methods of safeguarding that can be used to protect employees from the hazards.

TRAINING:

- Recommended for most workplaces
- Training is required where guards must be removed, or whenever forging equipment is used.

ACTIVITIES:

- Identify risk factors for machinery operations
- Ensure original guards or equivalent measures are in place.
- Ensure safeguarding practices are implemented for any non-routine task where existing guarding practices are insufficient to protect operators.

FORMS:

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

Machine Guarding Safety Program

1. **Purpose.** Each site or location shall have a process in place to ensure that machines and equipment are provided with guarding systems in order to eliminate or control employee exposure to hazards. This program outlines the principles and performance requirements of machine safeguarding.
2. **Scope.** This program applies to each type of powered machines, tools and equipment that requires guarding.

Note: portable power tools and mechanical power presses are not covered in this program, and have their own separate programs based on specific regulatory requirements for these types of equipment.

3. Responsibilities.

3.1 Management will ensure that:

- 3.1.1 Procedures are in place for safeguarding machines and equipment during normal operations.
- 3.1.2 New and modified equipment is purchased with or provided with guards and/or safeguarding devices, as appropriate.
- 3.1.3 Safeguarding features will be reviewed or approved by competent personnel during:
 - the design phase of capital projects
 - before newly purchased equipment is placed into service
 - prior to relocation or refurbishment of existing equipment
- 3.1.4 Guards and safeguarding-devices are maintained.
- 3.1.5 Routine preventive maintenance and inspection procedures are followed, to ensure proper operation of guards and safeguarding devices.
- 3.1.6 Operators receive initial training in specific safeguarding operations, as appropriate
- 3.1.7 An environment is promoted where operators are encouraged to report unsafe machines and conditions and suggest improvements to management.
- 3.1.8 Assure employees understand the function and operation of all safety devices and controls on machines to which employees are assigned.

3.2 Employees will:

- 3.2.1 Report all unsafe machines and equipment.
- 3.2.2 Assist, as needed or required, in determining the safeguarding requirements for all machines, tools and equipment that may require them.
- 3.2.3 Attend training as needed or required.
- 3.2.4 Understand the function and operation of all safety devices and controls on machines to which they are assigned.
- 3.2.5 Test safeguarding and control devices prior to the start of each shift as needed or required by procedure.
- 3.2.6 Immediately report malfunctioning, incorrectly positioned, or missing safeguarding and not operate machinery until the problem is corrected by personnel authorized and qualified to make such repairs.

4. Procedure.

4.1 General Requirements:

- 4.1.1 Guards and/or safeguarding devices must be provided to protect employees and machine operators from hazards such as pinch-points, point-of-operation, in-running nip points, rotating parts (pulleys, belts, ropes and chain drives, gears sprockets, etc) flying chips and sparks.
- 4.1.2 Safeguards will meet these minimum general requirements:
 - *Prevent contact:* The safeguard must prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. A proper safeguarding system eliminates the possibility of the operator or another worker from contacting hazardous moving parts.
 - *Secured:* Guards will be secured in place to prevent removal or tampering with the safeguards.
 - *Durable material:* Guards and safety devices will be made of durable material that will withstand the conditions of normal use.
 - *Protected from falling objects:* Safeguards will be placed to ensure objects cannot fall into moving parts.
 - *Create no new hazards:* Safeguards will be designed in a manner that will not create a hazard such as a shear point, a jagged edge, or an unfinished surface.
 - *Create no interference:* Safeguards will be installed that will not impede a worker from performing the job quickly and comfortably. The safeguards

will be designed to not obstruct the operator's view or to prevent employees from doing a job.

- *Allow safe lubrication:* Safeguards will be installed in a manner allowing for machine lubrication without removing the safeguards, as appropriate.

4.1.3 Revolving drums, barrels, and containers require interlocked enclosures so that the system cannot revolve unless the guard enclosure is in place.

4.1.4 Mechanical power transmission apparatus and fan blades located at a height greater than 7 feet above the ground does not require guarding.

4.1.5 Fixed machinery must be anchored and secured to prevent walking or movement during operation.

4.2 Inspections:

Guards will be inspected regularly. It is recommended that inspections take place before each working shift for regularly used equipment, or before each use for intermittently used equipment, to assure guards are in good operating condition.

4.3 Maintenance:

Employees who perform service or maintenance (including repair, lubrication, clearing jammed parts or materials, and tool changes) will be knowledgeable about the equipment, the guards and the hazards of the maintenance tasks.

4.4 New or Altered Equipment Review:

Each piece of machinery or equipment will be reviewed for safeguarding requirements when they are purchased, installed, or when they undergo significant changes to their structure or use.

5. Safety Information.

5.1 Primary Guards:

Guards that provide a physical barrier enclosing dangerous machine parts and preventing employees from contacting them will be installed as appropriate including:

5.1.1 *Fixed.* Guards permanently secured in place and at the point of operation.

5.1.2 *Interlocked.* Guards that trip the controls on a machine or portion of a machine so the power is controlled or eliminated. Shuts off or disengages power when guard is open and prevents the machine or equipment from activating when the guard or interlock is not engaged.

5.1.3 *Adjustable.* Guards at the point of operation that can be adjusted manually to allow flexibility in accommodating various sizes of stock.

- 5.1.4 *Self Adjusting.* Guards that move in accordance with the size of the stock. As the operator moves the stock into the point of operation, the guard is pushed away, providing an opening which is only large enough to admit the stock. After the stock is removed, the guard returns to the rest position.

5.2 Primary Safeguarding Devices.

Controls or attachments designed to prevent access by employee to hazardous machine areas. Primary Safeguarding Devices will be used in place of Primary Guards or as supplemental control measure when guards alone do not adequately enclose the hazards. Safeguarding devices that will be used as appropriate include:

- 5.2.1 *Presence-Sensing devices.* Use light to determine if an object or person is in the danger zone. If the light curtain is broken, the machine controls will not function.
- 5.2.2 *Pullback devices.* Utilize a series of cables attached to the operator's hands, wrists, and/or arms. This type of device is primarily used on machines with stroking action. When the slide/ram is up between cycles, the operator is allowed access to the point of operation. When the slide/ram begins to cycle by starting its descent, a mechanical linkage automatically assures withdrawal of the hands from the point of operation.
- 5.2.3 *Restraints devices.* Utilizes cables or straps that are attached to the operator's hands at a fixed point. The cables or straps must be adjusted to let the operator's hands travel within a predetermined safe area. There is no extending or retracting action involved. Consequently, hand-feeding tools are often necessary if the operation involves placing material into the danger area.
- 5.2.4 *Two-Hand Controls/Trip.* Require use of both the operators' hands to be on the activation switches for the equipment to operate the equipment or machine. The two-hand control requires constant, concurrent pressure by the operator to activate the machine. This kind of control requires a part-revolution clutch, brake, and a brake monitor if used on a power press. With this type of device, the operator's hands are required to be at a safe location (on control buttons) and at a safe distance from the danger area while the machine completes its closing cycle. To be effective, both two-hand controls and trips must be located so that the operator cannot use two hands or one hand and another part of his/her body to trip the machine.
- 5.2.5 *Gates.* A gate is a movable barrier that protects the operator at the point of operation before the machine cycle can be started. Gates are, in many instances, designed to be operated with each machine cycle. To be effective, the gate must be interlocked so that the machine will not begin a cycle unless the gate guard is in place. It must be in the closed position before the machine can function.

5.3 Secondary Safeguarding Devices.

Secondary safeguarding devices may also provide employees with some protection from machine hazards. While these devices/methods do not give complete protection from machine hazards, they provide the operator with an extra margin of safety. Several examples of secondary safeguarding devices that will be used as appropriate include:

5.3.1 *Awareness devices.* Include barriers and warning signals. These devices warn employees (by a physical barrier or audible or visual signal) that he or she is approaching the danger area. Awareness devices do not provide physical protection from the machine hazard. Generally, awareness barriers are not considered adequate when continual exposure to the hazard exists.

5.3.2 *Shields.* Used to provide protection from flying particles, splashing cutting oils, or coolants.

5.3.3 *Safe Distance or Location Guarding.* Restricts personnel access to the work area or machine. This may be accomplished by:

- Locating a machine so that the hazardous parts of the machine are located away from operator work stations or other areas where employees walk or work.
- Installing enclosure walls or fences that restrict access to machines while in operation.
- Positioning rotating parts at a height of 7 feet or more above the ground out of the normal reach of any worker.
- Locating machine control stations at a safe distance away from the machine as appropriate.
- Using an automatic feeding process where operator involvement is not necessary after the machine is set up.

5.3.4 *Safe Work Procedures.* Include Standard Operating Procedures (SOP) which covers machine-specific operating procedures and safety controls that must be reviewed before operating the machinery. Loose clothing and/or jewelry should be prohibited. Use hair nets to prevent hair entanglement

5.4 Complimentary equipment.

Used in conjunction with safeguarding techniques and is not, by itself, a safeguarding method. Complimentary equipment that will be used as appropriate includes:

5.4.1 *Emergency stop devices.* Emergency stops must be available to stop the machine in an emergency, and must be readily accessible to the operator at all times. They are designed to be used in reaction to an incident and will not detect or prevent exposure to a machine hazard. Emergency Stop devices include stop buttons, rope pulls, pressure sensitive body bars, etc.

- 5.4.2 *Hand-Feeding tools.* The operator uses a tool to place or remove stock, particularly from or into the point of operation of a machine.
- 5.4.3 *Foot controls:* The operator uses a foot control device to begin machine operation. The foot control must be securely fixed at a safe distance away from the machinery and guarded to prevent accidental activation
- 5.5 Machine- specific guarding requirements
 - 5.5.1 Woodworking Machinery – per 29 CFR 1910.213 - Specific guarding is required for the blades, chains or other exposed hazardous parts on ripsaws, crosscut saws and circular saws, swing and radial saws, band-saws, jointers, tensioning machines, shapers, planers, boring equipment, sanders, lathes, cutters and similar machinery.
 - 5.5.2 Abrasive Wheel machinery (with wheel diameters >2 inches) – per 29 CFR 1910.215 - requires specific size guards and wheel mounting that restrict wheel access, protect operators from flying particles should the wheel break or shatter, and prevent inadvertent wheel movement.
 - 5.5.3 Mills and Calendars (rubber and plastics industry only) – per 29 CFR 1910.216 - requires either interlocks, sensing devices or location control guards to prevent an operator from reaching through, over, under or around and coming into contact with a roll bite or to be caught between a roll bite and processing materials. Limit stopping devices must be installed to prevent materials from traveling too fast or beyond the machine limits.
 - 5.5.4 Forging machinery – per 29 CFR 1910.218 - has specific requirement for guarding of hammers presses, and up setters. Also there are specific requirements for materials of construction to assure the equipment and guard are capable of withstanding the forces and pressures required of them.
 - 5.5.5 Mechanical Power Transmission – per 29 CFR 1910.219 - equipment requires guarding of exposed parts, belts and chains that are more than 7 feet from the floor surface. Guarding requirements include specific distances for guards from the hazard or total enclosure of the hazard. Specific materials are required (and in some cases specific bracing and methods of affixing guarding) to assure that guards can withstand the forces and power applied.

6. Training and Information:

- 6.1 Operators and maintenance personnel will receive initial machine operation training that should include machine safeguarding operation.
- 6.2 Where required, Lock-Out/Tag-Out (LOTO) training will be provided.
- 6.3 Refresher training will be provided prior to operating new or modified equipment, when procedures change, or when employee behavior indicates a need for retraining.

6.4 Only qualified and trained employees are authorized to interface with moving webs or machine mechanisms and only as outlined by specific written procedures for the equipment.

7. Definitions.

- *Point of operation* - The area on a machine where work is actually performed upon the material being processed.
- *LOTO* – Lock out/tag-out

TRAINING ATTENDANCE ROSTER

MACHINE GUARDING (General)

General Machine Guarding Training Includes: <ul style="list-style-type: none"> <i>Hazardous Motions and Actions</i> <i>General Requirements</i> <i>Safeguarding Requirements</i> <i>Personal Protective Equipment Requirements</i> <i>Methods of Guarding</i> <i>Guard Construction</i> <i>Maintenance and Repair</i> <i>Inspection</i> 	Specific Training was also provided in: <ul style="list-style-type: none"> ___ Abrasive Equipment Use ___ Forging Equipment Use ___ Mechanical Power Transmission Use ___ Mills and Calenders Use ___ Woodworking Equipment Use 	
<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
NAME (Please Print) FIRST - MI - LAST	SIGNATURE	
By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed		

Name of Interpreter, if utilized: _____

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**Noise Exposure
and Hearing Conservation**

PROGRAM OVERVIEW

NOISE EXPOSURE AND HEARING CONSERVATION SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.95
- 29 CFR 1926.52

INTRODUCTION

OSHA mandates employers to protect their employees against occupational noise exposure when sound levels exceed established the action level of 85 dBa over an 8-hour time weighted average. This program ensures adherence to the OSHA standard by detailing requirements for audiometric testing, hearing conservation, and training. It also contains recordkeeping parameters and offers guidance in computing noise exposure and estimating the adequacy of hearing protector attenuation.

TRAINING

Institute an annual training program for all employees who are exposed to noise at or above an 8-hour time weighted average of 85 decibels

ACTIVITIES

- Determine where noise levels exist above regulatory levels, conduct monitoring
- Establish a Hearing Conservation Program
- Establish engineering controls, administrative controls or protective equipment requirements (in that order) to reduce or eliminate the health and safety effects of noise
- Notify employees exposed at or above action levels
- Ensure employees exposed at or above the action level receive baseline and annual audiograms
- Record any noise related hearing loss as required on OSHA recordkeeping forms
- Ensure protective equipment and materials are available, as needed or required
- Track employee training to assure annual and refresher training programs are provided
- Post and make available to affected employees a copy of the Standard

FORMS

- Hearing Conservation Program Responsibilities
- Noise Exposure Computation and Rating Tables
- Text of Noise Exposure and Hearing Conservation Standard
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

NOISE EXPOSURE AND HEARING CONSERVATION SAFETY PROGRAM

1. **Purpose.** The employer is required to protect employees from potentially harmful noise by implementing appropriate hearing conservation and noise control measures.

2. **Scope.** This program applies to all company facilities or job-sites where noise exposures exist above regulatory levels.

3. Responsibilities

3.1. Management/Supervisors

3.1.1. Establish a Hearing Conservation Program

3.1.2. Establish engineering controls, administrative controls or protective equipment requirements (in that order) to reduce or eliminate the health and safety effects of noise.

3.1.3. Develop and implement a noise monitoring program.

3.1.4. Ensure employees exposed at or above the action level receive baseline and annual audiograms.

3.1.5. Ensure hearing protection is available, as needed or required.

3.1.6. Provide initial and annual training to affected employees.

3.1.7. Provide employees access to audiometric testing results, monitoring results, and the Occupational Noise Exposure Standard.

3.1.8. Provide employees the opportunity to observe (or participate in) audiometric testing.

3.2. Employees

3.2.1. Report signs and symptoms of noise exposure to supervisors immediately.

3.2.2. Attend required training.

3.2.3. Utilize hearing protective devices, when required.

4. Procedure

4.1. Hearing Conservation Program

4.1.1. The employer will administer a continuing, effective Hearing Conservation Program, whenever employee noise exposures equal or exceed an 8 hour time weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the Hearing Conservation Program, employee noise exposures will be computed without regard to any attenuation provided by the use of personal protective equipment. (An 8-hour time weighted average of 85 decibels or a dose of fifty percent will also be referred to as the *action level*.)

4.2. Monitoring. When information indicates that any employee's exposure may equal or exceed an 8-hour time weighted average of 85 decibels, this monitoring program will be implemented.

4.2.1. The company will conduct sampling on an annual basis, at a minimum, where noise levels are known or suspected to exceed regulatory thresholds. Sampling is designed to identify employees for inclusion in the Hearing Conservation Program and to enable the proper selection of hearing protectors.

4.2.2. Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring ineffective, the employer will use representative personal sampling to comply with the regulatory monitoring requirements.

4.2.3. All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels will be integrated into the noise measurements.

4.2.4. Instruments used to measure employee noise exposure will have been calibrated to ensure measurement accuracy.

4.2.5. Monitoring will be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

4.2.5.1. Additional employees may be exposed at or above the action level.

4.2.5.2. The attenuation or reduction in noise levels provided by hearing protectors are or may be rendered inadequate to meet the requirements.

4.2.6. Employee notification. The company will notify each employee exposed at or above an 8-hour time weighted average of 85 decibels of the results of the monitoring.

4.2.7. Observation of monitoring. The company will provide affected employees or their representatives with an opportunity to observe any noise measurements conducted.

4.3. Audiometric Testing Program

4.3.1. An audiometric testing program will be maintained that is free of charge for employees whose exposures equal or exceed noise action level (85dBa over 8 hours).

4.3.2. Audio metric tests will be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

4.3.3. All audiograms obtained pursuant to this section shall meet the requirements of Appendix C: "Audiometric Measuring Instruments."

4.4. Baseline audiogram

4.4.1. Within 6 months of an employee's first exposure at or above the action level, the company will establish a valid baseline audiogram against which subsequent audiograms can be compared. Where baseline audiograms cannot be obtained within this timeframe, employees will wear hearing protectors until the baseline audiogram is obtained.

4.4.2. Mobile test van exception. Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.

4.4.3. Testing to establish a baseline audiogram will be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise. The company will notify employees of the need to avoid high levels of non-Noise exposure during the 14-hour period immediately preceding the audiometric examination.

4.5. Annual audiogram. At least annually after obtaining the baseline audiogram, the company will obtain a new audiogram for each employee exposed at or above an 8-hour time weighted average of 85 decibels.

4.6. Evaluation of audiogram. Each employee's annual audiogram will be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. This comparison may be done by an individual trained to the audiometric technician level.

4.6.1. If the annual audiogram shows that an employee has suffered a standard threshold shift, a retest will be accomplished within 30 days and the results considered as the annual audiogram.

4.6.2. Problem audiograms. The company will ensure that an audiologist, otolaryngologist, or physician review problem audiograms and determine whether there is a need for further evaluation. The reviewer will be provided the following information:

- 4.6.2.1. A copy of the requirements of the Occupational Noise Exposure standard.
 - 4.6.2.2. The baseline audiogram and most recent audiogram of the employee to be evaluated.
 - 4.6.2.3. Measurements of background sound pressure levels in the audiometric test room, (if the testing was not conducted at the reviewer's facility).
 - 4.6.2.4. Records of audiometer calibrations, (if the testing was not conducted at the reviewer's facility).
- 4.6.3. Follow-up procedures. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift has occurred, the employee will be informed of this fact in writing, within 21 days of the determination.
- 4.6.4. Standard threshold shift. A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear. In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram in accordance with the regulatory standards. Unless a physician determines that the standard threshold shift is not work related or aggravated by Noise exposure, the company will ensure that the following steps are taken when a standard threshold shift occurs:
- 4.6.4.1. Employees exposed or potentially exposed to high noise will be fitted with hearing protectors, trained in their use and care, and required to use them. For known high noise job assignments, employees will be fitted and trained prior to job assignment.
 - 4.6.4.2. Employees already using hearing protectors will be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
 - 4.6.4.3. Employees will be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.
 - 4.6.4.4. Employees will be informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.
 - 4.6.4.5. If subsequent audiometric testing of an employee whose exposure to noise is less than an 8 hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the company:
 - 4.6.4.5.1. Will inform the employee of the new audiometric interpretation.
 - 4.6.4.5.2. May discontinue the required use of hearing protectors for that employee.

4.6.5. Revised baseline. An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram determine that:

4.6.5.1. The standard threshold shift revealed by the audiogram is persistent.

4.6.5.2. The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

4.7. Audiometric test requirements. Audiometric tests conducted will meet all regulatory requirements and be administered by a licensed audiologist or other equivalent professional. Audiometric examinations will be administered in a room meeting the regulatory requirements for Audiometric Test Rooms.

4.8. Audiometer calibration. The functional operation of the audiometer will be checked and calibrated before each day's use, in accordance with manufacturer's requirements and/or regulatory standards.

4.8.1.1. An exhaustive calibration will be performed at least every two years. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

4.9. Hearing protectors

4.9.1. The company will make hearing protections available to all employees exposed to an 8-hour time weighted average of 85 decibels or greater at no cost to the employees.

4.9.2. The employer will require employees to wear hearing protection when:

4.9.2.1. Noise levels meet or exceed the following levels:

PERMISSIBLE NOISE EXPOSURES	
Duration per day, hours	Sound level dBA <i>slow response</i>
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115

4.9.2.2. By any employee who is required by previous testing to wear personal protective equipment.

- 4.9.2.3. By any employee who is exposed to an 8-hour time weighted average of 85 decibels or greater, and who: has not yet had a baseline audiogram established, or has experienced a standard threshold shift.
- 4.9.3. Employees will be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided.
- 4.9.4. The company will ensure proper initial fitting and supervise the correct use of all hearing protectors.
- 4.10. Hearing protector attenuation. The company will evaluate hearing protector attenuation for the specific noise environments in which the protector will be used in accordance with regulatory requirements. One of the evaluation methods described in Appendix B: Methods for Estimating the Adequacy of Hearing Protection Attenuation will be used.
 - 4.10.1. Selected hearing protectors will attenuate employee exposure at least to an 8 hour time weighted average of 90 decibels.
 - 4.10.2. For employees who have experienced a standard threshold shift, selected hearing protectors must attenuate their exposure to an 8-hour time weighted average of 85 decibels or below.
 - 4.10.3. The adequacy of hearing protector attenuation will be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. More effective hearing protectors will be provided where necessary.

5. Safety Information

5.1. Recordkeeping

- 5.1.1. Exposure measurements. The company will maintain an accurate record of all employee exposure measurements.
- 5.1.2. Audiometric tests. The company will maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms. Additionally, all employee audiometric test records will be retained. These employee records will include as a minimum:
 - 5.1.2.1. Name and job classification of the employee
 - 5.1.2.2. Date of the audiogram
 - 5.1.2.3. The examiner's name
 - 5.1.2.4. Date of the last acoustic or exhaustive calibration of the audiometer
 - 5.1.2.5. Employee's most recent noise exposure assessment

5.1.3. Record retention. The company will retain audiometric and related records for at least the following periods.

5.1.3.1. Noise exposure measurement records for two years.

5.1.3.2. Audiometric test records for the duration of the affected employee's employment.

5.1.4. Access to records. All records cited in this safety program will be provided upon request to employees, former employees, representatives designated by the individual employee, and representatives of OSHA. Copies of this program and the text of the regulation (29CFR1910.95) will be available and will be posted in the work place noise zone.

5.1.5. Transfer of records. If the company ceases to do business, the records will be transferred to the successor employer and maintained by the successor employer. Should the company cease to function entirely; the records will be provided to the respective employees, or as required by current law.

6. Training and Information

6.1. The company will institute a training program for all employees who are exposed to noise at or above an 8-hour time weighted average of 85 decibels, and will ensure employee participation in such program.

6.2. The training program will be repeated annually for each employee included in the Hearing Conservation Program. Information provided in the training program will be updated to be consistent with changes in protective equipment and work processes. Each employee will be informed of the following:

6.2.1. The effects of noise on hearing.

6.2.2. The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.

6.2.3. The purpose of audiometric testing, and an explanation of the test procedures.

7. Definitions

- *Action level*--An 8-hour time weighted average of 85 decibels measured on the A-scale, slow response, or equivalently, a dose of fifty percent.
- *Audiogram*--A chart, graph, or table resulting from an audiometric test showing an individual's hearing threshold levels as a function of frequency.
- *Audiologist*--A professional specializing in the study and rehabilitation of hearing that is certified by the American Speech-Language-Hearing Association or licensed by a state board of examiners.
- *Baseline audiogram*--The audiogram against which future audiograms are compared.

- *DBA (Decibel "A" weighted)* - A sound level measured using the "A" weighted scale of a sound level meter.
- *Noise dosimeter*--An instrument that integrates a function of sound pressure over a period of time in such a manner that it directly indicates a noise dose.
- *Noise Reduction Rating (NRR)* - The reduction in sound level that may be obtained by a hearing protection device if it is worn properly.
- *Otolaryngologist*-A physician specializing in diagnosis and treatment of disorders of the ear, nose and throat.
- *Standard Threshold Shift (STS)* - defined by OSHA as "a change in hearing threshold relative to the baseline audiogram of an average of 10 dBA or more at 2000, 3000 and 4000 Hz in either ear".
- *Time weighted average sound level*--That sound level, which if constant over an 8-hour exposure, would result in the same noise dose as is measured.

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HEARING CONSERVATION PROGRAM RESPONSIBILITIES

General:

_____ is responsible for maintaining the Hearing Conservation Program.

Noise monitoring will be conducted by _____ using the **Noise Exposure Measurements** form or other applicable document.

Audiometric Testing:

Notification of employees of the need to avoid high levels of non-occupational noise exposure during the 14 hour period immediately preceding the audiometric examination will be conducted by _____.

_____ is responsible for maintaining a record of all employee audiometric test records.

_____ will inform the employee, in writing, within 21 days of this determination, of the existence of a permanent Standard Threshold Shift. A copy of the STS letter will also be sent to the employee's supervisor.

The employees will be instructed by _____ on the importance of using hearing protectors and refer the employee for further clinical evaluation if necessary.

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a Standard Threshold Shift is not persistent, _____

- a. Shall inform the employee of the new audiometric interpretation.
- b. May discontinue the required use of hearing protectors for that employee.

Protective Equipment:

_____ shall ensure that hearing protectors are worn per the requirements of this program.

_____ will provide training in the use and care of all hearing protectors.

_____ will ensure proper initial fitting and supervise the correct use of all hearing protectors.

_____ will evaluate the attenuation characteristics of the hearing protectors to ensure that a given protector will reduce the individual's exposure to the required decibels using the **Hearing Protection Equipment Summary**.

Employee Educational Training:

An annual training program for each employee included in the hearing conservation program will be conducted by _____ and will include all information required by this program.

_____ is responsible for keeping training records.

Program Evaluation:

The Hearing Protection Program will be evaluated periodically by _____. After the evaluation, the changes/revisions to the program deemed necessary will be made as soon as possible.

Completed by: _____

Date: _____

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NOISE EXPOSURE COMPUTATION AND RATING TABLES

Age Correction Values in Decibels (reference tables F-1 and F-2).

Audiometric test frequency (Hz)					
Age	1000	2000	3000	4000	6000
32	6	5	7	10	14
27	5	4	6	7	11
<i>Difference</i>	1	1	1	3	3

The difference represents the amount of hearing loss that may be attributed to aging in the time period between the baseline audiogram and the most recent audiogram. In this example, the difference at 4000 Hz is 3 dB. This value is subtracted from the hearing level at 4000 Hz, which in the most recent audiogram is 25, yielding 22 after adjustments. Then the hearing threshold in the baseline audiogram at 4000 Hz (5) is subtracted from the adjusted annual audiogram-hearing threshold at 4000 Hz (22). Thus, the age-corrected threshold shift would be 17 dB (as opposed to a threshold shift of 20 dB without age correction).

Appendix A, 29 CFR 1910.95 - Noise Exposure Computation

Computation of Employee Noise Exposure

- When the sound level, L, is constant over the entire work shift, the noise dose, D, in percent, is given by: $D = 100 C/T$ where C is the total length of the work day, in hours, and T is the reference duration corresponding to the measured sound level, L, as given in Table G-16a below or by the formula shown as a footnote to that table.
- When the work-shift noise exposure is composed of two or more periods of noise at different levels, the total noise dose over the work day is given by:

$$D = 100 (C_1/T_1 + C_2/T_2 + \dots + C_n/T_n)$$
- Where C_n indicates the total time of exposure at a specific noise level, and T_n indicates the reference duration for that level as given by Table G-16a (as per attached). The eight-hour time weighted average sound level (TWA), in decibels, may be computed from the dose, in percent, by means of the formula: $TWA = 16.61 \log_{10} (D/100) + 90$. For an eight-hour work shift with the noise level constant over the entire shift, the TWA is equal to the measured sound level.

Conversion Between "Dose" and "8-Hour Time-Weighted Average" Sound Level

- Compliance will be determined by the amount of exposure to noise in the workplace, usually measured with an audio dosimeter which gives a readout in terms of "dose" and then converted to an "8 hour time weighted average" (TWA). Reference Table A-1 of the regulations to make the conversion.
- If the dose as read on the dosimeter is less than or greater than, the values found in Table A-1, the TWA may be calculated by using the formula: $TWA = 16.61 \log_{10} (D/100) + 90$ where TWA = 8-hour time weighted average sound level and D = accumulated dose in percent exposure.

Appendix B, 29 CFR 1910.95

Estimating the Adequacy of Hearing Protector Attenuation

- For employees who have experienced a significant threshold shift, hearing protection provided will have an attenuation that is sufficient to reduce employee exposure to a TWA of 85 dB. The following method will be used to estimate the adequacy of hearing protector attenuation (reduction or protectiveness).
- The Noise Reduction Rating (NRR) developed by the Environmental Protection Agency (EPA) will be used. Only approved hearing protection equipment showing the NRR on the hearing protector package will be used by the company. The NRR will be related to an individual employee's noise environment in order to assess the adequacy of the attenuation of a given hearing protector. When using the NRR to assess hearing protector adequacy, one of the following methods will be used:
 - Dosimeter (C-weighted):
 - Obtain the C-weighted dose for the entire work shift, and convert to TWA.
 - Subtract the NRR from the C-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.
 - Dosimeter (not capable of C-weighted measurements):
 - Convert the A-weighted dose to TWA.
 - Subtract 7 dB from the NRR.
 - Subtract the remainder from the A-weighted TWA to obtain the estimated A weighted TWA under the ear protector.
 - Sound level meter (set to the A-weighting network):
 - Obtain the A-weighted TWA.
 - Subtract 7 dB from the NRR, and subtract the remainder from the A-weighted TWA to obtain the estimated A-weighted TWA under the ear protector.
 - Sound level meter (set to the C-weighting network):
 - Obtain a representative sample of the C-weighted sound levels in the area.
 - Subtract the NRR from the C-weighted average sound level to obtain the estimated A-weighted TWA under the ear protector.
 - When using area monitoring procedures and a sound level meter set to the A-weighting network.
 - Obtain a representative sound level for the area in question.
 - Subtract 7 dB from the NRR and subtract the remainder from the A-weighted sound level for that area.
 - When using area monitoring procedures and a sound level meter set to the C-weighting network:
 - Obtain a representative sound level for the area in question.
 - Subtract the NRR from the C-weighted sound level for that area.

NOISE EXPOSURE RATINGS

TABLE A-1

<u>Dose or percent noise</u>	<u>TWA exposure</u>	<u>Dose or percent noise</u>	<u>TWA exposure</u>
10	73.4	87	89.0
15	76.3	88	89.1
20	78.4	89	89.2
25	80.0	90	89.2
30	81.3	91	89.3
35	82.4	92	89.4
40	83.4	93	89.5
45	84.2	94	89.6
50	85.0	95	89.6
55	85.7	96	89.7
60	86.3	97	89.8
65	86.9	98	89.9
70	87.4	99	89.9
75	87.9	100	90.0
80	88.4	101	90.1
81	88.5	102	90.1
82	86.6	103	90.2
83	88.7	104	90.3
84	88.7	105	90.4
85	88.8	106	90.4
86	88.9		

NOISE EXPOSURE RATINGS

TABLE F-1

Age Correction Values in Decibels for *Males* Audiometric test frequency (Hz)

Years	1000	2000	3000	4000	6000	Years	1000	2000	3000	4000	6000
20 & under	5	3	4	5	8	41	7	6	10	14	20
21	5	3	4	5	8	42	8	7	11	16	20
22	5	3	4	5	8	43	8	7	12	16	21
23	5	3	4	6	9	44	8	7	12	17	22
24	5	3	5	6	9	45	8	7	13	18	23
25	5	3	5	7	10	46	8	8	13	19	24
26	5	4	5	7	10	47	8	8	14	19	24
27	5	4	6	7	11	48	9	8	14	20	25
28	6	4	6	8	11	49	9	9	15	21	26
29	6	4	6	8	12	50	9	9	16	22	27
30	6	4	6	9	12	51	9	9	16	23	28
31	6	4	7	9	13	52	9	10	17	24	29
32	6	5	7	10	14	53	9	10	18	25	30
33	6	5	7	10	14	54	10	10	18	26	31
34	6	5	8	11	15	55	10	11	19	27	32
35	7	5	8	11	15	56	10	11	20	28	34
36	7	5	9	12	16	57	10	11	21	29	35
37	7	6	9	12	17	58	10	12	22	31	36
38	7	6	9	13	17	59	11	12	22	32	37
39	7	6	10	14	18	60 & over	11	13	23	33	38
40	7	6	10	14	19						

NOISE EXPOSURE RATINGS

TABLE F-2

Age Correction Values in Decibels for *Females* Audiometric test frequency (Hz)

Years	1000	2000	3000	4000	6000	Years	1000	2000	3000	4000	6000
20 & under	7	4	3	3	6	41	10	8	8	8	13
21	7	4	4	3	6	42	10	8	9	9	13
22	7	4	4	4	6	43	11	8	9	9	14
23	7	5	4	4	7	44	11	8	9	9	14
24	7	5	4	4	7	45	11	8	10	10	15
25	8	5	4	4	7	46	11	9	10	10	15
26	8	5	5	4	8	47	11	9	10	11	16
27	8	5	5	5	8	48	12	9	11	11	16
28	8	5	5	5	8	49	12	9	11	11	16
29	8	5	5	5	9	50	12	10	11	12	17
30	8	6	5	5	9	51	12	10	12	12	17
31	8	6	6	5	9	52	12	10	12	13	18
32	9	6	6	6	10	53	13	10	13	13	18
33	9	6	6	6	10	54	13	11	13	14	19
34	9	6	6	6	10	55	13	11	14	14	19
35	9	6	7	7	11	56	13	11	14	15	20
36	9	7	7	7	11	57	13	11	15	15	20
37	9	7	7	7	12	58	14	12	15	16	21
38	10	7	7	7	12	59	14	12	16	16	21
39	10	7	8	8	12	60 & over	14	12	16	17	22
40	10	7	8	8	13						

NOISE EXPOSURE RATINGS

TABLE G 16-A

<u>A-weighted sound level,</u> <u>L (decibel)</u>	<u>Reference</u> <u>duration, T (hour)</u>	<u>A-weighted sound level,</u> <u>L (decibel)</u>	<u>Reference duration,</u> <u>T (hour)</u>
80	32.0	106	0.87
81	27.9	107	0.76
82	24.3	108	0.66
83	21.1	109	0.57
84	18.4	110	0.50
85	16.0	111	0.44
86	13.9	112	0.38
87	12.1	113	0.33
88	10.6	114	0.29
89	9.2	115	0.25
90	8.0	116	0.22
91	7.0	117	0.19
92	6.1	118	0.16
93	5.3	119	0.14
94	4.6	120	0.125
95	4.0	121	0.11
96	3.5	122	0.095
97	3.0	123	0.082
98	2.6	124	0.072
99	2.3	125	0.063
100	2.0	126	0.054
101	1.7	127	0.047
102	1.5	128	0.041
103	1.3	129	0.036
104	1.1	130	0.031
105	1.0		

In the above table the reference duration
T is computed by where L is the measured A-weighted sound level.

$$T = \frac{8}{2(L-90)/5}$$

Text of Noise and Hearing Conservation Standard
Must be posted in work areas where hearing protection is required

1910.95(a)

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

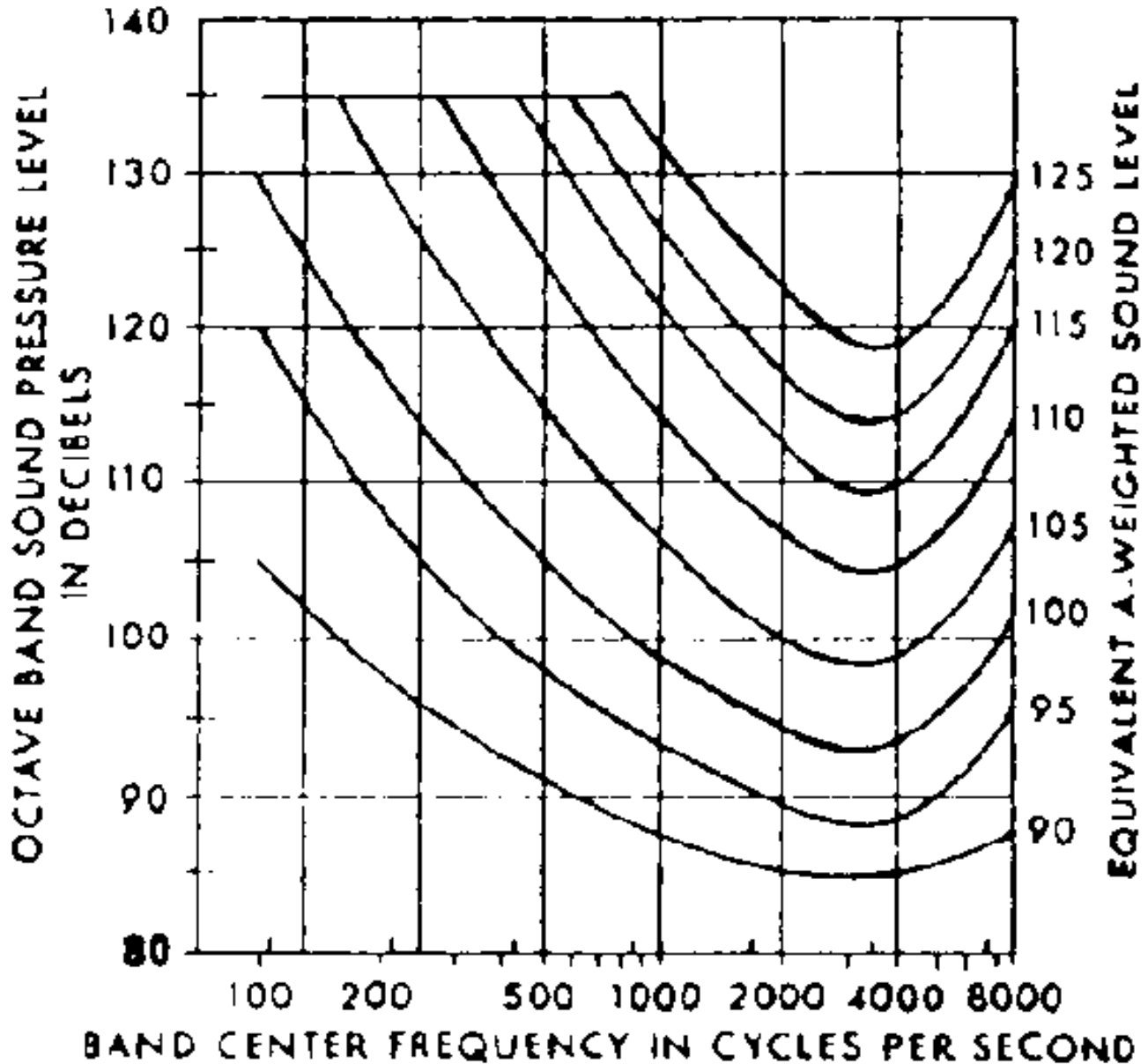


FIGURE G-9

Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 1.G-16.

1910.95(b)(1)

When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

1910.95(b)(2)

If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)
Duration per day, hours | Sound level dBA slow response

Duration per day, hours	Sound level dBA slow response
8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2	102
1.....	105
1/2	110
1/4 or less.....	115

Footnote(1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C(1)/T(1) + C(2)/T(2) + \dots + C(n)/T(n)$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

1910.95(c)

"Hearing conservation program."

1910.95(c)(1)

The employer shall administer a continuing, effective hearing conservation program, as described in paragraphs (c) through (o) of this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.

1910.95(c)(2)

For purposes of paragraphs (c) through (n) of this section, an 8-hour time-weighted average of 85 decibels or a dose of fifty percent shall also be referred to as the action level.

1910.95(d)

"Monitoring."

1910.95(d)(1)

When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program.

1910.95(d)(1)(i)

The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of hearing protectors.

1910.95(d)(1)(ii)

Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the employer shall use representative personal sampling to comply with the monitoring requirements of this paragraph unless the employer can show that area sampling produces equivalent results.

1910.95(d)(2)(i)

All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.

1910.95(d)(2)(ii)

Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

1910.95(d)(3)

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

1910.95(d)(3)(i)

Additional employees may be exposed at or above the action level; or

1910.95(d)(3)(ii)

The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of paragraph (j) of this section.

1910.95(e)

"Employee notification." The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.

1910.95(f)

"Observation of monitoring." The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section.

1910.95(g)

"Audiometric testing program."

1910.95(g)(1)

The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

1910.95(g)(2)

The program shall be provided at no cost to employees.

1910.95(g)(3)

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

1910.95(g)(4)

All audiograms obtained pursuant to this section shall meet the requirements of Appendix C: "Audiometric Measuring Instruments."

1910.95(g)(5)

"Baseline audiogram."

1910.95(g)(5)(i)

Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared.

1910.95(g)(5)(ii)

"Mobile test van exception." Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.

1910.95(g)(5)(iii)

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.

1910.95(g)(5)(iv)

The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

1910.95(g)(6)

"Annual audiogram." At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

1910.95(g)(7)

"Evaluation of audiogram."

1910.95(g)(7)(i)

Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift as defined in paragraph (g)(10) of this section has occurred. This comparison may be done by a technician.

1910.95(g)(7)(ii)

If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

1910.95(g)(7)(iii)

The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the following information:

1910.95(g)(7)(iii)(A)

A copy of the requirements for hearing conservation as set forth in paragraphs (c) through (n) of this section;

1910.95(g)(7)(iii)(B)

The baseline audiogram and most recent audiogram of the employee to be evaluated;

1910.95(g)(7)(iii)(C)

Measurements of background sound pressure levels in the audiometric test room as required in Appendix D: Audiometric Test Rooms.

1910.95(g)(7)(iii)(D)

Records of audiometer calibrations required by paragraph (h)(5) of this section.

1910.95(g)(8)

"Follow-up procedures."

1910.95(g)(8)(i)

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined in paragraph (g)(10) of this section has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination.

1910.95(g)(8)(ii)

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:

1910.95(g)(8)(ii)(A)

Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.

1910.95(g)(8)(ii)(B)

Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.

1910.95(g)(8)(ii)(C)

The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

1910.95(g)(8)(ii)(D)

The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

1910.95(g)(8)(iii)

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the employer:

1910.95(g)(8)(iii)(A)

Shall inform the employee of the new audiometric interpretation; and

1910.95(g)(8)(iii)(B)

May discontinue the required use of hearing protectors for that employee.

1910.95(g)(9)

"Revised baseline." An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

1910.95(g)(9)(i)

The standard threshold shift revealed by the audiogram is persistent; or

1910.95(g)(9)(ii)

The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

1910.95(g)(10)

"Standard threshold shift."

1910.95(g)(10)(i)

As used in this section, a standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

1910.95(g)(10)(ii)

In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: "Calculation and Application of Age Correction to Audiograms."

1910.95(h)

"Audiometric test requirements."

1910.95(h)(1)

Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

1910.95(h)(2)

Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969, which is incorporated by reference as specified in Sec. 1910.6.

1910.95(h)(3)

Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in Appendix C: "Audiometric Measuring Instruments."

1910.95(h)(4)

Audiometric examinations shall be administered in a room meeting the requirements listed in Appendix D: "Audiometric Test Rooms."

1910.95(h)(5)

"Audiometer calibration."

1910.95(h)(5)(i)

The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 decibels or greater require an acoustic calibration.

1910.95(h)(5)(ii)

Audiometer calibration shall be checked acoustically at least annually in accordance with Appendix E: "Acoustic Calibration of Audiometers." Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 decibels or greater require an exhaustive calibration.

1910.95(h)(5)(iii)

An exhaustive calibration shall be performed at least every two years in accordance with sections 4.1.2; 4.1.3.; 4.1.4.3; 4.2; 4.4.1; 4.4.2; 4.4.3; and 4.5 of the American National Standard Specification for Audiometers, S3.6-1969. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

1910.95(i)

"Hearing protectors."

1910.95(i)(1)

Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

1910.95(i)(2)

Employers shall ensure that hearing protectors are worn:

1910.95(i)(2)(i)

By an employee who is required by paragraph (b)(1) of this section to wear personal protective equipment; and

1910.95(i)(2)(ii)

By any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:

1910.95(i)(2)(ii)(A)

Has not yet had a baseline audiogram established pursuant to paragraph (g)(5)(ii); or

1910.95(i)(2)(ii)(B)

Has experienced a standard threshold shift.

1910.95(i)(3)

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer.

1910.95(i)(4)

The employer shall provide training in the use and care of all hearing protectors provided to employees.

1910.95(i)(5)

The employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors.

1910.95(j)

"Hearing protector attenuation."

1910.95(j)(1)

The employer shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The employer shall use one of the evaluation methods described in Appendix B: "Methods for Estimating the Adequacy of Hearing Protection Attenuation."

1910.95(j)(2)

Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels as required by paragraph (b) of this section.

1910.95(j)(3)

For employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

1910.95(j)(4)

The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary.

1910.95(k)

"Training program."

1910.95(k)(1)

The employer shall institute a training program for all employees who are exposed to noise at or above an 8-hour time-weighted average of 85 decibels, and shall ensure employee participation in such program.

1910.95(k)(2)

The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

1910.95(k)(3)

The employer shall ensure that each employee is informed of the following:

1910.95(k)(3)(i)

The effects of noise on hearing;

1910.95(k)(3)(ii)

The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and

1910.95(k)(3)(iii)

The purpose of audiometric testing, and an explanation of the test procedures.

1910.95(l)

"Access to information and training materials."

1910.95(l)(1)

The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.

1910.95(l)(2)

The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.

1910.95(l)(3)

The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

1910.95(m)

"Recordkeeping" -

1910.95(m)(1)

"Exposure measurements." The employer shall maintain an accurate record of all employee exposure measurements required by paragraph (d) of this section.

1910.95(m)(2)

"Audiometric tests."

1910.95(m)(2)(i)

The employer shall retain all employee audiometric test records obtained pursuant to paragraph (g) of this section:

1910.95(m)(2)(ii)

This record shall include:

1910.95(m)(2)(ii)(A)

Name and job classification of the employee;

1910.95(m)(2)(ii)(B)

Date of the audiogram;

1910.95(m)(2)(ii)(C)

The examiner's name;

1910.95(m)(2)(ii)(D)

Date of the last acoustic or exhaustive calibration of the audiometer; and

1910.95(m)(2)(ii)(E)

Employee's most recent noise exposure assessment.

1910.95(m)(2)(ii)(F)

The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

1910.95(m)(3)

"Record retention." The employer shall retain records required in this paragraph (m) for at least the following periods.

1910.95(m)(3)(i)

Noise exposure measurement records shall be retained for two years.

1910.95(m)(3)(ii)

Audiometric test records shall be retained for the duration of the affected employee's employment.

1910.95(m)(4)

"Access to records." All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary. The provisions of 29 CFR 1910.1020 (a)-(e) and (g)-

1910.95(m)(4)(i)

apply to access to records under this section.

1910.95(m)(5)

"Transfer of records." If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained by this section, and the successor employer shall retain them for the remainder of the period prescribed in paragraph (m)(3) of this section.

1910.95(n)

"Appendices."

1910.95(n)(1)

Appendices A, B, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

1910.95(n)(2)

Appendices F and G to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

1910.95(o)

"Exemptions." Paragraphs (c) through (n) of this section shall not apply to employers engaged in oil and gas well drilling and servicing operations.

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PROGRAM OVERVIEW

OSHA RECORDKEEPING SAFETY PROGRAM

REGULATORY STANDARD - OSHA - 29 CFR 1904

INTRODUCTION

The OSHA Recordkeeping Standard requires certain industry segments with greater than 10 employees to evaluate workplace injuries and illnesses, and mandates these employers to collect, compile, retain, analyze and communicate this information to employees. This program establishes criteria for logging occupational injuries or illnesses, posting the annual summary and record retention.

TRAINING

Recommended that for supervisors and managers to assist in determining what is recordable.

ACTIVITIES

- For all employers regardless of exemptions, notify OSHA within 8 hours of fatalities and within 24 hours of work related inpatient hospitalization, amputation, or loss of an eye
- Maintain appropriate records: OSHA 300, 300A, and 301 (or equivalent) forms
- Supply the records and documentation to OSHA, as needed or required
- Post appropriate summaries of the OSHA recordkeeping forms
- Electronically submit injury and illness data to OSHA, as required
- Encourage employees to report any incidents (injuries, illnesses, and near-miss incidents)
- Report the contents and summaries of these documents upon being notified in writing by the Bureau of Labor Statistics that the employer has been selected to participate in a statistical survey of occupational injuries and illnesses
- Retain log and summary of all recordable occupational injuries and illnesses (OSHA 300 and OSHA 300A or equivalent) for 5 years

FORMS

- Certain High-Risk Industries List
- OSHA 300 Form
- OSHA 300A Form
- OSHA 301 Form
- Training attendance roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

OSHA RECORDKEEPING SAFETY PROGRAM

1. **Purpose.** Records are required to be kept by most employers that indicate the number, types and severity of work related injuries, illnesses and fatalities. The OSHA Recordkeeping Safety Program is designed to assist the company in compliance with the requirements of 29CFR1904 (OSHA's Recordkeeping Standard). The company will review and evaluate this safety program:
 - 1.1 When changes occur to 29 CFR 1904 that prompt revision of this document.
 - 1.2 When facility operational changes occur that require a revision of this document.
2. **Scope.** The OSHA Recordkeeping Safety Program applies to all facilities and job sites where company employees work.
3. **Responsibilities**
 - 3.1 Management/Supervisors
 - 3.1.1 Maintain appropriate records.
 - 3.1.2 Supply the records and documentation to OSHA, as needed or required.
 - 3.1.3 Notify OSHA within 8 hours of fatalities or within 24 hours of work related inpatient hospitalization, amputation, or loss of an eye.
 - 3.1.4 Post the 300A form.
 - 3.1.5 Encourage employees to report any incidents (injuries, illnesses, property damage, and near-miss incidents).
 - 3.2 Employees
 - 3.2.1 Report any work related injuries or illnesses immediately to management or your supervisor.

4. Procedure

4.1 General Recordkeeping Requirements

4.1.1 Companies with eleven (11) or more employees at any time during the calendar year must comply with the provisions of the recordkeeping standard (29 CFR 1904).

4.1.2 The company will maintain a log of occupational injuries and illnesses on the required OSHA 300, 300A and 301 (or equivalent) forms.

4.1.2.1 The company will report the contents and summaries of these documents upon being notified in writing by the Bureau of Labor Statistics that the employer has been selected to participate in a statistical survey of occupational injuries and illnesses.

4.2 Log and Summary of Occupational Injuries and Illnesses (OSHA 300). The log will be used for classifying occupational injuries and illnesses, and for noting the extent of each case. The log shows when the occupational injury or illness occurred, to whom, the regular job of the injured or ill person at the time of the injury or illness exposure, the department or area in which the person was employed, the type of injury or illness, how much time was lost, whether the case resulted in a fatality, etc. The company will:

4.2.1 Maintain a log and summary of all recordable occupational injuries and illnesses by calendar year, each year. Past logs must be maintained for 5 years, after which they may be discarded.

- Each year's form will be updated to include newly discovered cases and to reflect changes that occur in recorded cases after the end of the calendar year. If, during the 5-year retention period, there is a change in the extent or outcome of an injury or illness which affects an entry on a previous year's log, then the first entry will be lined out and a corrected entry made on that log. New entries for previously unrecorded cases that are discovered will also be documented. Log totals will also be modified to reflect these changes.

4.2.2 Enter each recordable injury and illness on the log and summary as early as practicable but no later than 7 working days after receiving information that a recordable injury or illness has occurred. For this purpose OSHA Form No. 300 or an equivalent document will be used. The log and summary will be completed in the detail provided in the form and instructions on form OSHA 300.

4.2.3 If the company elects to maintain the log of occupational injuries and illnesses at a place other than the main facility or by means of data-processing equipment, or both, it will meet the following criteria:

- 4.2.3.1 There will be available at the place where the log is maintained sufficient information to complete the log to a date within 7 working days after receiving information that a recordable case has occurred.
- 4.2.3.2 At each facility there will be available a copy of the log which reflects separately the injury and illness experience of that establishment complete and current to a date within 45 calendar days.

4.3 Supplementary Record (OSHA 301)

In addition to the log of occupational injuries and illnesses (OSHA 300) the company will have (within 7 working days after receiving information that a recordable case has occurred) a supplementary record for each occupational injury or illness for that establishment. The record will be completed in the detail prescribed in the instructions accompanying Occupational Safety and Health Administration OSHA Form 301. Workmen's compensation, insurance, or other alternative records (provided they contain the information required by OSHA Form 301) are acceptable substitutes.

4.4 Annual Summary

The company will post an annual summary of occupational injuries and illnesses for each facility under our control. This summary will consist of a copy of the year's totals from the form OSHA 300 and the following information from that 300 form:

- Calendar year covered.
- Company name and establishment address.
- Verification signature, title, and date.
- A form OSHA No. 300-A will be used in presenting the summary. If no injuries or illnesses occurred in the year, zeros will be entered on the total line, and the form posted.
- The summary will be completed by February 1 of each calendar year. Management, or the officer or employee of the employer who supervises the preparation of the log and summary of occupational injuries and illnesses, will verify that the annual summary of occupational injuries and illnesses is true and complete. The verification will be accomplished by affixing their signature, attesting that the summary is true and complete.

- The company will post a copy of the establishment's summary (OSHA Form 300A) in each facility in a place accessible to employees and in a location where employees would normally look for such information. The summary covering the previous calendar year will be posted no later than February 1 and will remain in place until April 30. For employees who do not primarily report or work at a fixed site belonging to the company, or who do not report to any fixed site on a regular basis, we will satisfy this posting requirement by presenting or mailing a copy of the summary during the month of February of the following year to each such employee who receives pay during that month.
- 4.5 Some employers are required to submit workplace injuries and illnesses information to OSHA electronically annually, on OSHA's website OSHA.GOV.
- Employers with 250 or more employees that are currently required to keep OSHA injury and illness records must electronically submit information from OSHA 300A — Summary of Work-Related Injuries and Illnesses.
 - Employers with 20-249 employees that are classified in certain high-risk industries must electronically submit information from OSHA 300A. The certain high-risk industries are listed on the Certain High-Risk Industries List.

5. Safety Information

- 5.1 Records Retention. Records maintained by the company will be retained for the following time periods following the end of the year to which they relate.
- 5.1.1 Log and summary of all recordable occupational injuries and illnesses (OSHA 300 and OSHA 300A or equivalent). Retained for 5 years.
 - 5.1.2 Supplementary records (OSHA 301 or equivalent) for each occupational injury or illness for this facility. Retained for 5 years.
 - 5.1.3 Employee exposure and medical records for company employees. Retained for the duration of employment plus an additional 30 years.
 - 5.1.4 Noise exposure measurement records. Retained for the duration of employment plus an additional 30 years.
 - 5.1.5 Audiometric test records. Retained for the duration of the affected employee's employment.
- 5.2 Access to Records. The company will provide, upon request, these established records, for inspection and copying by any representative of OSHA or the DOL (or state equivalent agencies) for the purpose of carrying out the provisions of the OSHA act, and for statistical compilation.

- 5.2.1 The log and summary of all recordable occupational injuries and illnesses (OSHA No. 300) will, upon request, be made available to any employee, former employee, and to their representatives for examination and copying in a reasonable manner and at reasonable times. The employee, former employee, and their representatives will have access to the log for any establishment in which the employee is or has been employed.
- 5.3 Reporting of Fatality or Work Related inpatient hospitalization, amputation, or loss of an eye. Within 8 hours after a fatality or within 24 hours of work related inpatient hospitalization, amputation, or loss of an eye, the company will report the accident by telephone. The report will relate the circumstances of the accident, the number of fatalities, and the extent of any injuries. It is understood that the Area OSHA Director may require such additional reports, in writing or otherwise, as he deems necessary concerning the accident. This report is to be made to the nearest office of the Occupational Safety and Health Administration. You may also use the OSHA toll free central number 1-800-321-6742. A listing of the current offices can be accessed on the OSHA website (www.OSHA.gov).
- 5.4 Change of Ownership. In the event a change of company ownership should occur, the company will notify the buyers of the requirement to preserve those records of the prior ownership, if any are required to be maintained.
- 5.5 Petitions for Recordkeeping Exceptions. In the event the company chooses to maintain records in a manner different from that required, the company will submit a petition containing the information specified by the Regional Commissioner of the Bureau of Labor Statistics in our region.
- 5.6 Employees Not In Fixed Establishments. Recording requirements for company employees engaged in physically dispersed operations (such as construction, installation, repair or service activities) who do not report to any fixed company establishment on a regular basis but are subject to common supervision will be satisfied by:
- 5.6.1 Maintaining the required records for each operation or group of operations which is subject to common supervision (field superintendent, field supervisor, etc.) in the main office of the company.
- 5.6.2 Having the address and telephone number of the main office available at each worksite.
- 5.6.3 Having personnel available at the main office during normal business hours to provide information from the records maintained there by telephone and by mail.

5.7 Statistical Safety Program. The company will comply with all requirements to maintain, provide, and use statistical summaries. Upon receipt of an Occupational Injury and Illnesses Survey Form, the company will promptly complete the form in accordance with the instructions contained therein, and return it in accordance with the instructions.

5.8 Recordable Classification

5.8.1 Case analysis. The following decision logic will be followed:

5.8.1.1 Determine whether a case occurred (death, injury, illness).

5.8.1.2 Establish that the case was work related.

- Case resulting from an event or exposure in the work environment. In addition to the physical location, equipment or materials used in the course of an employee's work are also considered part of the employee's work environment.
- Case resulting from an event or exposure in other locations where employees are engaged in work-related activities or are present as a condition of their employment.

5.8.1.3 Establishing that the case was not work related.

- The case will be considered not work related when an employee is off duty on our premises as a member of the general public and not as an employee.
- The case will be considered not work related when an employee has symptoms that merely surface on company premises, but are the result of a non-work related event or exposure off the premises.

5.8.1.3 Determining if the case is an illness or injury.

- Illness cases. Illnesses usually result from a long-term exposures or cases where the illness does not develop as the result of an instantaneous event. This concept of illness includes acute illnesses which result from exposures of relatively short duration.
- Injury cases. Injuries are only required to be recorded when they require medical attention (other than first aid). Injuries are usually caused by instantaneous events in the work environment. Cases resulting from anything other than instantaneous events are considered illnesses.

- Recordable case. If the case is an injury, decide if it is recordable. The following criteria will be used as a basis for recordability. The case will be recorded if the employee has:
 - A work related injury.
 - Medical treatment other than first aid.
 - Has a loss of consciousness.
 - Experiences restriction of work or motion.
 - Been transferred to another job.

5.8.1.4.1 Illness case. Generally, occupationally induced illness should be recorded as a separate entry on the OSHA 300 (or equivalent) log. However, certain illnesses, such as silicosis, may have prolonged effects which recur over time. The recurrence of these symptoms will not be recorded as new cases on the OSHA forms. The recurrence of symptoms of previous illness may require adjustments of entries on the log for previously recorded illnesses to reflect possible change in the extent or outcome of the particular case. Where it is unclear where an entry should be made, contact the company Safety Officer or the local OSHA office to obtain advice for proper annotation.

5.8.2 Categories for Evaluating the Extent of Recordable cases. Once the company decides that a recordable injury or illness has occurred, the case must be evaluated to determine its extent or outcome. There are three categories that OSHA recognizes as recordable cases. Every recordable case will be placed in only one of the following categories:

5.8.2.1 Fatalities. All work fatalities must be recorded, regardless of the time between the injury and the death, or the length of the illness.

5.8.2.2 Lost Workday cases. Lost workday cases will be determined to have occurred when the injured or ill employee experiences either days away from work, days of restricted work activity, or both, for days after the date of the incident. Record the actual number of days away or of restricted work after the date of injury. Note that if a physician requires a set number of days for the employee to be out of work, that number of days must be recorded on the log, even if the employee returns to work earlier than recommended by the physician. Include any weekends (or normally scheduled days off) in the count, if the employee was scheduled to work the next business day and does not report to work. No more than 180 days should be logged, regardless if the employee loses additional time.

- 5.8.2.3 Cases not resulting in death or lost workdays. These cases consist of the relatively less serious injuries and illnesses which satisfy the criteria for recordability but which do not result in death or require the affected employee to have days away from work or days of restricted work activity beyond the date of injury or onset of illness.

6. Training and Information

None at this time.

7. Definitions.

- *DOL* – U.S. Department of Labor
- *Fatality* – an incident that results in death
- *Hospitalization* – admittance to a hospital or similar facility where employees are provided with medical care and treatment. Emergency room visits are not considered hospitalization
- *Incident* – an unintended event in the workplace
- *Injury* – an incident that results in a detrimental physical effect to an employee
- *Illness* – an incident that results in an acute or chronic health effect to an employee
- *Near-miss Incident* – an incident that could have resulted in an injury, illness or fatality, but did not
- *OSHA* – U.S. Occupational Safety and Health Administration
- *Property Damage* – an incident that results in damage to buildings, structures, equipment, tools or other tangible assets of the company

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Certain High-Risk Industries List

The following industries with 20 to 249 employees must submit injury and illness summary (Form 300A) data to OSHA electronically.

NAICS	INDUSTRY	NAICS	INDUSTRY
11	Agriculture, forestry, fishing and hunting	5152	Cable and other subscription programming
22	Utilities	5311	Lessors of real estate
23	Construction	5321	Automotive equipment rental and leasing
31-33	Manufacturing	5322	Consumer goods rental
42	Wholesale trade	5323	General rental centers
4413	Automotive parts, accessories, and tire stores	5617	Services to buildings and dwellings
4421	Furniture stores	5621	Waste collection
4422	Home furnishings stores	5622	Waste treatment and disposal
4441	Building material and supplies dealers	5629	Remediation and other waste management services
4442	Lawn and garden equipment and supplies stores	6219	Other ambulatory health care services
4451	Grocery stores	6221	General medical and surgical hospitals
4452	Specialty food stores	6222	Psychiatric and substance abuse hospitals
4521	Department stores	6223	Specialty (except psychiatric and substance abuse) hospitals
4529	Other general merchandise stores	6231	Nursing care facilities
4533	Used merchandise stores	6232	Residential mental retardation, mental health and substance abuse facilities
4542	Vending machine operators	6233	Community care facilities for the elderly
4543	Direct selling establishments	6239	Other residential care facilities
4811	Scheduled air transportation	6242	Community food and housing, and emergency and other relief services
4841	General freight trucking	6243	Vocational rehabilitation services
4842	Specialized freight trucking	7111	Performing arts companies
4851	Urban transit systems	7112	Spectator sports
4852	Interurban and rural bus transportation	7121	Museums, historical sites, and similar institutions
4853	Taxi and limousine service	7131	Amusement parks and arcades
4854	School and employee bus transportation	7132	Gambling industries
4855	Charter bus industry	7211	Traveler accommodation
4859	Other transit and ground passenger transportation	7212	RV (recreational vehicle) parks and recreational camps
4871	Scenic and sightseeing transportation, land	7213	Rooming and boarding houses
4881	Support activities for air transportation	7223	Special food services
4882	Support activities for rail transportation	8113	Commercial and industrial machinery and equipment (except automotive and electronic) repair and maintenance
4883	Support activities for water transportation	8123	Dry-cleaning and laundry services
4884	Support activities for road transportation		
4889	Other support activities for transportation		
4911	Postal service		
4921	Couriers and express delivery services		
4922	Local messengers and local delivery		
4931	Warehousing and storage		

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OSHA's Form 300 (Rev. 01/2004) Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

You must record information about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an injury and illness incident report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Form approved OMB no. 1218-0176

Establishment name _____
 City _____ State _____

Identify the person				Describe the case		Classify the case				Enter the number of days the injured or ill worker was:							
(A) Case No.	(B) Employee's Name	(C) Job Title (e.g., Welder)	(D) Date of injury or onset of illness (mo./day)	(E) Where the event occurred (e.g. Loading dock north end)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (e.g. Second degree burns on right forearm from acetylene torch)	CHECK ONLY ONE box for each case based on the most serious outcome for that case:				Enter the number of days the injured or ill worker was:		Check the "injury" column or choose one type of illness:					
						Death	Days away from work	Remained at work		Away From Work (days)	On job transfer or restriction (days)	(M)					
						(G)	(H)	Job transfer or restriction (I)	Other recordable cases (J)	(K)	(L)	Injury (1)	Skin Disorder (2)	Respiratory Condition (3)	Poisoning (4)	Hearing Loss (5)	All other illnesses (6)
Page totals																	

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Injury (1) Skin Disorder (2) Respiratory Condition (3) Poisoning (4) Hearing Loss (5) All other illnesses (6)

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OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
_____	_____	_____	_____
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
_____	_____
(K)	(L)

Injury and Illness Types

Total number of... (M)		
(1) Injury	_____	(4) Poisoning _____
(2) Skin Disorder	_____	(5) Hearing Loss _____
(3) Respiratory Condition	_____	(6) All Other Illnesses _____

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Public reporting burden for this collection of information is estimated to average 58 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave. NW, Washington, DC 20210. Do not send the completed forms to this office.

Establishment information

Your establishment name _____
 Street _____
 City _____ State _____ Zip _____
 Industry description (e.g., Manufacture of motor truck trailers)

 Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

 OR North American Industrial Classification (NAICS), if known (e.g., 336212)

Employment information

Annual average number of employees _____
 Total hours worked by all employees last year _____

Sign here

Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

 Company executive Title

 Phone Date

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OSHA's Form 301 Injuries and Illnesses Incident Report

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

This *Injury and Illness Incident Report* is one of the first forms you must fill out when a recordable work-related injury or illness has occurred. Together with the *Log of Work-Related Injuries and Illnesses* and the accompanying *Summary*, these forms help the employer and OSHA develop a picture of the extent and severity of work-related incidents.

Within 7 calendar days after you receive information that a recordable work-related injury or illness has occurred, you must fill out this form or an equivalent. Some state workers' compensation, insurance, or other reports may be acceptable substitutes. To be considered an equivalent form, any substitute must contain all the information asked for on this form.

According to Public Law 91-596 and 29 CFR 1904, OSHA's recordkeeping rule, you must keep this form on file for 5 years following the year to which it pertains.

If you need additional copies of this form, you may photocopy and use as many as you need.

Completed by _____
Title _____
Phone _____ Date _____

Information about the employee

- 1) Full Name _____
- 2) Street _____
City _____ State _____ Zip _____
- 3) Date of birth _____
- 4) Date hired _____
- 5) Male
 Female

Information about the physician or other health care professional

- 6) Name of physician or other health care professional

- 7) If treatment was given away from the worksite, where was it given?
Facility _____
Street _____
City _____ State _____ Zip _____

- 8) Was employee treated in an emergency room?
 Yes
 No
- 9) Was employee hospitalized overnight as an in-patient?
 Yes
 No

Information about the case

- 10) Case number from the Log _____ (Transfer the case number from the Log after you record the case.)
- 11) Date of injury or illness _____
- 12) Time employee began work _____ AM/PM
- 13) Time of event _____ AM/PM Check if time cannot be determined
- 14) **What was the employee doing just before the incident occurred?** Describe the activity, as well as the tools, equipment or material the employee was using. Be specific. Examples: "climbing a ladder while carrying roofing materials"; "spraying chlorine from hand sprayer"; "daily computer key-entry."
- 15) **What happened?** Tell us how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time."
- 16) **What was the injury or illness?** Tell us the part of the body that was affected and how it was affected; be more specific than "hurt", "pain", or "sore." Examples: "strained back"; "chemical burn, hand"; "carpal tunnel syndrome."
- 17) **What object or substance directly harmed the employee?** Examples: "concrete floor"; "chlorine"; "radial arm saw." If this question does not apply to the incident, leave it blank.
- 18) **If the employee died, when did death occur?** Date of death _____

Public reporting burden for this collection of information is estimated to average 22 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Persons are not required to respond to the collection of information unless it displays a current valid OMB control number. If you have any comments about this estimate or any other aspects of this data collection, including suggestions for reducing this burden, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this office.

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**Personal Protective
Equipment**

PROGRAM OVERVIEW

PERSONAL PROTECTIVE EQUIPMENT SAFETY PROGRAM

REGULATORY STANDARD: 29 CFR §1910.132-138

INTRODUCTION

Personal protective equipment (PPE), when its use is required, must be provided and used by employees. PPE should only be used where engineering and work practice controls are not sufficient to prevent exposure to a hazard. The type of personal protective equipment and the reasons for its use must be documented. Where required, employees must be trained in how to use the equipment, reasons for its use, the care and maintenance of the equipment and disposal considerations.

TRAINING

- Training and information is required for employees who use PPE.
- Additional training is required for specific types and uses of PPE (respirators, hearing protection, etc.)

ACTIVITIES

- Conduct and document a Hazard Assessment
- Provide protective equipment, as required
- Ensure employees are trained in the use, care and maintenance of the equipment

FORMS

- Certification of Hazard Assessment
- Information for Filtering Facepiece (Dust Mask) Use
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

PERSONAL PROTECTIVE EQUIPMENT (PPE) SAFETY PROGRAM

1. Purpose. Personal Protective Equipment (PPE) shall be used in areas where there is potential exposure to hazards which cannot be adequately controlled by elimination, substitution, engineering methods or administrative controls. PPE is to be considered the last line of defense against exposure to chemical hazards, radiation hazards, biological agents, temperature extremes, noise, electrical energy, mechanical forces, irritants, or projectiles which can produce injury or illness. This defines the required elements for implementing a PPE program.

1.1 Exclusions: PPE requirements for hearing conservation, fall protection, cartridge type respiratory protection, eyewash/safety shower, and electrical work are covered in separate, specific standards. Back Belts and Wrist Braces used in mitigation of ergonomic disorders as part of an ergonomics evaluation are not considered PPE.

2. Scope. Applies to any area where Personal Protective Equipment is required or used by company employees.

3. Responsibilities

3.1 Management

3.1.1 Conduct and document a Hazard Assessment of the workplace.

3.1.2 Select the appropriate PPE to reduce or eliminate hazards, based on the types of tasks and activities performed at the company.

3.1.3 Maintain PPE or provide employees with the proper training and tools to maintain PPE used at the company.

3.1.4 Best practice is to post signs to inform employees where PPE is required.

3.1.5 Provide appropriate protective equipment to employees, visitors or other personnel, as needed or required. The employer is not required to pay for steel-toe shoes and prescription safety glasses (if allowed to be worn off the job), logging boots, everyday clothing, normal work boots, winter coat, sunglasses, and sunscreen.

3.1.6 Provide training to each employee who is required to use PPE.

3.2 Employees

3.2.1 Wear PPE as required and trained.

3.2.2 Maintain PPE, as required by this program

3.2.3 Report concerns, issues or violations of this program to Supervisors or management.

4. Procedure

4.1 Certification of Hazard Assessment

- 4.1.1 Conduct a hazard assessment of the workplace to identify the hazards associated with each job task or facility.
- 4.1.2 A Certification of Hazard Assessment shall be completed as verification that a hazard assessment was performed. The "certification document" may be completed by job task or operation, for buildings, or for organizations. If you do not use the provided form for this purpose, your documentation must specifically be identified as a "Certification of Hazard Assessment", and contain all the required elements (person certifying, date, location evaluated)
 - 4.1.2.1 This document shall be updated for changes to operating procedures, when the method of performing the job changes and/or when incident investigations determine those PPE modifications are necessary.

4.2 PPE Selection

- 4.2.1 Obtain the appropriate PPE. Selected PPE may include: eye and face, hand and arm, foot, head, torso and body protection, etc.
 - 4.2.1.1 The type of PPE must protect against the hazards identified.
 - 4.2.1.2 Inform affected employees of the PPE they are required to wear.
 - 4.2.1.3 Selected PPE must fit each affected employee.
 - 4.2.1.4 For chemical protective clothing, manufacturer information is maintained by the company. For suits, gloves, apron, eyewear/goggles - generic chemical permeation data (what the item is resistant to or not resistant to for general groupings of chemicals) will be maintained.

4.3 Access to and Maintenance of PPE

- 4.3.1 Ensure adequate supplies, storage, and employee access to PPE when required for a specific work area or operation.
- 4.3.2 PPE must be maintained in a sanitary and reliable condition. Ensure that damaged or defective PPE is taken out of service and not used, and that contaminated clothing and PPE are disposed of or cleaned properly.

5. Safety Information

5.1 Types of PPE and Their Use(s)

5.1.1 Eye and Face Protection

- 5.1.1.1 Safety glasses, goggles, and face shields are designed to protect the eyes and/or face of individuals who may be exposed to flying particles, molten metal, liquid chemicals, acid or caustic liquids, chemical gases or vapors, etc.
- 5.1.1.2 Only safety glasses and face protection meeting ANSI Z87 requirements shall be worn.
- 5.1.1.3 In special applications, such as welding or laser operations, helpers shall be protected to the same level as the operator.
- 5.1.1.4 Individuals, who work on or near exposed electrically energized circuit parts, at 50 volts and above, shall wear non-conductive eyewear. Non-conductive eyewear is also necessary for individuals exposed to electrical burn hazards (e.g.: working on systems less than 50 volts, but with high current levels such as electroplating systems, large capacity batteries, etc.). Metal frame glasses are not permitted for these activities.
- 5.1.1.5 Where contact lenses are permitted, they shall be worn with required PPE appropriate to the exposure. Safety non-prescription glasses shall be available to wearers of contact lenses.

5.1.2 Gloves and Hand Protection

- 5.2.2.1 Gloves, gauntlets, and protective sleeves are designed to protect the hands and arms of individuals who may be exposed to skin contact and/or absorption of chemical or biological agents, cuts or lacerations, abrasions, punctures, chemical burns, thermal burns, or harmful temperature extremes. Materials used in the manufacture of clothing must be resistant to the chemicals or materials being handled.
- 5.2.2.2 Gloves shall be removed properly so as not to expose an unprotected hand or part of the arm.
- 5.2.2.3 After removing gloves, hands should be thoroughly washed with soap and water.
- 5.2.2.4 Disposable gloves shall be disposed of at the end of each use. Chemical contact, signs of physical wear, or loss of glove integrity shall require more frequent disposal.

5.2.2.5 Latex Gloves: Due to the increasing concerns with latex gloves and associated skin reactions, latex gloves may be selected based on latex content, protein content (usually <50ug/g) or other requirements based on employee needs. Gloves may be required to be powdered or powder-free, depending upon the needs of the business activities.

5.2.2 Foot Protection

5.2.3.1 Foot protection is designed to protect the foot when working in areas where there is a danger of foot injuries due to falling or rolling objects, objects piercing the sole, and exposure to electrical hazards.

5.2.3.2 Where safety shoes are required, only foot protection meeting ANSI Z41 requirements shall be worn.

5.2.3.3 Electricians should select shoes rated for electrical hazards and/or use insulating mats when working on or near energized equipment.

5.2.4 Head Protection

5.2.4.1 Head Protection is designed to provide protection against impact and penetration from falling or stationary objects. They also may provide protection against electrical shock and burns caused when coming in contact with energized parts.

5.2.4.2 Where head protection is required, only Head protection meeting ANSI Z89 requirements shall be worn.

5.2.4.3 Types of Head Protection

5.2.4.2.1 Hard Hats - There are two types and three classes of hard hats. The type and class used or required at the facility or site will be documented based on the hazards.

5.2.4.2.2 Bump Caps - Provide protection from impact against stationary objects but do NOT protect against impact or penetration from falling objects or electrical shock hazards.

5.2.4.2.3 Welding Helmets - Provide protection against ultraviolet, infrared, and visible radiation sources during welding operations.

5.2.4.2.4 Hair Nets/Hats - Protect employees from entanglement hazards (e.g. equipment with moving parts, etc.) This can be done with the use of hair restraining devices, such as hair nets, hats, etc.

5.2.5 Hearing Protection

- 5.2.5.2 Hearing Protection is designed to protect against the affects of noise exposure in the workplace.
- 5.2.5.3 Where noise levels equal or exceed an 8 hour time weighted average of 85 dba, a Hearing Conservation program must be implemented and hearing protection shall be made available to affected employees.
- 5.2.5.4 Employers shall ensure hearing protection is worn when:
 - 5.2.5.4.5 Employees are exposed to noise levels equal or exceed an 8 hour time weighted average of 90 dba.
 - 5.2.5.4.6 Any employee who is exposed to an 8 hour time weighted average of 85 dba or greater who has not had their baseline audiogram or has experienced a standard threshold shift.
- 5.2.5.5 Voluntary Use: Employers can offer hearing protection to employees for voluntary use where noise levels do not exceed the requirements specified above.

5.2.6 Protective Clothing

- 5.2.5.1 Clothing such as suits, aprons, coveralls, coats, and pants are available to protect the torso and body of individuals who may be exposed to skin absorption of chemical or biological agents, cuts or lacerations, abrasions, punctures, chemical burns, thermal burns, or harmful temperature extremes. Materials used in the manufacture of such clothing must be matched in resistance to the chemicals or materials being handled.
 - 5.2.5.2 Company provided clothing: Laundering of company-issued work clothing shall be provided by the company to avoid the need for employees to launder clothing at home whenever there is a potential for infectious material or chemical contamination such as asbestos, lead, cadmium, arsenic, sensitizers, etc.
- 5.2.5 Dust Mask (Filtering Facepiece) Protection – Voluntary Use: This section applies to employees at any company facility or job-site where the use of a dust mask is utilized for voluntary use by employees.
- 5.2.5.1 Required and voluntary use of a cartridge respirator or required use of a dust mask must comply with the Respiratory Protection standard.
 - 5.2.5.2 Dust mask will be packed or stored to prevent deformation of the face piece and/or exhalation valve.

5.2.5.3 The employer must provide employees with Information for Voluntary Respirator Use form or equivalent Appendix D from the OSHA standard.

5.3 Signs

5.3.5 Signs should be posted, as needed, to warn employees and other personnel when protective equipment is required.

5.3.6 Signs may read "Safety Glasses Required"; "DANGER – Eye/Face Hazard area – Do Not Enter Without Protective Equipment"; or "DANGER – Hard Hat Required Area" or similar language may be used.

6. Training and Information

6.1 Employees must be trained in the when PPE is necessary, what PPE is necessary, limitations, proper use, cleaning, storage and disposal practices for any PPE used in the workplace

6.2 Training must be documented.

6.3 Employees must demonstrate their understanding of the training and ability to properly use PPE before performing work. This can be done at the time of training (quizzes, classroom discussion, etc.) or through demonstration of work practices in the workplace.

6.4 Retraining will be performed when changes to the workplace necessitate different equipment or when changes to the type/design of the PPE are made which require a new skill or knowledge for its successful use. Retraining will also be done when an employee exhibits a lack of understanding or skill to use the equipment properly.

7. Definitions

- *Filtering facepiece (dust mask)* - A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.
- *Personal Protective Equipment (PPE)* - Devices worn to protect employees from potential hazards encountered in the workplace.
- *Certification of Hazard Assessment* - Certification that the Hazard Assessment has been conducted.

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CERTIFICATION OF HAZARD ASSESSMENT

This is to certify that an evaluation has taken place for the tasks and activities performed at this workplace, hazards have been identified as indicated, appropriate Personal Protective Equipment (PPE) has been issued, and its use enforced.

Area Assessed:		Assessment Date:	
Assessment Completed By:		Signature:	

Job Task	Identified Hazard	Required PPE

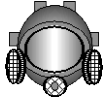
Examples of Types of PPE as determined applicable to the Job Hazard:

- Body Protection:* Chemical Apron, Arm/Sleeve Protection, Fire Resistive Clothing, Welding Apron, Tyvek Suits
- Eye/Face Protection:* Safety Glasses w/ Side shields, Goggles, Face Shield, Welding Shield
- Fall Protection:* PFAS, Lanyard, Harness
- Foot Protection:* Work Boots, Steel-toe shoes, Metatarsal Guards, Leather slip resistant shoes
- Hearing Protection:* Ear Muffs, Ear Plugs, Canal Caps
- Head Protection:* Bump Caps, Hard Hat, Hair nets
- Hand Protection:* Neoprene Gloves, Nitrile Gloves, Electrical Gloves, Heat Resistant Gloves, Leather Gloves
- Respiratory Protection:* Dust Mask, Cartridge Respirator, SCBA/Airline Respirator

Examples of Hazards (add more specifics to facility operations):

- Flying debris
- Chemical splash
- Welding sparks
- High heat
- Sharp objects (knives, box cutters, wire)
- Potential Bloodborne Pathogen Exposure
- Dust
- Chemical fumes/vapors exceeding OSHA PELs
- Falling debris from overhead

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❖ Information for Filtering Facepiece (Dust Mask) Use ❖
When Respirators Not Required Under 29 CFR 1910.134 - Appendix D

To the employer: The statement below must be read by all employees (or read to them in an understandable fashion) who are using filtering facepiece (dust mask type). A copy of this document must be given to the employee.

To the employee: Ensure you keep a copy of this form for your personal records.

EMPLOYEE INFORMATION

Employee Name:	ID Number:
Facility:	Work Location:
Job Title:	Dept./Phone:

VERIFICATION: I acknowledge that I have read and/or understand the information below (OSHA Respiratory Protection Statement) as is required by the Occupational Safety and Health Administration (OSHA).

EMPLOYEE SIGNATURE:		DATE:	
----------------------------	--	--------------	--

OSHA RESPIRATORY PROTECTION STATEMENT

To The User:

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You Should Do The Following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

FORM RETENTION INFORMATION

Retention File:	Location:
Date Filed:	Filed By:

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PROGRAM OVERVIEW

PORTABLE LADDER SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.25 Portable Wood Ladders
- 29 CFR 1910.26 Portable Metal Ladders
- 29 CFR 1926.1050-1060

INTRODUCTION: Details minimum requirements for the construction, care, and use of the common types of portable ladders ensuring safe use under normal conditions. The program has provisions for step, extension, and rung ladders.

TRAINING:

Employers must train all employees to recognize hazards of ladder use, the inspection of ladders and in the limitations of ladders to minimize the risk exposure.

ACTIVITIES:

- Ensure the appropriate type of ladder is selected based on the nature of the project
- Ensure employees are trained to inspect ladders for defects and in the safe use of ladders
- Ensure ladder inspections are performed
- Ensure ladders are properly repaired and maintained in accordance with regulatory standards or are properly disposed of when they are found to be defective (and or are removed from service)
- Ladders will be selected based on the type of work anticipated to be performed, and in accordance with applicable OSHA regulatory standards

FORMS:

- Ladder Safety Checklist
- Training attendance roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

Portable Ladder Safety Program

1. Purpose. Effective implementation for the safe use of ladders. This safety program is designed to establish safe use and handling requirements and will be communicated to all required personnel.

1.1 When changes occur to the governing regulatory standards

1.2 When facility operational changes occur that require a revision of this document

2. Scope. This program applies to the total workplace, regardless of the number of workers, work shifts or numbers and types of ladders used.

3. Responsibilities.

3.1 Management and Supervisors:

3.1.1 Procure the appropriate type of portable ladders

3.1.2 Ensure employees are trained (as needed or required) in the inspection techniques used to inspect ladders and in the safe use of ladders (proper pitch, angle and hazard awareness)

3.1.3 Ensure ladder inspections are performed (pre-use and periodic inspection)

3.1.4 Ensure ladders are properly repaired in accordance with regulatory standards or properly disposed of when they are found to be defective or are removed from service

3.2 Employees:

3.2.1 Inspect ladders daily or before each use if ladders are not used daily

3.2.2 Do not use ladders that have not passed inspection

3.2.3 Notify management or supervisors if ladders are found to be defective and promptly tag them with a do not use sign and remove them from service

3.3 Competent Person:

3.3.1 Train employees in ladder inspection techniques

3.3.2 Provide recommendations for procurement, repair and disposal of ladders.

4. Procedure.

4.1 General Requirements.

- 4.1.1 A stairway or ladder must be provided at all personnel points of access where there is a break in elevation of 19 inches (48 cm) or more, and no ramp, runway, sloped embankment, or personnel hoist is provided.
 - 4.1.2 A uniform step spacing must be employed which must be not more than 12 inches. Steps must be parallel and level when the ladder is in position for use.
 - 4.1.3 Rungs and steps shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize the possibility of slipping.
 - 4.1.4 Rungs should be kept free of grease and oil.
 - 4.1.5 Ladders will be maintained in good condition at all times, the joint between the steps and side rails will be tight, all hardware and fittings securely attached, and the movable parts will operate freely without binding or undue play.
 - 4.1.6 Ladders will not be placed in front of doors opening toward the ladder unless the door is blocked, locked, or guarded.
 - 4.1.7 Ladders will not be placed on boxes, barrels, or other unstable bases to obtain additional height.
 - 4.1.8 Ladders with broken or missing steps, rungs, or cleats, broken side rails, or other faulty equipment will not be used, ladders having any of these conditions present will be destroyed and disposed of. Improvised repairs will not be made.
 - 4.1.9 Short ladders will not be spliced together to provide long sections.
 - 4.1.10 Ladders made by fastening cleats across a single rail will not be used.
 - 4.1.11 Ladders will not be used as guys, braces, or skids, or for other than their intended purposes.
- 4.2 Step Ladders.
- 4.2.1 Tops of ordinary stepladders will not be used as steps.
 - 4.2.2 The bracing on the back legs of step ladders is designed solely for increasing stability and not for climbing.
 - 4.2.3 The metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in open positions must be properly maintained for each stepladder. The spreader must have all sharp points covered or removed to protect the user.
 - 4.2.4 Stepladders longer than 20 feet will not be used.
 - 4.2.5 Stepladders of one of the following types specified will be used:

- Type I--Industrial stepladder, 3 to 20 feet for heavy duty, such as utilities, contractors, and industrial use.
 - Type II--Commercial stepladder, 3 to 12 feet for medium duty, such as painters, offices, and light industrial use.
- 4.2.6 The minimum width between side rails at the top, inside to inside, must be not less than 11 1/2 inches. From top to bottom, the side rails must spread at least 1 inch for each foot of length of stepladder.
- 4.2.7 Painter's stepladders longer than 12 feet will not be used.
- 4.3 Extension/Rung Ladders.
- 4.3.1 Metal bearings of locks, wheels, pulleys, etc., will be frequently lubricated.
- 4.3.2 Frayed or badly worn rope will be replaced.
- 4.3.3 Safety feet and other auxiliary equipment will be kept in good condition to ensure proper performance.
- 4.3.4 Equipped with non-slip bases when there is a hazard of slipping. Non-slip bases are not intended as a substitute for care in safely placing, lashing, or holding a ladder that is being used upon oily, metal, concrete, or slippery surfaces.
- 4.3.5 The length of single ladders or individual sections of ladders must not exceed 30 feet.
- 4.3.6 Two-section ladders shall not exceed 48 feet in length and over two-section ladders must not exceed 60 feet in length.
- 4.3.7 Trestle ladders, or extension sections or base sections of extension trestle ladders longer than 20 feet will not be used.
- 4.3.8 Ladders will be so placed that the side rails have a secure footing, unless equipped with a single support attachment. The top rest for portable rung and cleat ladders will be reasonably rigid and will have ample strength to support the applied load.
- 4.3.9 No ladder should be used to gain access to a roof or elevated work area unless the top of the ladder is extended at least 3 feet above the point of support.
- 4.3.10 Rung and cleat ladders will, where possible, be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is one-quarter of the working length of the ladder (the length along the ladder between the foot and the top support). The ladder will be so placed as to prevent slipping, or it will be lashed, or held in position. Ladders will not be used in a horizontal position as platforms, runways, or scaffolds.

- 4.3.11 On two-section extension ladders the minimum overlap for the two sections in use will be as follows:

Size of Ladder (in Feet)	Overlap (in Feet)
Up to and including 36	3
Over 36 up to and including 48	4
Over 48 up to and including 60	5

- 4.3.12 Ladders with reinforced rails will only be used with the metal reinforcement on the underside.
- 4.3.13 Mason's ladder. A mason's ladder is defined as a special type of single ladder intended for use in heavy construction work. Mason's ladders longer than 40 feet will not be used.

5. Safety Information.

- 5.1 Ladders will be inspected frequently and those which have developed defects will be taken out of service until repaired by either maintenance department or the manufacturer.
- 5.2 If a ladder is involved in any of the following, immediate inspection is necessary:
- 5.2.1 If ladders tip over, inspect ladder for side rails dents or bends, or excessively dented rungs; check all rung-to-side-rail connections; check hardware connections; check rivets for shear.
 - 5.2.2 If ladders are exposed to oil and grease, equipment should be cleaned of oil, grease, or slippery materials.
- 5.3 Portable ladders are designed as a one-man working ladder based on a 200-pound load.
- 5.4 When ascending or descending, the climber must face the ladder.
- 5.5 Ladders should not be used as a brace, skid, guy or gin pole, gangway, or for other uses than that for which they were intended, unless specifically recommended for use by the manufacturer.
- 5.6 Metal ladders will not be used when work is performed on or near electric circuits.
- 5.7 Procurement and Disposal of Ladders. All procurement and disposal of ladders will be performed through or with the knowledge of the competent person or other designated person. Ladders will be destroyed beyond use prior to disposal to prevent further use by anyone. Procurement of ladders will be accomplished based on the type of work anticipated to be performed and in accordance with this safety program and applicable OSHA regulatory standards.

6. Training and Information.

- 6.1 Employees will be trained, as needed or required, in the inspection techniques related to daily or pre-use ladder inspections.
- 6.2 Employees will be trained in the safe use requirements of ladders (pitch, angle, etc.) and in their limitations of use (not near electrical current, not placed on top of other materials to increase height, etc.).

7. Definitions.

- Ø *Competent Person* - is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them.

Ladder Safety Checklist

Date of Inspection:	Name of Inspector:	Ladder Number:
Type of Ladder: () Extension () Step		
Construction of Ladder: () Wood () Metal () Fiberglass		
General	Compliant?	Needs Repair
All labels/markings/weight limits on the ladder are in place and legible.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
There are no lose or missing steps or rungs (loose if can be moved by hand).	<input type="checkbox"/> YES <input type="checkbox"/> NO	
There are no loose nails, screws, bolts, or other fasteners.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
The ladder is not cracked, splintered, split, or broken uprights, braces, steps, or rungs.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
The ladder is free from grease, oil, or slippery materials.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
The joints between rungs and side rails are tight (loose if can be moved by hand).	<input type="checkbox"/> YES <input type="checkbox"/> NO	
The ladder rungs/steps are tight and corrugated or knurled on metal ladders.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
All movable parts operate freely.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
The non-slip bases are not damaged or worn.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Rails are free from cracks/splitting	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Hinge spreaders are not loose or bent allowing ladder to wobble.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
The hinge spreaders are not broken and do not have sharp or loose edges.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
There are no loose, broken, or missing extension locks.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
There are no defective locks that do not seat properly when ladder is extended.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Ladder ropes are not frayed, worn or missing.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Single section ladders do not exceed 30 feet in length	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Two-section extension ladders do not exceed 48 feet in length for metal ladders and 60 feet in length for wood ladders.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Ladders with more than two sections do not exceed 60 feet in length.	<input type="checkbox"/> YES <input type="checkbox"/> NO	
Comments		

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PROGRAM OVERVIEW

RESPIRATORY PROTECTION SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.134 & 1926.103 and ANSI - Z88.2

INTRODUCTION

This safety program addresses the evaluation of potential respiratory hazards, communicating information concerning these hazards, and establishing appropriate respiratory protective measures for employees. This program applies to employees at any facility where the use of cartridges or supplied air respiratory protective equipment is utilized (required or voluntary). The program details the required procedures for respirator use, care, training, fit testing, medical evaluation, etc.

TRAINING

- Training will be conducted before initial assignment, on an annual basis, and as needed
- Retraining is required if exposures change and as needed

ACTIVITIES

- Evaluate the need for respiratory protection
- Establish and maintain a written Respiratory Protection Program
- Appoint a respiratory protection coordinator to oversee the implementation of this program
- Ensure respirator users are medically fit to use the equipment and perform the duties required
- Provide NIOSH-approved respirators, suitable to the hazard
- Train and fit-test employees who use respirators
- Ensure respiratory equipment is properly stored in a convenient, clean, and sanitary location
- Evaluate the facility and program to ensure it is effective and appropriate

FORMS

- Respirator Cleaning and Inspection Record
- Respirator Filter Change Out Schedule
- Respirator Information for Voluntary Use
- Respirator Medical Appraisal Response
- Respirator Medical Evaluation Questionnaire
- Respirator Seal Check Procedure
- Respirator Selection and Fit Test Record
- Respirator Wallet Card for Fit Test Certification
- Respiratory Protection Assigned Protection Factors
- Respiratory Protection Fit Testing Procedures
- Respiratory Protection Text of the Regulatory Standard and Appendices
- Respiratory Protection Written Program
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

RESPIRATORY PROTECTION SAFETY PROGRAM

1. Purpose. The purpose of this program is to provide protective equipment that will control and/or minimize the threat of occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. The primary objective is to prevent atmospheric contamination through accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators will be used, as required. The company will review and evaluate this safety program:

- 1.1 When changes occur to governing regulatory sources that require revision.
- 1.2 When changes occur to related company procedures that require a revision.
- 1.3 When facility operational changes occur that requires a revision.
- 1.4 When there is an accident or close-call that relates to this area of safety.
- 1.5 Anytime the procedures fail.

2. Scope. This program applies to employees at any company facility or job-site where the use of respiratory protective equipment is utilized (either by requirement or voluntary use by employees). The only exception to this requirement is the *voluntary* use of respirators by employees when the company does not require the use of respirators, but the employee chooses to wear one.

3. Responsibilities

3.1 Management/Supervisors

- 3.1.1 Evaluate the need for respiratory protection.
- 3.1.2 Provide NIOSH-approved respirators when they are necessary to protect employee health. Other respiratory equipment may be utilized only when NIOSH approved equipment is inappropriate for the situation.
- 3.1.3 Ensure the respirator provided is suitable for the intended use and appropriate to the type of hazard.
- 3.1.4 Offer at least two types of respirators for employees to select from, in appropriate sizes.
- 3.1.5 Establish and maintain the written program and documentation required.
- 3.1.6 Appoint a respiratory protection coordinator to oversee the development and implementation of this program.

- 3.1.7 Ensure all employees are appropriately trained in the use, care, maintenance, storage and disposal of respirators.
- 3.1.8 Ensure respirator fit testing is performed.
- 3.1.9 Ensure respirator users are medically fit to use the equipment and perform the duties required.
- 3.1.10 Ensure respiratory equipment is properly stored in a convenient, clean, and sanitary location.

3.2 Employees

- 3.2.1 Attend appropriate training.
- 3.2.2 Use the respiratory protection in accordance with instructions and training received.
- 3.2.3 Guard against damage to the respirator, and immediately replace suspect respirators.
- 3.2.4 Clean and disinfect respiratory equipment before and after each use.
- 3.2.5 Inspect respirators prior to use to ensure they are in good condition, defective parts or equipment will be immediately removed from service until repaired or replaced. SCBA equipment must be inspected at least monthly and before each use, regardless of the frequency used.
- 3.2.6 Report any trouble with or malfunction of the respirator to your supervisor immediately.

3.3 Respiratory Protection Coordinator

- 3.3.1 Attend the appropriate training to ensure that the knowledge and capabilities are established to oversee the Respiratory Protection Safety Program.
- 3.3.2 Maintain records for the respirator program including fit testing, training and medical records.
- 3.3.3 Assist in hazard evaluations for the facility, site or work area, as needed.
- 3.3.4 Ensure availability of proper equipment based on the hazards encountered in the workplace and the requirements of this program.
- 3.3.5 Ensure equipment is properly used, stored, maintained, inspected and disposed of, as needed or required.
- 3.3.6 Provide for fit testing and other required training for respirator users.
- 3.3.7 Regularly evaluate the effectiveness of the program.

4. Procedure

4.1 Respiratory Selection Policy

- 4.1.1 Selection type. The company will provide a selection of NIOSH certified respirators from at least two (2) different types of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
- 4.1.2 Protective Capabilities. Selection of respirator protective capabilities will be made according to the specific hazard involved. Where a determination can not be made as to the hazard, the worst case will be assumed and appropriate respiratory equipment will be supplied.
- 4.1.3 Specific regulatory standards and hazards. OSHA has specific definitions and requirements for Assigned Protection Factors (APFs) and Maximum Use Concentrations (MUCs). Proper respirator selection using APFs is an important component of an effective respiratory protection program. Accordingly, OSHA concludes that the use of APFs is necessary to protect employees who must use respirators and to protect the employees from airborne contaminants. Please refer to the form on APFs within this manual for more information.
- 4.1.4 IDLH Atmospheres. The company will supply either NIOSH certified full face-piece pressure demand 30-minute SCBA respirators, or a combination full face-piece pressure demand SAR with auxiliary self-contained air supply respirators. Escape only equipment will be capable of performing in the atmosphere and be appropriate to the hazard.
- 4.1.5 Oxygen Deficient Atmospheres. All oxygen deficient atmospheres are considered IDLH unless it can be demonstrated that oxygen levels can be maintained within acceptable ranges. In these cases, any atmosphere supplied respirator may be used. In situations where companies are located in higher altitudes, the effectiveness of the respirator may be reduced and additional measures may need to be taken.
- 4.1.6 Gases and Vapors. Atmosphere supplying respirators may be used. Air purifying respirators may be used if they are either equipped with an NIOSH approved end-of-service-life (ESLI) indicator or there is a written and enforced canister/cartridge change schedule that ensures the cartridges are changed out before their end of service life. The written procedures must describe the information and data relied upon to make this determination.
- 4.1.7 Particulates. Atmosphere supplying respirators may be used. Air purifying respirators that are equipped with a High Efficiency Particulate Air (HEPA) filter or equipped with filters certified by NIOSH for the specific particulate size.

4.2 Identification of filters, cartridges, and canisters

The company will ensure that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approved label and that the label is not removed and remains legible.

4.3 Breathing Air Quality and Use

4.3.1 Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration will be of high purity.

4.3.1.1 Oxygen will meet the requirements of the United States Pharmacopoeia for medical or breathing oxygen.

4.3.1.2 Breathing air will meet at least the requirements for Type 1-Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

4.3.1.2.1 Oxygen content (v/v) of 19.5-23.5%

4.3.1.2.2 Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less

4.3.1.2.3 Carbon monoxide (CO) content of 10 ppm or less

4.3.1.2.4 Carbon dioxide content of 1,000 ppm or less

4.3.1.2.5 Lack of noticeable odor

4.3.1.3 Oxygen must never be used with air line respirators.

4.3.1.4 Breathing air may be supplied to respirators from cylinders or air compressors.

4.3.1.5 Compressed oxygen will not be used in atmosphere-supplying respirators, supplied-air respirators or in open circuit self-contained breathing apparatus that have previously used compressed oxygen.

4.3.2 Cylinders used to supply breathing air to respirators must meet the following requirements:

4.3.2.1 Tested and maintained (per DOT- 49 CFR Part 173 and 178 requirements).

4.3.2.2 Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Type 1--Grade D breathing air.

4.3.2.3 The moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.

4.3.3 Compressors for Supplied Air must be constructed and situated to:

4.3.3.1 Prevent entry of contaminated air into the air-supply system.

4.3.3.2 Minimize moisture content to 10^0 below ambient temperature at 1 atm pressure.

- 4.3.3.3 Have suitable sorbent beds and filters to ensure air quality. Beds and filter must be maintained and replaced or refurbished per manufacturer's instructions.
- 4.3.3.4 Have a tag or other documentation indicating the change date and signature of the person who changed it.
- 4.3.3.5 Ensure that Carbon-Monoxide levels do not exceed 10 ppm.
- 4.3.3.6 Ensure that couplings are incompatible with non-respirable gas system valves and outlets.
- 4.3.3.7 Ensure that markings and labels are maintained in legible and readable condition. Breathing gas containers will be marked in accordance with the NIOSH requirements (42 CFR Part 84 and 29 CFR 1910.101)
- 4.3.3.8 Have, for oil-lubricated compressor equipment, high temperature alarms and carbon-monoxide detection equipment to ensure levels do not exceed 10 ppm.

4.4 Use of Respirators

- 4.4.1 Face-piece seal protection. Facial hair or other conditions that interfere with the contact of the face to the face-piece of the respirator or with the functioning of valves is prohibited. In such cases tight-fitting face-piece respirators may not be used, or the conditions that interfere with the respirator effectiveness must be changed (i.e. the user must keep facial hair shaved).
- 4.4.2 Corrective eyewear. Corrective eyewear must be worn in a manner that does not interfere with the seal or the effectiveness of the respirator.
- 4.4.3 Seal Checks. Seal checks must be performed each time a user puts on the respirator for use.
- 4.4.4 Surveillance of conditions of use. Appropriate surveillance and evaluations of the working conditions will be performed to assess the degree of employee exposure and stress associated with respirator use, and the effectiveness of the respirators.
- 4.4.5 Respirator Use Limitations
 - 4.4.5.1 Employees must leave the respirator use area when:
 - 4.4.5.1.1 They detect vapor or gas breakthrough, changes in breathing resistance or leakage of the face-piece. In these situations, respirators must be repaired or replaced prior to the employee returning to the work area.
 - 4.4.5.1.2 Replacement of the filter, cartridges, canister, or the respirator itself is required.
 - 4.4.5.1.3 Washing of the face or respirator components is required to prevent eye or skin irritation.

4.4.5.2 IDLH limitations

4.4.5.2.1 At least one employee (attendant) must be located outside the IDLH atmosphere. This person must be trained to contact or provide emergency rescue, and provided with:

4.4.5.2.1.1 Either pressure demand or other positive pressure SCBA respirator or SAR with auxiliary SCBA

4.4.5.2.1.2 Either appropriate retrieval equipment to facilitate rescue or equivalent means for providing rescue.

4.4.5.2.2 Visual, voice or signal communications must be maintained at all times between the attendant and the respirator user inside the IDLH atmosphere.

4.4.5.2.3 Managers, supervisors or another designate person must be made aware that entry is taking place when entering the IDLH atmosphere.

4.4.5.2.4 Provisions for emergency rescue must be made before entry.

4.4.5.3 Interior Structural Firefighting

4.4.5.3.1 All of the elements for IDLH limitations must be met (attendant or incident commander, equipment, communications, emergency rescue and notification).

4.4.5.3.2 At least two employees must work together inside the IDLH and remain in visual or voice contact with one another at all times.

4.4.5.3.3 At least two attendants or designated persons must remain outside the IDLH area. One of these may be the incident commander.

4.4.5.3.4 SCBA respiratory protection is required for all persons engaged in interior structural firefighting.

5. Safety Information

5.1 Inspection, Maintenance, and Care of Respiratory Equipment

5.1.1 The company will provide for the cleaning and disinfecting, storage, inspection, and repair of respirators used by our employees. Equipment will be properly maintained to retain its original state of effectiveness.

- 5.1.2 Cleaning and disinfecting. The company will provide each respirator user with a respirator that is clean, sanitary, and in good working order. Respirators will be cleaned and disinfected using OSHA approved procedures or equally effective procedures recommended by the respirator manufacturer. The respirators will be cleaned and disinfected at the following intervals:
 - 5.1.2.1 Exclusive use respirators - as often as necessary to be maintained in a sanitary condition.
 - 5.1.2.2 Respirators issued to more than one employee - before being worn by different individuals.
 - 5.1.2.3 Respirators maintained for emergency use only - after each use.
 - 5.1.2.4 Respirators used in fit testing- after each use.
- 5.1.3 Storage of respirators
 - 5.1.3.1 All respirators will be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they will be packed or stored to prevent deformation of the face piece and exhalation valve.
- 5.1.4 Emergency respirators will be:
 - 5.1.4.1 Kept accessible to the work area.
 - 5.1.4.2 Stored in compartments or in covers that are clearly marked as containing emergency respirators.
 - 5.1.4.3 Stored in accordance with any applicable manufacturer instructions.
- 5.1.5 Inspection. Respirators will be inspected as follows:
 - 5.1.5.1 Routine use respirators - before each use and during cleaning in accordance with manufacturer specifications.
 - 5.1.5.2 Emergency use respirators - at least monthly and after each use. Inspection will be in accordance with the manufacturer recommendations, and equipment will be checked for proper function before and after each use. Monthly inspections will be documented and this documentation will be retained with the equipment. Documentation is retained until superseded or the equipment is permanently removed from service. Documentation includes the date of the inspection, the name or signature of the inspector, the findings, required corrective actions and a serial number or other means of identifying the equipment.

- 5.1.5.3 Emergency escape-only respirators - before being carried into the workplace for use.
- 5.1.5.4 Self-contained breathing apparatus - monthly. Air and oxygen cylinders will be maintained in a fully charged state and will be recharged when the pressure falls to 90% of the manufacturer recommended pressure level. Regulator and warning devices will be monitored for proper function.
- 5.1.6 Repairs. Respirators that fail an inspection or are otherwise found to be defective will be removed from service, and discarded, repaired or adjusted only by persons appropriately trained to perform such operations and will use only the respirator manufacturer NIOSH-approved parts designed for the respirator.

5.2 Respirator Fit Testing

- 5.2.1 General. The company will conduct fit testing before an employee is required to use any respirator.
 - 5.2.1.1 The employee must be fit tested with the same make, model, style, and size of respirator that will be used.
 - 5.2.1.2 Fit testing is performed at least annually, and when changes to the type, make, or model of the respirator occur and when facial features of the user change (scarring, dental changes, cosmetic surgery or obvious changes in body weight).
 - 5.2.1.3 In all cases the respirator should be reasonably comfortable for the user, or a different selection of respirators will be offered (and any associated fit testing or other evaluations performed).
 - 5.2.1.4 Fit testing must be administered using OSHA accepted protocols.
- 5.2.2 Fit Factor, Qualitative (QLFT) and Quantitative (QNFT) fit testing
 - 5.2.2.1 Negative pressure air-purifying respirators that must achieve a factor of 100 or less must use qualitative testing.
 - 5.2.2.2 Tight-fitting half face-piece respirators must achieve a fit factor of 100 or greater.
 - 5.2.2.3 Tight-fitting full face-piece respirators must achieve a fit factor of 500 or greater.
 - 5.2.2.4 Tight-fitting atmosphere supplied respirators must be tested in negative pressure mode. If the respirator must be converted from positive to negative pressure for the test through the use of filters, the testing must occur in the breathing zone of the user (between the nose and mouth) using a sampling adapter, and any modifications for the conversions must be completely removed and the face-piece restored to its NIOSH-approved configuration before use.

5.3 Respirator Seal and Seal-Check

- 5.3.1 Fit instructions. Every respirator wearer will receive fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly. The face piece fit will be checked by the wearer each time they put on the respirator.
- 5.3.2 Hair/apparel. If hair growth or apparel interferes with a satisfactory fit, then the employee will be requested to alter or remove them so as to eliminate interference and allow a satisfactory fit. If a satisfactory fit is still not attained, the employee must use a positive-pressure respirator such as powered air-purifying respirators, supplied air respirator, or self-contained breathing apparatus.
- 5.3.3 Seal Check procedures. An adequate seal must be attained each time the respirator is worn. Face-piece Positive and/or Negative Pressure Checks.
- 5.3.3.1 Positive pressure check. Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- 5.3.3.2 Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the face piece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

5.4 Medical Evaluation and Questionnaire

- 5.4.1 General. Using a respirator may place a physical burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. The company will provide for a medical evaluation to determine the employee's ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace. Medical evaluations for respirator use will discontinue when the employee is no longer required to use a respirator.
- 5.4.2 Medical evaluation procedures. The company will identify a Physician or other Licensed Health Care Professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

- 5.4.3 Follow-up medical examination. The company will ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in the medical evaluation questionnaire and/or demonstrates the need for a follow-up medical examination. The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.
- 5.4.4 Administration of the medical questionnaire and examinations. The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire will be administered in a manner that ensures that the employee understands its content. An opportunity to discuss the questionnaire and examination results with the PLHCP will be provided to the employee.
- 5.4.5 Information to be provided to the PLHCP. The following information will be provided to the PLHCP before a recommendation is made concerning an employee's ability to use a respirator:
- 5.4.5.1 The type and weight of the respiratory equipment to be used.
 - 5.4.5.2 The duration and frequency of expected use.
 - 5.4.5.3 The expected physical work effort.
 - 5.4.5.4 Additional protective clothing and equipment to be worn.
 - 5.4.5.5 Temperature and humidity extremes that may be encountered.
 - 5.4.5.6 The type and weight of the respirator to be used by the employee.
 - 5.4.5.7 The duration and frequency of respirator use (including use for rescue and escape).
 - 5.4.5.8 Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.
 - 5.4.5.9 Copy of the written Respiratory Protection Safety Program.
 - 5.4.5.10 Copy of the 29 CFR 1910.134 plus Appendices.
 - 5.4.5.11 Note: When a new PLHCP is used, the information and documents will be transferred, as appropriate. Re-evaluations are not required solely because a new PLHCP has been selected.
- 5.4.6 Medical determination
- 5.4.6.1 Obtain a written recommendation from the PLHCP.

- 5.4.6.2 Determine any limitations on respirator use including whether or not the employee is medically able to use the respirator, or restrictions required by the PLHCP.
- 5.4.6.3 Determine the need, if any, for follow-up medical evaluations.
- 5.4.6.4 Ensure that the employee has received a written copy of the PLHCP recommendation.
- 5.4.6.5 Powered Air Pressure Respirators (PAPR) may be used, if approved by the PLHCP, when the medical condition of the employee prohibits the use of a negative pressure respirator.
- 5.4.7 Additional medical evaluations. As a minimum, the company will provide additional medical evaluations based on the following conditions:
 - 5.4.7.1 If an employee reports medical signs or symptoms that are related to his or her ability to use a respirator.
 - 5.4.7.2 If a PLHCP, supervisor, or the respirator program administrator determines that re-evaluation is needed.
 - 5.4.7.3 When the program requires, or fit testing determines the necessity for reevaluation.
 - 5.4.7.4 If changes occur in workplace conditions (e.g., increased physical work effort, additional protective clothing, temperature extremes, or types of hazard).
- 5.4.8 Medical evaluation. Records of medical evaluations will be retained and made available to employees, their legal representatives and OSHA for the duration of employment plus and additional 30 years. If the company ceases to do business or is sold, records will be transferred to the new owner or OSHA will be contacted to determine retention.

5.5 Program Evaluation

- 5.5.1 Program evaluations will be conducted as necessary, to ensure that the program is effectively implemented.
- 5.5.2 Employees required to use respiratory protection will be consulted during this evaluation to determine or identify problems or concerns with the program or equipment.
- 5.5.3 Program evaluation and assessment includes the fit, selection, conditions of use and maintenance of respirators and respiratory protective equipment.

5.6 Recordkeeping

- 5.6.1 The company will establish and retain written information regarding medical evaluations, fit testing, and the Respiratory Protection Safety Program.

5.6.2 **Fit Testing Records.** Records of the qualitative (QLFT) and quantitative (QNFT) fit tests administered to an employee will be maintained. These records include:

5.6.2.1 Date of test

5.6.2.2 Type of fit test performed

5.6.2.3 The name or identification of the employee tested

5.6.2.4 Specific make, model, style, and size of respirator tested

5.6.2.5 Fit test records will be retained for respirator users until the next fit test is administered

5.6.2.6 The pass/fail results for QLFT or the fit factor and strip chart recording or other recording of the test results for QNFT

5.6.3 **Medical Records.** Records of medical evaluations will be retained and made available to employees, their legal representatives and OSHA for the duration of employment plus and additional 30 years. If the company ceases to do business or is sold, records will be transferred to the new owner or OSHA will be contacted to determine retention.

5.6.4 **Training Records.** The company will document that the required respiratory training has been accomplished. Documentation includes the employee's name, the signature or initials of the trainer, and the dates of training.

5.7 **Voluntary Use of Respirators**, where not required in the workplace:

5.7.1 Employees who choose to wear cartridge or supplied air respiratory protection when it is not required in the workplace must:

5.7.1.1 Be medically cleared to use that respirator

5.7.1.2 Maintain, clean, and store the respirator so that its use does not present a health hazard to the user.

5.7.1.3 Be provided the information contained in Appendix D to the Respiratory Protection Standard, "Information for Employees Using Respirators When Not Required Under the Standard."

5.7.2 The company is required to have a Written Respiratory Protection program if there is voluntary use of any respiratory protective equipment other than filtering facepieces (dust-masks).

5.7.3 For filtering facepiece (dust-mask) programs, required use is covered in the Personal Protective Equipment section of this safety manual. Voluntary use of filtering facepieces does not require any program or documentation.

6. Training and Information

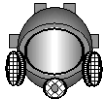
- 6.1 The company will develop a standardized training format to meet the requirement for a Respiratory Protection Training program. The training will be conducted on an annual basis, or more frequently as needed, in a comprehensive and understandable format.
- 6.2 Training will be provided to each affected employee:
 - 6.2.1 Before the employee is first assigned duties that require respiratory protection.
 - 6.2.2 Before there is a change in assigned duties.
 - 6.2.3 Whenever there is a change in operations that present a hazard for which an employee has not previously been trained.
 - 6.2.4 Whenever there is reason to believe that there are deviations from established respiratory procedures or inadequacies in the employee's knowledge or use of these procedures.
- 6.3 Training includes and knowledge must be demonstrated by the trainee, in the following items, at a minimum:
 - 6.3.1 The reasons for respiratory protection and the hazards encountered that require respirators, including any limitations on their use.
 - 6.3.2 The proper fit, use, inspection, maintenance and storage of respirators.
 - 6.3.3 Putting on and removing respirators (donning and doffing), including seal checks.
 - 6.3.4 Emergency situation respirator use, including situations where respirator malfunctions may occur.
 - 6.3.5 Procedures for regularly evaluating the effectiveness of the program and how to recognize the signs or symptoms that may be caused by ineffective respiratory equipment.
 - 6.3.6 Where respirator use is not required.
 - 6.3.7 The general requirements of OSHA's Respirator Standard 29 CFR 1910.134.
- 6.4 Training Records. The company will document that the required respiratory training has been accomplished. Documentation includes the employee's name, the signature or initials of the trainer, and the dates of training.

7. Definitions

- *Air-purifying respirator* - A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

- *Assigned Protection Factor* - the level of protection that a properly functioning respirator would be expected to provide to a properly fitted and trained user. For example, an APF of 10 for a respirator means that a user could expect to inhale no more than one tenth of the airborne contaminant present.
- *Atmosphere-supplying respirator* - A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR) and self-contained breathing apparatus (SCBA) units.
- *Canister or cartridge* - A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
- *Demand respirator* means: An atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.
- *Emergency situation* - Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.
- *Employee exposure* - Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.
- *End-of-service-life indicator (ESLI)* - A system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.
- *Escape-only respirator* means: A respirator intended to be used only for emergency exit.
- *Filter or air purifying element* - A component used in respirators to remove solid or liquid aerosols from the inspired air.
- *Filtering facepiece (dust mask)* - A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.
- *Fit factor* - A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.
- *Fit test* - The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)
- *High efficiency particulate air (HEPA) filter* means: A filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.
- *Immediately dangerous to life or health (IDLH)* - An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

- *Loose-fitting facepiece* - A respiratory inlet covering that is designed to form a partial seal with the face.
- *Negative pressure respirator (tight fitting)* - A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.
- *Oxygen deficient atmosphere* - An atmosphere with oxygen content below 19.5% by volume.
- *Physician or other licensed health care professional (PLHCP)* - An individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by the respiratory protection standard.
- *Positive pressure respirator* - A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.
- *Powered air-purifying respirator (PAPR)* - An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
- *Pressure demand respirator* - A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.
- *Qualitative fit test (QLFT)* - A pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.
- *Quantitative fit test (QNFT)* - An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
- *Respiratory inlet covering* - That portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.
- *Self-contained breathing apparatus (SCBA)* - An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
- *Service life* - The period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.
- *Supplied-air respirator (SAR) or airline respirator* - An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.
- *Tight-fitting facepiece* - A respiratory inlet covering that forms a complete seal with the face.
- *User seal check* - An action conducted by the respirator user to determine if the respirator is properly seated to the face.



RESPIRATOR CLEANING AND INSPECTION RECORD

OWNER INFORMATION

OWNER <i>(if individually issued):</i>	LAST NAME	FIRST	MIDDLE INITIAL
COMPANY NAME		DEPT:	
EMPLOYEE ID # (if applicable)		WORK PHONE:	

RESPIRATOR INFORMATION

RESPIRATOR TYPE			
MANUFACTURER		MODEL #	
SIZE #		RESPIRATOR ID NUMBER:	
DATE OF INSPECTION		TIME:	

CLEANING REQUIREMENTS TIGHT FITTING RESPIRATORS

Estimated Frequency: (Check all that apply)

- Hourly
 Twice each Shift
 Daily
 Weekly
 Monthly
 Before Use
 After Use

COMPONENT:	CLEANING REQUIREMENTS (edit in accordance with manufacturers instructions)
-------------------	---

Cartridge Holder:	
Cartridge Threads/Fittings:	
Connections:	
Elastomeric Parts Deteriorating?	
Elastomeric Parts Pliable?	
Exhalation Valve Assembly:	
Facepiece:	
Gaskets:	
Harness Assembly:	
Headbands:	
Hose Assembly:	
Inhalation Valve:	
Nosecup Valves:	
Speaking Diaphragm:	

COMMENTS:

CLEANING REQUIREMENTS TIGHT FITTING RESPIRATORS – [Continued]

Respirator Cleaning Procedures (Mandatory)

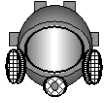
These procedures are provided for employee use when cleaning respirators. They are general in nature, and the employee as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed in 29 CFR 1910.134 Appendix B-2 (see below). Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth below.

Procedures for Cleaning Respirators:

- Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure - demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
- Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
- Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.
- When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
 - Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,
 - Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,
 - Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
- Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
- Components should be hand-dried with a clean lint-free cloth or air-dried.
- Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
- Test the respirator to ensure that all components work properly.

INSPECTOR'S NAME/TITLE:			
SIGNATURE:		DATE:	
FORM RETENTION INFORMATION			ATTACHMENTS
Retention File:	Location:	*Yes <input type="radio"/> No <input type="radio"/>	
Date Filed:	Filed By:	*See Following Pages <input type="radio"/>	

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❖ Respirator Information for Voluntary Use ❖
 ❖ *When Respirators Not Required Under 29 CFR 1910.134* ❖

To the employer: The statement below must be read by all employees (or read to them in an understandable fashion) who are using Cartridge or Supplied Air respirators. A copy of this document should be given to the employee.

To the employee: Ensure you keep a copy of this form for your personal records.

EMPLOYEE INFORMATION

Employee Name:	ID/Clock Number:
Facility:	Work Location:
Job Title:	Dept./Phone:

VERIFICATION: I acknowledge that I have read and/or understand the information below (OSHA Respiratory Protection Statement) as is required by the Occupational Safety and Health Administration (OSHA).

EMPLOYEE SIGNATURE:		DATE:	
----------------------------	--	--------------	--

OSHA RESPIRATORY PROTECTION STATEMENT

To The User:

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You Should Do The Following:

- Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
- Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
- Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
- Keep track of your respirator so that you do not mistakenly use someone else's respirator.

FORM RETENTION INFORMATION

Retention File:	Location:
Date Filed:	Filed By:

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RESPIRATOR MEDICAL APPRAISAL RESPONSE

_____ was examined on _____
(Patient's Name) (Date)

OR

The medical evaluation form for _____
(Patient's Name)

was reviewed on _____
(Date)

This individual is:

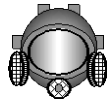
- ___ Approved to wear positive or negative pressure respirators
- ___ NOT approve to wear positive or negative pressure respirators
- ___ Approved WITH THE FOLLOWING LIMITATIONS to wear positive or negative pressure respirators

Limitations of use (time limits, type of equipment restrictions, etc):

(Signature of Licensed Physician/Health Care Professional)

(Print Physician/Health Care Professional's Name)

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❖Respirator Medical Evaluation Questionnaire❖

❖Appendix C to 29 CFR 1910.134❖

To the employer:

Answers to questions in Section 1 and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

Today's date: _____

Your name: _____

Your age: _____

Sex: Male Female

Your height: _____ ft. _____ in.

Your weight: _____ lbs

Your job title: _____

A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____

The best time to phone you at this number: _____

Has your employer told you how to contact the health care professional who will review this questionnaire? Yes No

Check the type of respirator you will use (you can check more than one category):

N, R, or P disposable respirator (filter-mask, non- cartridge type only).

Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

Have you worn a respirator? Yes No

If "yes" what type(s)? _____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator.

	Yes	No
Do you currently smoke tobacco, or have you smoked tobacco in the last month?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had any of the following conditions:		
Seizures (fits)?	<input type="checkbox"/>	<input type="checkbox"/>
Diabetes (sugar disease)?	<input type="checkbox"/>	<input type="checkbox"/>
Allergic reactions that interfere with your breathing?	<input type="checkbox"/>	<input type="checkbox"/>
Claustrophobia (fear of closed-in places)?	<input type="checkbox"/>	<input type="checkbox"/>
Trouble smelling odors?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had any of the following pulmonary or lung problems?		
Asbestosis?	<input type="checkbox"/>	<input type="checkbox"/>
Asthma?	<input type="checkbox"/>	<input type="checkbox"/>
Chronic bronchitis?	<input type="checkbox"/>	<input type="checkbox"/>
Emphysema?	<input type="checkbox"/>	<input type="checkbox"/>
Pneumonia?	<input type="checkbox"/>	<input type="checkbox"/>

❖ OSHA Respirator Medical Evaluation Questionnaire ❖

	Yes	No
Tuberculosis?	<input type="checkbox"/>	<input type="checkbox"/>
Silicosis?	<input type="checkbox"/>	<input type="checkbox"/>
Pneumothorax?	<input type="checkbox"/>	<input type="checkbox"/>
Lung cancer?	<input type="checkbox"/>	<input type="checkbox"/>
Broken ribs?	<input type="checkbox"/>	<input type="checkbox"/>
Any chest injuries or surgeries?	<input type="checkbox"/>	<input type="checkbox"/>
Any other lung problem that you've been told about?	<input type="checkbox"/>	<input type="checkbox"/>
Do you currently have any of the following symptoms of pulmonary or lung illness?		
Shortness of breath?	<input type="checkbox"/>	<input type="checkbox"/>
Shortness of breath when walking fast on level ground or walking up a slight hill or incline?	<input type="checkbox"/>	<input type="checkbox"/>
Shortness of breath when walking with other people at an ordinary pace on level ground?	<input type="checkbox"/>	<input type="checkbox"/>
Have to stop for breath when walking at your own pace on level ground?	<input type="checkbox"/>	<input type="checkbox"/>
Shortness of breath when washing or dressing yourself?	<input type="checkbox"/>	<input type="checkbox"/>
Shortness of breath that interferes with your job?	<input type="checkbox"/>	<input type="checkbox"/>
Coughing that produces phlegm (thick sputum)?	<input type="checkbox"/>	<input type="checkbox"/>
Coughing that wakes you early in the morning?	<input type="checkbox"/>	<input type="checkbox"/>
Coughing that occurs mostly when you are lying down?	<input type="checkbox"/>	<input type="checkbox"/>
Coughing up blood in the last month?	<input type="checkbox"/>	<input type="checkbox"/>
Wheezing?	<input type="checkbox"/>	<input type="checkbox"/>
Wheezing that interferes with your job?	<input type="checkbox"/>	<input type="checkbox"/>
Chest pain when you breathe deeply?	<input type="checkbox"/>	<input type="checkbox"/>
Any other symptoms that you think may be related to lung problems?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had any of the following cardiovascular or heart problems:		
Heart attack?	<input type="checkbox"/>	<input type="checkbox"/>
Stroke?	<input type="checkbox"/>	<input type="checkbox"/>
Angina?	<input type="checkbox"/>	<input type="checkbox"/>
Heart failure?	<input type="checkbox"/>	<input type="checkbox"/>
Swelling in your legs or feet (not caused by walking)?	<input type="checkbox"/>	<input type="checkbox"/>
Heart arrhythmia (heart beating irregularly)?	<input type="checkbox"/>	<input type="checkbox"/>
High blood pressure?	<input type="checkbox"/>	<input type="checkbox"/>
Any other heart problem that you've been told about?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had any of the following cardiovascular or heart symptoms:		
Frequent pain or tightness in your chest?	<input type="checkbox"/>	<input type="checkbox"/>
Pain or tightness in your chest during physical activity?	<input type="checkbox"/>	<input type="checkbox"/>
Pain or tightness in your chest that interferes with your job?	<input type="checkbox"/>	<input type="checkbox"/>
In the past two years, have you noticed your heart skipping or missing a beat?	<input type="checkbox"/>	<input type="checkbox"/>
Heartburn or indigestion that is not related to eating?	<input type="checkbox"/>	<input type="checkbox"/>
Any other symptoms that you think may be related to heart or circulation problems?	<input type="checkbox"/>	<input type="checkbox"/>
Do you currently take medication for any of the following problems:		
Breathing or lung problems?	<input type="checkbox"/>	<input type="checkbox"/>
Heart trouble?	<input type="checkbox"/>	<input type="checkbox"/>
Blood pressure?	<input type="checkbox"/>	<input type="checkbox"/>
Seizures (fits)?	<input type="checkbox"/>	<input type="checkbox"/>

❖ OSHA Respirator Medical Evaluation Questionnaire ❖

	Yes	No
If you've used a respirator, have you ever had any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)	<input type="checkbox"/>	<input type="checkbox"/>
Eye irritation?	<input type="checkbox"/>	<input type="checkbox"/>
Skin allergies or rashes?	<input type="checkbox"/>	<input type="checkbox"/>
Anxiety?	<input type="checkbox"/>	<input type="checkbox"/>
General weakness or fatigue?	<input type="checkbox"/>	<input type="checkbox"/>
Any other problem that interferes with your use of a respirator?	<input type="checkbox"/>	<input type="checkbox"/>
Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire?	<input type="checkbox"/>	<input type="checkbox"/>
<p>Questions below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.</p>		
	Yes	No
Have you ever lost vision in either eye (temporarily or permanently)?	<input type="checkbox"/>	<input type="checkbox"/>
Do you currently have any of the following vision problems:	<input type="checkbox"/>	<input type="checkbox"/>
Wear contact lenses?	<input type="checkbox"/>	<input type="checkbox"/>
Wear glasses?	<input type="checkbox"/>	<input type="checkbox"/>
Color blind?	<input type="checkbox"/>	<input type="checkbox"/>
Any other eye or vision problem?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had an injury to your ears, including a broken ear drum?	<input type="checkbox"/>	<input type="checkbox"/>
Do you currently have any of the following hearing problems:	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty hearing?	<input type="checkbox"/>	<input type="checkbox"/>
Wear a hearing aid?	<input type="checkbox"/>	<input type="checkbox"/>
Any other hearing or ear problem?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever had a back injury?	<input type="checkbox"/>	<input type="checkbox"/>
Do you currently have any of the following musculoskeletal problems:	<input type="checkbox"/>	<input type="checkbox"/>
Weakness in any of your arms, hands, legs, or feet?	<input type="checkbox"/>	<input type="checkbox"/>
Back pain?	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty fully moving your arms and legs?	<input type="checkbox"/>	<input type="checkbox"/>
Pain or stiffness when you lean forward or backward at the waist?	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty fully moving your head up or down?	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty fully moving your head side to side?	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty bending at your knees?	<input type="checkbox"/>	<input type="checkbox"/>
Difficulty squatting to the ground?	<input type="checkbox"/>	<input type="checkbox"/>
Climbing a flight of stairs or a ladder carrying more than 25 lbs?	<input type="checkbox"/>	<input type="checkbox"/>
Any other muscle or skeletal problem that interferes with using a respirator?	<input type="checkbox"/>	<input type="checkbox"/>
<p>Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.</p>		
	Yes	No
In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions?	<input type="checkbox"/>	<input type="checkbox"/>
At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," name the chemicals if you know them:		

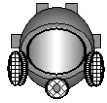
❖ OSHA Respirator Medical Evaluation Questionnaire ❖

	Yes	No
Have you ever worked with any of the materials, or under any of the conditions, listed below:		
Asbestos?	<input type="checkbox"/>	<input type="checkbox"/>
Silica (e.g., in sandblasting)?	<input type="checkbox"/>	<input type="checkbox"/>
Tungsten/cobalt (e.g., grinding or welding this material)?	<input type="checkbox"/>	<input type="checkbox"/>
Beryllium?	<input type="checkbox"/>	<input type="checkbox"/>
Aluminum?	<input type="checkbox"/>	<input type="checkbox"/>
Coal (for example, mining)?	<input type="checkbox"/>	<input type="checkbox"/>
Iron?	<input type="checkbox"/>	<input type="checkbox"/>
Tin?	<input type="checkbox"/>	<input type="checkbox"/>
Dusty environments?	<input type="checkbox"/>	<input type="checkbox"/>
Any other hazardous exposures?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," describe these exposures:		
List any second jobs or side businesses you have:		
List your previous occupations:		
List your current and previous hobbies:		
Have you been in the military services?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," were you exposed to biological or chemical agents (either in training or combat)?	<input type="checkbox"/>	<input type="checkbox"/>
Have you ever worked on a HAZMAT team?	<input type="checkbox"/>	<input type="checkbox"/>
Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," name the medications if you know them:		
Will you be using any of the following items with your respirator(s)?		
HEPA Filters	<input type="checkbox"/>	<input type="checkbox"/>
Canisters (for example, gas masks)	<input type="checkbox"/>	<input type="checkbox"/>
Cartridges	<input type="checkbox"/>	<input type="checkbox"/>
How often are you expected to use the respirator(s)?		
Escape only (no rescue)	<input type="checkbox"/>	<input type="checkbox"/>
Emergency rescue only	<input type="checkbox"/>	<input type="checkbox"/>
Less than 5 hours per week	<input type="checkbox"/>	<input type="checkbox"/>
Less than 2 hours per day	<input type="checkbox"/>	<input type="checkbox"/>
2 to 4 hours per day	<input type="checkbox"/>	<input type="checkbox"/>
Over 4 hours per day	<input type="checkbox"/>	<input type="checkbox"/>
During the period you are using the respirator(s), is your work effort		
Light (less than 200 kcal per hour)	<input type="checkbox"/>	<input type="checkbox"/>
If "yes" how long does this period last during the average shift	hrs.	mins
Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.		

❖ OSHA Respirator Medical Evaluation Questionnaire ❖

	Yes	No
Moderate (200 to 350 kcal per hour)	<input type="checkbox"/>	<input type="checkbox"/>
If "yes" how long does this period last during the average shift	hrs.	mins.
Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.		
Heavy (above 350 kcal per hour)	<input type="checkbox"/>	<input type="checkbox"/>
If "yes" how long does this period last during the average shift	hrs.	mins.
Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).		
Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator?	<input type="checkbox"/>	<input type="checkbox"/>
If "yes," describe this protective clothing and/or equipment:		
Will you be working under hot conditions (exceeding 77 deg. F)?	<input type="checkbox"/>	<input type="checkbox"/>
Will you be working under humid conditions?	<input type="checkbox"/>	<input type="checkbox"/>
Describe the work you'll be doing while you're using your respirator(s)		
Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):		
Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):		
Name of the first toxic substance:		
Estimated maximum exposure level per shift:		
Duration of exposure per shift:		
Name of the second toxic substance:		
Estimated maximum exposure level per shift:		
Duration of exposure per shift:		
Name of the third toxic substance:		
Estimated maximum exposure level per shift:		
Duration of exposure per shift:		
Duration of exposure per shift:		
The name of any other toxic substances that you'll be exposed to while using your respirator:		
Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):		

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❖Respirator Seal Check Procedure❖
❖As Required Under 29 CFR 1910.134 (Mandatory)❖

To the employer: The seal check procedures listed below must be accomplished by all employees using respirators.

To the employee: Your employer is required to have you perform check seal procedures if you are using a respirator. The procedures must be accomplished each time you put on a respirator before entering a hazardous respiratory environment. Ensure you keep a copy of this form for your personal records.

EMPLOYEE INFORMATION

Employee Name:	ID/Clock Number:
Facility:	Work Location:
Job Title:	Dept./Phone:

VERIFICATION: I acknowledge that I have read and understand the below procedures as required by the Occupational Safety and Health Administration (OSHA).

EMPLOYEE SIGNATURE:	DATE:
----------------------------	--------------

OSHA RESPIRATORY PROTECTION SEAL CHECK PROCEDURES

To The Respirator User:

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the OSHA required positive and negative pressure checks, or the respirator manufacturers recommended user seal check method must be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

Facepiece Positive and/or Negative Pressure Checks:

- Positive pressure check. Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.
- Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

Manufacturer's Recommended User Seal Check Procedures:

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

FORM RETENTION INFORMATION		ATTACHMENTS
Retention File:	Location:	*Yes <input type="checkbox"/> No <input type="checkbox"/>
Date Filed:	Filed By:	

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❖ RESPIRATOR SELECTION and FIT TEST RECORD ❖

COMPANY and/or EMPLOYEE INFORMATION

EMPLOYEE JOB TITLE/WORK AREA:		LAST NAME	FIRST	MIDDLE INITIAL
SIGNATURE			COMPANY NAME:	
EMPLOYEE ID # (if applicable)		WORK PHONE:		

JOB/HAZARD ASSESSMENT INFORMATION

Source of Data for Hazard Assessment (objective data, monitoring type, etc.)		Title and location of documentation for Hazard Assessment (if not attached):	
Date of Hazard Assessment:		Name of Hazard Assessor:	
Job Title of Hazard Assessor:		Signature of Hazard Assessor:	

FIT TEST INFORMATION

Date of Fit Test:		Name of Fit Testor:	
Job Title of Fit Tester:		Signature of Fit Testor:	

REMARKS	
---------	--

RESPIRATOR SELECTION DATA

Exposure Means:			Size of Respirator	Make/Model of Respirator	Type of Cartridge to be used:
Activity/Chemical (Painting, MEK Solvent)	Vapor, Dust, Mist, etc.	Expected Exposure Levels			

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RESPIRATOR WALLET CARD FOR FIT TEST CERTIFICATION

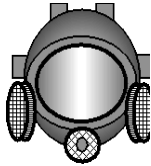
RESPIRATOR FIT CERTIFICATION

THIS IS TO CERTIFY THAT _____
ASSOCIATE

HAS BEEN SUCCESSFULLY FIT TESTED AND TRAINED IN
RESPIRATOR USE AND CARE AND IS QUALIFIED TO USE THE
RESPIRATORS LISTED ON THE BACK OF THIS CERTIFICATION.

ASSOCIATE SIGNATURE

DATE



CERTIFIER SIGNATURE

DATE

LICENSE CONTROL NUMBER

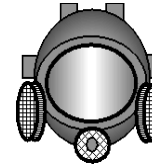
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CERTIFIER SIGNATURE

DATE

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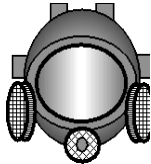
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CERTIFIER SIGNATURE

DATE

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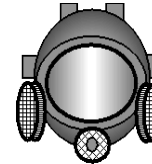
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ASSOCIATE SIGNATURE

DATE



CERTIFIER SIGNATURE

DATE

LICENSE CONTROL NUMBER

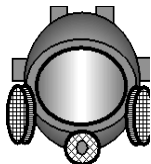
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DATE

LICENSE CONTROL NUMBER

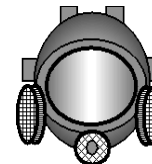
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RESPIRATORS LISTED ON THE BACK OF THIS CERTIFICATION.

ASSOCIATE SIGNATURE

DATE



CERTIFIER SIGNATURE

DATE

LICENSE CONTROL NUMBER

INSTRUCTIONS FOR USE.

1. DEVELOP A NUMBERING SYSTEM FOR USE WITH THE CONTROL NUMBERS.
2. PRINT THE LICENSES ON ORDINARY CARD STOCK IN THE COLOR OF YOUR CHOICE.
3. DESIGNATE A RESPIRATOR TRAINER AND CERTIFIER TO CONDUCT THE TRAINING AND FIT TEST ASSOCIATES.
4. AFTER ALL INFORMATION IS FILLED IN, CONSIDER LAMINATING.
5. COPY THIS FORM FOR FUTURE USES.

FRONT OF FORM

Page 29-30

RESPIRATOR FIT CERTIFICATION

THIS IS TO CERTIFY THAT

HAS BEEN FIT TESTED AND IS CERTIFIED
TO WEAR THE FOLLOWING RESPIRATORS:

Respirator Brand Size

Respirator Brand Size

LICENSE CONTROL NUMBER _ _ _ _ _

RESPIRATOR FIT CERTIFICATION

THIS IS TO CERTIFY THAT

HAS BEEN FIT TESTED AND IS CERTIFIED
TO WEAR THE FOLLOWING RESPIRATORS:

Respirator Brand Size

Respirator Brand Size

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Respirator Brand Size

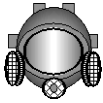
LICENSE CONTROL NUMBER _ _ _ _ _

RESPIRATORY PROTECTION - ASSIGNED PROTECTION FACTORS

The Assigned Protection Factor (APF) of a Respirator reflects the level of protection that a properly functioning Respirator would be expected to provide to a properly fitted and trained user. For example, an APF of 10 for a Respirator means that a user could expect to inhale no more than one-tenth of the airborne contaminant present.

Respirator Class and Type	OSHA	NIOSH
<i>Air Purifying:</i>		
Filtering Face piece	10	10
Half-Mask	10	10
Full-Face piece	50	50
<i>Powered Air Purifying:</i>		
Half-Mask	50	50
Full-Face piece	250	50
Loose Fitting Face piece	25	25
Hood or Helmet	25	25
<i>Supplied Air:</i>		
Half-Mask-Demand	10	10
Half-Mask-Continuous	50	50
Half-Mask-Pressure Demand	1000	1000
Full-Face piece Demand	50	50
Full-Face piece Continuous Flow	250	50
Full-Face piece Pressure Demand	1000	2000
Loose Fitting Face piece	25	25
Hood or Helmet	25	25
<i>Self Contained Breathing Apparatus (SCBA):</i>		
Demand	50	50
Pressure Demand	>1000	10,000

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❖Respiratory Protection - Fit Testing Procedures❖

Appendix A to 29 CFR 1910.134: Fit Testing Procedures (Mandatory)

PART I. OSHA – ACCEPTED FIT TEST PROTOCOLS

Fit Testing Procedures--General Requirements. The employer shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA- accepted fit test methods, both QLFT and QNFT.

- The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
- Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
- The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
- The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
- The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
- Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
 - Position of the mask on the nose
 - Room for eye protection
 - Room to talk
 - Position of mask on face and cheeks
- The following criteria shall be used to help determine the adequacy of the respirator fit:
 - Chin properly placed;
 - Adequate strap tension, not overly tightened;
 - Fit across nose bridge;
 - Respirator of proper size to span distance from nose to chin;
 - Tendency of respirator to slip;
 - Self-observation in mirror to evaluate fit and respirator position.
- The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B- 1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.
- The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.
- If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.
- If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.
- Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.
- The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

- Test Exercises.
 - The following test exercises are to be performed for all fit testing methods prescribed in this appendix, except for the CNP method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject shall perform exercises, in the test environment, in the following manner:
 - Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
 - Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
 - Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
 - Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
 - Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the following, count backward from 100, or recite a memorized poem or song.

Rainbow Passage:
When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.
 - Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
 - Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.
 - Normal breathing. Same as exercise (1).
 - Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

Qualitative Fit Test (QLFT) Protocols

- General
 - The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
 - The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.
- Isoamyl Acetate Protocol. *Note: This protocol is not appropriate to use for the fit testing of particulate respirators. If used to fit test particulate respirators, the respirator must be equipped with an organic vapor filter.
 - Odor Threshold Screening. Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.
 - Three 1 liter glass jars with metal lids are required.
 - Odor-free water (e.g., distilled or spring water) at approximately 25 deg. C (77 deg. F) shall be used for the solutions.
 - The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 ml of pure IAA to 800 ml of odor-free water in a 1 liter jar, closing the lid and shaking for 30 seconds. A new solution shall be prepared at least weekly.
 - The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.
 - The odor test solution is prepared in a second jar by placing 0.4 ml of the stock solution into 500 ml of odor-free water using a clean dropper or pipette. The solution shall be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution shall be used for only one day.
 - A test blank shall be prepared in a third jar by adding 500 cc of odor-free water.

- The odor test and test blank jar lids shall be labeled (e.g., 1 and 2) for jar identification. Labels shall be placed on the lids so that they can be peeled off periodically and switched to maintain the integrity of the test.
- The following instruction shall be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, and then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."
- The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.
- If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.
- If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.
- Isoamyl Acetate Fit Test
 - The fit test chamber shall be a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a similar chamber shall be constructed using plastic sheeting. The inside top center of the chamber shall have a small hook attached.
 - Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.
 - After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.
 - A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.
 - Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.
 - Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.
 - If at any time during the test, the subject detects the banana-like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.
 - If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described in (b) (1) through (7) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait at least 5 minutes before retesting. Odor sensitivity will usually have returned by this time.
 - If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber.
 - When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing plastic bag to keep the test area from being contaminated.
- Saccharin Solution Aerosol Protocol. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.
 - Taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.
 - *Note: If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.

- During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear and that allows free movements of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.
- The test enclosure shall have a 3/4-inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
- The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.
- Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.
- The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b) (5) below) in 100 ml of distilled water.
- To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully expand.
- Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
- If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
- If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
- The test conductor will take note of the number of squeezes required to solicit a taste response.
- If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test.
- If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.
- Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
- The nebulizer shall be thoroughly rinsed in water, shaken dry and refilled at least each morning and afternoon or at least every four hours.
- Saccharin solution aerosol fit test procedure.
 - The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
 - The fit test uses the same enclosure described in 3. (a) above.
 - The test subject shall don the enclosure while wearing the respirator selected in section A.1 of this appendix. The respirator shall be properly adjusted and equipped with a particulate filter(s).
 - A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.
 - The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.
 - As before, the test subject shall breathe through the slightly open mouth with tongue extended, and report if he/she tastes the sweet taste of saccharin.
 - The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.
 - After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.
 - Every 30 seconds the aerosol concentration shall be replenished using one half the original number of squeezes used initially (e.g., 5, 10 or 15).

- The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.
 - If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).
 - Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.
- Bitrex™ (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol. The Bitrex™ (Denatonium benzoate) solution aerosol QLFT protocol uses the published saccharin test protocol because that protocol is widely accepted. Bitrex is routinely used as a taste aversion agent in household liquids which children should not be drinking and is endorsed by the American Medical Association, the National Safety Council, and the American Association of Poison Control Centers. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.
 - Taste Threshold Screening. The Bitrex taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of Bitrex.
 - During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts #14 and #15 combined, is adequate.
 - The test enclosure shall have a 3/4 inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.
 - The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his or her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a bitter taste
 - Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the Threshold Check Solution into the enclosure. This Nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.
 - The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex to 100 ml of 5% salt (NaCl) solution in distilled water.
 - To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.
 - An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.
 - If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.
 - If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.
 - The test conductor will take note of the number of squeezes required to solicit a taste response.
 - If the Bitrex is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex and may not perform the Bitrex fit test.
 - If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.
 - Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.
 - The nebulizer shall be thoroughly rinsed in water, shaken to dry and refilled at least each morning and afternoon or at least every four hours.
 - Bitrex Solution Aerosol Fit Test Procedure.
 - The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.
 - The fit test uses the same enclosure as that described in 4. (a) above.

- The test subject shall don the enclosure while wearing the respirator selected according to section I. A. of this appendix. The respirator shall be properly adjusted and equipped with any type particulate filter(s).
- A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.
- The fit test solution is prepared by adding 337.5 mg of Bitrex to 200 ml of a 5% salt (NaCl) solution in warm water.
- As before, the test subject shall breathe through his or her slightly open mouth with tongue extended, and be instructed to report if he/she tastes the bitter taste of Bitrex.
- The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of the fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test.
- After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.
- Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).
- The test subject shall indicate to the test conductor if at any time during the fit test the taste of Bitrex is detected. If the test subject does not report tasting the Bitrex, the test is passed.
- If the taste of Bitrex is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).
- Irritant Smoke (Stannic Chloride) Protocol. This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.
 - General Requirements and Precautions
 - The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
 - Only stannic chloride smoke tubes shall be used for this protocol.
 - No form of test enclosure or hood for the test subject shall be used.
 - The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.
 - The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.
 - Sensitivity Screening Check. *The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.
 - The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
 - The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.
 - The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.
 - Irritant Smoke Fit Test Procedure
 - The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).
 - The test subject shall be instructed to keep his/her eyes closed.
 - The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

- If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
- The exercises identified in section I.A. 14. of this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
- If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
- Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
- If a response is produced during this second sensitivity check, then the fit test is passed.

Quantitative Fit Test (QNFT) Protocols. The following quantitative fit testing procedures have been demonstrated to be acceptable: Quantitative fit testing using a non-hazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; Quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; Quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

- General

- The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.
- The employer shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.
- Generated Aerosol Quantitative Fit Testing Protocol
 - Apparatus.
 - Instrumentation. Aerosol generation, dilution, and measurement systems using particulates (corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS] or sodium chloride) as test aerosols shall be used for quantitative fit testing.
 - Test chamber. The test chamber shall be large enough to permit all test subjects to perform freely all required exercises without disturbing the test agent concentration or the measurement apparatus. The test chamber shall be equipped and constructed so that the test agent is effectively isolated from the ambient air, yet uniform in concentration throughout the chamber.
 - When testing air-purifying respirators, the normal filter or cartridge element shall be replaced with a high efficiency particulate air (HEPA) or P100 series filter supplied by the same manufacturer.
 - The sampling instrument shall be selected so that a computer record or strip chart record may be made of the test showing the rise and fall of the test agent concentration with each inspiration and expiration at fit factors of at least 2,000. Integrators or computers that integrate the amount of test agent penetration leakage into the respirator for each exercise may be used provided a record of the readings is made.
 - The combination of substitute air-purifying elements, test agent and test agent concentration shall be such that the test subject is not exposed in excess of an established exposure limit for the test agent at any time during the testing process, based upon the length of the exposure and the exposure limit duration.
 - The sampling port on the test specimen respirator shall be placed and constructed so that no leakage occurs around the port (e.g., where the respirator is probed), a free air flow is allowed into the sampling line at all times, and there is no interference with the fit or performance of the respirator. The in-mask sampling device (probe) shall be designed and used so that the air sample is drawn from the breathing zone of the test subject, midway between the nose and mouth and with the probe extending into the facepiece cavity at least 1/4 inch.
 - The test setup shall permit the person administering the test to observe the test subject inside the chamber during the test.
 - The equipment generating the test atmosphere shall maintain the concentration of test agent constant to within a 10 percent variation for the duration of the test.

- The time lag (interval between an event and the recording of the event on the strip chart or computer or integrator) shall be kept to a minimum. There shall be a clear association between the occurrence of an event and its being recorded.
- The sampling line tubing for the test chamber atmosphere and for the respirator sampling port shall be of equal diameter and of the same material. The length of the two lines shall be equal.
- The exhaust flow from the test chamber shall pass through an appropriate filter (i.e., high efficiency particulate or P100 series filter) before release.
- When sodium chloride aerosol is used, the relative humidity inside the test chamber shall not exceed 50 percent.
- The limitations of instrument detection shall be taken into account when determining the fit factor.
- Test respirators shall be maintained in proper working order and be inspected regularly for deficiencies such as cracks or missing valves and gaskets.
- Procedural Requirements.
 - When performing the initial user seal check using a positive or negative pressure check, the sampling line shall be crimped closed in order to avoid air pressure leakage during either of these pressure checks.
 - The use of an abbreviated screening QLFT test is optional. Such a test may be utilized in order to quickly identify poor fitting respirators that passed the positive and/or negative pressure test and reduce the amount of QNFT time. The use of the CNC QNFT instrument in the count mode is another optional method to obtain a quick estimate of fit and eliminate poor fitting respirators before going on to perform a full QNFT.
 - A reasonably stable test agent concentration shall be measured in the test chamber prior to testing. For canopy or shower curtain types of test units, the determination of the test agent's stability may be established after the test subject has entered the test environment.
 - Immediately after the subject enters the test chamber, the test agent concentration inside the respirator shall be measured to ensure that the peak penetration does not exceed 5 percent for a half mask or 1 percent for a full facepiece respirator.
 - A stable test agent concentration shall be obtained prior to the actual start of testing.
 - Respirator restraining straps shall not be over-tightened for testing. The straps shall be adjusted by the wearer without assistance from other persons to give a reasonably comfortable fit typical of normal use. The respirator shall not be adjusted once the fit test exercises begin.
 - The test shall be terminated whenever any single peak penetration exceeds 5 percent for half masks and 1 percent for full facepiece respirators. The test subject shall be refitted and retested.
 - Calculation of fit factors.
 - The fit factor shall be determined for the quantitative fit test by taking the ratio of the average chamber concentration to the concentration measured inside the respirator for each test exercise except the grimace exercise.
 - The average test chamber concentration shall be calculated as the arithmetic average of the concentration measured before and after each test (i.e., 7 exercises) or the arithmetic average of the concentration measured before and after each exercise or the true average measured continuously during the respirator sample.
 - The concentration of the challenge agent inside the respirator shall be determined by one of the following methods:
 - Average peak penetration method means the method of determining test agent penetration into the respirator utilizing a strip chart recorder, integrator, or computer. The agent penetration is determined by an average of the peak heights on the graph or by computer integration, for each exercise except the grimace exercise. Integrators or computers that calculate the actual test agent penetration into the respirator for each exercise will also be considered to meet the requirements of the average peak penetration method.
 - Maximum peak penetration method means the method of determining test agent penetration in the respirator as determined by strip chart recordings of the test. The highest peak penetration for a given exercise is taken to be representative of average penetration into the respirator for that exercise.
 - Integration by calculation of the area under the individual peak for each exercise except the grimace exercise. This includes computerized integration.

- The calculation of the overall fit factor using individual exercise fit factors involves first converting the exercise fit factors to penetration values, determining the average, and then converting that result back to a fit factor. This procedure is described in the following equation:
 - *Where ff1, ff2, ff3, etc. are the fit factors for exercises 1, 2, 3, etc.
- The test subject shall not be permitted to wear a half mask or quarter facepiece respirator unless a minimum fit factor of 100 is obtained, or a full facepiece respirator unless a minimum fit factor of 500 is obtained.
- Filters used for quantitative fit testing shall be replaced whenever increased breathing resistance is encountered, or when the test agent has altered the integrity of the filter media.
- Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing protocol. The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing (Portacount™) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator that allows the probe to sample the air from inside the mask. A probed respirator is required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator and a minimum fit factor pass level of at least 500 is required for a full facepiece negative pressure respirator. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.
- Portacount Fit Test Requirements.
 - Check the respirator to make sure the respirator is fitted with a high-efficiency filter and that the sampling probe and line are properly attached to the facepiece.
 - Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.
 - Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.
 - Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same model respirator, or another model of respirator.
 - Follow the manufacturer's instructions for operating the Portacount and proceed with the test.
 - The test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.
 - After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.
- Portacount Test Instrument.
 - The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.
 - Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this Appendix.
 - A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

▪ Controlled negative pressure (CNP) quantitative fit testing protocol. The CNP protocol provides an alternative to aerosol fit test methods. The CNP fit test method technology is based on exhausting air from a temporarily sealed respirator facepiece to generate and then maintain a constant negative pressure inside the facepiece. The rate of air exhaust is controlled so that a constant negative pressure is maintained in the respirator during the fit test. The level of pressure is selected to replicate the mean inspiratory pressure that causes leakage into the respirator under normal use conditions. With pressure held constant, air flow out of the respirator is equal to air flow into the respirator. Therefore, measurement of the exhaust stream that is required to hold the pressure in the temporarily sealed respirator constant yields a direct measure of leakage air flow into the respirator. The CNP fit test method measures leak rates through the facepiece as a method for determining the facepiece fit for negative pressure respirators. The CNP instrument manufacturer Dynatech Nevada also provides attachments (sampling manifolds) that replace the filter cartridges to permit fit testing in an employee's own respirator. To perform the test, the test subject closes his or her mouth and holds his/her breath, after which an air pump removes air from the respirator facepiece at a pre-selected constant pressure. The facepiece fit is expressed as the leak rate through the facepiece, expressed as milliliters per minute. The quality and validity of the CNP fit tests are determined by the degree to which the in-mask pressure tracks the test pressure during the system measurement time of approximately five seconds. Instantaneous feedback in the form of a real-time pressure trace of the in-mask pressure is provided and used to determine test validity and quality. A minimum fit factor pass level of 100 is necessary for a half-mask respirator and a minimum fit factor of at least 500 is required for a full facepiece respirator. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

- CNP Fit Test Requirements.

- The instrument shall have a non-adjustable test pressure of 15.0 mm water pressure.
- The CNP system defaults selected for test pressure shall be set at -1.5 mm of water (-0.58 inches of water) and the modeled inspiratory flow rate shall be 53.8 liters per minute for performing fit tests.

Note: CNP systems have built-in capability to conduct fit testing that is specific to unique work rate, mask, and gender situations that might apply in a specific workplace. Use of system default values, which were selected to represent respirator wear with medium cartridge resistance at a low-moderate work rate, will allow inter- test comparison of the respirator fit.)

- The individual who conducts the CNP fit testing shall be thoroughly trained to perform the test.
- The respirator filter or cartridge needs to be replaced with the CNP test manifold. The inhalation valve downstream from the manifold either needs to be temporarily removed or propped open.
- The test subject shall be trained to hold his or her breath for at least 20 seconds.
- The test subject shall don the test respirator without any assistance from the individual who conducts the CNP fit test.
- The QNFT protocol shall be followed according to section I. C. 1. of this appendix with an exception for the CNP test exercises.

- CNP Test Exercises.

- Normal breathing. In a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject needs to hold head straight ahead and hold his or her breath for 10 seconds during the test measurement.
- Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply for 1 minute, being careful not to hyperventilate. After the deep breathing exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during test measurement.
- Turning head side to side. Standing in place, the subject shall slowly turn his or her head from side to side between the extreme positions on each side for 1 minute. The head shall be held at each extreme momentarily so the subject can inhale at each side. After the turning head side to side exercise, the subject needs to hold head full left and hold his or her breath for 10 seconds during test measurement. Next, the subject needs to hold head full right and hold his or her breath for 10 seconds during test measurement.

- Moving head up and down. Standing in place, the subject shall slowly move his or her head up and down for 1 minute. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling). After the moving head up and down exercise, the subject shall hold his or her head full up and hold his or her breath for 10 seconds during test measurement. Next, the subject shall hold his or her head full down and hold his or her breath for 10 seconds during test measurement. Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute. After the talking exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.
- Grimace. The test subject shall grimace by smiling or frowning for 15 seconds.
- Bending Over. The test subject shall bend at the waist as if he or she were to touch his or her toes for 1 minute. Jogging in place shall be substituted for this exercise in those test environments such as shroud-type QNFT units that prohibit bending at the waist. After the bending over exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.
- Normal Breathing. The test subject shall remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of a respirator shall be tried.
- CNP Test Instrument.
 - The test instrument shall have an effective audio warning device when the test subject fails to hold his or her breath during the test. The test shall be terminated whenever the test subject failed to hold his or her breath. The test subject may be refitted and retested.
 - A record of the test shall be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style and size of respirator used; and date tested.

PART II. NEW FIT TEST PROTOCOLS.

- Any person may submit to OSHA an application for approval of a new fit test protocol. If the application meets the following criteria, OSHA will initiate a rulemaking proceeding under section 6(b)(7) of the OSH Act to determine whether to list the new protocol as an approved protocol in this Appendix A.
- The application must include a detailed description of the proposed new fit test protocol. This application must be supported by either:
 - A test report prepared by an independent government research laboratory (e.g., Lawrence Livermore National Laboratory, Los Alamos National Laboratory, the National Institute for Standards and Technology) stating that the laboratory has tested the protocol and had found it to be accurate and reliable; or
 - An article that has been published in a peer-reviewed industrial hygiene journal describing the protocol and explaining how test data support the protocol's accuracy and reliability.
 - If OSHA determines that additional information is required before the Agency commences a rulemaking proceeding under this section, OSHA will so notify the applicant and afford the applicant the opportunity to submit the supplemental information. Initiation of a rulemaking proceeding will be deferred until OSHA has received and evaluated the supplemental information.

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RESPIRATORY PROTECTION TEXT OF THE REGULATORY STANDARD AND APPENDICES (29 CFR 1910.134)

RESPIRATORY PROTECTION – 1910.134

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: I
- Subpart Title: Personal Protective Equipment
- Standard Number: 1910.134
- Title: Respiratory Protection
- Appendix: A, B-1, B-2, C, D

This section applies to General Industry (part 1910), Shipyards (part 1915), Marine Terminals (part 1917), Long Shoring (part 1918), and Construction (part 1926).

1910.134(a) Permissible practice.

1910.134(a)(1) In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

1910.134(a)(2) Respirators shall be provided by the employer when such equipment is necessary to protect the health of the employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program which shall include the requirements outlined in paragraph (c) of this section.

1910.134(b) Definitions. The following definitions are important terms used in the respiratory protection standard in this section.

- **Air-purifying respirator** means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- **Assigned protection factor (APF)** [Reserved]
- **Atmosphere-supplying respirator** means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.
- **Canister or cartridge** means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
- **Demand respirator** means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.
- **Emergency situation** means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.
- **Employee exposure** means exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.
- **End-of-service-life indicator (ESLI)** means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.
- **Escape-only respirator** means a respirator intended to be used only for emergency exit.
- **Filter or air purifying element** means a component used in respirators to remove solid or liquid aerosols from the inspired air.
- **Filtering facepiece (dust mask)** means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.
- **Fit factor** means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.
- **Fit test** means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)
- **Helmet** means a rigid respiratory inlet covering that also provides head protection against impact and penetration.
- **High efficiency particulate air (HEPA) filter** means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.
- **Hood** means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.
- **Immediately dangerous to life or health (IDLH)** means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

- **Interior structural firefighting** means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)
 - **Loose-fitting facepiece** means a respiratory inlet covering that is designed to form a partial seal with the face.
 - **Maximum use concentration (MUC)** [Reserved].
 - **Negative pressure respirator (tight fitting)** means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.
 - **Oxygen deficient atmosphere** means an atmosphere with oxygen content below 19.5% by volume.
 - **Physician or other licensed health care professional (PLHCP)** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.
 - **Positive pressure respirator** means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.
 - **Powered air-purifying respirator (PAPR)** means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
 - **Pressure demand respirator** means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.
 - **Qualitative fit test (QLFT)** means a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.
 - **Quantitative fit test (QNFT)** means an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
 - **Respiratory inlet covering** means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.
 - **Self-contained breathing apparatus (SCBA)** means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
 - **Service life** means the period of time that a respirator, filter or sorbent or other respiratory equipment provides adequate protection to the wearer.
 - **Supplied-air respirator (SAR) or airline respirator** means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.
 - **This section** means this respiratory protection standard.
 - **Tight-fitting facepiece** means a respiratory inlet covering that forms a complete seal with the face.
 - **User seal check** means an action conducted by the respirator user to determine if the respirator is properly seated to the face.
- 1910.134(c) Respiratory protection program.** This paragraph requires the employer to develop and implement a written respiratory protection program with required worksite-specific procedures and elements for required respirator use. The program must be administered by a suitably trained program administrator. In addition, certain program elements may be required for voluntary use to prevent potential hazards associated with the use of the respirator. The Small Entity Compliance Guide contains criteria for the selection of a program administrator and a sample program that meets the requirements of this paragraph. Copies of the Small Entity Compliance Guide will be available on or about April 8, 1998 from the Occupational Safety and Health Administration's Office of Publications, Room N 3101, 200 Constitution Avenue, NW, Washington, DC, 20210 (202-219-4667).
- 1910.134(c)(1)** In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable:
- 1910.134(c)(1)(i)** Procedures for selecting respirators for use in the workplace;
 - 1910.134(c)(1)(ii)** Medical evaluations of employees required to use respirators;
 - 1910.134(c)(1)(iii)** Fit testing procedures for tight-fitting respirators;
 - 1910.134(c)(1)(iv)** Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
 - 1910.134(c)(1)(v)** Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
 - 1910.134(c)(1)(vi)** Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
 - 1910.134(c)(1)(vii)** Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
 - 1910.134(c)(1)(viii)** Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and
 - 1910.134(c)(1)(ix)** Procedures for regularly evaluating the effectiveness of the program.
- 1910.134(c)(2)** Where respirator use is not required:
- 1910.134(c)(2)(i)** An employer may provide respirators at the request of employees or permit employees to use their own respirators, if the employer determines that such respirator use will not in itself create a hazard. If the employer determines that any voluntary respirator use is permissible, the employer shall provide the respirator users with the information contained in Appendix D to this section ("Information for Employees Using Respirators When Not Required Under the Standard"); and

1910.134(c)(2)(ii) In addition, the employer must establish and implement those elements of a written respiratory protection program necessary to ensure that any employee using a respirator voluntarily is medically able to use that respirator, and that the respirator is cleaned, stored, and maintained so that its use does not present a health hazard to the user. Exception: Employers are not required to include in a written respiratory protection program those employees whose only use of respirators involves the voluntary use of filtering facepieces (dust masks).

1910.134(c)(3) The employer shall designate a program administrator who is qualified by appropriate training or experience that is commensurate with the complexity of the program to administer or oversee the respiratory protection program and conduct the required evaluations of program effectiveness.

1910.134(c)(4) The employer shall provide respirators, training, and medical evaluations at no cost to the employee.

1910.134(d) Selection of respirators. This paragraph requires the employer to evaluate respiratory hazard(s) in the workplace, identify relevant workplace and user factors, and base respirator selection on these factors. The paragraph also specifies appropriately protective respirators for use in IDLH atmospheres, and limits the selection and use of air-purifying respirators.

1910.134(d)(1) General requirements.

1910.134(d)(1)(i) The employer shall select and provide an appropriate respirator based on the respiratory hazard(s) to which the worker is exposed and workplace and user factors that affect respirator performance and reliability.

1910.134(d)(1)(ii) The employer shall select a NIOSH-certified respirator. The respirator shall be used in compliance with the conditions of its certification.

1910.134(d)(1)(iii) The employer shall identify and evaluate the respiratory hazard(s) in the workplace; this evaluation shall include a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Where the employer cannot identify or reasonably estimate the employee exposure, the employer shall consider the atmosphere to be IDLH.

1910.134(d)(1)(iv) The employer shall select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

1910.134(d)(2) Respirators for IDLH atmospheres.

1910.134(d)(2)(i) The employer shall provide the following respirators for employee use in IDLH atmospheres:

1910.134(d)(2)(i)(A) A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
1910.134(d)(2)(i)(B) A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

1910.134(d)(2)(ii) Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

1910.134(d)(2)(iii) All oxygen-deficient atmospheres shall be considered IDLH. Exception: If the employer demonstrates that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of this section (i.e., for the altitudes set out in the table), then any atmosphere-supplying respirator may be used.

1910.134(d)(3) Respirators for atmospheres that are not IDLH.

1910.134(d)(3)(i) The employer shall provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.

1910.134(d)(3)(i)(A) Assigned Protection Factors (APFs) [Reserved]

1910.134(d)(3)(i)(B) Maximum Use Concentration (MUC) [Reserved]

1910.134(d)(3)(ii) The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.

1910.134(d)(3)(iii) For protection against gases and vapors, the employer shall provide:

1910.134(d)(3)(iii)(A) An atmosphere-supplying respirator, or

1910.134(d)(3)(iii)(B) An air-purifying respirator, provided that:

1910.134(d)(3)(iii)(B)(1) The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or

1910.134(d)(3)(iii)(B)(2) If there is no ESLI appropriate for conditions in the employer's workplace, the employer implements a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. The employer shall describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

1910.134(d)(3)(iv) For protection against particulates, the employer shall provide:

1910.134(d)(3)(iv)(A) An atmosphere-supplying respirator; or

1910.134(d)(3)(iv)(B) An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84; or

1910.134(d)(3)(iv)(C) For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

TABLE I.
ASSIGNED PROTECTION FACTORS
[RESERVED]

TABLE II

Altitude (ft.)	Oxygen deficient Atmospheres (% O ₂) for which the employer atmosphere-may rely on supplying respirators:
Less than 3,001	16.0-19.5
3,001-4,000	16.4-19.5
4,001-5,000	17.1-19.5
5,001-6,000	17.8-19.5
6,001-7,000	18.5-19.5
7,001-8,000 ¹	19.3-19.5.

¹Above 8,000 feet the exception does not apply. Oxygen-enriched breathing air must be supplied above 14,000 feet.

1910.134(e) Medical evaluation. Using a respirator may place a physiological burden on employees that varies with the type of respirator worn, the job and workplace conditions in which the respirator is used, and the medical status of the employee. Accordingly, this paragraph specifies the minimum requirements for medical evaluation that employers must implement to determine the employee's ability to use a respirator.

1910.134(e)(1) General. The employer shall provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. The employer may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

1910.134(e)(2) Medical evaluation procedures.

1910.134(e)(2)(i) The employer shall identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

1910.134(e)(2)(ii) The medical evaluation shall obtain the information requested by the questionnaire in Sections 1 and 2, Part A of Appendix C of this section.

1910.134(e)(3) Follow-up medical examination.

1910.134(e)(3)(i) The employer shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination.

1910.134(e)(3)(ii) The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

1910.134(e)(4) Administration of the medical questionnaire and examinations.

1910.134(e)(4)(i) The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.

1910.134(e)(4)(ii) The employer shall provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP.

1910.134(e)(5) Supplemental information for the PLHCP.

1910.134(e)(5)(i) The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

1910.134(e)(5)(i)(A) (A) The type and weight of the respirator to be used by the employee;

1910.134(e)(5)(i)(B) The duration and frequency of respirator use (including use for rescue and escape);

1910.134(e)(5)(i)(C) The expected physical work effort;

1910.134(e)(5)(i)(D) Additional protective clothing and equipment to be worn; and

1910.134(e)(5)(i)(E) Temperature and humidity extremes that may be encountered.

1910.134(e)(5)(ii) Any supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.

1910.134(e)(5)(iii) The employer shall provide the PLHCP with a copy of the written respiratory protection program and a copy of this section.

- **Note to Paragraph (e)(5)(iii):** When the employer replaces a PLHCP, the employer must ensure that the new PLHCP obtains this information, either by providing the documents directly to the PLHCP or having the documents transferred from the former PLHCP to the new PLHCP. However, OSHA does not expect employers to have employees medically reevaluated solely because a new PLHCP has been selected.

1910.134(e)(6) Medical determination. In determining the employee's ability to use a respirator, the employer shall:

1910.134(e)(6)(i) Obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

1910.134(e)(6)(i)(A) Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;

1910.134(e)(6)(i)(B) The need, if any, for follow-up medical evaluations; and

1910.134(e)(6)(i)(C) A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

1910.134(e)(6)(ii) If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the

employee's health at increased risk if the respirator is used, the employer shall provide a PAPR if the PLHCP's medical evaluation finds that the employee can use such a respirator; if a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then the employer is no longer required to provide a PAPR.

1910.134(e)(7) *Additional medical evaluations.* At a minimum, the employer shall provide additional medical evaluations that comply with the requirements of this section if:

1910.134(e)(7)(i) An employee reports medical signs or symptoms that are related to ability to use a respirator;

1910.134(e)(7)(ii) A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;

1910.134(e)(7)(iii) Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or

1910.134(e)(7)(iv) A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

1910.134(f) *Fit testing.* This paragraph requires that, before an employee may be required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style, and size of respirator that will be used. This paragraph specifies the kinds of fit tests allowed, the procedures for conducting them, and how the results of the fit tests must be used.

1910.134(f)(1) The employer shall ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as stated in this paragraph.

1910.134(f)(2) The employer shall ensure that an employee using a tight-fitting facepiece respirator is fit tested prior to initial use of the respirator, whenever a different respirator facepiece (size, style, model or make) is used, and at least annually thereafter.

1910.134(f)(3) The employer shall conduct an additional fit test whenever the employee reports, or the employer, PLHCP, supervisor, or program administrator makes visual observations of, changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.

1910.134(f)(4) If after passing a QLFT or QNFT, the employee subsequently notifies the employer, program administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable, the employee shall be given a reasonable opportunity to select a different respirator facepiece and to be retested.

1910.134(f)(5) The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. The OSHA-accepted QLFT and QNFT protocols and procedures are contained in Appendix A of this section.

1910.134(f)(6) QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.

1910.134(f)(7) If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator.

1910.134(f)(8) Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode, regardless of the mode of operation (negative or positive pressure) that is used for respiratory protection.

1910.134(f)(8)(i) Qualitative fit testing of these respirators shall be accomplished by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical negative pressure air-purifying respirator facepiece with the same sealing surfaces as a surrogate for the atmosphere-supplying or powered air-purifying respirator facepiece.

1910.134(f)(8)(ii) Quantitative fit testing of these respirators shall be accomplished by modifying the facepiece to allow sampling inside the facepiece in the breathing zone of the user, midway between the nose and mouth. This requirement shall be accomplished by installing a permanent sampling probe onto a surrogate facepiece, or by using a sampling adapter designed to temporarily provide a means of sampling air from inside the facepiece.

1910.134(f)(8)(iii) Any modifications to the respirator facepiece for fit testing shall be completely removed, and the facepiece restored to NIOSH-approved configuration, before that facepiece can be used in the workplace.

1910.134(g) *Use of respirators.* This paragraph requires employers to establish and implement procedures for the proper use of respirators. These requirements include prohibiting conditions that may result in facepiece seal leakage, preventing employees from removing respirators in hazardous environments, taking actions to ensure continued effective respirator operation throughout the work shift, and establishing procedures for the use of respirators in IDLH atmospheres or in interior structural firefighting situations.

1910.134(g)(1) *Facepiece seal protection.*

1910.134(g)(1)(i) The employer shall not permit respirators with tight-fitting facepieces to be worn by employees who have:

1910.134(g)(1)(i)(A) Facial hair that comes between the sealing surface of the facepiece and the face or that interferes with valve function; or

1910.134(g)(1)(i)(B) Any condition that interferes with the face-to-facepiece seal or valve function.

1910.134(g)(1)(ii) If an employee wears corrective glasses or goggles or other personal protective equipment, the employer shall ensure that such equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

1910.134(g)(1)(iii) For all tight-fitting respirators, the employer shall ensure that employees perform a user seal check each time they put on the respirator using the procedures in Appendix B-1 or procedures recommended by the respirator manufacturer that the employer demonstrates are as effective as those in Appendix B-1 of this section.

1910.134(g)(2) *Continuing respirator effectiveness.*

1910.134(g)(2)(i) Appropriate surveillance shall be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the employer shall reevaluate the continued effectiveness of the respirator.

1910.134(g)(2)(ii) The employer shall ensure that employees leave the respirator use area:

1910.134(g)(2)(ii)(A) To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or

1910.134(g)(2)(ii)(B) If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or

1910.134(g)(2)(ii)(C) To replace the respirator or the filter, cartridge, or canister elements.

1910.134(g)(2)(iii) If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, the employer must replace or repair the respirator before allowing the employee to return to the work area.

1910.134(g)(3) *Procedures for IDLH atmospheres.* For all IDLH atmospheres, the employer shall ensure that:

1910.134(g)(3)(i) One employee or, when needed, more than one employee is located outside the IDLH atmosphere;

1910.134(g)(3)(ii) Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;

1910.134(g)(3)(iii) The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;

1910.134(g)(3)(iv) The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;

1910.134(g)(3)(v) The employer or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation;

1910.134(g)(3)(vi) Employee(s) located outside the IDLH atmospheres are equipped with:

1910.134(g)(3)(vi)(A) Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either

1910.134(g)(3)(vi)(B) Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or

1910.134(g)(3)(vi)(C) Equivalent means for rescue where retrieval equipment is not required under paragraph (g)(3)(vi)(B).

1910.134(g)(4) *Procedures for interior structural firefighting.* In addition to the requirements set forth under paragraph (g)(3), in interior structural fires, the employer shall ensure that:

1910.134(g)(4)(i) At least two employees enter the IDLH atmosphere and remain in visual or voice contact with one another at all times;

1910.134(g)(4)(ii) At least two employees are located outside the IDLH atmosphere; and

- **1910.134(g)(4)(iii)** All employees engaged in interior structural firefighting use SCBAs.
Note 1 to paragraph (g): One of the two individuals located outside the IDLH atmosphere may be assigned to an additional role, such as incident commander in charge of the emergency or safety officer, so long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident.
- **Note 2 to paragraph (g):** Nothing in this section is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.

1910.134(h) *Maintenance and care of respirators.* This paragraph requires the employer to provide for the cleaning and disinfecting, storage, inspection, and repair of respirators used by employees.

1910.134(h)(1) *Cleaning and disinfecting.* The employer shall provide each respirator user with a respirator that is clean, sanitary, and in good working order. The employer shall ensure that respirators are cleaned and disinfected using the procedures in Appendix B-2 of this section, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators shall be cleaned and disinfected at the following intervals:

1910.134(h)(1)(i) Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;

1910.134(h)(1)(ii) Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals;

1910.134(h)(1)(iii) Respirators maintained for emergency use shall be cleaned and disinfected after each use; and

1910.134(h)(1)(iv) Respirators used in fit testing and training shall be cleaned and disinfected after each use.

1910.134(h)(2) *Storage.* The employer shall ensure that respirators are stored as follows:

1910.134(h)(2)(i) All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.

1910.134(h)(2)(ii) In addition to the requirements of paragraph (h)(2)(i) of this section, emergency respirators shall be:

1910.134(h)(2)(ii)(A) Kept accessible to the work area;

1910.134(h)(2)(ii)(B) Stored in compartments or in covers that are clearly marked as containing emergency respirators; and

1910.134(h)(2)(ii)(C) Stored in accordance with any applicable manufacturer instructions.

1910.134(h)(3) *Inspection.*

1910.134(h)(3)(i) The employer shall ensure that respirators are inspected as follows:

1910.134(h)(3)(i)(A) All respirators used in routine situations shall be inspected before each use and during cleaning;

1910.134(h)(3)(i)(B) All respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations, and shall be checked for proper function before and after each use; and

1910.134(h)(3)(i)(C) Emergency escape-only respirators shall be inspected before being carried into the workplace for use.

1910.134(h)(3)(ii) The employer shall ensure that respirator inspections include the following:

1910.134(h)(3)(ii)(A) A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and

1910.134(h)(3)(ii)(B) A check of elastomeric parts for pliability and signs of deterioration.

1910.134(h)(3)(iii) In addition to the requirements of paragraphs (h)(3)(i) and (ii) of this section, self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. The employer shall determine that the regulator and warning devices function properly.

1910.134(h)(3)(iv) For respirators maintained for emergency use, the employer shall:

1910.134(h)(3)(iv)(A) Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator; and

1910.134(h)(3)(iv)(B) Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information shall be maintained until replaced following a subsequent certification.

1910.134(h)(4) *Repairs.* The employer shall ensure that respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

1910.134(h)(4)(i) Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;

1910.134(h)(4)(ii) Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and

1910.134(h)(4)(iii) Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

1910.134(i) *Breathing air quality and use.* This paragraph requires the employer to provide employees using atmosphere-supplying respirators (supplied-air and SCBA) with breathing gases of high purity.

1910.134(i)(1) The employer shall ensure that compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration accords with the following specifications:

1910.134(i)(1)(i) Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen; and

1910.134(i)(1)(ii) Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:

1910.134(i)(1)(ii)(A) Oxygen content (v/v) of 19.5-23.5%;

1910.134(i)(1)(ii)(B) Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;

1910.134(i)(1)(ii)(C) Carbon monoxide (CO) content of 10 ppm or less;

1910.134(i)(1)(ii)(D) Carbon dioxide content of 1,000 ppm or less; and

1910.134(i)(1)(ii)(E) Lack of noticeable odor.

1910.134(i)(2) The employer shall ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.

1910.134(i)(3) The employer shall ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

1910.134(i)(4) The employer shall ensure that cylinders used to supply breathing air to respirators meet the following requirements:

1910.134(i)(4)(i) Cylinders are tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);

1910.134(i)(4)(ii) Cylinders of purchased breathing air have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air; and

1910.134(i)(4)(iii) The moisture content in the cylinder does not exceed a dew point of -50 deg.F (-45.6 deg.C) at 1 atmosphere pressure.

1910.134(i)(5) The employer shall ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:

1910.134(i)(5)(i) Prevent entry of contaminated air into the air-supply system;

1910.134(i)(5)(ii) Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg.C) below the ambient temperature;

1910.134(i)(5)(iii) Have suitable in-line air-purifying sorbent beds and filters to further ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically following the manufacturer's instructions.

1910.134(i)(5)(iv) Have a tag containing the most recent change date and the signature of the person authorized by the employer to perform the change. The tag shall be maintained at the compressor.

1910.134(i)(6) For compressors that are not oil-lubricated, the employer shall ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.

1910.134(i)(7) For oil-lubricated compressors, the employer shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

1910.134(i)(8) The employer shall ensure that breathing air couplings are incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.

1910.134(i)(9) The employer shall use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.

1910.134(j) *Identification of filters, cartridges, and canisters.* The employer shall ensure that all filters, cartridges and

canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label is not removed and remains legible.

1910.134(k) *Training and information.* This paragraph requires the employer to provide effective training to employees who are required to use respirators. The training must be comprehensive, understandable, and recur annually, and more often if necessary. This paragraph also requires the employer to provide the basic information on respirators in Appendix D of this section to employees who wear respirators when not required by this section or by the employer to do so.

1910.134(k)(1) The employer shall ensure that each employee can demonstrate knowledge of at least the following:

1910.134(k)(1)(i) Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;

1910.134(k)(1)(ii) What the limitations and capabilities of the respirator are;

1910.134(k)(1)(iii) How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;

1910.134(k)(1)(iv) How to inspect, put on and remove, use, and check the seals of the respirator;

1910.134(k)(1)(v) What the procedures are for maintenance and storage of the respirator;

1910.134(k)(1)(vi) How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and

1910.134(k)(1)(vii) The general requirements of this section.

1910.134(k)(2) The training shall be conducted in a manner that is understandable to the employee.

1910.134(k)(3) The employer shall provide the training prior to requiring the employee to use a respirator in the workplace.

1910.134(k)(4) An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (k)(1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (k)(1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.

1910.134(k)(5) Retraining shall be administered annually, and when the following situations occur:

1910.134(k)(5)(i) Changes in the workplace or the type of respirator render previous training obsolete;

1910.134(k)(5)(ii) Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or

1910.134(k)(5)(iii) Any other situation arises in which retraining appears necessary to ensure safe respirator use.

1910.134(k)(6) The basic advisory information on respirators, as presented in Appendix D of this section, shall be provided by the employer in any written or oral format, to employees who wear respirators when such use is not required by this section or by the employer.

1910.134(l) *Program evaluation.* This section requires the employer to conduct evaluations of the workplace to ensure that the written respiratory protection program is being properly implemented, and to consult employees to ensure that they are using the respirators properly.

1910.134(l)(1) The employer shall conduct evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

1910.134(l)(2) The employer shall regularly consult employees required to use respirators to assess the employees' views on program effectiveness and to identify any problems. Any problems that are identified during this assessment shall be corrected. Factors to be assessed include, but are not limited to:

1910.134(l)(2)(i) Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);

1910.134(l)(2)(ii) Appropriate respirator selection for the hazards to which the employee is exposed;

1910.134(l)(2)(iii) Proper respirator use under the workplace conditions the employee encounters; and

1910.134(l)(2)(iv) Proper respirator maintenance.

1910.134(m) *Recordkeeping.* This section requires the employer to establish and retain written information regarding medical evaluations, fit testing, and the respirator program. This information will facilitate employee involvement in the respirator program, assist the employer in auditing the adequacy of the program, and provide a record for compliance determinations by OSHA.

1910.134(m)(1) *Medical evaluation.* Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020.

1910.134(m)(2) *Fit testing.*

1910.134(m)(2)(i) The employer shall establish a record of the qualitative and quantitative fit tests administered to an employee including:

1910.134(m)(2)(i)(A) The name or identification of the employee tested;

1910.134(m)(2)(i)(B) Type of fit test performed;

1910.134(m)(2)(i)(C) Specific make, model, style, and size of respirator tested;

1910.134(m)(2)(i)(D) Date of test; and

1910.134(m)(2)(i)(E) The pass/fail results for QLFTs or the fit factor and strip chart recording or other recording of the test results for QNFTs.

1910.134(m)(2)(ii) Fit test records shall be retained for respirator users until the next fit test is administered.

1910.134(m)(3) A written copy of the current respirator program shall be retained by the employer.

1910.134(m)(4) Written materials required to be retained under this paragraph shall be made available upon request to affected employees and to the Assistant Secretary or designee for examination and copying.

1910.134(n) *Dates.*

1910.134(n)(1) *Effective date.* This section is effective April 8, 1998. The obligations imposed by this section commence on the effective date unless otherwise noted in this paragraph. Compliance with obligations that do not commence on the effective date shall occur no later than the applicable start-up date.

1910.134(n)(2) *Compliance dates.* All obligations of this section commence on the effective date except as follows:

1910.134(n)(2)(i) The determination that respirator use is required (paragraph (a)) shall be completed no later than September 8, 1998.

1910.134(n)(2)(ii) Compliance with provisions of this section for all other provisions shall be completed no later than October 5, 1998.

1910.134(n)(3) The provisions of 29 CFR 1910.134 and 29 CFR 1926.103, contained in the 29 CFR parts 1900 to 1910.99 and the 29 CFR part 1926 editions, revised as of July 1, 1997, are in effect and enforceable until October 5, 1998, or during any administrative or judicial stay of the provisions of this section.

1910.134(n)(4) Existing Respiratory Protection Programs. If, in the 12 month period preceding April 8, 1998, the employer has conducted annual respirator training, fit testing, respirator program evaluation, or medical evaluations, the employer may use the results of those activities to comply with the corresponding provisions of this section, providing that these activities were conducted in a manner that meets the requirements of this section.

1910.134(o) Appendices.

1910.134(o)(1) Compliance with Appendix A, Appendix B-1, Appendix B-2, and Appendix C of this section is mandatory.

1910.134(o)(2) Appendix D of this section is non-mandatory and is not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

RESPIRATORY PROTECTION REGULATORY STANDARD AND APPENDICES (29 CFR 1910.134)

Fit Testing Procedures (Mandatory). - 1910.134 App A

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: I
- Subpart Title: Personal Protective Equipment
- Standard Number: 1910.134 App
- Title: Fit Testing Procedures (Mandatory)

Appendix A to § 1910.134: Fit Testing Procedures (Mandatory)

Part I. OSHA-Accepted Fit Test Protocols

A. Fit Testing Procedures -- General Requirements. The employer shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

1. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:
 - (a) Position of the mask on the nose
 - (b) Room for eye protection
 - (c) Room to talk
 - (d) Position of mask on face and cheeks
7. The following criteria shall be used to help determine the adequacy of the respirator fit:
 - (a) Chin properly placed;
 - (b) Adequate strap tension, not overly tightened;
 - (c) Fit across nose bridge;
 - (d) Respirator of proper size to span distance from nose to chin;
 - (e) Tendency of respirator to slip;
 - (f) Self-observation in mirror to evaluate fit and respirator position.

8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face

by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.

9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.

10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.

11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.

13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.

14. Test Exercises.

(a) Employers must perform the following test exercises for all fit testing methods prescribed in this appendix, except for the CNP quantitative fit testing protocol and the CNP REDON quantitative fit testing protocol. For these two protocols, employers must ensure that the test subjects (*i.e.*, employees) perform the exercise procedure specified in Part I.C.4(b) of this appendix for the CNP quantitative fit testing protocol, or the exercise procedure described in Part I.C.5(b) of this appendix for the CNP REDON quantitative fit-testing protocol. For the remaining fit testing methods, employers must ensure that employees perform the test exercises in the appropriate test environment in the following manner:

(1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

(2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.

(3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.

(4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (*i.e.*, when looking toward the ceiling).

(5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

Rainbow Passage *When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.*

(6) Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)

(7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist.

(8) Normal breathing. Same as exercise (1).

(b) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

B. Qualitative Fit Test (QLFT) Protocols

1. General

(a) The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.

(b) The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

2. Isoamyl Acetate Protocol

Note: This protocol is not appropriate to use for the fit testing of particulate respirators. If used to fit test particulate respirators, the respirator must be equipped with an organic vapor filter.

(a) Odor Threshold Screening

Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.

(1) Three 1 liter glass jars with metal lids are required.

(2) Odor-free water (*e.g.*, distilled or spring water) at approximately 25 deg. C (77 deg. F) shall be used for the solutions.

(3) The isoamyl acetate (IAA) (also known as isopentyl acetate) stock solution is prepared by adding 1 ml of pure IAA to 800 ml of odor-free water in a 1 liter jar, closing the lid and shaking for 30 seconds. A new solution shall be prepared at least weekly.

(4) The screening test shall be conducted in a room separate from the room used for actual fit testing. The two rooms shall be

well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.

(5) The odor test solution is prepared in a second jar by placing 0.4 ml of the stock solution into 500 ml of odor-free water using a clean dropper or pipette. The solution shall be shaken for 30 seconds and allowed to stand for two to three minutes so that the IAA concentration above the liquid may reach equilibrium. This solution shall be used for only one day.

(6) A test blank shall be prepared in a third jar by adding 500 cc of odor-free water.

(7) The odor test and test blank jar lids shall be labeled (e.g., 1 and 2) for jar identification. Labels shall be placed on the lids so that they can be peeled off periodically and switched to maintain the integrity of the test.

(8) The following instruction shall be typed on a card and placed on the table in front of the two test jars (i.e., 1 and 2): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."

(9) The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

(10) If the test subject is unable to correctly identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.

(11) If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

(b) Isoamyl Acetate Fit Test

(1) The fit test chamber shall be a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a similar chamber shall be constructed using plastic sheeting. The inside top center of the chamber shall have a small hook attached.

(2) Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.

(3) After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.

(4) A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.

(5) Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA. The test subject shall hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.

(6) Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.

(7) If at any time during the test, the subject detects the banana-like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.

(8) If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described in (b) (1) through (7) above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait at least 5 minutes before retesting. Odor sensitivity will usually have returned by this time.

(9) If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber.

(10) When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing plastic bag to keep the test area from being contaminated.

3. Saccharin Solution Aerosol Protocol

The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Taste threshold screening. The saccharin taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of saccharin.

(1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches in diameter by 14 inches tall with at least the front portion clear and that allows free movements of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

(2) The test enclosure shall have a 3/4-inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

(3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his/her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a sweet taste.

(4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the threshold check solution into the enclosure. The nozzle is directed away from the nose and mouth of the person. This nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

(5) The threshold check solution is prepared by dissolving 0.83 gram of sodium saccharin USP in 100 ml of warm water. It can be prepared by putting 1 ml of the fit test solution (see (b)(5) below) in 100 ml of distilled water.

(6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that it collapses completely, then released and allowed to fully

expand.

(7) Ten squeezes are repeated rapidly and then the test subject is asked whether the saccharin can be tasted. If the test subject reports tasting the sweet taste during the ten squeezes, the screening test is completed. The taste threshold is noted as ten regardless of the number of squeezes actually completed.

(8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.

(9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the saccharin is tasted. If the test subject reports tasting the sweet taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.

(10) The test conductor will take note of the number of squeezes required to solicit a taste response.

(11) If the saccharin is not tasted after 30 squeezes (step 10), the test subject is unable to taste saccharin and may not perform the saccharin fit test.

Note to paragraph 3. (a): If the test subject eats or drinks something sweet before the screening test, he/she may be unable to taste the weak saccharin solution.

(12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

(13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

(14) The nebulizer shall be thoroughly rinsed in water, shaken dry, and refilled at least each morning and afternoon or at least every four hours.

(b) Saccharin solution aerosol fit test procedure.

(1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

(2) The fit test uses the same enclosure described in 3. (a) above.

(3) The test subject shall don the enclosure while wearing the respirator selected in section I. A. of this appendix. The respirator shall be properly adjusted and equipped with a particulate filter(s).

(4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.

(5) The fit test solution is prepared by adding 83 grams of sodium saccharin to 100 ml of warm water.

(6) As before, the test subject shall breathe through the slightly open mouth with tongue extended, and report if he/she tastes the sweet taste of saccharin.

(7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of saccharin fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test. A minimum of 10 squeezes is required.

(8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.

(9) Every 30 seconds the aerosol concentration shall be replenished using one half the original number of squeezes used initially (e.g., 5, 10 or 15).

(10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of saccharin is detected. If the test subject does not report tasting the saccharin, the test is passed.

(11) If the taste of saccharin is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

(12) Since the nebulizer has a tendency to clog during use, the test operator must make periodic checks of the nebulizer to ensure that it is not clogged. If clogging is found at the end of the test session, the test is invalid.

4. Bitrex™ (Denatonium Benzoate) Solution Aerosol Qualitative Fit Test Protocol

The Bitrex™ (Denatonium benzoate) solution aerosol QLFT protocol uses the published saccharin test protocol because that protocol is widely accepted. Bitrex is routinely used as a taste aversion agent in household liquids which children should not be drinking and is endorsed by the American Medical Association, the National Safety Council, and the American Association of Poison Control Centers. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Taste Threshold Screening.

The Bitrex taste threshold screening, performed without wearing a respirator, is intended to determine whether the individual being tested can detect the taste of Bitrex.

(1) During threshold screening as well as during fit testing, subjects shall wear an enclosure about the head and shoulders that is approximately 12 inches (30.5 cm) in diameter by 14 inches (35.6 cm) tall. The front portion of the enclosure shall be clear from the respirator and allow free movement of the head when a respirator is worn. An enclosure substantially similar to the 3M hood assembly, parts # FT 14 and # FT 15 combined, is adequate.

(2) The test enclosure shall have a 3/4 inch (1.9 cm) hole in front of the test subject's nose and mouth area to accommodate the nebulizer nozzle.

(3) The test subject shall don the test enclosure. Throughout the threshold screening test, the test subject shall breathe through his or her slightly open mouth with tongue extended. The subject is instructed to report when he/she detects a bitter taste

(4) Using a DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent, the test conductor shall spray the Threshold Check Solution into the enclosure. This Nebulizer shall be clearly marked to distinguish it from the fit test solution nebulizer.

(5) The Threshold Check Solution is prepared by adding 13.5 milligrams of Bitrex to 100 ml of 5% salt (NaCl) solution in distilled water.

(6) To produce the aerosol, the nebulizer bulb is firmly squeezed so that the bulb collapses completely, and is then released and allowed to fully expand.

(7) An initial ten squeezes are repeated rapidly and then the test subject is asked whether the Bitrex can be tasted. If the test subject reports tasting the bitter taste during the ten squeezes, the screening test is completed. The taste threshold is noted as

ten regardless of the number of squeezes actually completed.

(8) If the first response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the second ten squeezes, the screening test is completed. The taste threshold is noted as twenty regardless of the number of squeezes actually completed.

(9) If the second response is negative, ten more squeezes are repeated rapidly and the test subject is again asked whether the Bitrex is tasted. If the test subject reports tasting the bitter taste during the third set of ten squeezes, the screening test is completed. The taste threshold is noted as thirty regardless of the number of squeezes actually completed.

(10) The test conductor will take note of the number of squeezes required to solicit a taste response.

(11) If the Bitrex is not tasted after 30 squeezes (step 10), the test subject is unable to taste Bitrex and may not perform the Bitrex fit test.

(12) If a taste response is elicited, the test subject shall be asked to take note of the taste for reference in the fit test.

(13) Correct use of the nebulizer means that approximately 1 ml of liquid is used at a time in the nebulizer body.

(14) The nebulizer shall be thoroughly rinsed in water, shaken to dry, and refilled at least each morning and afternoon or at least every four hours.

(b) Bitrex Solution Aerosol Fit Test Procedure.

(1) The test subject may not eat, drink (except plain water), smoke, or chew gum for 15 minutes before the test.

(2) The fit test uses the same enclosure as that described in 4. (a) above.

(3) The test subject shall don the enclosure while wearing the respirator selected according to section I. A. of this appendix. The respirator shall be properly adjusted and equipped with any type particulate filter(s).

(4) A second DeVilbiss Model 40 Inhalation Medication Nebulizer or equivalent is used to spray the fit test solution into the enclosure. This nebulizer shall be clearly marked to distinguish it from the screening test solution nebulizer.

(5) The fit test solution is prepared by adding 337.5 mg of Bitrex to 200 ml of a 5% salt (NaCl) solution in warm water.

(6) As before, the test subject shall breathe through his or her slightly open mouth with tongue extended, and be instructed to report if he/she tastes the bitter taste of Bitrex.

(7) The nebulizer is inserted into the hole in the front of the enclosure and an initial concentration of the fit test solution is sprayed into the enclosure using the same number of squeezes (either 10, 20 or 30 squeezes) based on the number of squeezes required to elicit a taste response as noted during the screening test.

(8) After generating the aerosol, the test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.

(9) Every 30 seconds the aerosol concentration shall be replenished using one half the number of squeezes used initially (e.g., 5, 10 or 15).

(10) The test subject shall indicate to the test conductor if at any time during the fit test the taste of Bitrex is detected. If the test subject does not report tasting the Bitrex, the test is passed.

(11) If the taste of Bitrex is detected, the fit is deemed unsatisfactory and the test is failed. A different respirator shall be tried and the entire test procedure is repeated (taste threshold screening and fit testing).

5. Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

(a) General Requirements and Precautions

(1) The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).

(2) Only stannic chloride smoke tubes shall be used for this protocol.

(3) No form of test enclosure or hood for the test subject shall be used.

(4) The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

(5) The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

(b) Sensitivity Screening Check

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

(1) The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

(2) The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.

(3) The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

(c) Irritant Smoke Fit Test Procedure

(1) The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).

(2) The test subject shall be instructed to keep his/her eyes closed.

(3) The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

(4) If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test

exercises.

(5) The exercises identified in section I.A. 14. of this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.

(6) If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.

(7) Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.

(8) If a response is produced during this second sensitivity check, then the fit test is passed.

C. Quantitative Fit Test (QNFT) Protocols

The following quantitative fit testing procedures have been demonstrated to be acceptable: Quantitative fit testing using a non-hazardous test aerosol (such as corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS], or sodium chloride) generated in a test chamber, and employing instrumentation to quantify the fit of the respirator; Quantitative fit testing using ambient aerosol as the test agent and appropriate instrumentation (condensation nuclei counter) to quantify the respirator fit; Quantitative fit testing using controlled negative pressure and appropriate instrumentation to measure the volumetric leak rate of a facepiece to quantify the respirator fit.

1. General

(a) The employer shall ensure that persons administering QNFT are able to calibrate equipment and perform tests properly, recognize invalid tests, calculate fit factors properly and ensure that test equipment is in proper working order.

(b) The employer shall ensure that QNFT equipment is kept clean, and is maintained and calibrated according to the manufacturer's instructions so as to operate at the parameters for which it was designed.

2. Generated Aerosol Quantitative Fit Testing Protocol

(a) Apparatus.

(1) Instrumentation. Aerosol generation, dilution, and measurement systems using particulates (corn oil, polyethylene glycol 400 [PEG 400], di-2-ethyl hexyl sebacate [DEHS] or sodium chloride) as test aerosols shall be used for quantitative fit testing.

(2) Test chamber. The test chamber shall be large enough to permit all test subjects to perform freely all required exercises without disturbing the test agent concentration or the measurement apparatus. The test chamber shall be equipped and constructed so that the test agent is effectively isolated from the ambient air, yet uniform in concentration throughout the chamber.

(3) When testing air-purifying respirators, the normal filter or cartridge element shall be replaced with a high efficiency particulate air (HEPA) or P100 series filter supplied by the same manufacturer.

(4) The sampling instrument shall be selected so that a computer record or strip chart record may be made of the test showing the rise and fall of the test agent concentration with each inspiration and expiration at fit factors of at least 2,000. Integrators or computers that integrate the amount of test agent penetration leakage into the respirator for each exercise may be used provided a record of the readings is made.

(5) The combination of substitute air-purifying elements, test agent and test agent concentration shall be such that the test subject is not exposed in excess of an established exposure limit for the test agent at any time during the testing process, based upon the length of the exposure and the exposure limit duration.

(6) The sampling port on the test specimen respirator shall be placed and constructed so that no leakage occurs around the port (e.g., where the respirator is probed), a free air flow is allowed into the sampling line at all times, and there is no interference with the fit or performance of the respirator. The in-mask sampling device (probe) shall be designed and used so that the air sample is drawn from the breathing zone of the test subject, midway between the nose and mouth and with the probe extending into the facepiece cavity at least 1/4 inch.

(7) The test setup shall permit the person administering the test to observe the test subject inside the chamber during the test.

(8) The equipment generating the test atmosphere shall maintain the concentration of test agent constant to within a 10 percent variation for the duration of the test.

(9) The time lag (interval between an event and the recording of the event on the strip chart or computer or integrator) shall be kept to a minimum. There shall be a clear association between the occurrence of an event and its being recorded.

(10) The sampling line tubing for the test chamber atmosphere and for the respirator sampling port shall be of equal diameter and of the same material. The length of the two lines shall be equal.

(11) The exhaust flow from the test chamber shall pass through an appropriate filter (i.e., high efficiency particulate filter) before release.

(12) When sodium chloride aerosol is used, the relative humidity inside the test chamber shall not exceed 50 percent.

(13) The limitations of instrument detection shall be taken into account when determining the fit factor.

(14) Test respirators shall be maintained in proper working order and be inspected regularly for deficiencies such as cracks or missing valves and gaskets.

(b) Procedural Requirements.

(1) When performing the initial user seal check using a positive or negative pressure check, the sampling line shall be crimped closed in order to avoid air pressure leakage during either of these pressure checks.

(2) The use of an abbreviated screening QLFT test is optional. Such a test may be utilized in order to quickly identify poor fitting respirators that passed the positive and/or negative pressure test and reduce the amount of QNFT time. The use of the CNC QNFT instrument in the count mode is another optional method to obtain a quick estimate of fit and eliminate poor fitting respirators before going on to perform a full QNFT.

(3) A reasonably stable test agent concentration shall be measured in the test chamber prior to testing. For canopy or shower curtain types of test units, the determination of the test agent's stability may be established after the test subject has entered the test environment.

- (4) Immediately after the subject enters the test chamber, the test agent concentration inside the respirator shall be measured to ensure that the peak penetration does not exceed 5 percent for a half mask or 1 percent for a full facepiece respirator.
- (5) A stable test agent concentration shall be obtained prior to the actual start of testing.
- (6) Respirator restraining straps shall not be over-tightened for testing. The straps shall be adjusted by the wearer without assistance from other persons to give a reasonably comfortable fit typical of normal use. The respirator shall not be adjusted once the fit test exercises begin.
- (7) The test shall be terminated whenever any single peak penetration exceeds 5 percent for half masks and 1 percent for full facepiece respirators. The test subject shall be refitted and retested.
- (8) Calculation of fit factors.
- (i) The fit factor shall be determined for the quantitative fit test by taking the ratio of the average chamber concentration to the concentration measured inside the respirator for each test exercise except the grimace exercise.
- (ii) The average test chamber concentration shall be calculated as the arithmetic average of the concentration measured before and after each test (i.e., 7 exercises) or the arithmetic average of the concentration measured before and after each exercise or the true average measured continuously during the respirator sample.
- (iii) The concentration of the challenge agent inside the respirator shall be determined by one of the following methods:

(A) Average peak penetration method means the method of determining test agent penetration into the respirator utilizing a strip chart recorder, integrator, or computer. The agent penetration is determined by an average of the peak heights on the graph or by computer integration, for each exercise except the grimace exercise. Integrators or computers that calculate the actual test agent penetration into the respirator for each exercise will also be considered to meet the requirements of the average peak penetration method.

(B) Maximum peak penetration method means the method of determining test agent penetration in the respirator as determined by strip chart recordings of the test. The highest peak penetration for a given exercise is taken to be representative of average penetration into the respirator for that exercise.

(C) Integration by calculation of the area under the individual peak for each exercise except the grimace exercise. This includes computerized integration.

(D) The calculation of the overall fit factor using individual exercise fit factors involves first converting the exercise fit factors to penetration values, determining the average, and then converting that result back to a fit factor. This procedure is described in the following equation:

$$\text{Overall Fit Factor} = \frac{\text{Number of exercises}}{1/ff_1 + 1/ff_2 + 1/ff_3 + 1/ff_4 + 1/ff_5 + 1/ff_6 + 1/ff_7 + 1/ff_8}$$

Where ff_1 , ff_2 , ff_3 , etc. are the fit factors for exercises 1, 2, 3, etc.

(9) The test subject shall not be permitted to wear a half mask or quarter facepiece respirator unless a minimum fit factor of 100 is obtained, or a full facepiece respirator unless a minimum fit factor of 500 is obtained.

(10) Filters used for quantitative fit testing shall be replaced whenever increased breathing resistance is encountered, or when the test agent has altered the integrity of the filter media.

3. Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing protocol.

The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing (Portacount™) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator that allows the probe to sample the air from inside the mask. A probed respirator is required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half-mask respirator and a minimum fit factor pass level of at least 500 is required for a full facepiece negative pressure respirator. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) Portacount Fit Test Requirements.

(1) Check the respirator to make sure the sampling probe and line are properly attached to the facepiece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test (e.g., NIOSH 42 CFR 84 series 100, series 99, or series 95 particulate filter) per manufacturer's instruction.

(2) Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.

(3) Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate strap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.

(4) Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting facepiece, try another size of the same model respirator, or another model of respirator.

(5) Follow the manufacturer's instructions for operating the Portacount and proceed with the test.

(6) The test subject shall be instructed to perform the exercises in section I. A. 14. of this appendix.

(7) After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

(b) Portacount Test Instrument.

(1) The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The Pass or Fail message will indicate whether or not the test was successful. If the test was a Pass, the fit test is over.

(2) Since the pass or fail criterion of the Portacount is user programmable, the test operator shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance in this Appendix.

(3) A record of the test needs to be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; and date tested.

4. Controlled negative pressure (CNP) quantitative fit testing protocol.

The CNP protocol provides an alternative to aerosol fit test methods. The CNP fit test method technology is based on exhausting air from a temporarily sealed respirator facepiece to generate and then maintain a constant negative pressure inside the facepiece. The rate of air exhaust is controlled so that a constant negative pressure is maintained in the respirator during the fit test. The level of pressure is selected to replicate the mean inspiratory pressure that causes leakage into the respirator under normal use conditions. With pressure held constant, air flow out of the respirator is equal to air flow into the respirator. Therefore, measurement of the exhaust stream that is required to hold the pressure in the temporarily sealed respirator constant yields a direct measure of leakage air flow into the respirator. The CNP fit test method measures leak rates through the facepiece as a method for determining the facepiece fit for negative pressure respirators. The CNP instrument manufacturer Occupational Health Dynamics of Birmingham, Alabama also provides attachments (sampling manifolds) that replace the filter cartridges to permit fit testing in an employee's own respirator. To perform the test, the test subject closes his or her mouth and holds his/her breath, after which an air pump removes air from the respirator facepiece at a pre-selected constant pressure. The facepiece fit is expressed as the leak rate through the facepiece, expressed as milliliters per minute. The quality and validity of the CNP fit tests are determined by the degree to which the in-mask pressure tracks the test pressure during the system measurement time of approximately five seconds. Instantaneous feedback in the form of a real-time pressure trace of the in-mask pressure is provided and used to determine test validity and quality. A minimum fit factor pass level of 100 is necessary for a half-mask respirator and a minimum fit factor of at least 500 is required for a full facepiece respirator. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

(a) CNP Fit Test Requirements.

(1) The instrument shall have a non-adjustable test pressure of 15.0 mm water pressure.

(2) The CNP system defaults selected for test pressure shall be set at -- 15 mm of water (-0.58 inches of water) and the modeled inspiratory flow rate shall be 53.8 liters per minute for performing fit tests.

(Note: CNP systems have built-in capability to conduct fit testing that is specific to unique work rate, mask, and gender situations that might apply in a specific workplace. Use of system default values, which were selected to represent respirator wear with medium cartridge resistance at a low-moderate work rate, will allow inter-test comparison of the respirator fit.)

(3) The individual who conducts the CNP fit testing shall be thoroughly trained to perform the test.

(4) The respirator filter or cartridge needs to be replaced with the CNP test manifold. The inhalation valve downstream from the manifold either needs to be temporarily removed or propped open.

(5) The employer must train the test subject to hold his or her breath for at least 10 seconds.

(6) The test subject must don the test respirator without any assistance from the test administrator who is conducting the CNP fit test. The respirator must not be adjusted once the fit-test exercises begin. Any adjustment voids the test, and the test subject must repeat the fit test.

(7) The QNFT protocol shall be followed according to section I. C. 1. of this appendix with an exception for the CNP test exercises.

(b) CNP Test Exercises.

(1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject needs to hold head straight ahead and hold his or her breath for 10 seconds during the test measurement.

(2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply for 1 minute, being careful not to hyperventilate. After the deep breathing exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during test measurement.

(3) Turning head side to side. Standing in place, the subject shall slowly turn his or her head from side to side between the extreme positions on each side for 1 minute. The head shall be held at each extreme momentarily so the subject can inhale at each side. After the turning head side to side exercise, the subject needs to hold head full left and hold his or her breath for 10 seconds during test measurement. Next, the subject needs to hold head full right and hold his or her breath for 10 seconds during test measurement.

(4) Moving head up and down. Standing in place, the subject shall slowly move his or her head up and down for 1 minute. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling). After the moving head up and down exercise, the subject shall hold his or her head full up and hold his or her breath for 10 seconds during test measurement. Next, the subject shall hold his or her head full down and hold his or her breath for 10 seconds during test measurement.

(5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song for 1 minute. After the talking exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.

(6) Grimace. The test subject shall grimace by smiling or frowning for 15 seconds.

(7) Bending Over. The test subject shall bend at the waist as if he or she were to touch his or her toes for 1 minute. Jogging in place shall be substituted for this exercise in those test environments such as shroud-type QNFT units that prohibit bending at the waist. After the bending over exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement.

(8) Normal Breathing. The test subject shall remove and re-don the respirator within a one-minute period. Then, in a normal standing position, without talking, the subject shall breathe normally for 1 minute. After the normal breathing exercise, the subject shall hold his or her head straight ahead and hold his or her breath for 10 seconds during the test measurement. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of

the protocol. If it has become unacceptable, another model of a respirator shall be tried.

(c) CNP Test Instrument.

(1) The test instrument must have an effective audio-warning device, or a visual-warning device in the form of a screen tracing, that indicates when the test subject fails to hold his or her breath during the test. The test must be terminated and restarted from the beginning when the test subject fails to hold his or her breath during the test. The test subject then may be refitted and retested.

(2) A record of the test shall be kept on file, assuming the fit test was successful. The record must contain the test subject's name; overall fit factor; make, model, style and size of respirator used; and date tested.

5. Controlled negative pressure (CNP) REDON quantitative fit testing protocol.

(a) When administering this protocol to test subjects, employers must comply with the requirements specified in paragraphs (a) and (c) of Part I.C.4 of this appendix ("Controlled negative pressure (CNP) quantitative fit testing protocol"), as well as use the test exercises described below in paragraph (b) of this protocol instead of the test exercises specified in paragraph (b) of Part I.C.4 of this appendix.

(b) Employers must ensure that each test subject being fit tested using this protocol follows the exercise and measurement procedures, including the order of administration, described below in Table A-1 of this appendix.

Table A-1. -- CNP REDON Quantitative Fit Testing Protocol

Exercises ⁽¹⁾	Exercise procedure	Measurement procedure
Facing Forward	Stand and breathe normally, without talking, for 30 seconds.	Face forward, while holding breath for 10 seconds.
Bending Over	Bend at the waist, as if going to touch his or her toes, for 30 seconds.	Face parallel to the floor, while holding breath for 10 seconds
Head Shaking	For about three seconds, shake head back and forth vigorously several times while shouting.	Face forward, while holding breath for 10 seconds.
REDON 1	Remove the respirator mask, loosen all facepiece straps, and then redon the respirator mask.	Face forward, while holding breath for 10 seconds.
REDON 2	Remove the respirator mask, loosen all facepiece straps, and then redon the respirator mask again.	Face forward, while holding breath for 10 seconds.

¹ Exercises are listed in the order in which they are to be administered.

(c) After completing the test exercises, the test administrator must question each test subject regarding the comfort of the respirator. When a test subject states that the respirator is unacceptable, the employer must ensure that the test administrator repeats the protocol using another respirator model.

(d) Employers must determine the overall fit factor for each test subject by calculating the harmonic mean of the fit testing exercises as follows:

$$\text{Overall Fit Factor} = \frac{N}{\left[\frac{1}{FF_1} + \frac{1}{FF_2} + \dots + \frac{1}{FF_N} \right]}$$

Where:

N = The number of exercises;

FF1 = The fit factor for the first exercise;

FF2 = The fit factor for the second exercise; and

FFN = The fit factor for the nth exercise.

Part II. New Fit Test Protocols

A. Any person may submit to OSHA an application for approval of a new fit test protocol. If the application meets the following criteria, OSHA will initiate a rulemaking proceeding under section 6(b)(7) of the OSH Act to determine whether to list the new protocol as an approved protocol in this Appendix A.

B. The application must include a detailed description of the proposed new fit test protocol. This application must be supported by either:

1. A test report prepared by an independent government research laboratory (e.g., Lawrence Livermore National Laboratory, Los Alamos National Laboratory, the National Institute for Standards and Technology) stating that the laboratory has tested the protocol and had found it to be accurate and reliable; or

2. An article that has been published in a peer-reviewed industrial hygiene journal describing the protocol and explaining how test data support the protocol's accuracy and reliability.

C. If OSHA determines that additional information is required before the Agency commences a rulemaking proceeding under this section, OSHA will so notify the applicant and afford the applicant the opportunity to submit the supplemental information.

Initiation of a rulemaking proceeding will be deferred until OSHA has received and evaluated the supplemental information.

[63 FR 20098, April 23, 1998; 69 FR 46993, August 4, 2004]

RESPIRATORY PROTECTION REGULATORY STANDARD AND APPENDICES (29 CFR 1910.134)

USER SEAL CHECK PROCEDURES (MANDATORY) – 1910.134 App B-1

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title Occupational Safety and Health Standards
- Subpart I
- Subpart Title Personal Protective Equipment
- Standard Number 1910.134 App B-1
- Title User Seal Check Procedures (Mandatory)

Appendix B-1 to § 1910.134: User Seal Check Procedures (Mandatory) The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed in this appendix, or the respirator manufacturer's recommended user seal check method shall be used. User seal checks are not substitutes for qualitative or quantitative fit tests.

I. Facepiece Positive and/or Negative Pressure Checks

A. *Positive pressure check.* Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

B. *Negative pressure check.* Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

II. Manufacturer's Recommended User Seal Check Procedures

The respirator manufacturer's recommended procedures for performing a user seal check may be used instead of the positive and/or negative pressure check procedures provided that the employer demonstrates that the manufacturer's procedures are equally effective.

[63 FR 1152, Jan. 8, 1998]

RESPIRATORY PROTECTION REGULATORY STANDARD AND APPENDICES (29 CFR 1910.134)

RESPIRATOR CLEANING PROCEDURES (MANDATORY) – 1910.134 App B-2

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title Occupational Safety and Health Standards
- Subpart I
- Subpart Title Personal Protective Equipment
- Standard Number 1910.134 App B-2
- Title Respirator Cleaning Procedures (Mandatory)

Appendix B-2 to § 1910.134: Respirator Cleaning Procedures (Mandatory)

These procedures are provided for employer use when cleaning respirators. They are general in nature, and the employer as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators used by their employees, provided such procedures are as effective as those listed here in Appendix B- 2. Equivalent effectiveness simply means that the

procedures used must accomplish the objectives set forth in Appendix B-2, i.e., must ensure that the respirator is properly cleaned and disinfected in a manner that prevents damage to the respirator and does not cause harm to the user.

I. Procedures for Cleaning Respirators

A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.

B. Wash components in warm (43 deg. C [110 deg. F] maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.

C. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain.

D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:

1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 43 deg. C (110 deg. F); or,

2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 43 deg. C (110 deg. F); or,

3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.

E. Rinse components thoroughly in clean, warm (43 deg. C [110 deg. F] maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.

F. Components should be hand-dried with a clean lint-free cloth or air-dried.

G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.

H. Test the respirator to ensure that all components work properly.

[63 FR 1152, Jan. 8, 1998]

RESPIRATORY PROTECTION REGULATORY STANDARD AND APPENDICES (29 CFR 1910.134)

OSHA RESPIRATOR MEDICAL EVALUATION QUESTIONNAIRE (MANDATORY) – 1910.134 App C

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: I
- Subpart Title: Personal Protective Equipment
- Standard Number: 1910.134 App C
- Title: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

Appendix C to Sec. 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____
2. Your name: _____
3. Your age (to nearest year): _____
4. Sex (circle one): Male/Female
5. Your height: _____ ft. _____ in.
6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): _____
9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No
11. Check the type of respirator you will use (you can check more than one category):
 - a. _____ N, R, or P disposable respirator (filter-mask, non- cartridge type only).
 - b. _____ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus).
12. Have you worn a respirator (circle one): Yes/No

If "yes," what type(s): _____

Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you **currently** smoke tobacco, or have you smoked tobacco in the last month: Yes/No
2. Have you **ever had** any of the following conditions?
 - a. Seizures (fits): Yes/No
 - b. Diabetes (sugar disease): Yes/No
 - c. Allergic reactions that interfere with your breathing: Yes/No
 - d. Claustrophobia (fear of closed-in places): Yes/No
 - e. Trouble smelling odors: Yes/No
3. Have you **ever had** any of the following pulmonary or lung problems?
 - a. Asbestosis: Yes/No
 - b. Asthma: Yes/No
 - c. Chronic bronchitis: Yes/No
 - d. Emphysema: Yes/No
 - e. Pneumonia: Yes/No
 - f. Tuberculosis: Yes/No

- g. Silicosis: Yes/No
- h. Pneumothorax (collapsed lung): Yes/No
- i. Lung cancer: Yes/No
- j. Broken ribs: Yes/No
- k. Any chest injuries or surgeries: Yes/No
- l. Any other lung problem that you've been told about: Yes/No

4. Do you **currently** have any of the following symptoms of pulmonary or lung illness?

- a. Shortness of breath: Yes/No
- b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
- c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
- d. Have to stop for breath when walking at your own pace on level ground: Yes/No
- e. Shortness of breath when washing or dressing yourself: Yes/No
- f. Shortness of breath that interferes with your job: Yes/No
- g. Coughing that produces phlegm (thick sputum): Yes/No
- h. Coughing that wakes you early in the morning: Yes/No
- i. Coughing that occurs mostly when you are lying down: Yes/No
- j. Coughing up blood in the last month: Yes/No
- k. Wheezing: Yes/No
- l. Wheezing that interferes with your job: Yes/No
- m. Chest pain when you breathe deeply: Yes/No
- n. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you **ever had** any of the following cardiovascular or heart problems?

- a. Heart attack: Yes/No
- b. Stroke: Yes/No
- c. Angina: Yes/No
- d. Heart failure: Yes/No
- e. Swelling in your legs or feet (not caused by walking): Yes/No
- f. Heart arrhythmia (heart beating irregularly): Yes/No
- g. High blood pressure: Yes/No
- h. Any other heart problem that you've been told about: Yes/No

6. Have you **ever had** any of the following cardiovascular or heart symptoms?

- a. Frequent pain or tightness in your chest: Yes/No
- b. Pain or tightness in your chest during physical activity: Yes/No
- c. Pain or tightness in your chest that interferes with your job: Yes/No
- d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
- e. Heartburn or indigestion that is not related to eating: Yes/ No
- f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you **currently** take medication for any of the following problems?

- a. Breathing or lung problems: Yes/No
- b. Heart trouble: Yes/No
- c. Blood pressure: Yes/No
- d. Seizures (fits): Yes/No

8. If you've used a respirator, have you **ever had** any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

- a. Eye irritation: Yes/No
- b. Skin allergies or rashes: Yes/No
- c. Anxiety: Yes/No
- d. General weakness or fatigue: Yes/No
- e. Any other problem that interferes with your use of a respirator: Yes/No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or

a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you **ever lost** vision in either eye (temporarily or permanently): Yes/No

11. Do you **currently** have any of the following vision problems?

- a. Wear contact lenses: Yes/No
- b. Wear glasses: Yes/No
- c. Color blind: Yes/No
- d. Any other eye or vision problem: Yes/No

12. Have you **ever had** an injury to your ears, including a broken ear drum: Yes/No

13. Do you **currently** have any of the following hearing problems?

- a. Difficulty hearing: Yes/No
- b. Wear a hearing aid: Yes/No
- c. Any other hearing or ear problem: Yes/No

14. Have you **ever had** a back injury: Yes/No

15. Do you **currently** have any of the following musculoskeletal problems?

- a. Weakness in any of your arms, hands, legs, or feet: Yes/No
- b. Back pain: Yes/No
- c. Difficulty fully moving your arms and legs: Yes/No
- d. Pain or stiffness when you lean forward or backward at the waist: Yes/No
- e. Difficulty fully moving your head up or down: Yes/No
- f. Difficulty fully moving your head side to side: Yes/No
- g. Difficulty bending at your knees: Yes/No
- h. Difficulty squatting to the ground: Yes/No
- i. Climbing a flight of stairs or a ladder carrying more than 25 lbs: Yes/No
- j. Any other muscle or skeletal problem that interferes with using a respirator: Yes/No

Part B Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen: Yes/No

If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions: Yes/No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals: Yes/No

If "yes," name the chemicals if you know them:

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

- a. Asbestos: Yes/No
- b. Silica (**e.g.**, in sandblasting): Yes/No
- c. Tungsten/cobalt (e.g., grinding or welding this material): Yes/No
- d. Beryllium: Yes/No
- e. Aluminum: Yes/No
- f. Coal (for example, mining): Yes/No
- g. Iron: Yes/No

- h. Tin: Yes/No
- i. Dusty environments: Yes/No
- j. Any other hazardous exposures: Yes/No

If "yes," describe these exposures: _____

4. List any second jobs or side businesses you have: _____

5. List your previous occupations: _____

6. List your current and previous hobbies: _____

7. Have you been in the military services? Yes/No

If "yes," were you exposed to biological or chemical agents (either in training or combat): Yes/No

8. Have you ever worked on a HAZMAT team? Yes/No

9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): Yes/No

If "yes," name the medications if you know them: _____

10. Will you be using any of the following items with your respirator(s)?

- a. HEPA Filters: Yes/No
- b. Canisters (for example, gas masks): Yes/No
- c. Cartridges: Yes/No

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?:

- a. Escape only (no rescue): Yes/No
- b. Emergency rescue only: Yes/No
- c. Less than 5 hours **per week**: Yes/No
- d. Less than 2 hours **per day**: Yes/No
- e. 2 to 4 hours per day: Yes/No
- f. Over 4 hours per day: Yes/No

12. During the period you are using the respirator(s), is your work effort:

- a. **Light** (less than 200 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: _____hours . _____minutes.

Examples of a light work effort are **sitting** while writing, typing, drafting, or performing light assembly work; or **standing** while operating a drill press (1-3 lbs.) or controlling machines.

- b. **Moderate** (200 to 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: _____hours . _____minutes.

Examples of moderate work effort are **sitting** while nailing or filing; **driving** a truck or bus in urban traffic; **standing** while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; **walking** on a level

surface about 2 mph or down a 5-degree grade about 3 mph; or **pushing** a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

c. **Heavy** (above 350 kcal per hour): Yes/No

If "yes," how long does this period last during the average shift: _____ hours . _____ minutes.

Examples of heavy work are **lifting** a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; **shoveling**; **standing** while bricklaying or chipping castings; **walking** up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes/No

If "yes," describe this protective clothing and/or equipment: _____

14. Will you be working under hot conditions (temperature exceeding 77 deg. F): Yes/No

15. Will you be working under humid conditions: Yes/No

16. Describe the work you'll be doing while you're using your respirator(s):

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

Name of the first toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the second toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

Name of the third toxic substance: _____

Estimated maximum exposure level per shift: _____

Duration of exposure per shift: _____

The name of any other toxic substances that you'll be exposed to while using your respirator:

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

RESPIRATORY PROTECTION REGULATORY STANDARD AND APPENDICES (29 CFR 1910.134)

INFORMATION FOR EMPLOYEES USING RESPIRATORS WHEN NOT REQUIRED UNDER STANDARD (MANDATORY) – 1910.134 App D

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: I
- Subpart Title: Personal Protective Equipment
- Standard Number: 1910.134 App D
- Title: Information for Employees Using Respirators When Not Required Under Standard (Mandatory)

Appendix D to Sec. 1910.134 Information for Employees Using Respirators When Not Required Under the Standard (Mandatory)

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

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Respiratory Protection WRITTEN Program

(Insert Company Name)

Respirator Program Administrator _____

(insert name or title)

The Respirator Program Administrator's duties are to oversee the development of the respiratory program and, make sure it is carried out at the workplace. The administrator will also evaluate the program regularly to make sure procedures are followed, respirator use is monitored and respirators continue to provide adequate protection when job conditions change.

Scope

This Respiratory Protection Program applies to all employees *who are required* to wear respirators during normal work operations, and during non-routine or emergency operations, as required.

In addition, any employee who *voluntarily* wears a respirator in an area of the facility where respiratory protection is not required is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program. Employees who voluntarily choose to wear a respirator will be provided a copy of Appendix D to 29 CFR 1910.134, included in the Safety Manual.

Selection of Respirators

We have evaluated our use of contaminants at this facility and found respirators must be used by employees in the following designated areas of the facility:

Department or Process	Respirator Type (1/2 face, full face, supplied air, etc.)

Where the use of half or full face-piece cartridge respirators are used, or where either SCBA or supplied-air type respiratory protection is used, the selection of the type, size and cartridges used by each employee will be documented. This written material will be maintained on the ***Respirator Selection and Fit Test Record*** located:

- In this Safety Manual
- At the following location: _____

Respirators are required based on the following information:

- Review of SDS
- Air monitoring results
- Advice of manufacturer or supplier
- Other _____

Medical Evaluations (required and voluntary use)

Every employee of this company who wears a respirator (*required or voluntary*) will be provided a medical evaluation before they are allowed to use the respirator.

A **medical questionnaire** is provided to applicable employees. Employees are required to complete the questionnaire in private. Non-readers or non-English-reading employees will be assisted by the Respirator Program Administrator. Completed questionnaires are confidential and will be sent directly to the following medical provider without review by management:

Medical Provider: _____

The Medical Provider conducts respirator evaluations for all applicable employees. A *respiratory evaluation or examination* may be provided at the discretion of the physician or medical provider.

The company will receive a written recommendation from the Medical Provider on whether or not the employee is medically able to wear a respirator.

Additional medical evaluations will be completed in the following situations:

- The Medical Provider recommends it
- The Respirator Program Administrator decides it is needed
- An employee shows signs of breathing difficulty
- Changes in work conditions that increase employee physical stress (such as high temperatures or greater physical exertion)

Respirator Fit-testing (required use)

Employees *required* to wear a respirator will be fit tested:

- Prior to being allowed to wear any respirator
- Annually
- When a different respirator facepiece is selected
- When there are changes in the employee's physical condition that could affect respiratory fit

Fit-testing is completed using one or more of the OSHA recommended fit-testing protocols. Respirators will be checked for proper sealing by the user whenever the respirator is first placed on, using the required seal check procedure, as outlined in the safety manual.

Fit-Testing records are located:

- In the safety manual
- At the following location: _____

Respirator Cleaning, Storage, Maintenance and Repair (required and voluntary use)

Cleaning

Respirators will be cleaned and disinfected according the manufacturer's instructions and according to the schedule specified in the ***Respirator Cleaning and Inspection Record located:***

- In the safety manual
- At the following location: _____

Storage

Cleaned respirators will be placed in a plastic bag and stored in a designated storage area within the facility. Respirators issued for the exclusive use of an employee shall be cleaned and placed in a bag marked with the employee name, as applicable. The storage area will be a designated clean, dry place such as a storage cabinet, locker or closet.

Maintenance and Repair

Cartridge respirators (half or full face-piece) will be inspected for damage, deterioration or improper functioning before and after every use and during cleaning. Defective parts shall be taken out of service immediately and repaired or replaced prior to use. Repairs and adjustments will be completed according to the manufacturer's instructions.

Vapor or gas cartridges will be regularly replaced, at the frequency required by the manufacturer and as documented in the ***Respirator Filter Change-Out Schedule*** located:

- In the safety manual
- At the following location: _____

Supplied air respirators will be checked by the user before each use for proper functioning of regulator and warning devices and amount of air in tanks where used. Repairs and adjustments shall be completed by the manufacturer or supplier, as appropriate.

If applicable, emergency respirators and self-contained tank-type supplied air respirators in storage will be inspected monthly or in accordance with manufacturer's instructions.

Respirator Use (required use)

Routine Use

Employees will not be allowed to wear tight-fitting respirators if they have facial hair, absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or other facial features that interfere with the facepiece seal or valve function. Employees are not permitted to wear headphones, corrective glasses, jewelry, headgear, or other personal protective equipment that may interfere with the seal of the facepiece to the face.

Employees shall conduct a user *seal check* each time they wear a respirator before use and document they understand this requirement. Copies of the ***Respirator Seal Check Procedure*** signed by each employee required to wear a respirator are located:

- In the safety manual
- At the following location: _____

The Program Administrator will make sure that the NIOSH labels and color-coding on respirator filters and cartridges remain readable and intact during use. The Program Administrator will monitor the work areas in order to be aware of changing conditions where employees are using respirators. For offsite locations, job site supervisors will monitor the work areas in order to be aware of changing conditions where employees are using respirators.

Emergency Situations

Employees will immediately leave the area where respirators are required for any of the following reasons:

- To replace filters or cartridges
- When they smell or taste a chemical inside the respirator
- When they notice a change in breathing resistance
- To adjust their respirator
- To wash their faces or respirator
- If they become ill
- If they experience dizziness, nausea, weakness, breathing difficulty, coughing, sneezing vomiting, fever or chills

IDLH Procedures

The Program Administrator has identified the following areas or job duties as presenting the potential for immediately dangerous to life or health (IDLH) conditions:

- Not Applicable
- At the following area(s): _____

Where any area or confined space is designated as IDLH, a minimum of one confined space attendant will be present outside the area. The attendants will remain in constant visual, voice or signal line communication with the employee(s) in the IDLH area. In the event of an emergency, the attendants will not enter the IDLH atmosphere to perform rescue or medical duties. However, the attendants will immediately notify the following appropriate responders:

- Additional onsite personnel trained in effective emergency rescue, equipped with pressure-demand self-contained breathing apparatus (SCBAs), and available on-call for emergency rescue.
- Offsite emergency responders will be utilized for emergency rescue or medical duties. Such response agencies will be informed of the IDLH entry prior to the start of the job or task.

Breathing Air Quality for Supplied Air Respirators (if used)

Only Grade D breathing air will be supplied to compressed air tanks for respirators using the following method(s):

- Not Applicable
- Compressors used for breathing air supply are non-oil lubricated and the air intake is located in an uncontaminated area. The brand name of our air compressor(s) and the location for the job or area is _____.
- Compressors are equipped with filters, water traps and sorbents to provide clean, safe air. They are maintained by _____. Maintenance records are located at _____.

- ___ Oil-lubricated compressor(s) used for breathing air. These compressor(s) are equipped with carbon-monoxide alarms, high-temperature alarms or both. The compressors are located _____.
For compressors without carbon monoxide alarms, monitoring is performed at the following intervals _____ by the Program Administrator or other persons appropriately trained in monitoring.
- ___ Airline respirators are equipped with air couplings that are not compatible with couplings to non-respirable air (plant air for example) or other gas systems. If used, air cylinders for supplied air respirators are inspected and tested according to federal DOT regulations.
- ___ Other (describe)

Respirator Training (required use)

All employees required to wear a respirator will complete Respirator Safety Training before conducting job tasks requiring the use of a respirator. Training will be completed annually thereafter as long as they wear respirators. Additional training will also be completed when:

- Changes in the workplace or the type of respirator render previous training obsolete.
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained respirator use understanding or skill. or
- Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Training will cover the following topics:

- Why the respirator is necessary
- Respirator capabilities and limitations
- Respirator inspection, donning, seal check, and use
- Fit Testing
- Maintenance and storage
- How to use a respirator in an emergency situation or when it fails
- Medical symptoms that may limit or prevent respirator use

Respiratory Program Evaluation

The respiratory program is evaluated for effectiveness by completing the following steps:

1. Checking results of fit-test results and health provider evaluations.
2. Talking with employees who wear respirators about their respirators – how they fit, do they feel they are adequately protecting them, do they notice any difficulties in breathing while wearing them, do they notice any odors while wearing them, etc.
3. Periodically checking employee job duties for changes in chemical exposure.
4. Periodically checking maintenance and storage of respirators.
5. Periodically checking how employees use their respirators.
6. Other _____

Recordkeeping

Medical records will be kept confidential from other records.

The following records will be kept:

- A copy of this completed respirator program
- Employees' latest fit-testing results
- Employee training records
- Written recommendations from our medical provider

The records will be kept at the following location: _____

Employees will have access to these records.

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PROGRAM OVERVIEW

SAFE DRIVING AND VEHICLE/FLEET SAFETY PROGRAM

REGULATORY STANDARD: OSHA General Duty Clause

INTRODUCTION: Company owned or leased vehicles must be maintained in proper condition, and drivers appropriately licensed to operate the type of vehicle. This program outlines the basic inspection techniques for using a company owned or leased vehicle. This program also outlines the basic safety requirements for operating both company owned and leased vehicles and for personal vehicles used for company business purposes.

TRAINING:

- Appropriate driver's licenses for the type of vehicle are required.
- Basic driver safety is recommended for employees who use vehicles for company business.

ACTIVITIES:

- Inspect vehicles prior to operation

FORMS:

- Motor Vehicle Report (MVR) Policy
- Distracted Driving Policy
- Safe Driving Vehicle Inspection
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training and Information
7. Definitions

Safe Driving and Fleet and Vehicle Management Safety Program

1. **Purpose.** This program outlines the recommendations for managing and inspecting automobiles and trucks used by company employees for business reasons.

2. **Scope.** This program applies to vehicles owned or leased by the company and to employee owned vehicles used for company business.

3. Responsibilities.

3.1 Management:

3.1.1 Ensure drivers are licensed and certified for the type of vehicle driven, without restrictions on their licenses.

3.1.1.1 Where MVR reports are required annually or for pre-employment, ensure an adequate process to obtain and confidentially maintain this information is in place. Inform employees of company's motor vehicle report policy.

3.1.2 Ensure any vehicles are properly inspected, registered and maintained.

3.1.3 Ensure seat belts, safety chains for snow and other equipment is available and functional, as needed or required.

3.1.4 Ensure vehicle insurance is in place for any owned or leased vehicles.

3.1.5 Revoke the driving privileges for employees driving company owned or leased vehicles where the driving record or ability of the employee may be in question.

3.2 Employees or Drivers:

3.2.1 Ensure your driver's license is current

3.2.2 Ensure your driver's license is the appropriate type for the vehicle being used.

3.2.3 Inspect vehicles before driving.

3.2.4 Ensure you are capable of driving safely (physical, emotional and mental health)

3.3 Safety Officer:

3.3.1 Assist in the development and implementation of the written program, as needed.

4. Procedure.

4.1 General Requirements:

- 4.1.1 Only authorized personnel may drive company vehicles.
 - 4.1.2 Driving while under the influence of alcohol, inhalants or illegal drugs, or after taking any medications that may impair your driving ability is prohibited.
 - 4.1.3 Drivers must obey all traffic signals and devices, and obey traffic laws at all times.
 - 4.1.4 Seatbelts must be worn at all times while the vehicle is in motion.
 - 4.1.5 Only company authorized persons may ride as a passenger in a company owned or leased vehicle, based on company policy.
 - 4.1.6 Drivers may only use “hands-free” style phone systems when the vehicle is in motion, based on state requirements and company’s distracted driving policy.
- 4.2 Break Downs Involving Company Vehicles:
- 4.2.1 Drivers must notify the company as soon as possible after any accident or incident with a company vehicle, regardless of how minor the incident may have been.
 - 4.2.2 Contact your supervisor or manager immediately for assistance obtaining towing or repair.
 - 4.2.3 If the company subscribes to a vehicle service agency (like AAA or other road-service provider), follow the established procedure for contacting that agency.
- 4.3 Vehicular Accidents. In the event of an accident, remain calm. Our first priority is the health and safety of our employees. Employees involved in a work-related vehicular accident must:
- 4.3.1.1 Contact the appropriate local law enforcement agency. Even if the incident is minor, a police report is required for all vehicular accidents involving a company owned vehicle or for those occurring while the employee is performing company business.
 - 4.3.1.2 Notify company management or Supervisors as soon as possible.
 - 4.3.1.3 If possible, leave vehicles in their positions until the police arrive.
 - 4.3.1.4 Do not discuss the accident with others involved. Share your observations only with the police.
 - 4.3.1.5 Exchange, if possible, the following information with all other drivers involved:

- 4.3.1.5.1 The driver's name
- 4.3.1.5.2 The names of all other passengers (per involved vehicle)
- 4.3.1.5.3 The driver's/auto insurance information
- 4.3.1.5.4 The other vehicle information: make, model, year, color, and license plate number
- 4.3.1.5.5 The name of the driver's employer if the driver was traveling for business
- 4.3.1.6 If property damage occurred to a vehicle of an unknown owner (e.g. a parked car) or other property (e.g. a fence), do NOT leave the scene until a full police report is completed.

5. Safety Information.

- 5.1 Notification of Driver Suspension, Accidents or similar issues
 - 5.1.1 Employees must notify their supervisor or manager within 24 hours of any citation of traffic or driving violation, if the violation occurred while using a company vehicle.
 - 5.1.2 Employees who may be expected to drive for company business must notify their supervisor or manager if their license is suspended, revoked or restricted for any reason.
- 5.2 Companies will maintain owned or leased vehicles in a safe manner.
 - 5.2.1 Employees who find defects or repair needs with any company vehicle must notify their supervisor or manager immediately.
 - 5.2.2 Employees may not drive company vehicles that are in an unsafe condition.
- 5.3 Pre-Driving Inspection:
 - 5.3.1 Tire condition and, if necessary, pressure
 - 5.3.2 Spare tire available
 - 5.3.3 Lights and turn signals operational
 - 5.3.4 Windshield wipers functional
 - 5.3.5 Windshield intact (no cracks or breaks)

- 5.3.6 Defroster operational
- 5.3.7 Oil and fluids (windshield cleaner, transmission, brake fluid) present at required levels.
- 5.3.8 Brakes functional
- 5.3.9 Mirrors are present, properly adjusted and clean.
- 5.3.10 Vehicle loads are secure
- 5.3.11 Emergency materials and equipment (fire extinguishers, accident reporting kit, vehicle registration, etc.) are present, as needed.
- 5.3.12 General vehicle condition is appropriate. Scrapes, scratches, dents or other damage should be reported before taking the vehicle on the road.

6. Training and Information.

- 6.1 It is recommended that employees undergo defensive driving or general safe driving training when they are required to operate company owned or leased vehicles.

7. Definitions.

- *Driving Responsibilities* – An employee who drives a vehicle (company owned or leased, or a personal vehicle) for company business purposes.
- *Vehicle* – a company owned or leased automobile, truck or motorcycle which requires a valid driver's license to operate on public roadways.

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Motor Vehicle Report (MVR) Policy

In order to increase employee safety and eliminate unnecessary risks behind the wheel, the company _____ has enacted a Motor Vehicle Report (MVR) Policy, effective _____.

MVRs will be checked _____ for all employees who may be required to drive for company purposes. The MVR will be reviewed to ascertain whether the employee holds a valid license and whether his or her driving record is within the parameters set by the company.

Drivers will be disqualified from driving vehicles for company purposes for any of the following reasons:

1. A violation for driving under the influence of alcohol or a controlled substance will result in a suspension of driving privileges for the company.
2. Any criminal conviction that involves a motor vehicle (e.g., a felony, hit and run, negligent homicide) in the previous five years
3. Any of the following violations incurred in the previous three years:
 - a. Any combination of more than three moving violations (any violation resulting in an at-fault auto accident automatically counts as two violations)
 - b. Any violation less than three years old for an alcohol or controlled substance-related driving offense
 - c. Refusing to take a breathalyzer test
 - d. Careless or reckless driving that results in injury to persons or property
 - e. Passing a stopped school bus
 - f. Leaving the scene of an accident without stopping to file a report
 - g. Racing
4. Any combination of more than two moving violations and/or at-fault accidents in the past 12 months

I have read, understand and agree to the terms set forth in this Driving and Traffic Violation Policy.

Employee Signature

Date

Employee Name (printed)

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Distracted Driving Policy

Please read the Distracted Driving Policy, sign and return to your supervisor.

In order to increase employee safety and eliminate unnecessary risks behind the wheel, the company _____ has enacted a Distracted Driving Policy, effective _____.

We are committed to ending the epidemic of distracted driving, and have created the following rules, which apply to any employee operating a company vehicle or using cell phone while operating a personal vehicle:

- Company employees may not use a hand-held cell phone while operating a vehicle, when the vehicle is in motion or stopped at a traffic light. This includes, but is not limited to, answering or making phone calls, engaging in phone conversations, and reading or responding to emails, instant messages, and text messages.
- If company employees need to use their phones, they must pull over safely to the side of the road or another safe location.
- Additionally, company employees are required to:
 - Turn cell phones off or put them on silent or vibrate before starting the car.
 - Consider modifying voice mail greetings to indicate that you are unavailable to answer calls or return messages while driving.
 - Inform clients, associates and business partners of this policy as an explanation of why calls may not be returned immediately.
- Employees will be subject to disciplinary action up to and including termination for violating any of the above rules.

I acknowledge that I have received a written copy of the Distracted Driving Policy, that I fully understand the terms of this policy, that I agree to abide by these terms, and that I am willing to accept the consequences of failing to follow the policy.

Employee Signature

Date

Employee Name (printed)

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SAFE DRIVING VEHICLE INSPECTION CHECKLIST

ITEM	YES	NO
Tires are in good condition (tread, pressure)		
Spare tire is accessible		
Head-lights operational (regular and high beams)		
Turn signals operational		
Windshield wipers operational		
Washer fluid available		
Windshield intact (no cracks or breaks)		
Defroster operational, as needed		
Oil and fluid levels (brake, transmission, oil) present at required levels		
Brake lights function		
Mirrors (side and rearview) present and in good condition		
Mirrors adjusted for driver		
Vehicle loads and any storage of materials are secure		
Fire extinguishers are present, as needed		
Vehicle registration is available		
Accident reporting information is available		
Vehicle is in generally good condition.		
Note any dents, scratches or other damage issues present:		
Checklist completed by:		
Date:	Time of Day:	

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TRAINING ATTENDANCE ROSTER

SAFE DRIVING - BASIC AWARENESS

Safe Driving Training Includes:

- *The 3 Factors of Safe Driving*
- *The 6 Conditions of Driving*
- *The 5 Steps to Decision Driving*
- *Passing and Collision Prevention*
- *Right of Way*
- *Stopping Distance and Types of Stopping*
- *Tailgating*
- *Driving Attitude*

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed

Name of Interpreter, if utilized: _____

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COMPANY SPECIFIC CORRECTIVE ACTIONS

DATE:

ASSESSOR:

DEPT OR AREA:

SUBMITTED TO:

<u>CONDITION</u>	<u>COMPLIANT</u>	<u>CORRECTED BY</u>	<u>COMPLETION DATE</u>	<u>COMMENTS AND CORRECTIVE ACTION</u>
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			
	<input type="checkbox"/> Yes <input type="checkbox"/> No			

CONSTRUCTION SAFETY CHECKLIST

Completed by:

Date:

ITEM	COMPLIANT?
Jobsite General	
Is an injury prevention program established for construction worksites?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Regular inspections by a designated competent person of the worksite, materials, and equipment are performed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Posters and safety signs/warnings?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Safety meetings held periodically?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Job related safety training completed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Accident reporting procedure established?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Traffic routes identified?	<input type="checkbox"/> YES <input type="checkbox"/> NO
In areas where harmful plants or animals may be present, have employees been instructed regarding the hazards, how to avoid injury, and first aid procedures to be used in the event of injury?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are only qualified employees (by training or experience) permitted to operate machinery?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Barricades	
Floor openings planked over or barricaded?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Roadways and sidewalks protected?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Barricades or covers installed (shafts, wall openings, stairways, stairwells, trenches, outriggers, etc.)?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Chemicals	
Is there a list of all chemicals used available?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are Safety Data Sheets (SDS) available for every chemical?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Waste-chemical and waste-solvent containers are closed and clearly labeled?	<input type="checkbox"/> YES <input type="checkbox"/> NO
All containers of chemicals are clearly labeled with the name of the chemical, appropriate hazard warning, and name of manufacturer?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are all containers free of rust and corrosion?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees who use chemicals trained on the Hazard Communication standard?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is a Written Hazard Communication Program completed?	<input type="checkbox"/> YES <input type="checkbox"/> NO

Chemicals - Flammables	
Are flammable liquids properly stored, in approved containers and correctly labeled?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Empty containers removed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Storage tanks properly grounded, bonded & pressure relief provided?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Compressed Gas	
Are cylinders legibly marked to clearly identify the gas contained?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Compressed gas cylinders not in use have caps in place?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Compressed gas cylinders stored secured and upright?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Oxygen/acetylene torch units have flash back arrestors?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Construction Area - Secured Access/After Hours	
Warning signs in place?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Open ditches protected?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Drop-offs protected?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Ladders lowered?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Loose materials secure from wind	<input type="checkbox"/> YES <input type="checkbox"/> NO
Hazard lights utilized?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Equipment secured?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Utility ditches flagged or barricaded?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Cranes/Hoist/Lifting Equipment	
Are annual inspections completed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are operators properly tested and physical exams current?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are daily inspections completed by operators?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Outriggers used?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Power lines deactivated, removed, or warning signs posted warning of at least 10 foot clearance from overhead power lines (voltages 50,000 volts or below)?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Proper loading for capacity at lifting radius?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Operation in accordance with manufacturer's instruction?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Signalmen where needed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Alarms working and audible?	<input type="checkbox"/> YES <input type="checkbox"/> NO

Electrical Equipment	
Electrical equipment properly maintained?	<input type="checkbox"/> YES <input type="checkbox"/> NO
GFCI's used for all portable electrical hand tools?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Extension cords rated for hard or extra hard usage? (2 wire ribbon cord is unacceptable for industrial usage)	<input type="checkbox"/> YES <input type="checkbox"/> NO
Electrical panels are labeled appropriately?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Electrical panel knockouts are in place?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Light bulbs for illumination protected from breakage?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Strain relief integrity for cords and plugs intact?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Electrical cords inspected & have all prongs intact?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Portable generators are grounded per NEC requirements?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Electric power tools are double insulated or grounded?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Lockout/Tagout is being used for appropriate tasks?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Emergency Items	
Emergency evacuation map posted near work area?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Emergency phone numbers posted and known by all?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Emergency eyewash and/or shower units accessible? (if required)	<input type="checkbox"/> YES <input type="checkbox"/> NO
First aid kit available at work site?	<input type="checkbox"/> YES <input type="checkbox"/> NO
First aid trained competent person available?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Fire extinguishers readily available (not blocked)?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Fire extinguishers inspected monthly/yearly as needed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Excavations	
Are holes, trenches, and cuts over 5 feet deep shored, sloped or trench boxes used?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Operation supervised by competent person?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Spoil banks at least 2 feet from edges of cut?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Ladders placed to ensure no greater than 25 feet of lateral travel by worker?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Ladder properly secured?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Excavation barricaded and lighting provided?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are daily inspections completed by a competent person?	<input type="checkbox"/> YES <input type="checkbox"/> NO

Fall Protection	
Fall protection in place above 6 feet in height?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Full body harness and lanyard used at all times?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Hand / Power Tools	
Employees are trained in proper tool use?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Inspections and proper maintenance accomplished prior to use?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Neatly stored, safely carried?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Tools grounded properly or double insulated?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are power tools used with the correct shield, guard or attachment, recommended by the manufacturer?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Damaged or malfunctioning tools tagged out until repaired or replaced?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Pneumatic power tools have hoses secured?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Handling and Storage of Materials	
Materials properly stored or stacked?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is material stored inside buildings placed more than 6 feet away from any hoist-way or inside floor openings, or more than 10 feet away from an exterior wall?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are brick stacks limited to 7 feet in height? Note: When a loose brick stack reaches a height of 4 feet, it must be tapered back 2 inches on every foot of height above the 4 foot level.	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are all lumber piles 20 feet or less in height? Note: lumber piles to be handled manually stacked a height of 16 feet or less	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are shelves, racks, and overhead storage load rated?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are passageways clear?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Materials protected from weather?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Employees protected from falling into hoppers and bins?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is dust protection used?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Housekeeping and Sanitation	
General neatness of work area(s)? Nails, boards, debris removed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Regular disposal of waste and trash?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Procedures to handle hazardous waste?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Passageways and walkways clear?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Adequate lighting?	<input type="checkbox"/> YES <input type="checkbox"/> NO

Waste containers provided and used?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Sanitary facilities adequate and clean?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is an adequate supply of drinking water at or near the worksite?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Personal Protective Equipment (PPE)	
Protective equipment adequate for exposure?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Employees are issued and using PPE where needed? Safety glasses Face shield Hand protection Foot protection Hearing protection Hard hats Respirators	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is all protective equipment maintained in a sanitary condition and ready for use?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees trained on how to use PPE?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is the Certification of Hazard Assessment form completed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Portable Ladders	
Are all ladders maintained in good condition, joints between steps and side rails tight, all hardware and fittings securely attached and moveable parts operating freely without binding or undue play?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Do employees inspect ladders before use?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are ladder rungs and steps free of grease and oil?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is it prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is it prohibited to place ladders on boxes, barrels or other unstable bases to obtain additional height?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees instructed to face the ladder when ascending or descending?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees prohibited from using ladders that are broken, missing steps, rungs or cleats, broken side rails or other faulty equipment?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees instructed not to use the top step of ordinary stepladders as a step?	<input type="checkbox"/> YES <input type="checkbox"/> NO
When portable rung ladders are used to gain access to elevated platforms, roofs, etc., does the ladder extend at least 3 feet above the elevated surface?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is it required that when portable rung or cleat type ladders are used, the base is so placed that slipping will not occur, or it is lashed or otherwise held in place?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Respiratory Protection	
If employees are required to wear a respirator, have the employees received medical clearance to wear a respirator?	<input type="checkbox"/> YES <input type="checkbox"/> NO

If employees are required to wear a respirator, have they been fit tested to wear a specific make/model/size of respirator?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees trained on the Respiratory Protection standard including instructions on the correct usage and limitations of the respirators? Annually?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are respirators regularly inspected and cleaned, sanitized and maintained?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is there a written respiratory protection program?	<input type="checkbox"/> YES <input type="checkbox"/> NO
If applicable, is there a written respirator filter change-out schedule?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Where needed for emergency use, are respirators stored in a convenient, clean, and sanitary location?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Scaffolding	
Erection properly supervised?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are scaffolds erected on solid footing?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are working areas free of dirt, debris, snow, ice, grease, etc.?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are workers protected from falling objects?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are guard rails, intermediate rails, and toeboards in place?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Welding	
Are only authorized and trained personnel permitted to use welding, cutting or brazing equipment?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are precautions taken to prevent the mixture of air or oxygen with flammable gasses, except at a burner or in a standard torch?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) used?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are cylinders kept away from sources of heat?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is open circuit (no load) voltage of arc welding and cutting machines as low as possible and not in excess of the recommended limits?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is grounding of the machine frame and safety ground connections of portable machines checked periodically?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are electrodes removed from the holders when not in use?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is it required that electric power to the welder be shut off when no one is in attendance?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is suitable fire extinguishing equipment available for immediate use?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are work and electrode lead cables frequently inspected for wear and damage and replaced when needed?	<input type="checkbox"/> YES <input type="checkbox"/> NO
When the object to be welded cannot be moved and fire hazards cannot be removed, are shields used to confine heat, sparks and slag?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are fire watchers assigned when welding or cutting is performed outside a designated area?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are combustible floors kept wet, covered by damp sand or protected by fire-resistant shields?	<input type="checkbox"/> YES <input type="checkbox"/> NO
When floors are wet down, are personnel protected from possible electrical shock?	<input type="checkbox"/> YES <input type="checkbox"/> NO

Before hot work is begun, are used drums, barrels, tanks and other containers so thoroughly cleaned that no substances remain that could explode, ignite or produce toxic vapors?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Are employees exposed to the hazards created by welding, cutting or brazing operations protected with personal protective equipment and clothing?	<input type="checkbox"/> YES <input type="checkbox"/> NO
Is a check made for adequate ventilation in and where welding or cutting is performed?	<input type="checkbox"/> YES <input type="checkbox"/> NO

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PROGRAM OVERVIEW

SCAFFOLDING SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.28 Safety Requirements for Scaffolding
- 29 CFR 1910.29 Manually Propelled Mobile Scaffolds
- 29 CFR 1926.450-454

INTRODUCTION: Scaffolds are a major source of injuries and fatalities; this poses a serious problem for exposed workers and their employer. This safety program addresses the issues of evaluating and identifying potential deficiencies, evaluating the associated potential hazards, communicating information concerning these hazards, and establishing appropriate procedures and protective measures for employees.

TRAINING:

- Employees must be trained prior to job assignment, by competent personnel
- Refresher training will be conducted on an as needed basis

ACTIVITIES:

- Ensure only trained and qualified individuals erect or dismantle scaffolding
- Communicate, implement, and enforce scaffolding safety policies
- Ensure scaffolding meets the minimum requirements for loading, strength, position and use for the job, task or activity
- Provide the needed equipment and materials for scaffolding
- Ensure only certified professional engineers design scaffolds where scaffolding is built or erected for a specific purpose
- Ensure inspections are performed and documented
- Enforce the use of guardrail systems and/or fall protection equipment

FORMS:

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

Scaffolding Safety Program

1. **Purpose.** This safety program is designed to establish clear company goals with regard to the safe use, erection and dismantling of scaffolds. The goals and objectives will be communicated to all required personnel. The company will review and evaluate this safety program:
 - 1.1 On an annual basis, or more frequently as needed.
 - 1.2 When changes occur to the governing regulatory standards that prompt revision of this document.
 - 1.3 When facility operational changes occur that require a revision of this document.
2. **Scope.** This program applies only to work areas where scaffolding is used, regardless of the number of workers employed or the number of work shifts.
3. **Responsibilities.**
 - 3.1 Management and Supervisors:
 - 3.1.1 Ensure only trained and qualified individuals erect or dismantle scaffolding.
 - 3.1.2 Ensure scaffolding meets the minimum requirements for loading, strength, position and use for the job, task or activity.
 - 3.1.3 Ensure only certified professional engineers design scaffolds where scaffolding is built or erected for a specific purpose (i.e. scaffolding is designed, engineered and built on-site and not pre-manufactured by a vendor).
 - 3.1.4 Ensure inspections are performed and documented.
 - 3.1.5 Ensure guardrail systems and/or fall protection equipment is provided and used.
 - 3.2 Employees:
 - 3.2.1 Attend training as needed or required.
 - 3.2.2 Erect and dismantle scaffolding only by manufacturer's directions or under the supervision of a professional engineer.
 - 3.2.3 Inspect scaffolds, as needed or required.
 - 3.2.4 Immediately report hazards or hazardous conditions to your supervisor.
 - 3.2.5 Utilize fall protection equipment, as needed or required.

3.3 Safety Officer (as needed or required):

3.3.1 Assist in the development and implementation of this program.

4. Procedure.

4.1 Company Fixed Scaffolding Safety Policy. To insure safety and serviceability the following general precautions concerning the care and use of scaffolding will be observed:

4.1.1 Footing and anchorages for scaffolds will be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks will not be used to support scaffolds or planks.

4.1.2 Scaffolds and their components will be capable of supporting without failure at least four times the maximum intended load.

4.1.3 Scaffolds will be maintained in a safe condition at all times in accordance with the manufacturer's recommendations. Fixed scaffolds will not be altered or moved horizontally while they are in use or occupied.

4.1.4 Any scaffold damaged or weakened from any cause will be immediately repaired and will not be used until repairs have been completed.

4.1.5 Scaffolds will not be loaded in excess of the working load for which they are intended.

4.1.6 All load-carrying timber members of scaffold framing will be a minimum of 1,500 f. (Stress Grade) construction grade lumber.

4.1.7 All planking will be Scaffold Grade as recognized by grading rules for the type of wood used. The scaffold manufacturer's recommendations will be followed.

4.1.8 Nails or bolts used in the construction of scaffolds will be of adequate size and in sufficient numbers at each connection to develop the designed strength of the scaffold. Nails will not be subjected to a straight pull and will be driven full length.

4.1.9 All planking or platforms will be overlapped (minimum 12 inches) or secured from movement.

4.1.10 An access Scaffold or equivalent safe access will be provided.

4.1.11 Scaffold planks will extend over their end supports not less than 6 inches or more than 18 inches.

4.1.12 The poles, legs, or uprights of scaffolds will be plumb, and securely and rigidly braced to prevent swaying and displacement.

4.1.13 Materials being hoisted onto a scaffold will have a tag line.

- 4.1.14 Overhead protection will be provided for men on a scaffold exposed to overhead hazards.
 - 4.1.15 Scaffolds will be provided with a screen between the toe-board and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard Wire one-half-inch mesh or the equivalent, where persons are required to work or pass under the scaffolds.
 - 4.1.16 Employees will not work on scaffolds which are covered with ice or snow, unless all ice or snow is removed and planking sanded to prevent slipping.
 - 4.1.17 Tools, materials, and debris will not be allowed to accumulate in quantities to cause a hazard.
 - 4.1.18 Only treated or protected fiber rope will be used for or near any work involving the use of corrosive substances or chemicals.
 - 4.1.19 Wire or fiber rope used for scaffold suspension will be capable of supporting at least six times the intended load.
 - 4.1.20 The use of shore scaffolds or lean-to scaffolds will not be used.
 - 4.1.21 Lumber sizes refer to nominal sizes except where otherwise stated.
 - 4.1.22 Scaffolds will be secured to permanent structures, through use of anchor bolts, reveal bolts, or other equivalent means. Window cleaners' anchor bolts will not be used.
 - 4.1.23 Special precautions will be taken to protect scaffold members, including any wire or fiber ropes, when using a heat-producing process.
- 4.2 Company Mobile (Rolling) Scaffolding Safety Policy. To insure safety and serviceability the following general precautions concerning the care and use of scaffolding will be observed:
- 4.2.1 Working loads. Work platforms and scaffolds will be capable of carrying the design load under varying circumstances depending upon the conditions of use.
 - 4.2.1.1 The design load of all scaffolds will be calculated on the basis of:
 - 4.2.1.1.1 Light - Designed and constructed to carry a working load of 25 pounds per square foot.
 - 4.2.1.1.2 Medium - Designed and constructed to carry a working load of 50 pounds per square foot.
 - 4.2.1.1.3 Heavy - Designed and constructed to carry a working load of 75 pounds per square foot.

- 4.2.2 Work levels. The maximum work level height will not exceed four (4) times the minimum or least base dimensions of any mobile scaffold. Where the basic mobile unit does not meet this requirement, suitable outrigger frames will be employed to achieve this least base dimension, or provisions will be made to guy or brace the unit against tipping.
 - 4.2.2.1 The minimum platform width for any work level will not be less than 20 inches for mobile scaffolds (towers). Ladder stands will have a minimum step width of 16 inches.
 - 4.2.2.2 The supporting structure for the work level will be rigidly braced, using adequate cross bracing or diagonal bracing with rigid platforms at each work level.
 - 4.2.2.3 The work level platform of scaffolds (towers) will be of wood, aluminum, or plywood planking, steel or expanded metal, for the full width of the scaffold except for necessary openings. Work platforms will be secured in place. All planking will be 2-inch (nominal) scaffold grade minimum 1,500 f. (stress grade) construction-grade lumber or equivalent.
 - 4.2.2.4 All scaffold work levels 10 feet or higher above the ground or floor will have a standard (4-inch nominal) toe-board.
 - 4.2.2.5 All work levels 10 feet or higher above the ground or floor will have a guardrail of 2- by 4-inch nominal or the equivalent installed no less than 36 inches or more than 42 inches high, with a mid-rail, when required, of 1- by 4-inch nominal lumber or equivalent.
- 4.2.3 Wheels or casters. Wheels or casters will be inspected to ensure that they are provided with strength and dimensions to support four (4) times the design working load.
 - 4.2.3.1 All scaffold casters will be inspected to ensure that they are provided with a positive wheel and/or swivel lock to prevent movement.
- 4.2.4 Nails, bolts, or other fasteners. Nails, bolts and other fasteners used in the construction of ladders, scaffolds, and towers will be of adequate size and in sufficient numbers at each connection to develop the designed strength of the unit. Nails will be driven full length. (All nails should be immediately withdrawn from dismantled lumber.)
 - 4.2.4.1 All exposed surfaces will be free from sharp edges, burrs or other safety hazards.
 - 4.2.4.2 Where leveling of the elevated work platform is required, screw jacks or other suitable means for adjusting the height will be used.
 - 4.2.4.3 Adjusting screws may not be extended more than 12 inches.

- 4.2.5 Movement of Scaffolds. Employees are not permitted to ride rolling scaffolds during relocation.
 - 4.2.5.1 Before moving the platform, secure all equipment and material.
 - 4.2.5.2 Casters or wheels must have a serviceable locking device.
 - 4.2.5.3 Be aware of overhead obstructions when moving scaffolds.
 - 4.2.5.4 Never run over electrical cords.
- 4.2.6 Never pull scaffolds from the top, always push at base level.
- 4.2.7 Work only from the platform area; never extend work beyond guard railing.
- 4.3 Erecting of Scaffolding. Only trained and authorized employees of the company or its contractors will supervise the erection of scaffolding. Pertinent OSHA regulatory standards and information plus guidance provided by the manufacturer of the particular type of scaffolding will be used. The following apply:
 - 4.3.1 Manufacturer's erection instructions will be followed.
 - 4.3.2 Advance planning considerations will be followed during the erection process.
 - 4.3.3 Only trained and authorized employees will supervise the erection of scaffolding.
 - 4.3.4 Each component will be visually inspected before use.
 - 4.3.5 Defective or unserviceable materials will not be used.
 - 4.3.6 Only approved lumber will be used.
 - 4.3.7 Consult with the project manager where any instructions are unclear.

5. Safety Information.

- 5.1 Manufacturer Recommendations for Safety. To insure safety and serviceability the manufacturer general precautions concerning the care and use of wooden scaffolding will be observed.
- 5.2 Pre-Inspection of Erected Scaffolding. The three main areas of inspection are for rust, straightness of members, and welds. Only trained employees of the company or its contractors will conduct the pre-inspection. Pertinent OSHA regulatory standards and information plus guidance provided by the manufacturer of the particular type of scaffolding will be used. The following as a minimum apply:
 - 5.2.1 Rust. Heavily rusted scaffolding equipment is a possible sign of abuse or neglect. Severely rusted components should be thoroughly inspected and cleaned before approved for use.

- 5.2.2 Straightness of members. Mishandling, trucking and storing may cause damage to scaffolding equipment. All members or parts of all steel scaffolding components should be straight and free from bends, kinks or dents.
- 5.2.3 Welds. Scaffolding equipment should be checked before use for damaged welds and any piece of equipment showing damaged welds or rewelding beyond the original factory weld should not be used. The factory weld reference pertains to location and quality of re-welds.
- 5.2.4 Check serviceability of locking devices.
- 5.2.5 Check alignment of coupling pins and braces.
- 5.2.6 Check serviceability of caster brakes (rolling scaffolds).
- 5.3 Final Inspection of Erected Scaffolding. Only trained and authorized employees of the company or its contractors will conduct the final inspection of erected scaffolding. Pertinent OSHA regulatory standards and information plus guidance provided by the manufacturer of the particular type of scaffolding will be used. The following as a minimum apply:
 - 5.3.1 Check for proper support under every leg of every frame.
 - 5.3.2 Check for wash out (if outside) due to rain.
 - 5.3.3 Check to ensure all base plates or adjustment screws are in firm contact with supports.
 - 5.3.4 Check frames for plumb and square in both directions.
 - 5.3.5 Check serviceability and correctness of all cross braces.
 - 5.3.6 Check to ensure that all planking and accessories are properly installed.
 - 5.3.7 Check to ensure that all guard rails are in place.
 - 5.3.8 Recheck periodically to ensure conditions remain safe.
- 5.4 Dismantling of Scaffolding. Only trained and authorized employees of the company or its contractors will supervise the dismantling of scaffolding. Pertinent OSHA regulatory standards and information plus guidance provided by the manufacturer of the particular type of scaffolding will be used. The following apply:
 - 5.4.1 Manufacturers dismantling instructions will be followed.
 - 5.4.2 Relocation planning considerations will be considered during the dismantling process.
 - 5.4.3 Dismantling will be supervised by a competent employee.

- 5.4.4 Each component will be visually inspected after use.
- 5.4.5 Defective or unserviceable materials will not be stored with serviceable materials.
- 5.4.6 Avoid dropping or throwing the components as this could result in damage to the equipment.
- 5.4.7 Consult with the project manager where any instructions are unclear.

6. Training and Information.

- 6.1 General. A training program will be provided for all employees who will be using scaffolding in the course of their duties. The training will be conducted by competent personnel. The program will include but will not be limited to:
 - 6.1.1 A description of fall hazards in the work area or job site
 - 6.1.2 Procedures for using fall prevention and protection systems
 - 6.1.3 Scaffolding access and egress procedures
 - 6.1.4 Scaffolding equipment limitations
 - 6.1.5 Inspection and storage procedures for the equipment
- 6.2 Initial training. Training will be conducted prior to job assignment. The company will provide training to ensure that the purpose, function, and proper use of scaffolding is understood by employees and that the knowledge and skills required for the safe application and usage is acquired by employees. This safety program will be provided to and read by all employees receiving training. The training will include, as a minimum the following:
 - 6.2.1 Types of scaffolding used.
 - 6.2.2 Recognition of applicable fall hazards associated with the work to be completed and the locations of such.
 - 6.2.3 Load determination and balancing requirements.
 - 6.2.4 Safety precautions in the use of scaffolds.
 - 6.2.5 All other employees, whose work operations are or may be in an area where scaffolding may be utilized, will be instructed to an awareness level concerning the associated hazards.
 - 6.2.6 Equipment maintenance and inspection requirements.
 - 6.2.7 Equipment strengths and limitations.

- 6.2.8 Verification. The company will verify that employee training has been accomplished and is being kept up to date. The documentation will contain each employee's name and dates of training. Training will be accomplished by competent personnel.
- 6.3 Refresher training. This safety program will be provided to and read by all employees receiving refresher training. The training content will be identical to initial training. Refresher training will be conducted on an as needed basis or when the following conditions are met, whichever event occurs sooner.
- 6.3.1 Whenever (and prior to) a change in their job assignments, a change in the type of scaffolding equipment used, or when a known hazard is added to the work environment which affects this safety program.
- 6.3.2 Additional retraining will also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of scaffolding equipment or procedures.
- 6.3.3 Whenever a scaffolding safety procedure fails.
- 6.3.4 The retraining will reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.
- 6.3.5 Verification. The company will verify that employee training has been accomplished and is being kept up to date. The documentation will contain each employee's name and dates of training. Training will be accomplished by competent personnel.

7. Definitions.

- *Lumber size* - Refers to nominal sizes except where otherwise stated

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TRAINING ATTENDANCE ROSTER SCAFFOLD USE

Scaffold Use Training Includes:

- *Types of Scaffolding*
- *General Hazards and Fall Protection*
- *Construction and Support*
- *Safe Access*
- *Competent Person*
- *Mobile and Suspension Scaffolding*
- *Aerial Lifts and Scissor Lifts*

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed

Name of Interpreter, if utilized: _____

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PROGRAM OVERVIEW

SCISSOR LIFT PROGRAM

REGULATORY STANDARD: OSHA 29CFR1910.29 and 1926.452

INTRODUCTION: A scissor lift is a type of mobile or moveable scaffold that is power driven and able to lift a platform vertically (up and down). Scissor Lifts must be inspected before use and operators must understand the controls and safety functions of the lift.

TRAINING:

Operators must be trained in the safe use requirements of each type of lift used per manufacturer's recommendations. Ensure the operators show they can use a scissor lift properly and are trained in fall protection where its use would be required.

ACTIVITIES:

- Identify the tasks that require a scissor lift
- Maintain manufacturer's requirements, limits and documentation
- Conduct daily inspections prior to use, recommended to document inspections
- Ensure only trained operators use lift equipment
- Implement, maintain, and inspect fall arrest systems when required

FORMS:

- Scissor Lift Operator Daily Checklist
- Scissor Lift Operator Evaluation Assessment
- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

General Safety Awareness Program

1. **Purpose.** This document provides a written safety program outlining the rules and requirements for the use of mobile work platforms (scissor lifts) and similar mobile devices.
2. **Scope.** Applies to any use of scissor lift equipment by company employees.
3. **Responsibilities.**
 - 3.1 Management:
 - 3.1.1 Ensures equipment is maintained in a safe condition for use.
 - 3.1.2 Ensures operators are appropriately trained in the use of the equipment, and protective systems, based on manufacturer's recommendations.
 - 3.2 Employees:
 - 3.2.1 Complete operator safety training.
 - 3.2.2 Uses the equipment in a safe manner, in accordance with manufacturer and company requirements.
 - 3.2.3 Inspect equipment before use.
 - 3.2.4 Utilizes fall protection systems, as required.
4. **Procedure.**
 - 4.1 Operators must inspect the scissor lift controls and components before use. Report problems and malfunctions to management.
 - 4.2 Operators must remain in the lift, with both feet on the floor system, unless a fall protection harness is used. If the lift is equipped with a platform that extends outside the wheelbase of the lift, fall protection must be worn when working from the extended portion, even if a guardrail system is in place.
 - 4.3 Before a scissor lift is moved, each employee on the lift shall be made aware of the move.
 - 4.4 Fall Protection Systems:

4.4.1 Fall Protection (body harness and lanyard) is required if the operator or worker will:

4.4.1.1 Step off the lift onto another surface area (with a fall hazard of 6 feet or more) that is not protected by a guardrail.

4.4.1.2 Step onto the toe-board, mid-rail or top rail for any reason.

4.4.1.3 Lean out over the guardrail for any reason.

4.4.1.4 Step out onto an extendable platform (as part of the scissor lift), that extends outside the wheelbase of the lift.

4.4.2 From a scissor lift, it is allowable to secure your personal fall arrest system (lanyard attached to a full body harness) to an adjacent pole, structure, or equipment while working, but only if that practice does not present a hazard and other means of tie-off or fall protection means are not feasible.

4.5 Equipment Specifications: Scissor lifts must conform and be maintained to original manufacturer requirements.

5. Safety Information.

5.1 Safe Work Practices. Scissor lifts must comply with the following requirements:

5.1.1 They must be braced or have brake controls to hold the basket in place and to prevent collapse.

5.1.2 Will not be moved horizontally while employees are on them, unless the lift has been designed specifically for such movement.

5.1.3 Platforms that extend beyond the wheel base may not be used unless outrigger frames or equivalent stability devices are used.

5.1.4 Before a lift is moved, each employee on the lift shall be made aware of the move.

- 5.1.5 Select work locations with firm and level surfaces away from hazards that can cause the lift to be unstable (e.g., drop-offs or holes, slopes, bumps or ground obstructions, or debris)
- 5.1.6 Select work locations that are clear of electrical power sources (e.g., power lines, transformers) - by at least 10 feet - and other overhead hazards (e.g., other utilities, branches, overhangs, etc.)
- 5.1.7 Operate lifts only during weather conditions that are safe for use (e.g., not in high winds, rain, snow, sleet, etc.)
- 5.1.8 Ensure the lift is not overloaded

5.2 Guardrail Systems:

- 5.2.1 All sides must be protected by a standard guardrail system (top rail at approximately 42" height, mid-rail approximately 21" from standing surface) which meets the requirements for guardrail system height and strength requirements.
- 5.2.2 Toe-boards are required if the lift goes 10 feet or higher from the ground or floor surface.

5.3 Entry and exit area:

- 5.3.1 The opening must be provided with a movable gate, or safety chains which meet equivalent strength requirements for guardrail systems. If chains are used, they must have both a top and mid-rail chain.
- 5.3.2 Safe access to the lift must be provided by a ladder or steps. These ladder steps are normally built into the scissor lift and must be used to safely enter and exit the lift.
- 5.3.3 Jumping from the lift to the ground to dismount is prohibited.
- 5.3.4 Climbing the cross-braces to access the lift is prohibited.

5.4 Safe Operation:

- 5.4.1 Lifts must be stable when stationary, in either the folded or extended mode, and be prevented from tipping during movement.
- 5.4.2 Lifts shall be plumb, level, and squared. All brace connections shall be secured.

- 5.4.3 Platforms must be free from holes, pits or deformities through which materials may fall, or where these deformities may contribute to the collapse of the system or similar hazards.
- 5.4.4 Speed must be limited to 1 foot per second or less.
- 5.4.5 Operators must understand the controls and function of the lift.
- 5.4.6 Maintain safe clearances from internal fixtures (lights, sprinkler heads and pipes)

6. Training and Information

Operators must be trained in the safe use requirements of each type of lift used per manufacturer's recommendations. Ensure the operators show they can use a scissor lift properly and are trained in fall protection where its use would be required.

7. Definitions.

- *Scissor Lift* - a type of mobile or moveable scaffold that is power driven and able to lift a platform vertically (up and down). Scissor lifts may have a platform that extends outward, but the basket of the lift does not rotate or move outside the wheelbase of the lift (like a cherry picker, fire truck or utility truck).

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SCISSOR LIFT OPERATOR DAILY CHECKLIST

Items to Be Inspected	OK
Emergency controls are in proper working condition? (Emergency Stop Device and emergency lowering function)	<input type="checkbox"/>
Safety devices are functional? (Foot pedal, spring lock, etc.)	<input type="checkbox"/>
All safety indicator lights work properly and motion alarms are functional?	<input type="checkbox"/>
Fire extinguisher on platform (recommended)?	<input type="checkbox"/>
All controls function properly, are clean and clearly labeled?	<input type="checkbox"/>
Ground operating controls successfully over-ride the aerial controls?	<input type="checkbox"/>
Fuel level is acceptable and the system is not leaking?	<input type="checkbox"/>
Hydraulic level is acceptable and the system is not leaking?	<input type="checkbox"/>
Are there any loose or missing parts? (Bolts, fasteners, braces, brackets, etc.)	<input type="checkbox"/>
Work platform is clean, dry and clear of debris?	<input type="checkbox"/>
Tires, wheels, and lug nuts are in good condition?	<input type="checkbox"/>
No defects such as cracked welds, damaged control cables, damaged wire harness or other obvious damage.	<input type="checkbox"/>
Slide pad is not worn down?	<input type="checkbox"/>
Braking devices are operating properly?	<input type="checkbox"/>
The manufacturer's operations manual is stored on the lift (in all languages of the operators)?	<input type="checkbox"/>
All switch and mechanical guards are in good condition and properly installed?	<input type="checkbox"/>
Platform gate and Guardrails are in place and in good condition?	<input type="checkbox"/>
Other personal protective devices are in good condition?	<input type="checkbox"/>
Stabilizers, outriggers and/or extending axles function properly?	<input type="checkbox"/>
Working lights are operational?	<input type="checkbox"/>
All manufacturer required inspections of all hydraulic control relief valves and other manufacturer requirements have been completed within the required time period? Check inspection sticker on equipment for validation.	<input type="checkbox"/>
Battery indicator shows an acceptable level remaining?	<input type="checkbox"/>
Is the total load within the rated capacity?	<input type="checkbox"/>

SCISSOR LIFT INSPECTED BY:

Signature:		Date:	
Scissor lift is safe to operate?		__ Yes	__ No

Comments:

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Scissor Lift Performance Evaluation

Operator: _____ Date: _____

Instructor: _____ Company Name: _____

	Satisfactory	Needs Improvement
Follows Pre-Operation Inspection		
Safe Start Up		
Clear the area of bystanders		
Determine if power line precautions are required		
Vehicle is positioned on level ground		
Set the parking brake		
Chock the wheels		
Engage power supply		
Set the outriggers (as applicable)		
Make sure vehicle is stable before entering platform and raising and lowering the platform		
Follow additional procedures in operator's manual		
Safe Maneuvering		
Does not endanger people or property		
Avoids jerking controls		
Avoids potential crush points		
Understands each control and its specific function		
Smoothly moves machine in forward & reverse		
Smoothly extends and retracts lift platform		
Operates equipment according to manufacturer's instructions		
Safe Shut-down		
Slowly lowers boom to rest on supports		
Raises the outriggers (as applicable)		
Shuts off power supply		
Removes outrigger pads (if applicable) and wheel chocks		
Follows procedures in operator's manual		

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PROGRAM OVERVIEW

SILICA SAFETY PROGRAM

REGULATORY STANDARD: OSHA – 29 CFR 1910.1053
29 CFR 1926.1153

INTRODUCTION

Silica dust can cause respiratory disease, if you have significant exposure to high levels or consistent exposure to intermediate levels of the dust. This program outlines the exposure types and actions to be taken in the event that the company has silica exposures.

TRAINING

- Where exposures above the PEL (permissible exposure limit) occur, employees will be trained, as appropriate, in the method of respiratory protection provided by the company.
- Where exposures above the AL (action level) occur, employees must be informed of the hazards posed by respirable crystalline silica. This may occur separately or as part of the hazard communication training for the company.

ACTIVITIES

- Determine if silica exposure levels are of concern for employee job tasks
- Implement exposure monitoring program for each employee who may reasonably be expected to be exposed to respirable crystalline silica at or above the action level
- Utilize engineering and work practice controls to reduce exposure wherever feasible
- In general industry applications only, you must post signs and limit access to regulated areas where silica exposure levels may exceed the Permissible Exposure Limit (PEL)
- Establish and implement a Silica Exposure Control Plan
- Implement a medical surveillance program appropriate to exposure levels
- Provide personal protective equipment, including respirators when required.
- Maintain records of all exposure measurements taken during the exposure assessment
- Train employees and document the training

FORMS

- Authorization for Crystalline Silica Exposure information to the Employer
- Silica Exposure Control Plan
- Written Medical Opinion from PLHCP to Employee
- Written Medical Opinion from PLHCP to Employer
- Silica Text of the Regulatory Standard
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

Silica Safety Program

1. **Purpose.** This document outlines the requirements for reducing or eliminating exposure to respirable crystalline silica.

2. **Scope.** This document applies to all occupational exposures to respirable crystalline silica in general industry and in construction work, except where employee exposure will remain below the action level (AL) of 25 micrograms per cubic meter of air (25 µg/m³) as an 8-hour time-weighted average (TWA) under any foreseeable conditions. Any exposure at or above the permissible exposure limit (PEL) of 50 ug/m³, calculated as an 8-hour TWA.

3. Responsibilities

3.1. Management/Supervisors

3.1.1. Ensure compliance with the requirements of this standard.

3.1.2. Assess exposure levels and provide PPE as needed or required, including respirators and/or ventilation.

3.1.3. For construction activities, management will (for tasks performed indoors or in enclosed areas) provide a means of exhaust as needed to minimize the accumulation of visible airborne dust

3.1.3.1. For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

3.2. Employees

3.2.1. Will use protective equipment as required

3.2.2. Report any exposure concerns to management.

4. Procedure

4.1. Exposure Determination

4.1.1. The table below identifies, engineering controls, work practices, and respiratory protection applicable to silica exposure. Note that when combinations of tasks requiring protection or controls are performed, the highest level of protection indicated will be used.

4.1.1.1. For any activity not in the table, comply by using alternative exposure assessment.

4.1.1.2. For measures that include an enclosed cab or booth, ensure that the cab or booth:

- Is maintained as free as practicable from settled dust;
- Has door seals and closing mechanisms that work properly;
- Has gaskets and seals that are in good condition and working properly;
- Is under positive pressure through continuous delivery of fresh air;
- Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better); and
- Has heating and cooling capabilities.

SPECIFIED EXPOSURE CONTROL METHODS WHEN WORKING WITH MATERIALS CONTAINING CRYSTALLINE SILICA

Equipment/Task	Engineering and work practice controls	Respiratory Protection (and Minimum Assigned Protection Factor – APF)	
		=<4 Hrs/shift	>4 Hrs/shift
Stationary Masonry Saw	Integrated water delivery to continuously feed water to the blade. (Wet Saw)	None	None
Handheld Power Saw	Integrated water delivery to continuously feed water to the blade. (Wet Saw)		
	- When Used Outdoors	None	APF 10
	- When Used Indoors or in Enclosed Area	APF 10	APF 10
Handheld Power Saw for cutting fiber-cement board (tile backer board) with blade diameter 8" or less	When performed outdoors: - Use commercially available dust collection system with 99% efficiency filter	None	None
Walk-Behind Saw	Integrated water delivery to continuously feed water to the blade. (Wet Saw)		
	- When Used Outdoors	None	None
	- When Used Indoors or in Enclosed Area	APF 10	APF 10
Drivable Saw	When performed outdoors: Integrated water delivery to continuously feed water to the blade. (Wet Saw)	None	None
Rig-mounted Core Saw or Drill	Integrated water delivery to continuously feed water to the blade. (Wet Saw)	None	None
Rotary Hammer Drills and similar handheld and stand-mounted drills	Use drill equipped with commercially available shroud or cowl with dust collection system. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	None	None

Dowel drilling rigs for concrete	For tasks performed outdoors only: Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
Vehicle-mounted drilling rigs for rock and concrete.	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
Jackhammers and hand-held powered chippers	Use tool that supplies a continuous stream or spray of water at the point of impact:		
	- When used outdoors	None	APF 10
	- When used indoors or in an enclosed area OR Use tools equipped with commercially available shroud and dust collection system.	APF 10	APF 10
Handheld grinders for mortar removal (<i>i.e.</i> , tuckpointing).	Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism:		
	- When used outdoors	None	APF 10
	- When used indoors or an enclosed area OR Use grinders equipped with commercially available shroud and dust collection system. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 10
Handheld grinders for uses other than mortar removal.	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. (wet grinding)		
	OR Use grinders equipped with commercially available shroud and dust collection system. Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism:	None	None
	- When used outdoors	None	None
	- When used indoors or in an enclosed area	None	APF 10
Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. OR Use machine equipped with dust collection system recommended by the manufacturer. Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
Small drivable milling machines (less than half-lane)	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant.	None	None

Large drivable milling machines (half-lane and larger).	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.	None	None
	For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. OR Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.	None	None
Crushing Machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). OR Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None
Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials.	Operate equipment from within an enclosed cab. When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials.	Apply water and/or dust suppressants as necessary to minimize dust emissions. OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

4.2. Alternative Exposure Assessment

4.2.1. The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level. This may be done by evaluating and characterizing exposure levels using objective data over an 8 hour TWA or by physical monitoring of exposure levels.

4.2.1.1. When monitoring, breathing zone air samples will be taken from one or more employees on each shift, for each job classification, in each work area. Employees expected to have the highest exposure to respirable crystalline silica will be sampled. All samples taken will be analyzed by approved laboratory methods.

- If monitoring is below the action level, no action needs to be taken.
- If monitoring is above the action level but below the PEL, monitoring will be repeated within 6 months. When levels are reduced to below the action level, monitoring will take place until

two consecutive measurements taken 7 (or more) days apart show exposures below the action level.

- If monitoring is above the PEL, monitoring will be repeated within 3 months until the levels are below the PEL

4.2.2. Exposure Re-Assessment

4.2.2.1. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

4.2.3. Notification of Sampling Results

4.2.3.1. For employees in General Industry, each affected employee will be notified of the sampling results within 15 working days after completion of the exposure assessment.

4.2.3.2. For employees in Construction, each affected employee will be notified of the sampling results within 5 working days after completion of the exposure assessment.

4.2.3.3. Notification can be made through posting the results in an area accessible to all affected employees or through a written notification to each affected employee.

4.2.3.4. Where results are over the PEL, the corrective action to be taken to reduce exposures to levels below the PEL will be included in the notification.

4.2.4. Sampling Observation and Protection

4.2.4.1. Employees affected by the sampling processes have the right to observe the monitoring process.

4.2.4.2. Any person involved or observing the monitoring must be appropriately protected from exposure and personal protective equipment (and suitable training in the use of the equipment) must be provided.

4.3. Regulated Areas (General Industry Only)

4.3.1. The employer shall establish a regulated area wherever an employee's exposure to airborne concentrations of respirable silica is, or can reasonably be expected to be, in excess of the PEL.

4.3.2. The employer shall demarcate regulated areas from the rest of the workplace in a manner that minimizes the number of employees exposed to respirable

crystalline silica within the regulated area, and shall post signs at all entrances to regulated areas that bear the legend specified in the Communication section of this program.

- 4.3.3. The employer shall limit access to regulated areas to:
 - 4.3.3.1. Persons authorized by the employer and required by work duties to be present in the regulated area.
 - 4.3.3.2. Designated representatives of employees for the purpose of exercising the right to observe monitoring procedures.
 - 4.3.3.3. Any person authorized by the Occupational Safety and Health Act or regulations issued under it to be in a regulated area.
- 4.3.4. The employer shall provide each employee and the employee's designated representative entering a regulated area with an appropriate respirator and shall require each employee and the employee's designated representative to use the respirator while in a regulated area.

5. Safety Information

- 5.1. The employer shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless the employer can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection that complies with this section.
 - 5.1.1. Fracking activities will have appropriate engineering controls in place to reduce or eliminate exposure to below the PEL. Controls are required to be in place on or before June 23, 2021. Until this time, respirators will be provided as protective measures when needed.
 - 5.1.2. Other standards may be applicable where abrasive blasting is conducted, using crystalline silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.
- 5.2. Respiratory protection
 - 5.2.1. Where required, respirators will be provided at no cost to the employee.
 - 5.2.2. Will be used during the implementation, testing, maintenance or repair of engineering controls whenever there is exposure potential.
 - 5.2.2.1. In general Industry, respirators must be worn during periods when an employee is in a regulated area, or when exposed to levels at or above the action level for more than 30 days
 - 5.2.2.2. In construction, respirators will be provided whenever exposure occurs for more than 30 days per year.

- 5.2.3. When feasible engineering controls and work practice controls are not sufficient to reduce exposures below the PEL.
- 5.2.4. Respirator programs will comply with OSHA requirements for respiratory protection.

5.3. Housekeeping

- 5.3.1. The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.
- 5.3.2. The employer shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless:
 - 5.3.2.1. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
 - 5.3.2.2. No alternative method is feasible.

5.4. Written exposure control plan

- 5.4.1. The employer shall establish and implement a written exposure control plan that contains at least the following elements:
 - 5.4.1.1. A description of the tasks in the workplace that involve exposure to respirable crystalline silica;
 - 5.4.1.2. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;
 - 5.4.1.3. A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and
 - 5.4.1.4. When performing construction activities, a description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.
- 5.4.2. The employer shall review and evaluate the effectiveness of the written exposure control plan at least annually and update it as necessary.
- 5.4.3. The employer shall make the written exposure control plan readily available for examination and copying, upon request.

5.4.4. When performing construction activities, the employer shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

5.5. Medical surveillance

5.5.1. The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee:

5.5.1.1. For General Industry: as of June 23, 2018 above the PEL and June 23, 2020 if above the Action Level.

5.5.1.2. For Construction: as of June 23, 2017.

5.5.2. The employer shall ensure that all medical examinations and procedures required by this section are performed by a physician or other licensed health care professional (PLHCP).

5.5.3. The employer shall make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of this section within the last three years. The examination shall consist of:

5.5.3.1. A medical and work history, with emphasis on: Past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history;

- A physical examination with special emphasis on the respiratory system;
- A chest X-ray;
- A pulmonary function test;
- Testing for latent tuberculosis infection; and
- Any other tests deemed appropriate by the PLHCP.

5.5.4. The employer shall make available medical examinations that include the initial examination procedures (except latent tuberculosis infection testing) at least every three years, or more frequently if recommended by the PLHCP.

5.5.5. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the PLHCP with the following information:

5.5.5.1. A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica;

- 5.5.5.2. The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;
 - 5.5.5.3. A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and
 - 5.5.5.4. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of the employer.
- 5.5.6. The employer shall ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:
- 5.5.6.1. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment;
 - 5.5.6.2. Any recommended limitations on the employee's use of respirators;
 - 5.5.6.3. Any recommended limitations on the employee's exposure to respirable crystalline silica; and;
 - 5.5.6.4. A statement that the employee should be examined by a specialist if the chest X-ray indicates it is needed.
- 5.5.7. The employer shall obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following:
- 5.5.7.1. The date of the examination;
 - 5.5.7.2. A statement that the examination has met the requirements of this section; and
 - 5.5.7.3. Any recommended limitations on the employee's use of respirators.
 - 5.5.7.4. If the employee provides written authorization, the written opinion shall also contain either or both of the following:
 - Any recommended limitations on the employee's exposure to respirable crystalline silica;
 - A statement that the employee should be examined by a specialist if the chest X-ray indicates it is needed.

5.5.7.5. The employer shall ensure that each employee receives a copy of the written medical opinion within 30 days of each medical examination performed.

5.5.8. Additional examinations

5.5.8.1. If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, the employer shall make available a medical examination by a specialist within 30 days after receiving the PLHCP's written opinion.

5.5.8.2. The employer shall ensure that the examining specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

5.5.8.3. The employer shall ensure that the specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report shall meet the requirements of the PLHCP's written medical report for the employee.

5.5.8.4. The employer shall obtain a written opinion from the specialist within 30 days of the medical examination. The written opinion shall meet the requirements of the PLHCP's written medical opinion for the employer.

5.6. Recordkeeping

5.6.1. Air monitoring data

5.6.1.1. The employer shall make and maintain an accurate record of all exposure measurements taken during the exposure assessment.

5.6.1.2. This record shall include at least the following information:

- The date of measurement for each sample taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;
- Identity of the laboratory that performed the analysis;
- Type of personal protective equipment, such as respirators, worn by the employees monitored; and
- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

5.6.1.3. The employer shall ensure that exposure records are maintained and made available in accordance with regulatory requirements.

5.6.2. Objective data

5.6.2.1. The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of this section.

- This record shall include at least the following information:
- The crystalline silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

5.6.2.2. The employer shall ensure that objective data are maintained and made available in accordance with regulatory requirement.

5.6.3. Medical surveillance

5.6.3.1. The employer shall make and maintain an accurate record for each employee covered by medical surveillance.

5.6.3.2. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and specialists.

5.6.3.3. The employer shall ensure that medical records are maintained and made available in accordance with regulatory requirements.

6. Training and Information

6.1. Communication of respirable crystalline silica hazards to employees

6.1.1. The company will either provide separate training or include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS). This includes labeling of containers that have silica, access to safety data sheets, and training. At a minimum the following hazards must be addressed: Cancer, lung effects, immune system effects, and kidney effects.

6.1.2. Where respirators are used, the company will comply with the provisions of the respiratory protection standard. This includes training, fit testing, and medical clearance for respirator use.

6.1.3. Employee information and training

6.1.3.1. The employer shall ensure that each employee covered by this section can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to respirable crystalline silica;
- Specific tasks in the workplace that could result in exposure to respirable crystalline silica;
- Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;
- The contents of this section;
- The identity of the competent person designated by the employer; and
- The purpose and a description of the medical surveillance program.

6.1.4. The employer shall ensure a copy of the standard regarding respirable silica is available without cost to each employee covered by this section.

6.1.5. In general industry, the employer shall post signs at all entrances to regulated areas that bear the following legend:

DANGER
RESPIRABLE CRYSTALLINE SILICA
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
WEAR RESPIRATORY PROTECTION IN THIS AREA
AUTHORIZED PERSONNEL ONLY

7. Definitions

- Action level - means a concentration of airborne respirable crystalline silica of 25 µg/m³, calculated as an 8-hour TWA.
- Competent person - means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.
- Employee exposure - means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.
- High-efficiency particulate air [HEPA] filter - means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.
- Objective data - means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
- Physician or other licensed health care professional [PLHCP] - means an individual who is legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required.
- Respirable crystalline silica - means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for industry accepted respirable-particle-size-selective samplers.
- Specialist - means an American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

This form must be filled out by employees who undergo medical surveillance for silica exposure. It must be given to the health care provider who is providing the medical surveillance to the employee.

AUTHORIZATION FOR CRYSTALLINE SILICA OPINION TO EMPLOYER

Your medical surveillance exam for Respirable Crystalline Silica could potentially reveal to your employer a medical condition that you may have which could result in:

- (1) limitations on respirator use,
- (2) limitations on exposure to crystalline silica, or
- (3) the need for an examination by a specialist in pulmonary disease or occupational medicine.

Recommended limitations on respirator use will be included in the written opinion to the employer. If you want your employer to know about limitations on crystalline silica exposure or recommendations for a specialist examination, you will need to give authorization and/or permission for the written opinion to the employer to include one or both of those recommendations.

I hereby authorize the opinion to the employer to contain the following information, if relevant: (please check all that apply):

- Recommendations for limitations on crystalline silica exposure
- Recommendation for a specialist examination

OR

I do not authorize the opinion to the employer to contain anything other than recommended limitations on respirator use.

Please read and initial:

- I understand that if I do not authorize my employer to receive the recommendation for specialist examination, the employer will not be responsible for arranging and covering costs of a specialist examination.

Name (printed)

Signature

Date

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SILICA EXPOSURE CONTROL PLAN

Do not use or consider the use of any PPE when making determinations for #1

1) The listing of job classifications (by job title or group) that involve respirable crystalline silica exposure:

2) Description of engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task:

3) Description of housekeeping measures used to limit employee exposure to respirable crystalline silica:

This exposure control plan shall be reviewed and evaluated for effectiveness at least annually and updated as necessary (when conditions or job tasks involving crystalline silica exposure change).

This written exposure control plan shall be made readily available for examination and copying, upon request, to each employee covered by this section, their designated representatives, the Assistant Secretary, and the Director.

The following sections are required for construction related activities:

Procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors:

The employer shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement this written exposure control plan.

Designated Competent Person: _____

Completed by: _____ Date: _____

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This form is filled out by the evaluation physician and provided to the employee.

WRITTEN MEDICAL OPINION FROM PLHCP FOR EMPLOYEE

Employee Name: _____ Date of Exam: _____

TYPE OF EXAMINATION:

Initial examination Periodic examination Specialist examination Other:

RESULTS OF MEDICAL EXAMINATION:

Physical Examination –	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (see below)	<input type="checkbox"/> Not performed
Chest X-Ray –	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (see below)	<input type="checkbox"/> Not performed
Breathing Test (Spirometry) –	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (see below)	<input type="checkbox"/> Not performed
Test for Tuberculosis –	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (see below)	<input type="checkbox"/> Not performed
Other: _____	<input type="checkbox"/> Normal	<input type="checkbox"/> Abnormal (see below)	<input type="checkbox"/> Not performed

Results reported as abnormal:

Your health may be at increased risk from exposure to respirable crystalline silica due to the following:

RECOMMENDATIONS:

- No limitations on respirator use
- Recommended limitations on use of respirator: _____
- Recommended limitations on exposure to respirable crystalline silica:

Dates for recommended limitations, if applicable: _____ to _____

- I recommend that you be examined by a Board Certified Specialist in Pulmonary Disease or Occupational Medicine
- Other recommendations*:

Your next periodic examination for silica exposure should be in:

3 years Other: _____

Examining Provider: _____ Date: _____
(signature)

Provider Name: _____

Office Address: _____ Phone: _____

*These findings may not be related to respirable crystalline silica exposure or may not be work-related, and therefore may not be covered by the employer. These findings may necessitate follow-up and treatment by your personal physician. Respirable Crystalline Silica standard (§ 1910.1053 or 1926.1153)

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This form will be filled out by the evaluating physician and provided to the employer.

WRITTEN MEDICAL OPINION FROM PLHCP TO EMPLOYER

EMPLOYER: _____

EMPLOYEE NAME: _____

EXAMINATION DATE: _____

TYPE OF EXAMINATION: Initial examination Periodic examination
 Specialist examination Other: _____

USE OF RESPIRATOR:

No limitations on respirator use
 Recommended limitations on use of respirator:

Dates for recommended limitations (if applicable): _____ to _____
mm/dd/yyyy mm/dd/yyyy

The employee has provided written authorization for disclosure of the following to the employer (as applicable Authorization for Crystalline Silica Opinion to Employer_FORM):

This employee should be examined by an American Board Certified Specialist in Pulmonary Disease or Occupational Medicine
 Recommended limitations on exposure to respirable crystalline silica:

Dates for exposure limitations noted above: _____ to _____
mm/dd/yyyy mm/dd/yyyy

NEXT PERIODIC EVALUATION: 3 years Other (date): _____

I attest that the results have been explained to the employee.

The following is required to be checked by the Physician or other Licensed Health Care Professional (PLHCP):

I attest that this medical examination has met the requirements of the medical surveillance section of the OSHA Respirable Crystalline Silica standard (§ 1910.1053(h) or 1926.1153(h)).

Examining Provider: _____ Date: _____
(signature)

Provider Name: _____

Provider's specialty: _____

Office Address: _____

Office Phone: _____

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SILICA TEXT OF THE REGULATORY STANDARD

§1926.1153 Respirable crystalline silica.

(a) Scope and application. This section applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25 micrograms per cubic meter of air ($25 \mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

(b) Definitions. For the purposes of this section the following definitions apply:

Action level means a concentration of airborne respirable crystalline silica of $25 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Director means the Director of the National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Competent person means an individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in paragraph (g) of this section.

Employee exposure means the exposure to airborne respirable crystalline silica that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter means a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter.

Objective data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (h) of this section.

Respirable crystalline silica means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality – Particle Size Fraction Definitions for Health-Related Sampling.

Specialist means an American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

This section means this respirable crystalline silica standard, 29 CFR 1926.1153.

(c) Specified exposure control methods. (1) For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with paragraph (d) of this section.

**TABLE 1: SPECIFIED EXPOSURE CONTROL METHODS
WHEN WORKING WITH MATERIALS CONTAINING CRYSTALLINE SILICA**

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(i) Stationary masonry saws	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None
(ii) Handheld power saws (any blade diameter)	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <ul style="list-style-type: none"> – When used outdoors. – When used indoors or in an enclosed area. 	<p>None</p> <p>APF 10</p>	<p>APF 10</p> <p>APF 10</p>
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	<p>For tasks performed outdoors only:</p> <p>Use saw equipped with commercially available dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.</p>	None	None
(iv) Walk-behind saws	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <ul style="list-style-type: none"> – When used outdoors. – When used indoors or in an enclosed area. 	<p>None</p> <p>APF 10</p>	<p>None</p> <p>APF 10</p>

(v) Drivable saws	<p>For tasks performed outdoors only:</p> <p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None
(vi) Rig-mounted core saws or drills	<p>Use tool equipped with integrated water delivery system that supplies water to cutting surface.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)	<p>Use drill equipped with commercially available shroud or cowling with dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <p>Use a HEPA-filtered vacuum when cleaning holes.</p>	None	None
(viii) Dowel drilling rigs for concrete	<p>For tasks performed outdoors only:</p> <p>Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <p>Use a HEPA-filtered vacuum when cleaning holes.</p>	APF 10	APF 10
(ix) Vehicle-mounted drilling rigs for rock and concrete	<p>Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.</p> <p>OR</p> <p>Operate from within an enclosed cab and use water for dust suppression on drill bit.</p>	None None	None None

	<p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</p> <ul style="list-style-type: none"> - When used outdoors. - When used indoors or in an enclosed area. 	<p>None</p> <p>None</p>	
(xiii) Walk-behind milling machines and floor grinders	<p>Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>OR</p> <p>Use machine equipped with dust collection system recommended by the manufacturer.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <p>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</p>	<p>None</p> <p>None</p>	<p>None</p> <p>None</p>
(xiv) Small drivable milling machines (less than half-lane)	<p>Use a machine equipped with supplemental water sprays designed to suppress dust.</p> <p>Water must be combined with a surfactant.</p> <p>Operate and maintain machine to minimize dust emissions.</p>	<p>None</p>	<p>None</p>

<p>(xv) Large drivable milling machines (half-lane and larger)</p>	<p>For cuts of any depth on asphalt only:</p> <p>Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</p> <p>Operate and maintain machine to minimize dust emissions.</p> <p>For cuts of four inches in depth or less on any substrate:</p> <p>Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</p> <p>Operate and maintain machine to minimize dust emissions.</p> <p>OR</p> <p>Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant.</p> <p>Operate and maintain machine to minimize dust emissions.</p>	<p>None</p> <p>None</p> <p>None</p>	<p>None</p> <p>None</p> <p>None</p>
<p>(xvi) Crushing machines</p>	<p>Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points).</p> <p>Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.</p>	<p>None</p>	<p>None</p>
<p>(xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials</p>	<p>Operate equipment from within an enclosed cab.</p> <p>When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.</p>	<p>None</p> <p>None</p>	<p>None</p> <p>None</p>

**TABLE 1: SPECIFIED EXPOSURE CONTROL METHODS
WHEN WORKING WITH MATERIALS CONTAINING CRYSTALLINE SILICA**

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
	OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

(2) When implementing the control measures specified in Table 1, each employer shall:

- (i) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- (ii) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- (iii) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - (A) Is maintained as free as practicable from settled dust;
 - (B) Has door seals and closing mechanisms that work properly;
 - (C) Has gaskets and seals that are in good condition and working properly;
 - (D) Is under positive pressure maintained through continuous delivery of fresh air;
 - (E) Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
 - (F) Has heating and cooling capabilities.

(3) Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

(d) Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

(1) Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of $50 \mu\text{g}/\text{m}^3$, calculated as an 8-hour TWA.

(2) Exposure assessment—(i) General. The employer shall assess the exposure of each

employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in paragraph (d)(2)(ii) or the scheduled monitoring option in paragraph (d)(2)(iii) of this section.

(ii) Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

(iii) Scheduled monitoring option. (A) The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

(B) If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(C) Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

(D) Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

(E) Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in paragraph (d)(2)(iv) of this section.

(iv) Reassessment of exposures. The employer shall reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level, or when the employer has any reason to believe that new or additional exposures at or above the action level have occurred.

(v) Methods of sample analysis. The employer shall ensure that all samples taken to satisfy the monitoring requirements of paragraph (d)(2) of this section are evaluated by a laboratory that analyzes air samples for respirable crystalline silica in accordance with the procedures in Appendix A to this section.

(vi) Employee notification of assessment results. (A) Within five working days after completing an exposure assessment in accordance with paragraph (d)(2) of this section, the employer shall individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

(B) Whenever an exposure assessment indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

(vii) Observation of monitoring. (A) Where air monitoring is performed to comply with the requirements of this section, the employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.

(B) When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, the employer shall provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

(3) Methods of compliance—(i) Engineering and work practice controls. The employer shall use engineering and work practice controls to reduce and maintain employee exposure to respirable crystalline silica to or below the PEL, unless the employer can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection that complies with the requirements of paragraph (e) of this section.

(ii) Abrasive blasting. In addition to the requirements of paragraph (d)(3)(i) of this section, the employer shall comply with other OSHA standards, when applicable, such as 29 CFR 1926.57 (Ventilation), where abrasive blasting is conducted using crystalline silica-containing

blasting agents, or where abrasive blasting is conducted on substrates that contain crystalline silica.

(e) Respiratory protection—(1) General. Where respiratory protection is required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph and 29 CFR 1910.134. Respiratory protection is required:

(i) Where specified by Table 1 of paragraph (c) of this section; or

(ii) For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

(A) Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;

(B) Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and

(C) During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

(2) Respiratory protection program. Where respirator use is required by this section, the employer shall institute a respiratory protection program in accordance with 29 CFR 1910.134.

(3) Specified exposure control methods. For the tasks listed in Table 1 in paragraph (c) of this section, if the employer fully and properly implements the engineering controls, work practices, and respiratory protection described in Table 1, the employer shall be considered to be in compliance with paragraph (e)(1) of this section and the requirements for selection of respirators in 29 CFR 1910.134(d)(1)(iii) and (d)(3) with regard to exposure to respirable crystalline silica.

(f) Housekeeping. (1) The employer shall not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.

(2) The employer shall not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless:

(i) The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

(ii) No alternative method is feasible.

(g) Written exposure control plan. (1) The employer shall establish and implement a written exposure control plan that contains at least the following elements:

(i) A description of the tasks in the workplace that involve exposure to respirable crystalline silica;

(ii) A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to respirable crystalline silica for each task;

(iii) A description of the housekeeping measures used to limit employee exposure to respirable crystalline silica; and

(iv) A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to respirable crystalline silica and their level of exposure, including exposures generated by other employers or sole proprietors.

(2) The employer shall review and evaluate the effectiveness of the written exposure control plan at least annually and update it as necessary.

(3) The employer shall make the written exposure control plan readily available for examination and copying, upon request, to each employee covered by this section, their designated representatives, the Assistant Secretary and the Director.

(4) The employer shall designate a competent person to make frequent and regular inspections of job sites, materials, and equipment to implement the written exposure control plan.

(h) Medical surveillance—(1) General. (i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for 30 or more days per year.

(ii) The employer shall ensure that all medical examinations and procedures required by this section are performed by a PLHCP as defined in paragraph (b) of this section.

(2) Initial examination. The employer shall make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of this section within the last three years. The examination shall

consist of:

(i) A medical and work history, with emphasis on: past, present, and anticipated exposure to respirable crystalline silica, dust, and other agents affecting the respiratory system; any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing); history of tuberculosis; and smoking status and history;

(ii) A physical examination with special emphasis on the respiratory system;

(iii) A chest X-ray (a single posteroanterior radiographic projection or radiograph of the chest at full inspiration recorded on either film (no less than 14 x 17 inches and no more than 16 x 17 inches) or digital radiography systems), interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconioses by a NIOSH-certified B Reader;

(iv) A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV₁) and FEV₁/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;

(v) Testing for latent tuberculosis infection; and

(vi) Any other tests deemed appropriate by the PLHCP.

(3) Periodic examinations. The employer shall make available medical examinations that include the procedures described in paragraph (h)(2) of this section (except paragraph (h)(2)(v)) at least every three years, or more frequently if recommended by the PLHCP.

(4) Information provided to the PLHCP. The employer shall ensure that the examining PLHCP has a copy of this standard, and shall provide the PLHCP with the following information:

(i) A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to respirable crystalline silica;

(ii) The employee's former, current, and anticipated levels of occupational exposure to respirable crystalline silica;

(iii) A description of any personal protective equipment used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and

(iv) Information from records of employment-related medical examinations previously provided to the employee and currently within the control of the employer.

(5) PLHCP's written medical report for the employee. The employer shall ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

(i) A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment;

(ii) Any recommended limitations on the employee's use of respirators;

(iii) Any recommended limitations on the employee's exposure to respirable crystalline silica; and

(6) A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP. PLHCP's written medical opinion for the employer. (i) The employer shall obtain a

written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following:

(A) The date of the examination;

(B) A statement that the examination has met the requirements of this section; and

(C) Any recommended limitations on the employee's use of respirators.

(ii) If the employee provides written authorization, the written opinion shall also contain either or both of the following:

(A) Any recommended limitations on the employee's exposure to respirable crystalline silica;

(B) A statement that the employee should be examined by a specialist (pursuant to paragraph (h)(7) of this section) if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

(iii) The employer shall ensure that each employee receives a copy of the written medical opinion described in paragraph (h)(6)(i) and (ii) of this section within 30 days of each medical examination performed.

(7) Additional examinations. (i) If the PLHCP's written medical opinion indicates that an employee should be examined by a specialist, the employer shall make available a medical examination by a specialist within 30 days after receiving the PLHCP's written opinion.

(ii) The employer shall ensure that the examining specialist is provided with all of the information that the employer is obligated to provide to the PLHCP in accordance with paragraph (h)(4) of this section. The employer shall ensure that the specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report shall meet the requirements of paragraph (h)(5) (except paragraph (h)(5)(iv)) of this section.

(iii) The employer shall obtain a written opinion from the specialist within 30 days of the medical examination. The written opinion shall meet the requirements of paragraph (h)(6) (except paragraph (h)(6)(i)(B) and (ii)(B)) of this section.

(i) Communication of respirable crystalline silica hazards to employees—(1) Hazard communication. The employer shall include respirable crystalline silica in the program established to comply with the hazard communication standard (HCS) (29 CFR 1910.1200). The employer shall ensure that each employee has access to labels on containers of crystalline silica and safety data sheets, and is trained in accordance with the provisions of HCS and paragraph (i)(2) of this section. The employer shall ensure that at least the following hazards are addressed: Cancer, lung effects, immune system effects, and kidney effects.

(2) Employee information and training. (i) The employer shall ensure that each employee covered by this section can demonstrate knowledge and understanding of at least the following:

(A) The health hazards associated with exposure to respirable crystalline silica;

(B) Specific tasks in the workplace that could result in exposure to respirable crystalline silica;

(C) Specific measures the employer has implemented to protect employees from exposure to respirable crystalline silica, including engineering controls, work practices, and respirators to be used;

(D) The contents of this section; The identity of the competent person designated by the employer in accordance with paragraph (g)(4) of this section; and

(E) The purpose and a description of the medical surveillance program required by paragraph (h) of this section.

(ii) The employer shall make a copy of this section readily available without cost to each employee covered by this section.

(j) Recordkeeping—(1) Air monitoring data. (i) The employer shall make and maintain an accurate record of all exposure measurements taken to assess employee exposure to respirable crystalline silica, as prescribed in paragraph (d)(2) of this section.

(ii) This record shall include at least the following information:

(A) The date of measurement for each sample taken;

(B) The task monitored;

(C) Sampling and analytical methods used;

(D) Number, duration, and results of samples taken;

(E) Identity of the laboratory that performed the analysis;

(F) Type of personal protective equipment, such as respirators, worn by the employees monitored; and

(G) Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

(iii) The employer shall ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020.

(2) Objective data. (i) The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of this section. This record shall include at least the following information:

(A) The crystalline silica-containing material in question;

(B) The source of the objective data;

(C) The testing protocol and results of testing;

(D) A description of the process, task, or activity on which the objective data were based; and

(E) Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

(iii) The employer shall ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020.

(3) Medical surveillance. (i) The employer shall make and maintain an accurate record for each employee covered by medical surveillance under paragraph (h) of this section.

(ii) The record shall include the following information about the employee:

(A) Name and social security number;

(B) A copy of the PLHCPs' and specialists' written medical opinions; and

(C) A copy of the information provided to the PLHCPs and specialists.

(iii) The employer shall ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020.

(k) Dates. (1) This section shall become effective June 23, 2016.

(2) All obligations of this section, except requirements for methods of sample analysis in paragraph (d)(2)(v), shall commence June 23, 2017.

(3) Requirements for methods of sample analysis in paragraph (d)(2)(v) of this section commence June 23, 2018.

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PROGRAM OVERVIEW

TRENCHING AND SHORING SAFETY PROGRAM

REGULATORY STANDARD: 29 CFR 1926.650 - 653

INTRODUCTION: This program addresses the evaluation of hazards associated with the creation of trenches, the shoring requirements, and minimizing any risks to employees who perform work or enter trenches. It provides information for underground installations, access and egress, vehicle traffic, hazardous atmospheres and adjacent structures. It defines requirements for site inspections, sloping and benching systems, support systems and shield systems and highlights employee training requirements.

TRAINING:

- Entrants must be trained in the hazards of working in a trench or excavation
- Entrants and job area supervisors must be trained in the protective system used
- Only qualified persons may set up or build shoring systems or other protective systems. Systems must be designed by a professional engineer, familiar with the hazards encountered in a trench or excavation. In some cases, the engineer or similar competent person must be on-site during installation or set up.

ACTIVITIES:

- Determine the type of protective system to be used
- Ensure a competent person supervises the installation of the system
- Ensure employees who enter trenches and excavations are trained
- Ensure trenches and excavations are inspected daily and after any weather events that may impact the safety of the excavation
- Ensure soils-testing is performed daily by a competent person.
- Ensure trenches and excavations are protected if left unattended

FORMS:

- Training Attendance Roster
- Decision Flow Charts and Options

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

Trenching and Shoring Safety Program

1. **Purpose.** This program is designed to address the hazards associated with trenching and shoring operations. The primary hazard to which employees may be exposed during excavation work is a cave-in which occurs when the soil forming the side of the excavation can no longer resist the forces applied to it. The company will review and evaluate this safety program:
 - 1.1 On an annual basis and more frequently as needed.
 - 1.2 When regulatory changes occur that prompt revision of this document.
 - 1.3 When facility operational changes or job site changes occur that require a revision of this document.
 - 1.4 When there is an accident or close-call that relates to this topic.
2. **Scope.** This program applies to all trenching and shoring operations at company facilities or at company job sites.
3. **Responsibilities.**
 - 3.1 Management/Supervisors:
 - 3.1.1 Ensure a professional engineer or other certified “competent” person is available and on-site as needed, or required.
 - 3.1.2 Ensure surface encumbrances (bushes, trees, poles, utility lines, etc.) are removed or safeguarded during trenching operations.
 - 3.1.3 Provide adequate access and egress, at the required intervals and locations.
 - 3.1.4 Ensure employees who may be exposed to vehicle traffic have the appropriate equipment and training.
 - 3.1.5 Provide appropriate barricades or warning devices for equipment operated near or in trenches.
 - 3.1.6 Ensure confined space procedures are utilized properly for any trench greater than 4 feet (1.22m) deep.
 - 3.1.7 Provide adequate protection for any water accumulation that may occur.
 - 3.1.8 Provide for the underpinning or stabilizing of structures (large trees, buildings, etc.), as needed or required.
 - 3.1.9 Ensure berms, scaling, or other restraining systems are used to prevent materials, equipment and loose rock or soil from falling into trenches.

- 3.1.10 Provide for the performance of site inspections by the engineer or other competent person.
 - 3.1.11 Ensure the professional engineer or other competent person approves the design and slope of trenches and shoring.
 - 3.1.12 Provide for the materials and design of support systems, shield system and other required protective measures.
 - 3.1.13 Ensure the installation and remove of support systems and shields are performed in accordance with the requirements. The professional engineer or other competent person may be designated to oversee this provision.
 - 3.1.14 Ensure employees are adequately trained and knowledgeable about their duties and responsibilities with regard to safe working practices at the job site(s).
- 3.2 Employees:
- 3.2.1 Attend appropriate training.
 - 3.2.2 Utilize protective equipment, as required.
 - 3.2.3 Maintain safe distances from equipment and materials, as needed or required.
 - 3.2.4 Follow established procedures and safe work practices.
- 3.3 Safety Officer (as needed or required):
- 3.3.1 Assist in the development and implementation of this program.
- 3.4 Professional Engineer (or Other Certified “Competent” Person):
- 3.4.1 Remain on-site or on-call as needed or required based on the type and magnitude of the job. At least daily visits and duties are required.
 - 3.4.2 Design structural ramps for access to, egress from or crossovers for equipment and personnel.
 - 3.4.3 At least daily, inspect the excavation site, adjacent areas and protective systems used to ensure their adequacy.
 - 3.4.4 Inspect the excavation site, adjacent areas and protective systems after any rainfall or other occurrence that may produce water or run-off into the trench.
 - 3.4.5 Ensure the trench has adequate protection from cave-in.
 - 3.4.6 Design sloping and benching systems, as needed or required.
 - 3.4.7 Design support systems, shield systems and other protective systems, as needed or required.

- 3.4.8 Inspect materials and equipment used for protective systems, upon request, to determine if the material is adequate for use.

4. Procedure.

4.1 Surface Encumbrances and Underground Installations:

- 4.1.1 All surface encumbrances (trees, poles, utilities, etc.) that could create a hazard will be removed (or supported as necessary) to safeguard employees and the structure of the trench.
- 4.1.2 The estimated location of utility installations such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, will be determined prior to opening an excavation.
- 4.1.3 Contact will be made with all utility and service companies (also to include municipal owned) to advise them prior to the start of all actual excavation, without exception. A listing of these utility firms and contact numbers will be maintained by the job site supervisor or project manager for the site.
- 4.1.4 Appropriate time will be allotted to utility companies to locate and mark their installations prior to the beginning of excavation.
- 4.1.5 Utility lines and installations will be protected to the extent possible during excavation work.

4.2 Access and Egress:

- 4.2.1 Structural ramps used for access or egress of equipment (or to cross over an excavation) will be designed by a competent person qualified in structural design and will be constructed in accordance with the design. Ramps used for employee access will be of sufficient strength and design to accommodate the use. Standard guardrail systems will be used when falls greater than 6 feet may occur.
- 4.2.2 Trenches that are 4 feet (1.22m) or more deep must have a stairway, ladder, ramp, or other safe means of egress located so there is never more than 25 feet (7.62m) of travel distance to reach it. Platforms must be provided every 20 feet on stairs, ladders or other means of egress.

4.3 Vehicle Traffic:

- 4.3.1 Employees exposed to public vehicular traffic will be provided with, and will wear warning vests or other suitable garments marked with or made of reflective or high-visibility material.

4.4 Falling Loads:

- 4.4.1 No employee will be permitted underneath loads handled by lifting or digging equipment.

- 4.4.2 Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.
 - 4.4.3 Operators may only remain in the cabs of vehicles being loaded or unloaded if the cab provides adequate protection during loading and unloading operations.
- 4.5 Warning Systems for Mobile Equipment:
- 4.5.1 When mobile equipment is operated near the edge of an excavation and the operator does not have a clear and direct view of the edge, a warning system will be utilized such as barricades, hand or mechanical signals, or stop logs. If possible the grade should be away from the excavation.
- 4.6 Hazardous Atmospheres:
- 4.6.1 Testing and controls.
 - 4.6.2 Confined space entry procedures will be adhered to for any trench greater than 4 feet in depth. The company's Confined Space Entry Safety Program will be utilized.
 - 4.6.3 Atmospheric testing includes oxygen deficiency (less than 19.5 % Oxygen) and the presence of flammable gases. Testing will be performed as often as necessary to ensure the atmosphere remains safe.
 - 4.6.4 Emergency rescue equipment.
 - 4.6.5 Emergency rescue equipment appropriate to the safe evacuation of the trench will be present and available for use at all times. Employees or rescue teams trained to use this equipment will remain outside the trench and on-call at all times.
 - 4.6.6 Harness and lifeline will be used for any person entering deep excavations (i.e., bell bottom pier hose or confined footing excavations). Lifelines will be separate from any material handling lines and must be individually attended at all times when in use.
- 4.7 Protection from Water Accumulation Hazards:
- 4.7.1 Employees will not work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed. The precautions necessary may include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline system.
 - 4.7.2 All excavations will be inspected by the site engineer or "competent person" after any rainfall (or other occurrence that may produce water or water run-off) to determine if any change to the soil resistance capacity has occurred.

- 4.7.3 If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, or dikes, or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation.
- 4.8 Adjacent Structure Stability (trees, buildings, etc.):
 - 4.8.1 Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning will be provided to ensure their stability.
 - 4.8.2 Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees will not be permitted unless the structure is stabilized, the excavation is into stable rock or unless a registered professional engineer has approved the determination that the structure will be unaffected by the excavation activity so that the work will not pose a hazard to employees.
 - 4.8.3 Sidewalks, pavements and appurtenant structures will not be undermined without a support system to protect employees from their possible collapse.
- 4.9 Loose Rock or Soil Protection:
 - 4.9.1 Adequate protection will be provided to protect employees from loose rock or soil that could pose a hazard. Scaling to remove loose materials, barricades, retaining devices or other equivalent protection must be provided. Materials and equipment must be kept at least 2 feet (.61m) from the edge of any excavation to provide adequate levels of protection.

5. Safety Information.

- 5.1 Site Inspections:
 - 5.1.1 Daily inspections of excavations, the adjacent areas, and protective systems will be made by a professional engineer or other certified “competent” person when employee exposures are present.
 - 5.1.2 Inspections will look for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. These inspections are only required when employee exposure can be reasonably anticipated.
 - 5.1.3 Inspections may be required more frequently throughout the work shift, depending upon work progression, rain or wind storms, or observation of changing conditions at the site.
 - 5.1.4 Where sites or protective systems fail inspection, employees will be prohibited from continuing work until the necessary precautions have been taken to ensure their safety.

5.2 Protection of Employees in Excavations:

5.2.1 Each employee in an excavation will be protected from cave-ins by an adequately designed protective system unless the depth is less than 5 feet and the engineer or other certified and competent person indicates there is no potential for cave-in or unless the excavation is made entirely in stable rock. Protective systems must resist all loads that could reasonably be expected to be applied to them without fail.

5.3 Design of Sloping and Benching Systems:

5.3.1 Option 1 - Allowable configurations and slopes. Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal).

5.3.2 Option 2 - Determination of slopes and configurations uses 29CFR1926.652 Appendices A and B.

5.3.3 Option 3 - Designs using other tabulated data. Designs of sloping or benching systems will be selected from and in accordance with tabulated data, such as approved tables and charts. At least one copy of the tabulated data which identifies the registered professional engineer who approved the data, will be maintained at the job site during construction of the protective system. After that time the data may be stored off the job site, but a copy of the data will be made available to OSHA upon request. The tabulated data will be in written form and will include:

5.3.3.1 Identification of the parameters that affect the selection of a sloping or benching system drawn from such data.

5.3.3.2 Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe.

5.3.3.3 Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

5.3.4 Option 4 - Design by a registered professional engineer. At least one copy of the design will be maintained at the job site while the slope is being constructed. After that time the design need not be at the job site, but a copy will be made available to OSHA upon request. Designs will be in written form and will include at least the following:

5.3.4.1 The magnitude of the slopes that were determined safe for the particular project.

5.3.4.2 The configurations that were determined to be safe for the particular project.

5.3.4.3 The identity of the registered professional engineer approving the design.

5.4 Design of Support Systems, Shield Systems, and Other Protective Systems:

- 5.4.1 Option 1 - Designs using Appendices A, C and D of 29CFR1926.652. Designs for timber shoring in trenches will be determined in accordance with the conditions and requirements set forth in appendices A and C. Designs for aluminum hydraulic shoring will be in accordance with appendix D and/or manufacturer's tabulated data.
- 5.4.2 Option 2 - Designs using Manufacturer's Tabulated Data. Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data will be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer. Deviations must have written approval from the manufacturer and be maintained at the job site during construction of the system. After that time this data may be stored off the job site, but a copy will be made available to OSHA upon request.
- 5.4.3 Option 3 - Designs using other Tabulated Data. Designs of support systems, shield systems, or other protective systems will be selected from and be in accordance with tabulated data, such as tables and charts. At least one copy of the tabulated data, which identifies the registered professional engineer who approved the data, will be maintained at the job site during construction of the protective system. After that time the data may be stored off the job site, but a copy of the data will be made available to the OSHA upon request. The tabulated data will be in written form and include all of the following:
 - 5.4.3.1 Identification of the parameters that affect the selection of a protective system drawn from such data.
 - 5.4.3.2 Identification of the limits of use of the data.
 - 5.4.3.3 Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.
- 5.4.4 Option 4 - Design by a Registered Professional Engineer. Support systems, shield systems, and other protective systems not utilizing Option 1, Option 2 or Option 3, above, will be approved by a registered professional engineer. Designs will be in written form and will include the following:
 - 5.4.4.1 A plan indicating the sizes, types, and configurations of the materials to be used in the protective system.
 - 5.4.4.2 The identity of the registered professional engineer approving the design.

5.5 Materials and Equipment used for Protective Systems:

- 5.5.1 Materials and equipment will be free from damage or defects that might impair their proper function. When damage is evident, the professional engineer or certified "competent" person will determine its suitability for use.

- 5.5.2 Manufactured materials and equipment will be used and maintained in a manner that is consistent with the recommendations of the manufacturer, and in a manner that will prevent employee exposure to hazards.
- 5.6 Installation and Removal of Support Systems and Shields:
- 5.6.1 Members of support systems and shields will be securely connected together to prevent sliding, falling, kick outs, lateral movement or other predictable failure.
- 5.6.2 Support systems and shields will be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by its components.
- 5.6.3 Individual components will not be subjected to loads exceeding those which they are designed.
- 5.6.4 Before temporary removal of components, additional precautions will be taken to ensure the safety of employees, such as installing other components to carry the loads imposed on the support system.
- 5.6.5 Removal will begin at, and progress from, the bottom of the excavation. Structural members and components will be released slowly so as to note any indication of possible failure of the remaining members or possible cave-in of the sides of the excavation.
- 5.6.6 Backfilling will progress together with the removal of support systems from excavations.
- 5.6.7 Excavation of material to a level no greater than 2 feet (.61 m) below the bottom of the members of a support system will be permitted, but only if the system or shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.
- 5.6.8 Installation of a support system will be closely coordinated with the excavation of trenches.
- 5.6.9 Employees will not be allowed in shields when shields are being installed, removed, or moved vertically.
- 5.7 Sloping and Benching Systems:
- 5.7.1 Employees will not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

- 5.7.2 Portable trench boxes or sliding trench boxes used in place of shoring and sloping shall be designed by a professional engineer, constructed, and maintained to provide protection at least equal to the required sheeting and shoring.

6. Training and Information.

- 6.1 Employees at job sites where excavations occur will be provided with the knowledge and skills required to maintain safe trenching and shoring operations. Training must establish employee proficiency and introduce operational methods and procedures, as necessary.
- 6.2 Training includes the recognition of applicable hazards associated with trenching and excavation operations. Employees will be retrained when:
- 6.2.1 There is a change in their job assignments
 - 6.2.2 A change in equipment or processes presents a new hazard
 - 6.2.3 There is a change in these procedures
 - 6.2.4 There is a "close-call" or these procedures fail
 - 6.2.5 A periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of these procedures.
- 6.3 Verification. The company shall verify that employee training has been accomplished and is being kept up to date. The documentation shall contain each employee's name and dates of training.

7. Definitions.

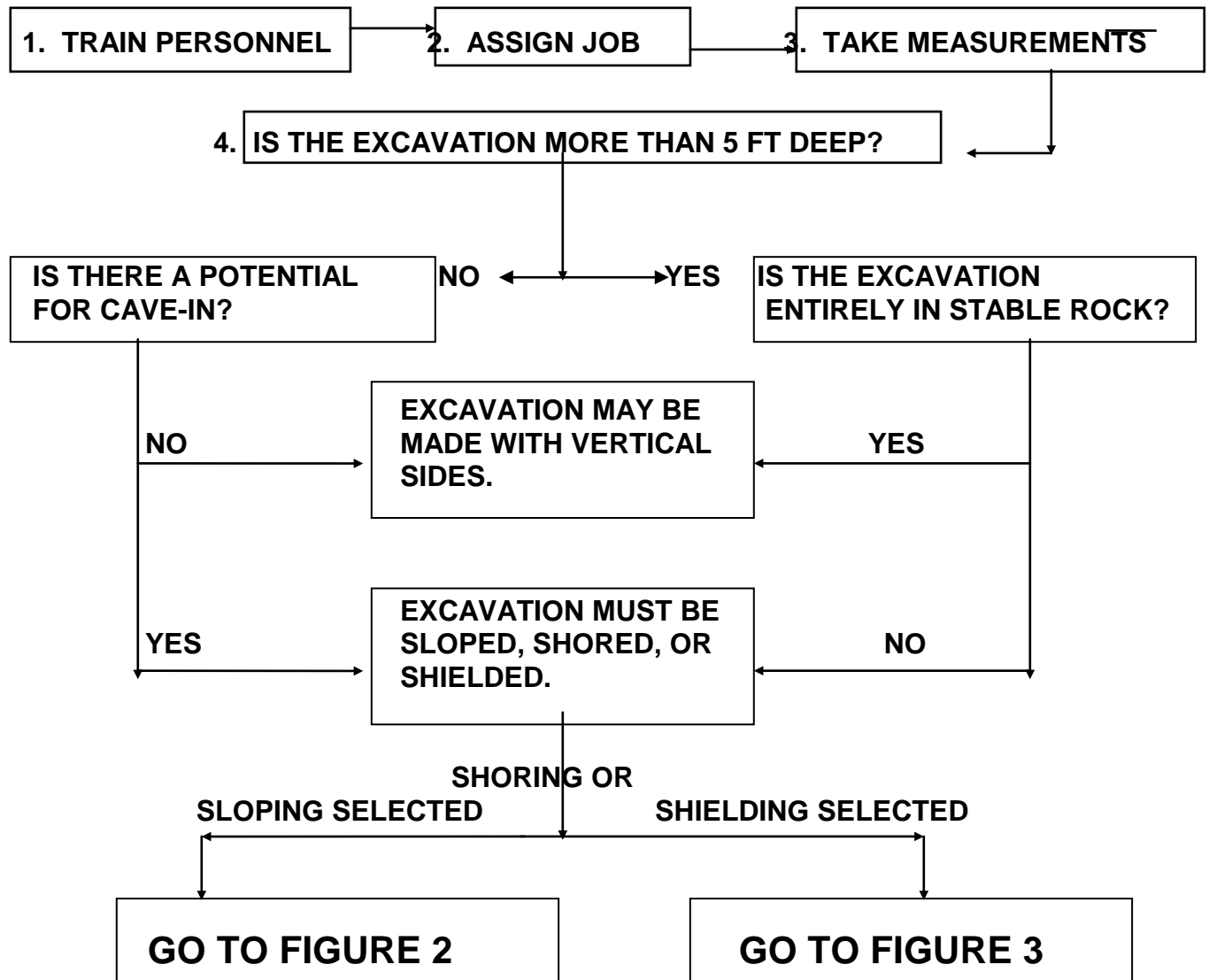
- *Accepted Engineering Practices* - Those requirements which are compatible with standards of practice required by a registered professional engineer.
- *Aluminum Hydraulic Shoring* - A pre-engineered shoring system comprised of aluminum hydraulic cylinders (cross braces) used in conjunction with vertical rails (uprights) or horizontal rails (wales). Such system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.
- *Bell-Bottom Pier Hole* - A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a bell shape.
- *Benching (Benching System)* - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

- *Cave-In* - The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or other wise injure and immobilize a person.
- *Competent Person* - One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- *Cross Braces* - The horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.
- *Egress* – Any method or way of exit or entrance.
- *Excavation* - Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
- *Faces or Sides* - The vertical or inclined earth surfaces formed as a result of excavation work.
- *Failure* - The breakage, displacement, or permanent deformation of a structural member or connection so as to reduce its structural integrity and its supportive capabilities.
- *Hazardous Atmosphere* - An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.
- *Kickout* - means the accidental release or failure of a cross brace.
- *Professional Engineer* - A person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.
- *Protective System* - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- *Ramp* - An inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood.
- *Sheeting* - The members of a shoring system that retain the earth in position and in turn are supported by other members of the shoring system.

- *Shield (Shield System)* - A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with 1926.652. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
- *Shoring (Shoring System)* - A structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.
- *Sides* - See "Faces."
- *Sloping (Sloping System)* - A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
- *Stable Rock* - Natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.
- *Structural Ramp* - A ramp built of steel or wood, usually used for vehicle access. Ramps made of soil or rocks are not considered structural ramps.
- *Support System* - A structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation, or the sides of an excavation.
- *Tabulated Data* - Tables and charts approved by a registered professional engineer and used to design and construct a protective system.
- *Trench (Trench Excavation)* - A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.
- *Trench Box* - See "Shield."
- *Trench Shield* - See "Shield."
- *Uprights* - The vertical members of a trench shoring system placed in contact with the earth and usually positioned so that individual members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."
- *Wales* - Horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

TRENCHING & SHORING - *DECISION FLOW CHART*

FIGURE 1 - PRELIMINARY DECISIONS



TRENCHING & SHORING - *DECISION FLOW CHART*

FIGURE 2 - SHORING AND SHIELDING OPTIONS

SHORING OR SHIELDING SELECTED AS THE METHOD OF PROTECTION
SOIL CLASSIFICATION IS REQUIRED WHEN SHORING OR SHIELDING IS USED.
THE EXCAVATION MUST COMPLY WITH ONE
OF THE FOLLOWING FOUR OPTIONS

**EXCAVATION MUST COMPLY WITH ONE OF THE FOLLOWING
FOUR OPTIONS:**

OPTION 1

1926.652 WHICH REQUIRES APPENDICES A AND B TO BE FOLLOWED
(e.g. timber shoring)

OPTION 2

1926.652 WHICH REQUIRES MANUFACTURERS DATA BE FOLLOWED
(e.g. hydraulic shoring, trench jacks, air shores, shields)

OPTION 3

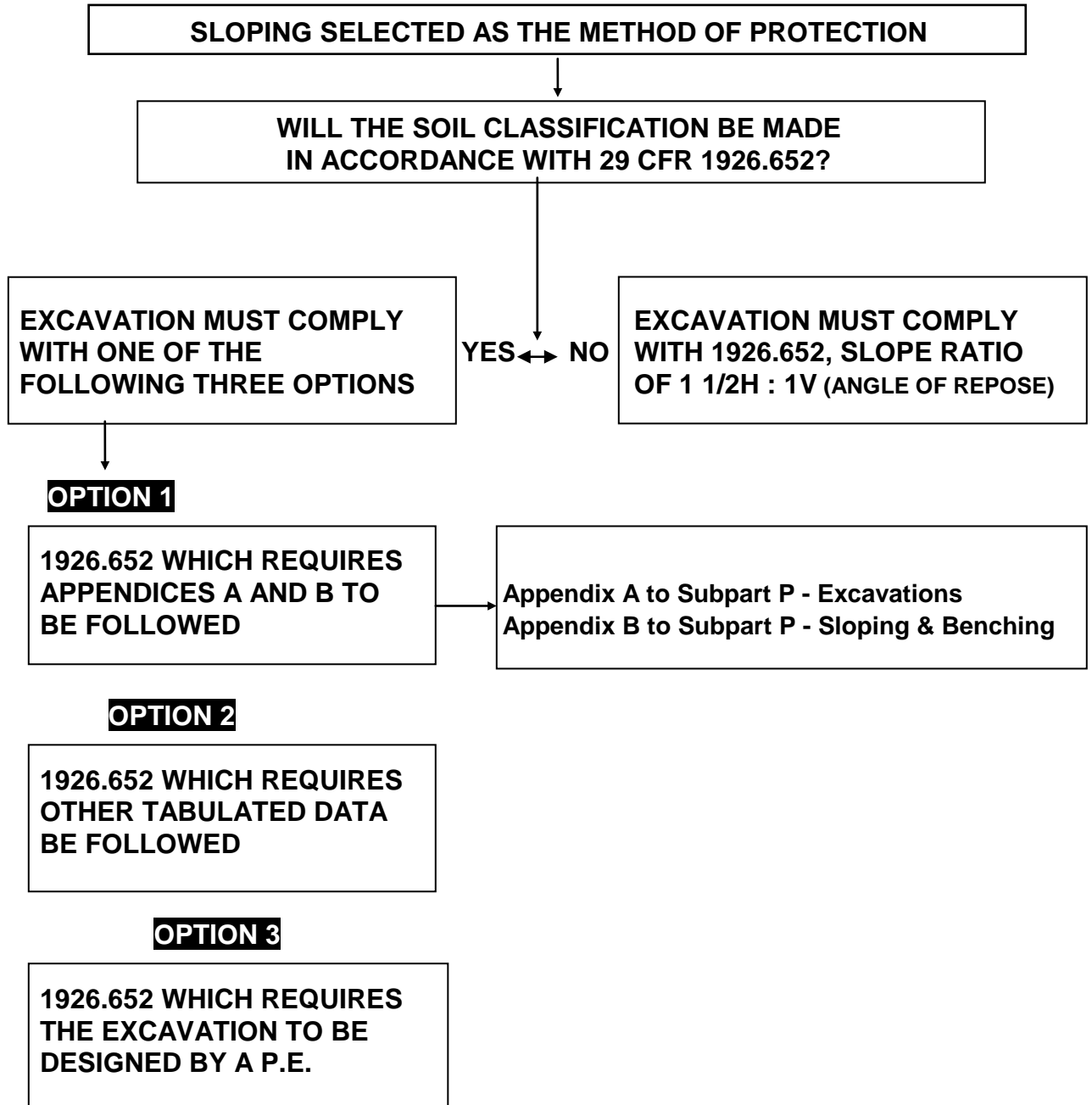
1926.652 WHICH REQUIRES TABULATED DATA TO BE FOLLOWED
(e.g. any system as per the tabulated data)

OPTION 4

1926.652 WHICH REQUIRES THE EXCAVATION TO BE DESIGNED BY
A P.E.

TRENCHING & SHORING - *DECISION FLOW CHART*

FIGURE 3 - SLOPING OPTIONS



PROGRAM OVERVIEW

WALKING AND WORKING SURFACES SAFETY PROGRAM

REGULATORY STANDARD: OSHA - 29 CFR 1910.21 – 23

INTRODUCTION

General requirements for: aisles, passageways, housekeeping, storerooms, servicerooms, stairs and guard-rails. It also addresses floor-loading protection and protecting open sided floors and platforms. This program targets renovation and construction areas where walking and working surface hazards are more likely to be present.

TRAINING

- Employees, supervisors and staff members should be informed of the proper materials handling and storage procedures to ensure that such materials do not cause hazardous situations to occur
- Employees providing construction, repair and renovation work should be trained in the proper use of coverings, guardrail system and other requirements to ensure the appropriate level of protection and safety

ACTIVITIES

- Ensure aisles and passageways are of the proper width and appropriately maintained
- Provide personal fall systems, covers or guardrails for floor, wall openings
- Ensure hazardous areas (open pits, vats or trenches) have appropriate personal fall systems
- Provide personal fall systems for any open-sided platform, floor or runway
- Ensure floors are not overloaded, and that load limits are indicated
- Ensure stairways have appropriate railings
- Enforce housekeeping rules
- Ensure materials are properly stored and not obstructing aisles, passageways, stairways or other areas where they could cause a hazard
- Encourage employees to report unsafe conditions

FORMS

- Slips, Trips, and Falls Training Attendance Roster
- Walking and Working Surfaces Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training and Information**
- 7. Definitions**

WALKING/WORKING SURFACE INDUSTRIAL SAFETY PROGRAM

1. Purpose. This safety program is designed to establish clear company goals and objectives with regard to walking and working surfaces and will be communicated to all required personnel. Walking and working surfaces include stairways, aisles, platforms, runways and areas where floor or wall openings could present a hazard to employees. The company will review and evaluate this safety program:

1.1 On an annual basis, or more frequently as needed.

1.2 When changes occur to 29 CFR 1910.21 - 23 that prompt revision of this document

1.3 When facility operational changes occur that require a revision of this document

2. Scope. This program encompasses the total workplace or job site regardless of the number of workers employed or the number of work shifts.

3. Responsibilities

3.1 Management/Supervisors:

3.1.1 Ensure aisles and passageways are of the proper width and appropriately maintained.

3.1.2 Provide fall protection systems, covers or guardrails for floor, wall openings.

3.1.3 Ensure hazardous areas (open pits, vats or trenches) have appropriate fall protection systems.

3.1.4 Provide fall protection systems for any open-sided platform, floor or runway.

3.1.5 Ensure floors are not overloaded.

3.1.6 Ensure stairways have appropriate railings.

3.1.7 Enforce housekeeping rules.

3.1.8 Ensure materials are properly stored and not obstructing aisles, passageways, stairways or other areas where they could cause a hazard.

3.1.9 Encourage employees to report unsafe conditions.

3.2 Employees

3.2.1 Report unsafe conditions to your supervisor immediately.

3.2.2 Maintain safe storage requirements

3.2.3 Maintain housekeeping in work areas.

4. Procedure

4.1 Aisles and Passageways

4.1.1 Where mechanical handling equipment is used sufficient safe clearances will be maintained for aisles, at loading docks, through doorways, and wherever turns or passage must be made. Aisles and passageways must be kept clear and in good repair with no obstruction across or in aisles that could create a hazard.

4.1.2 Permanent aisles and passageways must be appropriately marked.

4.2 Fall Protection Systems, Covers or Guardrails

4.2.1 Fall Protection Systems, covers and/or guardrails must be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc. Work areas will be properly guarded, covered, cordoned off, or marked to prevent injury, including:

4.2.1.1 Stairways unguarded/containing holes.

4.2.1.2 Ladder way floor openings unguarded.

4.2.1.3 Hatchway and chute floor opening unguarded.

4.2.1.4 Skylight floor openings unguarded.

4.2.1.5 Pit and trapdoor floor openings unguarded.

4.2.1.6 Manhole floor openings unguarded.

4.2.1.7 Temporary floor openings unguarded.

4.2.1.8 Floor holes/openings unguarded.

4.2.1.9 Chute wall openings unprotected.

4.2.1.10 Window wall openings unprotected.

4.2.1.11 Temporary wall openings unprotected.

4.2.1.12 Open-sided floor or platforms unguarded.

4.2.1.13 Runways unprotected.

4.2.1.14 Stairways unprotected.

4.3 Floor Loading Protection

- 4.3.1 Whenever loads or single items exceeding 350lbs are to be placed on floor areas or roofing structures, employees will determine the safe load capacity before taking this action.
- 4.3.2 Safe floor loading capacities will be marked on plates of approved design which must be supplied and securely affixed in a conspicuous place in each space to which they relate.
- 4.3.3 Such plates will not be removed or defaced. If lost, removed, or defaced, they will be reported to the Safety Officer and replaced immediately.
- 4.3.4 All employees must note that it is unlawful to place, or cause, or permit to be placed on any floor or roof of a building or other structure a load greater than that for which such floor or roof is approved by the building official.

4.4 Guarding Floor/Wall Openings and Holes

4.4.1 Protection for floor openings

- 4.4.1.1 Stairway floor openings. Stairway floor openings must be guarded by a standard railing constructed in accordance with 29 CFR 1910.23, paragraph (e). The railing must be provided on all exposed sides (except at entrances to stairways). For infrequently used stairways where traffic across the opening prevents the use of a fixed standard railing (as when located in aisle spaces, etc.), the guard must consist of a hinged floor opening cover of standard strength and construction and removable standard railings on all exposed sides (except at entrance to stairway).
- 4.4.1.2 Ladder-way floor openings. Ladder-way floor openings or platforms must be guarded by a standard railing with standard toe-board on all exposed sides (except at entrance to opening) with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.
- 4.4.1.3 Hatchway and chute floor openings. Hatchway and chute floor opening must be guarded by one of the following:
 - Hinged floor opening cover of standard strength and construction equipped with standard railings or permanently attached thereto so as to leave only one exposed side. When the opening is not in use the cover must be closed or the exposed side must be guarded at both top and intermediate positions by removable standard railings.

- A removable railing with toe-board on not more than two sides of the opening and fixed standard railings with toe-boards on all other exposed sides. The removable railings must be kept in place when the opening is not in use. Where operating conditions necessitate the feeding of material into any hatchway or chute opening protection must be provided to prevent a person from falling through the opening.

4.4.1.4 Skylight floor openings. Skylight floor openings and holes must be guarded by a standard skylight screen or a fixed standard railing on all exposed sides.

- Skylight screens must be of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied perpendicularly at any one area on the screen. They must also be of such construction and mounting that under ordinary loads or impacts, they will not deflect downward sufficiently to break the glass below them. The construction must be of grillwork with openings not exceeding 4 inches long or of slat-work with openings not more than 2 inches wide with length unrestricted.

1.1.1.2 Pit and trapdoor floor openings. Pit and trapdoor floor openings, infrequently used, must be guarded by a floor opening cover of standard strength and construction. While the cover is not in place, the pit or trap opening must be constantly attended by someone or must be protected on all exposed sides by removable standard railings.

1.1.1.3 Manhole floor openings. Manhole floor openings must be guarded by a standard manhole cover which need not be hinged in place. While the cover is not in place, the manhole opening must be constantly attended by someone or must be protected by removable standard railings.

1.1.1.4 Temporary floor openings. Temporary floor openings must have standard railings, or must be constantly attended by someone.

1.1.1.5 Floor holes. Floor holes into which persons can accidentally walk must be guarded by either:

- A standard railing with standard toe-board on all exposed sides
- A floor-hole cover of standard strength and construction. While the cover is not in place, the floor hole must be constantly attended by someone or must be protected by a removable standard railing

- Every floor hole into which persons cannot accidentally walk (on account of fixed machinery, equipment, or walls) must be protected by a cover that leaves no openings more than 1 inch wide. The cover must be securely held in place to prevent tools or materials from falling through

1.1.1.2 Floor hole covers. Floor opening covers may be of any material that meets the following strength requirements:

- Trench or conduit covers and their supports, when located in roadways, must be designed to carry a truck rear-axle load of at least 20,000 pounds.
- Manhole covers and their supports, when located in roadways, must comply with local standard highway requirements, if any; otherwise they must be designed to carry a truck rear-axle load of at least 20,000 pounds.
- The construction of floor opening covers may be of any material that meets the strength requirements. Covers projecting not more than 1 inch above the floor level may be used providing all edges are chamfered to an angle with the horizontal of not over 30 degrees. All hinges, handles, bolts, or other parts must set flush with the floor or cover surface.

1.1.1.2 Stairway doors. Where doors or gates open directly on a stairway a platform must be provided and the swing of the door must not reduce the effective width to less than 20 inches.

1.1.2 Protection for wall openings and holes

4.4.2.1 Wall openings. Wall openings from which there is a drop of more than 4 feet must be guarded by one of the following:

- Rail, roller, picket fence, half door, or equivalent barriers. Where there is exposure below to falling materials, a removable toe board or the equivalent must also be provided. When the opening is not in use for handling materials, the guard must be kept in position regardless of a door on the opening. In addition, a grab handle must be provided on each side of the opening with its center approximately 4 feet above floor level and of standard strength and mounting.
- Extension platforms onto which materials can be hoisted for handling will have side rails or equivalent guards of standard specifications.

- Wall opening barriers (rails, rollers, picket fences, and half doors) must be of such construction and mounting that, when in place at the opening, the barrier is capable of withstanding a load of at least 200 pounds applied in any direction (except upward) at any point on the top rail or corresponding member.
- Wall opening grab handles must be not less than 12 inches in length and must be so mounted as to give 3 inches clearance from the side framing of the wall opening. The size, material, and anchoring of the grab handle must be such that the completed structure is capable of withstanding a load of at least 200 pounds applied in any direction at any point of the handle.
- Wall opening screens must be of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied horizontally at any point on the near side of the screen. They may be of solid construction, of grillwork with openings not exceeding 8 inches long, or of slat-work with openings not more than 4 inches wide with length unrestricted.

4.4.2.2 Chute wall openings. Chute wall openings from which there is a drop of more than 4 feet must be guarded by one or more barriers or as required by the conditions.

4.4.2.3 Window wall openings. Window wall openings at a stairway landing, floor, platform, or balcony from which there is a drop of more than 4 feet and where the bottom of the opening is less than 3 feet above the platform or landing must be guarded by standard slats, standard grill work, or standard railing. Where the window opening is below the landing or platform, a standard toe board must be provided.

4.4.2.4 Temporary wall openings. Temporary wall openings must have adequate guards but these need not be of standard construction.

- Where there is a hazard of materials falling through a wall hole, and the lower edge of the near side of the hole is less than 4 inches above the floor, and the far side of the hole more than 5 feet above the next lower level, the hole must be protected by a standard toe-board, or an enclosing screen either of solid construction.

4.5 Protection of Open-Sided Floors, Platforms, and Runways

- 4.5.1 Open-sided floors or platforms. Open-sided floors or platforms 4 feet or more above adjacent floor or ground level must be guarded by a standard railing on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing must be provided with a toe-board beneath the open sides where:
 - 4.5.1.1 Persons can pass
 - 4.5.1.2 There is moving machinery
 - 4.5.1.3 There is equipment with which falling materials could create a hazard.
- 4.5.2 Runways. Runways must be guarded by a standard railing on all open sides 4 feet or more above floor or ground level. Wherever tools, machine parts, or materials are likely to be used on the runway, a toe-board must also be provided on each exposed side. Runways used exclusively for special purposes (such as oiling, shafting, or filling tank cars) may have the railing on one side omitted where operating conditions necessitate such omission, providing the falling hazard is minimized by using a runway of not less than 18 inches wide.
- 4.5.3 Open-sided access ways. Regardless of height, open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards must be guarded with a standard railing and toe board.

5. Safety Information

5.1 Stairs, Railings, and Guards

- 5.1.1 Flights of stairs having four or more risers must be equipped with standard stair railings or standard handrails. The width to be measured clear of all obstructions except handrails:
 - 5.1.1.1 On stairways less than 44 inches wide having both sides enclosed, at least one handrail, preferably on the right side descending.
 - 5.1.1.2 On stairways less than 44 inches wide having one side open, at least one stair railing on open side.
 - 5.1.1.3 On stairways less than 44 inches wide having both sides open, one stair railing on each side.
 - 5.1.1.4 On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side.
 - 5.1.1.5 On stairways 88 or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.

- 5.1.2 Winding stairs must be equipped with a handrail offset to prevent walking on all portions of the treads having width less than 6 inches.
- 5.1.3 Standard railings. A standard railing must consist of top rail, intermediate rail, and posts, and must have a vertical height of 42 inches nominal from upper surface of top rail to floor, platform, runway, or ramp level. The top rail must be smooth-surfaced throughout the length of the railing. The intermediate rail must be approximately halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rails must not overhang the terminal posts except where such overhang does not constitute a projection hazard.
- 5.1.4 Stair railings. A stair railing must be of construction similar to a standard railing but the vertical height must be not more than 34 inches or less than 30 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.
- 5.1.5 Wood railings. Wood railings, the posts must be of at least 2 inch by 4 inch stock spaced not to exceed 6 feet; the top and intermediate rails must be of at least 2 inch by 4 inch stock. If top rail is made of two right-angle pieces of 1 inch by 4 inch stock, posts may be spaced on 8 foot centers, with 2 inch by 4 inch intermediate rail.
- 5.1.6 Pipe railings. Pipe railings, posts and top and intermediate railings must be at least 1 1/2 inches nominal diameter with posts spaced not more than 8 feet on centers.
- 5.1.7 Structural steel railings. Structural steel railings, posts and top and intermediate rails must be of 2 inch by 2 inch by 3/8 inch angles or other metal shapes of equivalent bending strength with posts spaced not more than 8 feet on centers.

5.2 Housekeeping

- 5.2.1 General Company Policy. All offices, work stations, work areas, passageways, storerooms, restrooms, and service rooms must be kept clean, orderly, sanitary, and free of known hazards.
 - 5.2.1.1 The floor of every workroom must be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used drainage must be maintained and false floors, platforms, mats, or other dry standing places will be provided where practicable.
 - 5.2.1.2 To facilitate cleaning every floor, work place, and passageway must be kept free from protruding nails, splinters, holes, or loose boards or other hindrances that would prevent efficient maintenance.
 - 5.2.1.3 Sufficient illumination will be provided in all areas at all times. Employees discovering lighting deficiencies will report them to the Safety Officer for correction.

- 5.2.2 Work areas. All employees are responsible for maintaining their immediate work areas in a clean, orderly manner and for notifying maintenance of conditions beyond their control.
- 5.2.3 Machines and equipment. Supervisors will ensure that machines and equipment under their control are maintained in a clean, orderly manner. Crowding should be avoided where ever possible.
- 5.2.4 Aisles. All employees are responsible to ensure that aisles are kept clean, free of material, finished parts, scrap, or any type of debris.
- 5.2.5 Floors. Maintenance will ensure that all floor spaces are maintained in a clean, orderly manner.
- 5.2.6 Walls and ceilings. Maintenance will ensure that all wall spaces are properly painted and maintained in a clean, orderly manner. Postings will be confined to bulletin boards and other appropriate areas.
- 5.2.7 Storage facilities. Appropriate procedures will be followed based on the type of storage facility.
- 5.2.8 Employee facilities. Lockers will be used to protect personal belongings from theft. Locker areas will be kept in a clean, orderly manner. Belongings found insecure will be turned over to the Safety Officer or area supervisor for disposition.
- 5.2.9 Emergency exit doors. Will be kept free of any obstacles at all times. Any employee finding an emergency door blocked should immediately report the condition to Safety Officer for correction. Exit lights and signs will also be maintained in proper condition at all times and immediately reported if deficient.
- 5.2.10 Spills (trained personnel). Spills will be contained immediately by any employee trained in spill containment and immediately reported to the Safety Officer or area supervisor.
- 5.2.11 Spills (untrained personnel). Spills will be immediately reported to the Safety Officer or area supervisor by any employee discovering the spill not having training in containment measures.

6. Training and Information

- 6.1 Employees, supervisors and staff members should be informed of the proper materials handling and storage procedures to ensure that such materials do not cause hazardous situations to occur.
- 6.2 Employees exposed to fall above 4' in general industry and 6' in construction, providing construction, repair or renovation work should be trained in the proper use of Fall Protection Systems, coverings, or guardrail systems and other requirements to ensure the appropriate level of protection and safety.
- 6.3 Employer must ensure walking-working surfaces are inspected, regularly and as necessary to maintain and correct, repair, or guard against hazardous conditions.

7. Definitions

- Ø *Floor hole* - An opening measuring less than 12 inches but more than 1 inch in its least dimension, in any floor, platform, pavement, or yard, through which materials but not persons may fall; such as a belt hole, pipe opening, or slot opening.
- Ø *Floor opening* - An opening measuring 12 inches or more in its least dimension, in any floor, platform, pavement, or yard through which persons may fall; such as a hatchway, stair or ladder opening, pit, or large manhole. Floor openings occupied by elevators, dumb waiters, conveyors, machinery, or containers are excluded.
- Ø *Handrail* - A single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp, to furnish persons with a handhold in case of tripping.
- Ø *Platform* - A working space for persons, elevated above the surrounding floor or ground; such as a balcony or platform for the operation of machinery and equipment.
- Ø *Runway* - A passageway for persons elevated above the surrounding floor or ground level, such as a footwalk along shafting or a walkway between buildings.
- Ø *Standard railing* - A vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons.
- Ø *Standard strength and construction* - Any construction of railings, covers, or other guards that meets the requirements of 29 CFR 1910.23.
- Ø *Stair railing* - A vertical barrier erected along exposed sides of a stairway to prevent falls of persons.
- Ø *Toe-board* - A vertical barrier at floor level erected along exposed edges of a floor opening, wall opening, platform, runway, or ramp to prevent falls of materials.
- Ø *Wall hole* - An opening less than 30 inches but more than 1-inch-high, of unrestricted width, in any wall or partition; such as a ventilation hole or drainage scupper.
- Ø *Wall opening* - An opening at least 30 inches high and 18 inches wide, in any wall or partition, through which persons may fall; such as a yard-arm doorway or chute opening.

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TRAINING ATTENDANCE ROSTER

Slips, Trips, and Falls

Slips Trips and Falls Training Includes:

- ***Same Level and Elevated Level Falls***
 - ***Poor Housekeeping***
 - ***Work Environment and Surrounding Conditions***
 - ***Employees Physical Condition***
 - ***Behaviors***
- ***Factors Footwear***
 - ***Stairways***
 - ***Ladders***
 - ***Clean all Spills and Wet Areas***
 - ***Prevention Techniques***

INSTRUCTOR:

DATE:

LOCATION:

NAME (Please Print)
FIRST - MI - LAST

SIGNATURE

By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed

Name of Interpreter, if utilized: _____

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TRAINING ATTENDANCE ROSTER WALKING AND WORKING SURFACES

Walking and Working Surfaces Training Includes:

- *Housekeeping*
- *Aisles and Passageways, Covers and Guardrails*
- *Floor and Wall Openings and Protective Measures*
- *Stairs, Ladders and Scaffolding*

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed

Name of Interpreter, if utilized: _____

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**Welding, Cutting,
and Brazing**

PROGRAM OVERVIEW

WELDING, CUTTING, AND BRAZING SAFETY PROGRAM

REGULATORY STANDARD - OSHA - 29 CFR 1910.251 - 252

NFPA - Standard 51B, 1962

INTRODUCTION

The welding, cutting, and brazing processes expose workers to a variety of hazards including burns, fire, eye damage, possible lung irritation and damage, electric shock, slips and falls. This safety program is intended to evaluate and identify the specific hazards where hot work is performed, communicating information concerning these hazards, and establishing appropriate procedures and protective measures for our employees.

TRAINING:

- Fire Watchers must attend fire extinguisher use training, or equivalent fire protection methods
- LOTO, compressed gas handling are required, as needed
- Provide training on the hot work permit program, if applicable

ACTIVITIES

- Recognize the responsibility for the safe usage of cutting and welding equipment on company property
- Based on fire potentials of plant facilities, establish areas for cutting and welding, and establish procedures for cutting and welding
- Develop, implement, and communicate Hot Work Permit program, as applicable
- Train cutters or welders and their supervisors in the safe operation of their equipment and the safe use of the process
- Advise all contractors about flammable materials or hazardous conditions, as applicable
- Provide resources (fire watchers, equipment, barriers, etc.) as needed or required
- Determine the combustible materials and hazardous areas present or likely to be present in the work location, and protective methods to be used
- Ensure adequate ventilation

FORMS

- Hot Work Permit, as applicable
- Training Attendance Roster

Table of Contents

- 1. Purpose**
- 2. Scope**
- 3. Responsibilities**
- 4. Procedure**
- 5. Safety Information**
- 6. Training Information & Requirements**
- 7. Definitions**

Welding, Cutting, and Brazing Safety Program

1. **Purpose.** This safety program is intended to evaluate and identify the specific hazards where hot work is performed, communicating information concerning these hazards, and establishing appropriate procedures and protective measures for our employees
2. **Scope.** The following operations are **NOT** covered within this standard: Lead pots; Thermogrip tongs; Thermite welding; Burning bars; Electric or furnace-heated soldering irons; Soft soldering and brazing of Copper Water Tube (CWT); Abrasive wheel metal cutting; Tar kettles; Electric cables; and Flameless heat guns. These operations should be covered by specific local procedures where these operations take place.

3. Responsibilities

3.1 Management/Supervisors

- 3.1.1 Recognize the responsibility for the safe usage of cutting and welding equipment on company property.
- 3.1.2 Based on fire potentials of plant facilities, establish areas for cutting and welding, and establish procedures for cutting and welding, in other areas.
- 3.1.3 Designate an individual responsible for authorizing cutting and welding operations in areas not specifically designed for such processes.
- 3.1.4 Train cutters or welders and their supervisors in the safe operation of their equipment and the safe use of the process.
- 3.1.5 Advise all contractors about flammable materials or hazardous conditions of which they may not be aware.
- 3.1.6 Provide resources (fire watchers, equipment, barriers, etc.) as needed or required.

3.2 Employees:

- 3.2.1 Be aware of welding hazards, as needed or required.
- 3.2.2 Follow appropriate safety precautions when welding is performed.

3.3 Safety Officer (as needed or required):

- 3.3.1 Act as the designated person responsible for authorizing cutting and welding operations in areas not specifically designed for such purposes.
- 3.3.2 Assist in the development and implementation of this program.

3.4 Welders

- 3.4.1 Be responsible for the safe handling of the cutting or welding equipment and the safe use of the cutting or welding process.
- 3.4.2 Determine the combustible materials and hazardous areas present or likely to be present in the work location.
- 3.4.3 Protect combustibles from ignition by the following:
 - 3.4.3.1 Have the work moved to a location free from dangerous combustibles.
 - 3.4.3.2 Have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition if it cannot be moved to a location free from dangerous combustibles.
 - 3.4.3.3 Ensure that cutting and welding operations are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding.
 - 3.4.3.4 Secure authorization for the cutting or welding operations from the designated management representative.
 - 3.4.3.5 Determine that the cutter or welder secures his approval that conditions are safe before going ahead.
 - 3.4.3.6 Determine that fire protection and extinguishing equipment are properly located at the site.
 - 3.4.3.7 Ensure the availability of Fire Watches when required.

3.5 Fire Watcher (as needed or required)

- 3.5.1 Be familiar with facilities for sounding an alarm in the event of a fire.
- 3.5.2 Watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm.
- 3.5.3 A fire watch shall be maintained for at least a half hour after completion of welding or cutting.
- 3.5.4 Attend fire extinguisher use training, or training in equivalent fire protection methods.

4. Procedure

4.1 Fire Prevention and Protection

- 4.1.1 For elaboration of these basic precautions, the special precautions and the delineation of the fire protection and prevention responsibilities of welders and cutters, their supervisors (including outside contractors) and those in management on whose property cutting and welding is to be performed, see, Standard for Fire Prevention in Use of Cutting and Welding Processes, NFPA Standard 51B. The basic precautions for fire prevention in welding or cutting work are:
- 4.1.1.1 If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.
 - 4.1.1.2 If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards, or equivalent precautions taken.
 - 4.1.1.2.1 Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks that may drop through the floor.
 - 4.1.1.2.2 The same precautions shall be observed with regard to cracks or holes in walls, open doorways and open or broken windows.
 - 4.1.1.2.3 If the above requirements cannot be followed then welding and cutting will not be performed.
 - 4.1.1.3 Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hoses or portable extinguishers depending upon the nature and quantity of the combustible material exposed.
- 4.1.2 Fire watch shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:
- 4.1.2.1 Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.
 - 4.1.2.2 Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.
 - 4.1.2.3 Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.

- 4.1.2.4 Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
- 4.1.3 Fire watchers shall have fire extinguishing equipment readily available and be trained in its use.
- 4.1.4 Before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing cutting and welding operations. This individual shall designate precautions to be followed in granting authorization to proceed preferably in the form of a written permit.
- 4.1.5 Where combustible materials such as paper clippings, wood shavings, or textile fibers are on the floor, the floor shall be swept clean for a radius of 35 feet (10.7 m).
 - 4.1.5.1 Combustible floors shall be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.
- 4.1.6 Cutting or welding shall not be permitted in the following situations:
 - 4.1.6.1 In areas not authorized by management.
 - 4.1.6.2 In sprinkler-protected buildings while such protection is impaired.
 - 4.1.6.3 In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside unclean or improperly prepared tanks or equipment which have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.
 - 4.1.6.4 In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulfur, baled paper, or cotton.
- 4.1.7 Where practicable, all combustibles shall be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles shall be protected with flameproof covers or otherwise shielded with metal or asbestos guards or curtains.
- 4.1.8 Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably protected or shut down.
- 4.1.9 Where cutting or welding is done near walls, partitions, ceiling or roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.
- 4.1.10 If welding is to be done on a metal wall, partition, ceiling or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where

combustibles are not relocated, a fire watch on the opposite side from the work shall be provided.

4.1.11 Welding shall not be attempted on a metal partition, wall, ceiling or roof having a combustible covering or on walls or partitions of combustible sandwich-type panel construction.

4.1.12 Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.

4.2 Fire prevention precautions

4.2.1 Cutting or welding shall be permitted only in areas that are or have been made fire safe.

4.2.2 When work cannot be moved practically, as in most construction work, the area shall be made safe by removing combustibles or protecting combustibles from ignition sources.

4.3 Welding or Cutting Containers

4.3.1 No welding, cutting, or other hot work shall be performed on used drums, barrels, tanks or other containers until they have been cleaned so thoroughly as to make absolutely certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors.

4.3.1.1 Any pipe lines or connections to the drum or vessel shall be disconnected or blanked.

4.3.2 All hollow spaces, cavities or containers shall be vented to permit the escape of air or gases before preheating, cutting or welding.

4.3.2.1 Purging with inert gas is recommended.

4.4 Confined Spaces

4.4.1 For the purposes of this program, a confined space is intended to mean a relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a ship.

4.4.2 Ventilation is a prerequisite to work in confined spaces.

4.4.3 When welding or cutting is being performed in any confined spaces the gas cylinders and welding machines shall be left on the outside.

4.4.4 Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.

- 4.4.5 Where a welder must enter a confined space through a manhole or other small opening, means shall be provided for quickly removing the welder in case of emergency.
 - 4.4.5.1 When safety belts and lifelines are used for this purpose they shall be so attached to the welder's body that his body cannot be jammed in a small exit opening.
 - 4.4.5.2 An attendant with a preplanned rescue procedure shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.
- 4.4.6 When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine disconnected from the power source.
- 4.4.7 During gas welding or cutting operations, to eliminate the possibility of gas escaping through leaks of improperly closed valves, the torch valves shall be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight.
 - 4.4.7.1 Where practicable the torch and hose shall also be removed from the confined space.
- 4.4.8 After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other workers.

5. Safety Information

5.1 Protection of personnel

5.1.1 General

- 5.1.1.1 A welder or helper working on platforms, scaffolds, or runways shall be protected against falling. This may be accomplished by the use of railings, safety belts, life lines, or some other equally effective safeguards.
- 5.1.1.2 Welders shall place welding cable and other equipment so that it is clear of passageways, ladders, and stairways.

5.1.2 Head Protection

- 5.1.2.1 Helmets or hand shields shall be used during all arc welding or arc cutting operations, excluding submerged arc welding.
- 5.1.2.2 Helmets and hand shields shall be made of a material which is an insulator for heat and electricity.

- 5.1.2.3 Helmets, shields and goggles shall be not readily flammable and shall be capable of withstanding sterilization.
- 5.1.2.4 Helmets and hand shields shall be arranged to protect the face, neck and ears from direct radiant energy from the arc.
- 5.1.2.5 Helmets shall be provided with filter plates and cover plates designed for easy removal.
- 5.1.2.6 All parts shall be constructed of a material which will not readily corrode or discolor the skin.

5.1.3 Eye Protection

- 5.1.3.1 Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Helpers or attendants shall be provided with proper eye protection.
- 5.1.3.2 Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.
- 5.1.3.3 All operators and attendants of resistance welding or resistance brazing equipment shall use transparent face shields or goggles, depending on the particular job, to protect their faces or eyes, as required.
- 5.1.3.4 Eye protection in the form of suitable goggles shall be provided where needed for brazing operations.
- 5.1.3.5 Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.
- 5.1.3.6 All glass for lenses shall be tempered, substantially free from striae, air bubbles, waves and other flaws.
- 5.1.3.7 Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows shall be smooth and parallel.
- 5.1.3.8 Lenses shall bear some permanent distinctive marking by which the source and shade may be readily identified.

- 5.1.3.9 The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual's needs.

WELDING OPERATION		SHADE #
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
	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

Ø Note: In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

- 5.1.3.10 All filter lenses and plates shall meet the test for transmission of radiant energy prescribed in ANSI Z87.1 - American National Standard Practice for Occupational and Educational Eye and Face Protection.

- 5.1.3.11 For protection from arc welding rays, where the work permits, the welder should be enclosed in an individual booth painted with a finish of low reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiations) and lamp black, or shall be enclosed with noncombustible screens similarly painted.

5.1.3.11.1 Booths and screens shall permit circulation of air at floor level.

5.1.3.11.2 Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

5.1.4 Protective Clothing - General Requirements

5.1.4.1 Employees exposed to the hazards created by welding, cutting, or brazing operations shall be protected by personal protective equipment.

5.1.4.1.1 Appropriate protective clothing required for any welding operation will vary with the size, nature and location of the work to be performed.

5.2 Health Protection and Ventilation

5.2.1 General

5.2.1.1 The requirements for health protection and ventilation have been established on the basis of the following three factors in arc and gas welding which govern the amount of contamination to which welders may be exposed:

5.2.1.1.1 Dimensions of space in which welding is to be done (with special regard to height of ceiling).

5.2.1.1.2 Number of welders.

5.2.1.1.3 Possible evolution of hazardous fumes, gases, or dust according to the metals involved.

5.2.1.2 When performing welding in a space entirely screened on all sides, the screens shall be so arranged that no serious restriction of ventilation exists. It is desirable to have the screens so mounted that they are about 2 feet (0.61 m) above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.

5.2.1.3 Local exhaust or general ventilating systems shall be provided and arranged to keep the amount of toxic fumes, gases, or dusts below the maximum allowable concentration as specified in 29 CFR 1910.1000 – Air Contaminants.

5.2.1.4 A number of potentially hazardous materials are employed in fluxes, coatings, coverings, and filler metals used in welding and cutting or are released to the atmosphere during welding and cutting.

5.2.1.4.1 The suppliers of welding materials shall determine the hazard, if any, associated with the use of their materials in welding, cutting, etc.

- 5.2.1.4.2 All filler metals and fusible granular materials shall carry the following notice, as a minimum, on tags, boxes, or other containers:
 - 5.2.1.4.2.1 CAUTION
 - 5.2.1.4.2.2 Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Use adequate ventilation. See ANSI Z49.1 Safety in Welding and Cutting published by the American Welding Society.
- 5.2.1.4.3 Brazing (welding) filler metals containing cadmium in significant amounts shall carry the following notice on tags, boxes, or other containers:
 - 5.2.1.4.3.1 WARNING
CONTAINS CADMIUM - POISONOUS
FUMES MAY BE FORMED ON
HEATING
 - 5.2.1.4.3.2 Do not breathe fumes. Use only with adequate ventilation such as fume collectors, exhaust ventilators, or air-supplied respirators. See ANSI Z49.1
 - 5.2.1.4.3.3 If chest pain, cough, or fever develops after use call physician immediately.
- 5.2.1.4.4 Brazing and gas welding fluxes containing fluorine compounds shall have a cautionary wording to indicate that they contain fluorine compounds. One such cautionary wording recommended by the American Welding Society for brazing and gas welding fluxes reads as follows:
 - 5.2.1.4.4.1 CAUTION
CONTAINS FLUORIDES
 - 5.2.1.4.4.2 This flux when heated gives off fumes that may irritate eyes, nose and throat.
 - 5.2.1.4.4.3 Avoid fumes - use only in well-ventilated spaces.
 - 5.2.1.4.4.4 Avoid contact of flux with eyes or skin.
 - 5.2.1.4.4.5 Do not take internally.

5.2.2 Ventilation for General Welding and Cutting

5.2.2.1 Mechanical ventilation shall be provided when welding or cutting is done on specific metals.

5.2.2.1.1 In a space of less than 10,000 cubic feet (284 m (3)) per welder.

5.2.2.1.2 In a room having a ceiling height of less than 16 feet (5 m).

5.2.2.1.3 In confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross ventilation.

5.2.2.2 Such ventilation shall be at the minimum rate of 2,000 cubic feet (57 m(3)) per minute per welder, except where local exhaust hoods and booths as defined by 6.3, or airline respirators approved by the U.S. Bureau of Mines for such purposes are provided.

5.2.2.2.1 Natural ventilation is considered sufficient for welding or cutting operations where regulatory restrictions are not present.

5.2.3 Local Exhaust Hoods and Booth

5.2.3.1 Mechanical local exhaust ventilation may be by means of either of the following:

5.2.3.1.1 Freely movable hoods intended to be placed by the welder as near as practicable to the work being welded and provided with a rate of air-flow sufficient to maintain a velocity in the direction of the hood of 100 linear feet (30 m) 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 control velocity using a 3-inch (7.6 cm) wide flanged suction opening are shown in the following table:

Welding zone	Minimum air flow *(1) cubic feet/minute	Duct Diameter
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

- Ø {Footnote}*(1) When brazing with cadmium bearing materials or when cutting on such materials increased rates of ventilation may be required.
- Ø {Footnote}*(2) Nearest half-inch duct diameter based on 4,000 feet per minute velocity in pipe.

5.2.3.1.2 A fixed enclosure with a top and not less than two sides which surround the welding or cutting operations and with a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet (30 m) per minute.

5.2.4 Ventilation in Confined Spaces

5.2.4.1 All welding and cutting operations carried on in confined spaces shall be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency.

5.2.4.1.1 This applies not only to the welder but also to helpers and other personnel in the immediate vicinity.

5.2.4.1.2 All air replacing that withdrawn shall be clean and respirable.

5.2.4.2 In circumstances for which it is impossible to provide such ventilation, NIOSH approved airline respirators or hose masks must be used.

5.2.4.3 In areas immediately hazardous to life, a full-facepiece, pressure-demand, self-contained breathing apparatus or a combination full-facepiece, pressure-demand supplied-air respirator with an auxiliary, self-contained air supply approved by NIOSH must be used.

5.2.4.4 Where welding operations are carried on in confined spaces and where welders and helpers are provided with hose masks, hose masks with blowers or self-contained breathing equipment approved by MSHA or NIOSH, a worker shall be stationed on the outside to insure the safety of those working within.

5.2.4.5 Oxygen shall never be used for ventilation.

5.2.5 Fluorine Compounds

5.2.5.1 A fluorine compound is one that contains fluorine, as an element in chemical combination, not as a free gas.

5.2.5.2 In confined spaces, welding or cutting involving fluxes, coverings, or other materials which contain fluorine compounds, additional ventilation shall be provided.

5.2.5.3 The need for local exhaust ventilation or airline respirators for welding or cutting in other than confined spaces will depend upon the individual circumstances. However, experience has shown such protection to be desirable for fixed-location production welding and for all production welding on stainless steels.

5.2.5.3.1 Where air samples taken at the welding location indicate that the fluorides liberated are below the maximum allowable concentration, such protection is not necessary.

5.2.6 Zinc

5.2.6.1 In confined spaces welding or cutting involving zinc-bearing base or filler metals or metals coated with zinc-bearing materials, additional ventilation shall be provided.

5.2.6.2 Indoors, welding or cutting involving zinc-bearing base or filler metals coated with zinc-bearing materials shall be done under a hood or in an equivalent exhaust system.

5.2.7 Lead

5.2.7.1 In confined spaces, welding involving lead-base metals (erroneously called lead-burning), additional ventilation shall be provided.

5.2.7.2 Indoors, welding involving lead-base metals shall be done under a hood or in an equivalent exhaust system.

5.2.7.3 In confined spaces or indoors, welding or cutting operations involving metals containing lead, other than as an impurity, or metals coated with lead-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators.

5.2.7.3.1 Such operations, when done outdoors, must be done using a NIOSH approved respirators.

5.2.7.3.2 In all cases, workers in the immediate vicinity of the cutting operation must be protected by local exhaust ventilation or airline respirators.

5.2.8 Beryllium

5.2.8.1 Welding or cutting indoors, outdoors, or in confined spaces involving beryllium-containing base or filler metals shall be done using local exhaust ventilation and airline respirators.

5.2.8.1.1 Local exhaust ventilation and airline respirators are not required when atmospheric tests under the most adverse conditions have established that the workers' exposure is within the acceptable concentrations.

5.2.8.1.2 In all cases, workers in the immediate vicinity of the welding or cutting operations shall be protected as necessary by local exhaust ventilation or airline respirators.

5.2.9 Cadmium

5.2.9.1 In confined spaces or indoors, welding or cutting operations involving cadmium-bearing or cadmium-coated base metals must be done using local exhaust ventilation or airline respirators.

5.2.9.1.1 Local exhaust ventilation and airline respirators are not required when atmospheric tests under the most adverse conditions show that employee exposure is within the acceptable concentrations.

5.2.9.1.2 Such operations, when done outdoors, must be done using a NIOSH approved respirators, such as fume respirators.

5.2.9.2 Welding (brazing) involving cadmium-bearing filler metals shall be done using adequate ventilation.

5.2.10 Mercury

5.2.10.1 In confined spaces or indoors, welding or cutting operations involving metals coated with mercury-bearing materials, including paint, must be done using local exhaust ventilation or airline respirators.

5.2.10.1.1 Local exhaust ventilation and airline respirators are not required when atmospheric tests under the most adverse conditions show that employee exposure is within the acceptable concentrations.

5.2.10.1.2 Such operations, when done outdoors, must be done using NIOSH approved respirators.

5.2.11 Cleaning Compounds

5.2.11.1 In the use of cleaning materials, because of their possible toxicity or flammability, appropriate precautions such as manufacturer's instructions shall be followed.

5.2.11.2 Degreasing and other cleaning operations involving chlorinated hydrocarbons shall be so located that no vapors from these operations will reach or be drawn into the atmosphere surrounding any welding operation.

5.2.11.2.1 In addition, trichloroethylene and perchlorethylene should be kept out of atmospheres penetrated by the ultraviolet radiation of gas-shielded welding operations.

5.2.12 Cutting of Stainless Steel(s)

5.2.12.1 Oxygen cutting, using either a chemical flux or iron powder or gas-shielded arc cutting of stainless steel, shall be done using mechanical ventilation adequate to remove the fumes generated.

5.2.13 First-aid and Equipment

5.2.13.1 First-aid equipment shall be available at all times.

5.2.13.2 All injuries shall be reported as soon as possible for medical attention.

5.2.13.3 First aid shall be rendered until medical attention can be provided.

5.3 Industrial applications.

5.3.1 Transmission pipeline.

5.3.1.1 Where field shop operations are involved for fabrication of fittings, river crossings, road crossings, and pumping and compressor stations the requirements set in this program for fire prevention and protection, protection of personnel, health protection and ventilation, oxygen-fuel gas welding and cutting, and arc welding and cutting shall be observed.

5.3.1.2 When arc welding is performed in wet conditions, or under conditions of high humidity, special protection against electric shock shall be supplied.

5.3.1.3 In pressure testing of pipelines, the workers and the public shall be protected against injury by the blowing out of closures or other pressure restraining devices.

5.3.1.3.1 Protection shall be provided against expulsion of loose dirt that may have become trapped in the pipe.

5.3.1.4 The welded construction of transmission pipelines shall be conducted in accordance with the Standard for Welding Pipe Lines and Related Facilities, API Std. 1104.

5.3.1.5 The connection, by welding, of branches to pipelines carrying flammable substances shall be performed in accordance with Welding or Hot Tapping on Equipment Containing Flammables, API Std. PSD No. 2201.

5.3.1.6 The use of X-rays and radioactive isotopes for the inspection of welded pipeline joints shall conform with the American National Standard Safety Standard for Non-Medical X-ray and Sealed Gamma-Ray Sources, ANSI Z54.1.

5.3.2 Mechanical piping systems.

5.3.2.1 The requirements in this program for fire prevention and protection, protection of personnel, health protection and ventilation, oxygen-fuel gas welding and cutting, and arc welding and cutting shall be observed.

5.3.2.2 The use of X-rays and radioactive isotopes for the inspection of welded piping joints shall be in conformance with the American National Standard Safety Standard for Non-Medical X-ray and Sealed Gamma-Ray Sources, ANSI Z54.1.

6. Training and Information

Fire Watchers must attend fire extinguisher use training, or training in equivalent fire protection methods.

7. Definitions

- Ø *Welder and welding operator* - Any operator of electric or gas welding and cutting equipment.
- Ø *Approved* - Listed or approved by a nationally recognized testing laboratory. Refer to 29 CFR 1910.155(C) (3) – Scope, application and definitions applicable to Subpart L – Fire Protection for definitions of listed and approved, and 29 CFR 1910.7 – Definition and requirements for nationally recognized testing laboratory.
- Ø *All other welding terms* - are used in accordance with American Welding Society

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HOT-WORK PERMIT

NOTE: Hot Work will be performed only after a careful and complete review of all safety precautions and site preparation actions have proven it safe to begin work.

Permit Number:

Permit Location:

Permit Validity Period:

Date:

Start Time

Stop Time

Work to be completed:

Hot Work Completed: Hot-Work was performed under this permit during the period:

Date:

Start Time

Stop Time

Not Approved

Estimated Approval: Date/Time:

Reason:

Name:

Signature:

Title:

Date:

Time:

Approved for Hot-Work

AUTHORIZATION

I acknowledge that I have inspected the site and that the required precautions (1, 2, 3, and 4) on the reverse of this page have been completed. Arrangements have been made for item 5. Permission is granted to perform the work.

Name:

Signature:

Title:

Date:

Time:

PERMIT RETENTION INFORMATION

Permanent Retention File:

Location:

Date Filed:

Filed By:

HOT-WORK SAFETY REQUIREMENTS

IF EMERGENCY OCCURS CALL:
CONTACT:

EMERGENCY/FIRE/RESCUE PROCEDURES

Location of written Emergency Actions Plan:

Evacuation/Relocation Information:

Additional Information:

HOT WORK SAFETY CHECKLIST

WORK CANNOT BEGIN UNTIL THE FOLLOWING SAFETY PRECAUTIONS HAVE BEEN COMPLETED

Requirement	Completed	
The location of the work to be done will be examined.		
• Are Sprinklers, where provided, operational and will remain operable until the work is completed?	<input type="radio"/> Yes	<input type="radio"/> No
• Have all flammable dusts, lint, vapors or liquids been cleared from the hot work area?	<input type="radio"/> Yes	<input type="radio"/> No
• Have all unpurged tanks or equipment previously containing flammable material been removed?	<input type="radio"/> Yes	<input type="radio"/> No
• Will the work be confined to the area specified in this permit?	<input type="radio"/> Yes	<input type="radio"/> No
The following safeguards will be provided.		
• Have all floors and surroundings been swept clean and wet down if required?	<input type="radio"/> Yes	<input type="radio"/> No
• Has ample portable fire extinguishing equipment been provided and strategically located?	<input type="radio"/> Yes	<input type="radio"/> No
• Have all unpurged tanks or equipment previously containing flammable material been removed?	<input type="radio"/> Yes	<input type="radio"/> No
If the work involves spark producing equipment the following will be done.		
• Have all combustibles been located 30 to 40 feet from the operation?	<input type="radio"/> Yes	<input type="radio"/> No
• -Have all non-moveable combustibles been protected with fireproof curtains, flameproof covers etc.?	<input type="radio"/> Yes	<input type="radio"/> No
• Has a firewatch been appointed to watch for dangerous sparks in the area above and below floors?	<input type="radio"/> Yes	<input type="radio"/> No
Has flame- or spark-producing equipment been inspected and in good repair?	<input type="radio"/> Yes	<input type="radio"/> No
Have arrangements been made for area patrol, including above and below floors, during rest periods and for at least one half hour after work completion?	<input type="radio"/> Yes	<input type="radio"/> No
Were there any "no" answers in questions 1-5? * IF YES--REPORT TO YOUR SUPERVISOR - DO NOT PERFORM HOT-WORK!	* <input type="radio"/> Yes	<input type="radio"/> No

TRAINING ATTENDANCE ROSTER WELDING, CUTTING AND BRAZING

Welding Cutting and Brazing Training Includes:

- *General Fire Protection*
- *Cylinder Handling and Safety*
- *Confined Space Welding*
- *Personal Protective Equipment*
- *Ventilation Requirements*

<u>INSTRUCTOR:</u>	<u>DATE:</u>	<u>LOCATION:</u>
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NAME (Please Print) FIRST - MI - LAST	SIGNATURE
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By signing below, I attest that I have attended the safety training for the topic indicated, and will abide by the safety information, procedures, rules, regulations and/or company policy as presented and instructed

Name of Interpreter, if utilized: _____

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Working in Extreme Temperatures

PROGRAM OVERVIEW

WORKING IN EXTREME TEMPERATURES SAFETY PROGRAM

OSHA Act Paragraph 5, A, 1 (General Duty Clause)

INTRODUCTION: Exposure to extreme heat or cold stress in the workplace must be controlled. This safety program is intended to address issues and identify the specific temperature hazards where work is performed, communicating information concerning these hazards, and establishing appropriate procedures and protective measures for employees. Control or protective measures must be implemented at ranges above 90°F or below 62°F, and short duration exposures to temperatures <45°F or >100°F (including wind chill factors).

TRAINING:

When working in extreme temperatures, employees will be provided with hazard information and/or training, upon initial assignment and as needed. This training may be required in some states.

ACTIVITIES:

- Monitor workplace temperatures
- Ensure employees and supervisors are able to recognize early signs and symptoms of cold and heat intolerance
- Provide engineering controls, work practices and protective equipment to reduce exposure levels to the lowest achievable level
- Ensure the availability of water or other appropriate beverages to employees
- Provide appropriate medical care to employees who have symptoms of a temperature-related condition
- Perform periodic inspections to identify any recognized risk factors, situations where actions may be needed to reduce employee exposures, and any deficiencies in the procedures or protective equipment requirements of the area

FORMS:

- Training Attendance Roster

Table of Contents

1. Purpose
2. Scope
3. Responsibilities
4. Procedure
5. Safety Information
6. Training Information & Requirements
7. Definitions

Working in Extreme Temperatures

1. **Purpose.** This program outlines some of the safety requirements and precautions needed to protect employees who work in temperature extremes. Extreme heat or cold presents unique hazards to employee health and safety, including reduced awareness of their surroundings and reduced dexterity and ability for the human body to function normally.
2. **Scope.** Applies to any work area where employees must work for more than an hour in an area where the temperature range is above 90°F or below 62°F, or short-duration (15 minutes or less) exposures to <45°F or >100°F (including wind chill factors).

3. Responsibilities.

3.1 Management and Supervisors:

- 3.1.1 Monitor workplace temperatures
- 3.1.2 Provide engineering controls, work practices and protective equipment to reduce exposure levels to the lowest achievable level
- 3.1.3 Ensure employees and supervisors are able to recognize early signs and symptoms of cold/heat intolerance such as weakness, muscle cramps, shivering, headache, nausea, inability to do complex motor functions, lethargy, heavy sweating, and mild confusion.
- 3.1.4 Employers should have an emergency plan in place that specifies what to do if a worker has signs of cold/heat-related illness, and ensures that medical services are available if needed
- 3.1.5 Ensure the availability of water or other appropriate beverages to employees
- 3.1.6 Employers should take steps that help workers become acclimatized (gradually build up exposure to heat), especially workers who are new to working in the heat or have been away from work for a week or more. Gradually increase workloads and allow more frequent breaks during the first week of work
- 3.1.7 Ensure that employees who have symptoms of a temperature-related condition have access to a health care provider, should they wish to seek medical treatment.

3.2 Employees:

- 3.2.1 Follow proper work practices and procedures to help protect their health and safety.
- 3.2.2 Be aware of the signs and symptoms of cold/heat related illness and injuries (frostbite or other cold related injuries; heat stroke or other heat related injuries) and report such symptoms to your supervisor immediately.

- 3.2.3 Wear appropriate clothing and attire, and use provided protective equipment as needed or required to assist the body in managing the effects of extreme temperatures.
- 3.2.4 Participate in training

4. Procedure.

4.1 Control Measures:

- 4.1.1 Engineering controls will be implemented to reduce exposures to the lowest level achievable. Where controls are insufficient, they will be supplemented by the use of safe work practices.
 - 4.1.1.1 Engineering controls may include temperature regulators, spaces for warm-up or cool-down to acclimate employees to temperature extremes, protective enclosures or specialized tools to reduce the demands of activity on the body.
 - 4.1.1.2 When the temperature of surrounding solid objects are cold enough to cause skin damage the hazard will be reduced by insulating or shielding either the object or the skin whenever possible, or otherwise isolating the cold source from contact.
- 4.1.2 Work practices will be introduced to reduce the effects of cold/heat when engineering controls are not adequate or are not feasible.
 - 4.1.2.1 Work practices may include written procedures, time restrictions for extreme temperature exposures, increased recovery or warm-up time, increasing the number of employees per task, providing adequate water to hydrate employees with exposure, and encouraging physical fitness in employees.
- 4.1.3 Protective equipment and clothing will be provided when engineering controls and work practices are not sufficient to reduce employee exposures to acceptable levels.
 - 4.1.3.1 Protective equipment includes standard insulated clothing for cold or hot conditions (coats, cooling bandanas, gloves, hats, face protection, thermal clothing), specialized temperature regulated clothing (cool down or warm up vests), and shelter from sun or cold environments.
 - 4.1.3.2 Access to shade, heated or cooling environments will be provided for employees suffering from heat illness or cold exposure believing a preventative recovery period is needed. Shade areas should have access to the open air or be provided with ventilation or cooling equipment such as fans, air conditioners or misting equipment. Be sure workers in extreme cold conditions take a frequent short break in warm dry shelters to allow their bodies to warm up.

4.2 Cold/Hot Weather Alert Safety Program:

4.2.1 In the event of an alert from the National Weather Service or local weather forecast services, the following should be considered:

4.2.1.1 Postpone tasks which are not urgent

4.2.1.2 Increase the number of workers in each team in order to reduce each workers heat or cold exposure.

4.2.1.3 Increase rest allowances.

4.2.1.4 Restrict overtime work, as needed.

5. Safety Information.

5.1 Hot Work Areas:

5.1.1 The major conditions that cause heat related stress are high temperatures and humidity, sun exposure, and exposure to heat emitting equipment

5.1.2 Symptoms of heat stress include weakness, heavy sweating, nausea, unsteady gait, irritability, disorientation, changes in skin color or general malaise.

5.1.3 If heat stress is recognized and treated appropriately early, a more serious condition such as heat stroke (vomiting, hot/dry skin, seizures, unconsciousness) likely can be prevented; therefore, it is important to identify and treat as early as possible.

5.1.4 Treatment for heat stress generally includes drinking cool water and rest. Water (including drinking-fountains or individual drinking cups) will be provided. In general employees should be encouraged to drink cool water (50-59°F) at about one-cup (5-7 oz.) every 20 minutes to remain hydrated in extreme heat situations.

5.1.5 Warning signs may be required at entrances to work areas, buildings or enclosures where there is a reasonable likelihood of heat stress and other heat related conditions.

5.2 Cold Work Areas:

5.2.1 The major conditions that cause cold related stress are low temperatures, wind chill, dampness or humidity, and cold water.

5.2.2 Symptoms of cold stress include shivering, fatigue, slurred speech, confused behavior, dilated pupils, and numbness in the extremities.

- 5.2.3 If cold stress is recognized and treated appropriately early, a more serious condition such as hypothermia and frostbite (uncontrollable shivering, numbness, discolored skin in extremities) likely can be prevented; therefore, it is important to identify and treat as early as possible.
- 5.2.4 Inadequate or wet clothing increases the effects of cold on the body.
- 5.2.5 Treatment for cold stress generally includes moving the affected employee to a warm area, removing any wet clothing, drinking warm sweetened liquids and rest.
- 5.2.6 Warning signs may be required at entrances to work areas, buildings or enclosures where there is a reasonable likelihood of cold stress and other cold related conditions.

6. Training and Information.

- 6.1 Upon initial assignment, and as needed thereafter for refresher training, employees will be provided with information and/or training in the hazards associated in working in extreme temperatures. They will be provided with the means to protect themselves from extreme heat or cold working conditions.
- 6.2 Employees should understand the environmental and personal risk factors.
- 6.3 Supervisors should understand all of the employee requirements as well as the procedures to follow to implement the requirements and the procedures to follow for contacting and implementing emergency medical response. These procedures should be in writing and maintained.

7. Definitions.

- *Acclimatization* - means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.
- *Cold Work Area* – An area where the temperature (including wind chill) is lower than 62 degrees Fahrenheit.
- *Hot Work Area* – An area where the temperature exceeds 90 degrees Fahrenheit
- *Environmental risk factors for heat illness* - means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.

- *Extreme Temperature* –Extreme temperature takes into account wind chill and other environmental factors that reduce or increase the ambient air temperature. With such factors included, extreme temperatures are either a constant working temperature of <62°F or >90°F, or short-duration (15 minutes or less) exposures to <45°F or >100 degrees Fahrenheit.
- *Heat Illness* - means a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
- *Personal risk factors for heat illness* - means factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat.
- *Preventative recovery period* - means a period of time to recover from the heat in order to prevent heat illness.
- *Shade* - means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.
- *Wind Chill* – A combination of temperature and wind velocity. Wind chill cools the air further than the ambient temperature of the air. For example, if the temperature is 40°F and the wind velocity is 35 mph, the wind chill provides conditions that equal 11°F.

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