

OSHA Ultimate Safety Library — Complete Bundle

FORBES SAFETY SOLUTIONS

Complete bundle — 151 templates included

Editable Word/Excel/PowerPoint versions available at forbessafety.com/downloads/

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[COMPANY NAME]
ANNUAL SAFETY PROGRAM AUDIT

AUDIT OVERVIEW	
Company Name:	[COMPANY NAME]
Audit Date:	
Auditor(s):	
Facility / Site:	
Audit Scope:	
Previous Audit Date:	
Previous Audit Score:	

OVERALL SCORE SUMMARY	
Total Items Audited:	40
Compliant Items:	(Count from Checklist)
Non-Compliant Items:	(Count from Checklist)
Compliance Percentage:	(Calculated)
Overall Rating:	(Excellent / Good / Needs Improvement / Poor)

Rating Scale: 90-100% = Excellent | 75-89% = Good | 60-74% = Needs Improvement | Below 60% = Poor

Category	Item #	Audit Item	Compliant (Y/N)
1. Management Commitment			
Management Commitment	1	Written safety policy posted and communicated	
Management Commitment	2	Safety budget allocated and reviewed	
Management Commitment	3	Management participation in safety meetings	
Management Commitment	4	Safety goals and objectives established	
Management Commitment	5	Employee safety suggestions program in place	
2. Hazard Assessment			
Hazard Assessment	6	JHA/JSA conducted for all tasks	
Hazard Assessment	7	Regular site inspections performed and documented	
Hazard Assessment	8	Hazard reporting system in place and utilized	
Hazard Assessment	9	Chemical inventory current and accessible	
Hazard Assessment	10	Ergonomic assessments completed where needed	
3. Training			
Training	11	New hire safety orientation documented	
Training	12	Annual refresher training completed for all employees	
Training	13	Competent person training current	
Training	14	First aid/CPR/AED training current	
Training	15	Task-specific training documented	
4. Emergency Preparedness			
Emergency Preparedness	16	Emergency action plan current and accessible	
Emergency Preparedness	17	Evacuation drills conducted and documented	
Emergency Preparedness	18	First aid supplies stocked and inspected	
Emergency Preparedness	19	Emergency contacts posted at all locations	
Emergency Preparedness	20	Fire extinguishers inspected monthly	
5. PPE			
PPE	21	PPE hazard assessment completed and documented	
PPE	22	PPE provided at no cost to employees	
PPE	23	PPE training documented for all employees	
PPE	24	PPE inspection program in place	
PPE	25	Proper PPE storage and maintenance	
6. Recordkeeping			
Recordkeeping	26	OSHA 300 log current and accurate	
Recordkeeping	27	OSHA 300A posted (February 1 – April 30)	
Recordkeeping	28	Training records organized and accessible	
Recordkeeping	29	Inspection records maintained	
Recordkeeping	30	SDS library current and accessible	

7. Incident Management

Incident Management	31	Incident investigation procedure documented	
Incident Management	32	Root cause analysis completed for all incidents	
Incident Management	33	Corrective actions tracked to completion	
Incident Management	34	Lessons learned communicated to workforce	
Incident Management	35	Near miss reporting active and encouraged	

8. Subcontractor Management

Subcontractor Management	36	Pre-qualification process established	
Subcontractor Management	37	Safety orientation required for all subcontractors	
Subcontractor Management	38	Insurance and workers' comp verification on file	
Subcontractor Management	39	Subcontractor performance monitoring in place	
Subcontractor Management	40	Site safety rules communicated and enforced	

TOTAL AUDIT ITEMS: 40

Annual Safety Program Audit Checklist

[illegible]

CAR #	Audit Item Ref	Finding Description	Root Cause
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Status:

AME] — Corrective Action Register

Corrective Action	Responsible Person	Due Date	Status

s Options: Open | In Progress | Closed

[illegible]

CONTRACTOR SAFETY PRE-QUALIFICATION QUESTIONNAIRE

[COMPANY NAME]

COMPANY INFORMATION

Company Name: _____

Address: _____

City: _____

State: _____

ZIP: _____

Phone: _____

Email: _____

Website: _____

Federal Tax ID: _____

Years in Business: _____

PRIMARY CONTACT

Name: _____

Title: _____

Phone: _____

Email: _____

SAFETY CONTACT

Name: _____

Title: _____

Phone: _____

Email: _____

TYPE OF WORK PERFORMED

INSURANCE INFORMATION

Type	Carrier	Policy #	Expiration Date	Coverage Limits
General Liability				
Auto Liability				
Workers Compensation				
Umbrella / Excess				

SAFETY PROGRAM

Do you have a written safety program? ☐ Yes ☐ No

Do you conduct regular safety meetings? ☐ Yes ☐ No Frequency: _____

Do you have a substance abuse program? ☐ Yes ☐ No

Do you provide safety orientation for new hires? ☐ Yes ☐ No

Do you have a competent person on each jobsite? ☐ Yes ☐ No

EMR (EXPERIENCE MODIFICATION RATE)

Current Year: _____

Prior Year: _____

Two Years Prior: _____

OSHA RECORDABLE RATES

Year	Total Hours Worked	Recordable Incidents	TRIR	DART	Fatalities

OSHA CITATIONS

Have you received any OSHA citations in the past 3 years? ☐ Yes ☐ No

If yes, describe:

REFERENCES

Company Name	Contact Person	Phone	Project Description

REQUIRED ATTACHMENTS

Please include the following with your submission:

- ☐ Certificate of Insurance
- ☐ Written Safety Program
- ☐ EMR Letter
- ☐ OSHA 300A Logs (3 years)
- ☐ Drug Testing Policy

CERTIFICATION

I certify that the information provided in this questionnaire is true and accurate to the best of my knowledge. I understand that any false or misleading information may result in disqualification from consideration.

Authorized Representative Name: _____

Title: _____

Signature: _____

Date: _____

NEAR MISS / GOOD CATCH REPORT

[COMPANY NAME]

EVENT INFORMATION

Report #: _____ Date of Event: _____ Time of Event: _____
Location / Project Name: _____ Specific Area: _____

REPORTER INFORMATION

Reporter Name: _____ Position: _____ Phone: _____
Supervisor Notified: Name: _____ Date: _____ Time: _____

EVENT DESCRIPTION

Describe what happened, who was involved, and what could have happened:

CONTRIBUTING FACTORS

Check all that apply:

- ☐ Unsafe Condition ☐ Unsafe Behavior ☐ Equipment Failure
☐ Weather ☐ Housekeeping ☐ Lack of Training
☐ PPE Issue ☐ Communication ☐ Other: _____

ROOT CAUSE

CORRECTIVE ACTIONS

Action	Responsible Person	Target Date	Completion Date

--	--	--	--

RISK RATING

☐ Low ☐ Medium ☐ High ☐ Critical

REVIEW

Reviewed By (Name): _____

Title: _____

Date: _____

Signature: _____

OSHA CITATION RESPONSE LETTER

[COMPANY NAME]

[Company Address]

[City, State ZIP]

Phone: [Company Phone] | Email: [Company Email]

[Date]

[Area Director Name]

OSHA Area Office

[Office Address]

[City, State ZIP]

RE: Inspection Number: _____ | Citation Number: _____ | Penalty Amount: \$ _____

Dear Area Director:

This letter is in response to the citation(s) issued to [COMPANY NAME] following OSHA Inspection Number _____ conducted on _____. We have carefully reviewed the citation(s) and penalty(ies) and provide the following response for your consideration.

CITATION ITEM 1

Citation #, Item #:	Citation ____, Item ____
Standard Cited:	[e.g., 29 CFR 1926.501(b)(1)]
Classification:	[Serious / Other-Than-Serious / Willful / Repeat]
Proposed Penalty:	\$ _____

Alleged Violation Description:

[Describe the alleged violation as stated in the citation]

Company Response:

- ☐ We ACCEPT this citation and have abated the hazard as described below
- ☐ We CONTEST this citation (see attached Contest Notice)
- ☐ We request an INFORMAL CONFERENCE to discuss this citation

Abatement Actions Taken:

Action Taken	Date Completed	Responsible Person

--	--	--

Supporting Documentation Enclosed:

- ☐ Photographs of corrected condition
- ☐ Training records
- ☐ Written safety programs / procedures
- ☐ Equipment inspection records
- ☐ Other: _____

CITATION ITEM 2 (IF APPLICABLE)

Citation #, Item #:	Citation ____, Item ____
Standard Cited:	
Classification:	
Proposed Penalty:	\$ _____

Alleged Violation Description:

[Describe]

Company Response:

- ☐ We ACCEPT this citation and have abated the hazard
- ☐ We CONTEST this citation
- ☐ We request an INFORMAL CONFERENCE

Abatement Actions Taken:

Action Taken	Date Completed	Responsible Person

PENALTY

Original Penalty Amount:	\$ _____
Requested Reduction To:	\$ _____
Basis for Reduction:	[Good faith, size of business, history of violations, gravity of violation, prompt abatement, etc.]

ABATEMENT CERTIFICATION

I certify that the hazard(s) cited have been corrected as described above and that affected employees and their representatives have been informed of the abatement actions taken.

We appreciate the opportunity to address these citations and are committed to maintaining a safe and compliant workplace. Should you require any additional information or wish to schedule an informal conference, please contact the undersigned at your convenience.

Respectfully submitted,

Name:	
Title:	
Signature:	
Date:	

Enclosures:

- Photographs of abated conditions
- Training documentation
- Written safety programs
- Equipment inspection records
- [Additional documentation]

CC:

- Company Legal Counsel
- Insurance Carrier
- Safety Director
- [Other parties as appropriate]

RETURN TO WORK / MODIFIED DUTY AGREEMENT

[COMPANY NAME]

EMPLOYEE INFORMATION

Employee Name:	
Employee ID:	
Position / Job Title:	
Department:	
Supervisor:	
Date of Injury / Illness:	
Date of This Agreement:	

TREATING PHYSICIAN

Physician Name:	
Clinic / Hospital:	
Phone:	

WORK RESTRICTIONS (FROM PHYSICIAN)

The treating physician has indicated the following restrictions:

- ☐ No lifting over _____ lbs
- ☐ No standing for more than _____ hours
- ☐ No climbing
- ☐ No repetitive motions involving _____
- ☐ Must take breaks every _____ minutes
- ☐ Other restrictions: _____

MODIFIED DUTY ASSIGNMENT

Description of Modified Duties:	
Department / Location:	
Supervisor for Modified Duty:	
Start Date:	
Expected Duration:	
Review Date:	

SCHEDULE

Modified Work Hours — From:	
Modified Work Hours — To:	
Days Per Week:	

EMPLOYEE ACKNOWLEDGMENT

I understand and agree to comply with the work restrictions outlined above as prescribed by my treating physician. I acknowledge that I will perform only the modified duties described in this agreement and will not exceed the restrictions listed. I agree to immediately report to my supervisor any changes in my condition, any difficulty performing the modified duties, or if any assigned task causes pain or discomfort. I understand that failure to comply with these restrictions may result in disciplinary action and could jeopardize my recovery.

Employee Signature	Date: _____
Print Name: _____	
Signature: _____	

Supervisor Signature	Date: _____
Print Name: _____	
Signature: _____	

HR / Safety Manager Signature	Date: _____
Print Name: _____	
Signature: _____	

PHYSICIAN CLEARANCE

I have reviewed the modified duty assignment described above and confirm it is within the restrictions I have prescribed for the above-named employee.

Physician Signature	Date: _____
Print Name: _____	
Signature: _____	

SAFETY INCENTIVE PROGRAM GUIDE

[COMPANY NAME]

PURPOSE

[COMPANY NAME] is committed to maintaining a safe and healthy work environment for all employees, subcontractors, and visitors. This Safety Incentive Program is designed to recognize and reward individuals and teams who demonstrate exceptional commitment to workplace safety. The program encourages proactive safety behaviors, hazard reporting, and continuous improvement of our safety culture.

PROGRAM GOALS

- Reinforce a culture of safety awareness and personal responsibility
- Recognize and reward employees who actively contribute to a safe workplace
- Encourage reporting of hazards, near misses, and safety concerns
- Reduce workplace incidents and injuries through proactive engagement
- Promote safety leadership at all levels of the organization
- Continuously improve safety performance through measurable goals

ELIGIBILITY

All full-time and part-time employees of [COMPANY NAME] are eligible to participate in this program. Temporary workers and subcontractor employees may be included at management's discretion. To be eligible for awards, participants must:

- Be in good standing with the company (no active disciplinary actions)
- Have completed all required safety training
- Comply with all company safety policies and procedures
- Actively participate in safety meetings and toolbox talks

PROGRAM DURATION / TRACKING PERIOD

The program operates on [quarterly / annual] tracking periods. Points and achievements are tracked from [Start Date] to [End Date]. At the end of each tracking period, awards are distributed and point totals reset for the next period.

RECOGNITION CATEGORIES

Category	Criteria	Award / Recognition
Zero Lost Time Incidents	No lost time incidents for the tracking period	Certificate + Safety Bonus
Safety Suggestion of the Month	Best actionable safety improvement suggestion	Gift Card + Recognition
Perfect Safety Inspection Score	100% compliance on safety inspection	Safety Swag + Certificate
Toolbox Talk Leader	Voluntarily leads toolbox talk sessions	Points + Recognition
Near Miss Reporter	Reports near misses to improve hazard identification	Points + Recognition

Annual Safety Champion	Highest overall safety contribution for the year	Trophy + Cash Award + Plaque
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POINT SYSTEM

Employees earn points for safety-positive behaviors and achievements. Points accumulate throughout the tracking period.

Behavior / Achievement	Points Earned
Reporting a Near Miss	+10
Leading a Toolbox Talk	+5
Zero Incidents for 30 Days	+20
Safety Suggestion Implemented	+25
Completing Voluntary Safety Training	+15
Correcting a Hazard on the Spot	+10
Perfect Score on Safety Quiz	+5
Mentoring a New Employee on Safety	+15

REWARD TIERS

Points Required	Reward
25 Points	Safety Swag (hat, t-shirt, water bottle)
50 Points	\$25 Gift Card
100 Points	\$50 Gift Card + Certificate of Recognition
200 Points	Safety Champion Award + \$100 Gift Card + Plaque

DISQUALIFICATION CRITERIA

Participants may be disqualified from the program for the current tracking period if any of the following occur:

- Failure to report an injury, incident, or near miss
- Violation of any company safety policy or procedure
- Positive result on a drug or alcohol test
- Receiving a disciplinary action related to safety
- Tampering with safety equipment or devices
- Retaliation against an employee for reporting a safety concern
- Falsifying safety records or documentation

IMPORTANT: This program does not discourage reporting of injuries, illnesses, or safety concerns. All employees are encouraged and required to report all incidents regardless of incentive program participation. No employee will face adverse action for reporting a workplace injury or safety concern.

ADMINISTRATION

This program is administered by the Safety Department in coordination with Human Resources and project/site management. Responsibilities include:

- Safety Manager: Overall program oversight, point tracking, and award distribution
- Site Supervisors: Nominate employees, verify safety behaviors, submit point requests
- Human Resources: Budget coordination, compliance review, record keeping

- Program Review: This program will be reviewed [quarterly/annually] to assess effectiveness and make improvements

PROGRAM APPROVAL

Role	Name	Signature	Date
Safety Director			
Human Resources Manager			
Operations Manager			
Company Executive			

SAFETY MEETING MINUTES

[COMPANY NAME]

MEETING INFORMATION

Meeting Date: _____

Time: _____

Location: _____

Meeting Type (Weekly / Monthly / Special):

Facilitator: _____

ATTENDEES

Name	Title / Role	Department	Signature

AGENDA ITEMS

Item #	Topic	Presented By	Discussion Summary

ACTION ITEMS

Action Item	Responsible Person	Due Date	Status

OLD BUSINESS

NEW BUSINESS

NEXT MEETING

Next Meeting Date:

Next Meeting Time:

Location:

Minutes Recorded By:

Signature:

Date:

SAFETY VIOLATION / DISCIPLINARY ACTION NOTICE

CONFIDENTIAL

[COMPANY NAME]

EMPLOYEE INFORMATION

Employee Name: _____

Employee ID: _____

Position / Title: _____

Department: _____

Supervisor: _____

Date of Violation: _____

Project / Site Name: _____

Location: _____

TYPE OF VIOLATION

☐ First Offense ☐ Second Offense ☐ Third Offense ☐ Willful Violation

SEVERITY

☐ Minor ☐ Serious ☐ Willful ☐ Repeat

VIOLATION DETAILS

OSHA Standard / Company Policy Violated: _____

Description of Violation:

Witness Name: _____

Witness Title: _____

DISCIPLINARY ACTION TAKEN

☐ Verbal Warning ☐ Written Warning ☐ Suspension (____ days)
☐ Retraining Required ☐ Termination ☐ Other: _____

CORRECTIVE ACTION REQUIRED

Deadline for Corrective Action: _____

EMPLOYEE STATEMENT / RESPONSE

SIGNATURES

Employee

Name: _____ Signature: _____ Date: _____

Supervisor

Name: _____ Signature: _____ Date: _____

Safety Manager

Name: _____ Signature: _____ Date: _____

Employee signature acknowledges receipt of this notice, not necessarily agreement.

SITE-SPECIFIC SAFETY PLAN

[COMPANY NAME]

PROJECT INFORMATION

Project Name:	
Project #:	
Location / Address:	
Owner / Client:	
General Contractor:	
Start Date:	
Est. Completion Date:	

EMERGENCY INFORMATION

911 Address (Physical):	
Nearest Hospital Name:	
Hospital Address:	
Hospital Phone:	
Hospital Distance:	
Urgent Care Facility:	

EMERGENCY CONTACTS

Role	Name	Phone
Project Manager		
Site Safety Officer		
Superintendent		
Client Representative		

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1. Purpose & Scope

This Site-Specific Safety Plan (SSSP) has been prepared by [COMPANY NAME] to establish safety requirements, procedures, and responsibilities for the project identified above. The purpose of this plan is to:

- Identify site-specific hazards and controls
- Establish roles and responsibilities for safety
- Define emergency procedures
- Ensure compliance with applicable OSHA regulations and company policies

2. Project Description

[Provide a detailed description of the project scope of work, including type of construction, key activities, and approximate project value.]

3. Roles & Responsibilities

Role	Name	Responsibilities
Project Manager		Overall project oversight and safety accountability
Site Safety Officer		Daily safety inspections, hazard identification, training coordination
Superintendent		Enforce safety rules, conduct toolbox talks, manage subcontractors
Foreman		Crew-level safety supervision, pre-task planning
Workers		Follow safety rules, report hazards, wear required PPE

4. Site Safety Rules

1. All personnel must attend site orientation before beginning work.
2. Personal protective equipment (PPE) must be worn at all times in designated areas.
3. Fall protection is required at heights of 6 feet or more.
4. No worker shall operate equipment without proper training and authorization.
5. All excavations over 5 feet deep require protective systems.
6. Lockout/Tagout procedures must be followed for all energy isolation.
7. Housekeeping must be maintained at all times — clean as you go.
8. No horseplay, fighting, or working under the influence of drugs or alcohol.
9. All incidents, injuries, and near misses must be reported immediately.
10. Hot work permits are required for all welding, cutting, and grinding operations.

5. Hazard Assessment

Phase of Work	Hazards Identified	Controls	Responsible Person
Excavation	Cave-in, utility strikes	Protective systems, utility locates	
Steel Erection	Falls, struck-by	Fall protection, exclusion zones	
Concrete Work	Chemical burns, manual handling	PPE, proper lifting techniques	
Electrical	Electrocution, arc flash	LOTO, qualified workers only	
Roofing	Falls, heat illness	Guardrails/harness, hydration plan	

6. Required Training

Training Topic	Required For	Frequency	Provider
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OSHA 10/30-Hour	All workers / Supervisors	Once	
Site-Specific Orientation	All personnel	Per project	[COMPANY NAME]
Fall Protection	Workers at heights	Annual	
Scaffold Competent Person	Scaffold users	As needed	
First Aid / CPR / AED	Designated personnel	Every 2 years	
Hazard Communication	All workers	Annual	

7. PPE Requirements

Task / Area	Hard Hat	Safety Glasses	Hi-Vis	Gloves	Fall Protection	Hearing	Respiratory
General Site	✓	✓	✓	—	—	—	—
Excavation Work	✓	✓	✓	✓	—	—	As needed
Steel Erection	✓	✓	✓	✓	✓	—	—
Grinding/Cutting	✓	✓	✓	✓	—	✓	As needed
Confined Space	✓	✓	✓	✓	✓	—	✓

8. Emergency Procedures

Fire Emergency

1. Alert all personnel in the immediate area. 2. Call 911. 3. Evacuate to assembly point. 4. Account for all personnel. 5. Do not re-enter until cleared by fire department.

Medical Emergency

1. Call 911 (or designated first responder). 2. Administer first aid if trained. 3. Do not move injured person unless in immediate danger. 4. Notify Site Safety Officer and Project Manager. 5. Complete incident report.

Severe Weather

1. Monitor weather alerts. 2. Cease work and secure materials when severe weather is imminent. 3. Move to designated shelter. 4. Resume work only when all-clear is given.

Evacuation Assembly Point

[Describe the designated assembly point location for this project site.]

9. Incident Reporting Procedures

All incidents, injuries, near misses, and property damage must be reported immediately to the Site Safety Officer and Project Manager. The following steps shall be taken:

1. Provide first aid and medical attention as needed.
2. Secure the scene and preserve evidence.
3. Notify the Site Safety Officer and Project Manager.
4. Complete the Incident Report Form within 24 hours.
5. Conduct an investigation and root cause analysis.
6. Implement corrective actions.
7. Communicate lessons learned to the project team.

10. Subcontractor Requirements

All subcontractors working on this project shall:

- Provide a copy of their safety program.
- Submit proof of insurance and workers' compensation coverage.
- Complete site-specific orientation before beginning work.

- Submit safety data sheets (SDS) for all chemicals brought on site.
- Provide documentation of employee training and competency.
- Comply with all site safety rules and the requirements of this SSSP.
- Participate in safety meetings and toolbox talks.
- Report all incidents and near misses immediately.

11. Safety Inspections & Audits Schedule

Inspection Type	Frequency	Responsible	Notes
Daily Site Inspection	Daily	Site Safety Officer	
Weekly Safety Walk	Weekly	Project Manager / Safety	
Monthly Safety Audit	Monthly	Safety Director	
Crane/Equipment Inspection	Per use / Monthly	Competent Person	
Scaffold Inspection	Daily / After weather	Competent Person	

12. Document Control & Revision History

Rev #	Date	Description	Approved By
0		Initial Issue	
1			
2			

APPROVAL SIGNATURES

Prepared By	Name:	
	Title:	
	Signature:	
	Date:	

Reviewed By	Name:	
	Title:	
	Signature:	
	Date:	

Approved By	Name:	
	Title:	
	Signature:	
	Date:	

TOOLBOX TALK ATTENDANCE LOG

[COMPANY NAME]

TALK INFORMATION

Date: _____

Project / Site Name: _____

Talk Topic: _____

Presenter Name: _____

Duration: _____

ATTENDANCE

#	Print Name	Company / Employer	Signature
1			
2			
3			
4			
5			
6			
7			
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10			
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12			
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17			
18			
19			
20			
21			
22			
23			
24			
25			

KEY DISCUSSION POINTS

- 1. _____
- 2. _____

3. _____
4. _____
5. _____

QUESTIONS / COMMENTS FROM ATTENDEES

By signing above, I acknowledge that I attended this safety briefing and understand the topics discussed.

SIGNATURES

Presenter Signature: _____

Date: _____

Supervisor Signature: _____

Date: _____

FORBES SAFETY SOLUTIONS

INCIDENT / ACCIDENT INVESTIGATION REPORT

29 CFR 1904 (Recording and Reporting) | OSHA Incident Investigation Guidance

CONFIDENTIAL — This report contains sensitive information related to a workplace incident investigation.

SECTION 1: GENERAL INFORMATION

Report Number:	
Date of Incident:	
Time of Incident:	
Date Reported:	
Location:	
Project Name:	[PROJECT NAME]
Company Name:	[COMPANY NAME]
Supervisor on Duty:	
Weather Conditions:	
Lighting Conditions:	

SECTION 2: INJURED PERSON INFORMATION

Full Name:	
Job Title / Trade:	
Employee ID:	
Employer:	[COMPANY NAME]
Date of Hire:	
Experience (Years):	
Time on Current Job:	
Normal Work Hours:	
Hours Worked Before Incident:	

SECTION 3: INCIDENT DESCRIPTION

Describe what happened in detail. Include what the employee was doing, what went wrong, and the sequence of events leading to the incident.

What task was being performed at the time of the incident?

--

What equipment, tools, or materials were involved?

--

Were proper procedures being followed? If not, what deviated?

--

Were there any unusual conditions or circumstances?

--

SECTION 4: INJURY / ILLNESS DETAILS

Type of Incident:	☐ Injury ☐ Illness ☐ Near Miss ☐ Property Damage ☐ Environmental
Body Part(s) Affected:	
Nature of Injury:	☐ Laceration ☐ Fracture ☐ Burn ☐ Sprain/Strain ☐ Contusion ☐ Other:
Side of Body:	☐ Left ☐ Right ☐ Both ☐ N/A
Treatment Provided:	☐ First Aid On-Site ☐ EMS Transport ☐ Hospital ER ☐ Doctor/Clinic ☐ None
Medical Facility:	
Physician Name:	
Hospitalized?	☐ Yes ☐ No If yes, duration:
Lost Time?	☐ Yes ☐ No If yes, # days:
Restricted Duty?	☐ Yes ☐ No If yes, # days:

SECTION 5: WITNESS INFORMATION

#	Witness Name	Job Title	Contact Info	Statement Summary
1				
2				
3				

SECTION 6: ROOT CAUSE ANALYSIS — 5 WHYS

Starting with the incident, ask "Why?" repeatedly to identify the root cause. Each answer becomes the basis for the next "Why?"

	Question	Answer
Why 1	Why did the incident occur?	
Why 2	Why did that happen?	
Why 3	Why did that condition exist?	
Why 4	Why was that not addressed?	
Why 5	What is the root cause?	

SECTION 7: CONTRIBUTING FACTORS

Check all factors that contributed to the incident:

- ☐ Inadequate Training / Lack of Knowledge
- ☐ Inadequate Procedures / Work Instructions
- ☐ Weather / Environmental Conditions
- ☐ Housekeeping / Workplace Organization
- ☐ Inadequate Supervision / Oversight
- ☐ Inadequate Hazard Assessment / JSA
- ☐ Inexperience / New to Task
- ☐ Defective Equipment / Tools / Materials
- ☐ PPE Not Used / Not Available / Inadequate
- ☐ Fatigue / Impairment / Distraction
- ☐ Communication Failure / Misunderstanding
- ☐ Failure to Follow Established Procedures
- ☐ Time Pressure / Production Demands
- ☐ Other (specify below):

If Other, describe:

SECTION 8: CORRECTIVE ACTIONS

#	Corrective Action Item	Responsible Person	Target Date	Completion Date	Status
1					
2					
3					
4					
5					
6					

SECTION 9: OSHA RECORDABILITY DETERMINATION

Per 29 CFR 1904, determine if this incident is OSHA recordable. An injury or illness is recordable if it results in death, days away from work, restricted work or transfer, medical treatment beyond first aid, loss of consciousness, or a significant injury/illness diagnosed by a physician.

Is this OSHA Recordable?	☐ Yes ☐ No		
Classification:	☐ First Aid Only ☐ Recordable — Medical Treatment ☐ Recordable — Restricted Duty ☐ Recordable — Days Away ☐ Fatality		
OSHA 300 Log Entry #:			
OSHA Notification Required?	☐ Yes (Fatality within 8 hrs / Hospitalization, Amputation, or Eye Loss within 24 hrs) ☐ No		
OSHA Notified?	☐ Yes ☐ No Date/Time: _____	Method: _____	
Workers' Comp Claim Filed?	☐ Yes ☐ No Claim #: _____		

FIRST AID ONLY (Not Recordable)	OSHA RECORDABLE CRITERIA
• Non-prescription medications • Tetanus immunizations • Wound cleaning/flushing/soaking • Wound coverings (bandages, gauze) • Hot/cold therapy • Non-rigid splints/wraps • Eye patches, eye flushing	• Death • Days away from work • Restricted work or job transfer • Medical treatment beyond first aid • Loss of consciousness • Significant diagnosed condition • Needle stick / sharps exposure

SECTION 10: SIGNATURES & APPROVALS

Investigation Conducted By:	_____	Date:	_____
Supervisor Review:	_____	Date:	_____
Safety Manager Review:	_____	Date:	_____
Project Manager Review:	_____	Date:	_____

This form is intended to document workplace incidents for internal investigation and regulatory compliance purposes.

Retain all completed forms in accordance with 29 CFR 1904.33 (minimum 5 years).

Forbes Safety Solutions | Incident / Accident Investigation Report | Template

FORBES SAFETY SOLUTIONS

NEW HIRE SAFETY ORIENTATION CHECKLIST

EMPLOYEE INFORMATION

Employee Name: _____

Date: _____

Position/Title: _____

Supervisor: _____

Project/Site: _____

Employee ID: _____

ORIENTATION TOPICS

✓	Orientation Topic	Date Completed	Trainer Initials
☐	Company safety policy and commitment		
☐	Employee rights and responsibilities		
☐	OSHA recordkeeping and injury reporting		
☐	Hazard communication (GHS / SDS access)		
☐	Emergency action plan and evacuation routes		
☐	Fire prevention and extinguisher locations		
☐	First aid kit and AED locations		
☐	PPE requirements and proper use		
☐	Fall protection requirements		
☐	Electrical safety awareness		
☐	Excavation and trenching safety		
☐	Confined space awareness		
☐	Lockout / Tagout awareness		
☐	Heat illness prevention		
☐	Drug and alcohol policy		
☐	Disciplinary policy for safety violations		
☐	Stop Work Authority		
☐	Incident and near-miss reporting procedures		
☐	Site-specific hazards orientation		

☐	Tool and equipment inspection requirements		
--------------------------	--	--	--

✓	Site-Specific Items (Add as needed)	Date Completed	Trainer Initials
☐			
☐			
☐			
☐			
☐			

ACKNOWLEDGMENT

I acknowledge that I have received and understand the above safety orientation topics. I have had the opportunity to ask questions and all questions have been answered to my satisfaction. I understand that compliance with all safety rules and procedures is a condition of my employment.

Employee Signature:

Date:

Trainer Signature:

Date:

Supervisor Signature:

Date:

Retain completed form in employee file for duration of employment + 3 years.

Forbes Safety Solutions | Template generated 3/15/2026

FORBES SAFETY SOLUTIONS

AED Inspection Monthly Log

Ref: AHA Guidelines / AED Manufacturer Recommendations

Company: _____

Serial: _____

Date: _____

AED Location: _____

Year: _____

Expiration Date: _____

#	Inspection Item	Jan	Feb	Mar	Apr	May
1	Status indicator light GREEN?					
2	Battery charge OK?					
3	Pads within expiration date?					
4	Pads sealed and undamaged?					
5	Cabinet/case clean and accessible?					
6	AED signage visible?					
7	Rescue kit present — gloves?					
8	Rescue kit present — razor?					
9	Rescue kit present — scissors?					
10	Rescue kit present — towel?					

Inspector Initials

Notes / Corrective Actions

Legend

Pass = Item OK

Fail = Needs Attention / Corrective Action

8

Recommendations

Jun	Jul	Aug	Sep	Oct	Nov	Dec

AERIAL LIFT / BOOM LIFT PRE-USE INSPECT

Forbes Safety Solutions

Ref: 29 CFR 1926.453 | ANSI A92.22

Company:	
Equipment Type:	(Boom / Scissor / Other)
Equipment ID:	
Make/Model:	
Date:	
Operator:	

VISUAL INSPECTION

#	Inspection Item	Pass	Fail	N/A
1	Tires/Wheels — condition and inflation			
2	Hydraulic hoses and cylinders — no leaks/damage			
3	Platform, guardrails, and gate — secure			
4	Controls labeled and functional			
5	Outriggers/Stabilizers — condition			
6	Turntable/Slew mechanism			
7	Boom sections — no cracks/damage			
8	Electrical connections — secure/no damage			
9	Safety decals and load chart — visible/legible			

OPERATIONAL CHECK

#	Inspection Item	Pass	Fail	N/A
10	All controls responsive (up/down/left/right)			
11	Emergency lowering system functional			
12	Horn/Alarm operational			
13	Drive functions (forward/reverse/steer)			
14	Boom/Platform movement smooth			
15	Brakes — hold on incline			

SIGNATURES		
Operator Signature:		Date:
Supervisor Signature:		Date:

ION

Deficiency Notes

Deficiency Notes

--

FORBES SAFETY SOLUTIONS

CONCRETE PUMP PRE-USE INSPECTION

Reference: 29 CFR 1926 Subpart Q | ACI 304.2R

Company:		Equipment ID:	
Make/Model:		Operator:	

#	Inspection Item	Pass	Fail
1. BOOM SECTIONS			
1	Boom sections free of cracks or damage		
2	Boom pins secure and properly lubricated		
3	Boom hoses connected and no leaks		
4	Boom unfolding/folding operates smoothly		
5	Wear pads in good condition		
2. HYDRAULIC SYSTEM			
6	Hydraulic hoses - no leaks, cuts, or abrasion		
7	Hydraulic cylinders - no leaks or damage		
8	Hydraulic fluid level adequate		
9	Hydraulic oil filter condition acceptable		
10	System pressure within specifications		
3. OUTRIGGERS / STABILIZERS			
11	Outriggers fully extended and locked		
12	Outrigger pads on solid ground / timber mats		
13	No visible damage to outrigger beams or cylinders		
14	Level indicators checked - unit is level		
4. DELIVERY PIPE / REDUCERS / CLAMPS			
15	Pipe sections free of excessive wear		
16	All clamps secured and in good condition		
17	Reducers properly connected		
18	Wear indicators checked (if equipped)		
19	End hose in good condition - no bulges or cuts		
5. HOPPER / AGITATOR			
20	Hopper grate/screen in place and secure		
21	Agitator operating properly		
22	Hopper free of hardened concrete buildup		
23	Rock valve / S-valve operating correctly		
6. PTO / ENGINE			
24	Engine oil level checked		
25	Coolant level checked		

26	PTO engagement smooth and operational		
27	No unusual engine noises or vibration		
28	Exhaust system intact - no leaks		
7. GROUND CONDITIONS			
29	Setup area can support pump weight plus load		
30	Ground is level or leveled with cribbing		
31	Adequate distance from excavations / slopes		
32	Overhead power line clearance verified (min. 20 ft for lines up to 350kV)		
8. SAFETY DEVICES			
33	Emergency stop button(s) functional		
34	Boom kickback prevention system operational		
35	Pressure relief valves functional		
36	Warning lights and alarms operational		
37	Remote control operational (if equipped)		
9. DELIVERY LINE (GROUND LINE)			
38	Pipe wear indicators checked		
39	All clamps secure and tightened		
40	Line properly supported and secured		
41	Clean-out ball and equipment available		
42	End hose whip check installed		

SIGNATURES

Equipment Inspected By (Operator):

Operator Signature:

Date:

Reviewed By (Supervisor):

Supervisor Signature:

Date:

Reference: 29 CFR 1926 Subpart Q | ACI 304.2R

Generated: 2026-03-16 | Forbes Safety Solutions

FORBES SAFETY SOLUTIONS

CRANE PRE-USE INSPECTION CHECKLIST

Per 29 CFR 1926.1412 (Inspections) & 29 CFR 1926.1417 (Operation)

Compar

Crane ID

Make /

Capacity (ton

Date:

Inspector Na

1. STRUCTURAL COMPONENTS

#	Inspection Item	PASS	FAIL	N/A
1	Boom condition (cracks, deformation, corrosion)			
2	Jib condition and connections			
3	Mast / tower structure integrity			
4	Turntable and swing mechanism			
5	Outriggers / crawlers condition and operation			
6	Counterweights properly secured and correct amount			

2. WIRE ROPE & RIGGING

#	Inspection Item	PASS	FAIL	N/A
7	Main hoist wire rope (kinks, bird-caging, broken wires)			
8	Auxiliary hoist wire rope condition			
9	Pendant lines condition and connections			
10	Sheaves and drums (wear, cracks, rope tracking)			
11	Hook condition (latch, throat opening, twist)			
12	Slings, shackles, and rigging hardware			

3. CONTROLS & LIMIT SWITCHES

#	Inspection Item	PASS	FAIL	N/A
13	All operating controls functional and properly labeled			
14	Upper and lower limit switches operational			
15	Anti-two-block (A2B) device functional			
16	Boom hoist limiting device			
17	Swing brake and lock			
18	Emergency stop / power disconnect			

4. SAFETY DEVICES

#	Inspection Item	PASS	FAIL	N/A
19	Load moment indicator (LMI) operational			
20	Boom angle indicator functional			
21	Level indicator / bubble level			
22	Anemometer / wind speed indicator			
23	Backup alarm operational			
24	Fire extinguisher present and current			

5. HYDRAULIC SYSTEM

#	Inspection Item	PASS	FAIL	N/A
25	Hydraulic cylinders (leaks, damage, drift)			
26	Hoses and fittings (wear, abrasion, leaks)			
27	Hydraulic fluid level adequate			
28	Filters and strainers condition			
29	Pump operation and pressure			

6. ELECTRICAL SYSTEM

#	Inspection Item	PASS	FAIL	N/A
30	Power supply / generator condition			
31	Ground fault protection			
32	Lighting (cab, boom, warning lights)			
33	Wiring and connections (damage, exposure)			
34	Battery condition and charge			

7. GROUND CONDITIONS

#	Inspection Item	PASS	FAIL	N/A
35	Ground firm and level for crane operation			
36	Cribbing / mats in place and adequate			
37	Outrigger pads properly positioned			
38	Underground utilities identified and marked			
39	Adequate clearance from power lines (min. 20 ft)			

8. DOCUMENTATION & CERTIFICATION

#	Inspection Item	PASS	FAIL	N/A
40	Load chart present and legible in cab			
41	Operator certification current and on file			

42	Annual inspection current (within 12 months)			
43	Crane logbook up to date			
44	Manufacturer's operation manual available			

DEFICIENCY NOTES / CORRECTIVE ACTIONS REQUIRED

#	Deficiency Description	Corrective Action
1		
2		
3		
4		
5		
6		
7		

INSPECTION SIGN-OFF

☐ Crane is SAFE to operate

☐ Crane is NOT SAFE — Remove from service

Inspector: _____ Date: _____

Supervisor: _____ Date: _____

Forbes Safety Solutions | Crane Pre-Use Inspection Checklist | Per 29 CFR 1926.1412 & :
This checklist must be completed BEFORE each shift of crane operation. Keep records for duration of c

[illegible][illegible][illegible]

Notes

Notes

Notes

Notes

Notes

Completion Date

--

1926.1417
crane use + 3 months.

DAILY CONSTRUCTION SITE SAFETY INSPECTION

Forbes Safety Solutions

Project Name:			
Date:		Weather:	
Inspector:		Site Address:	

#	Inspection Item	Status	Comments
HOUSEKEEPING			
1	Walkways and access routes clear of obstructions		
2	Materials stored properly and securely		
3	Waste disposal containers available and not overflowing		
4	Trip hazards identified and addressed		
5	Adequate lighting in all work areas		
PPE COMPLIANCE			
6	Hard hats worn in all required areas		
7	Safety glasses/goggles in use where required		
8	High-visibility vests worn as required		
9	Safety boots/steel-toed footwear worn		
10	Gloves appropriate for task being worn		
FALL PROTECTION			
11	Guardrails intact and properly installed		
12	Floor openings covered and secured		
13	Harnesses inspected and properly worn		
14	Anchorage points adequate and accessible		
15	Ladders secured and in good condition		
ELECTRICAL SAFETY			
16	GFCIs in use on all temporary circuits		
17	Extension cords undamaged and rated properly		
18	Temporary power panels secured		
19	Panel access clear of obstructions (36" min.)		
EXCAVATION			
20	Shoring/sloping/shielding in place per plan		
21	Access ladders within 25 ft. of workers		
22	Spoil pile set back minimum 2 ft. from edge		

23	Utility markings visible and intact		
FIRE PREVENTION			
24	Fire extinguishers accessible and charged		
25	Hot work permits posted and current		
26	Flammable materials stored properly		
EQUIPMENT			
27	Daily equipment inspections completed		
28	Operators have valid certifications		
29	Seatbelts in use on all applicable equipment		
30	Backup alarms functional on all equipment		

INSPECTION SUMMARY	
Total Items Inspected	0
Items Compliant (Yes)	0
Items Needing Correction (No)	0
Not Applicable (N/A)	0
Compliance Rate	0.0%
Overall Site Rating	

CORRECTIVE ACTIONS REQUIRED				
#	Description	Priority	Assigned To	Status
1				
2				
3				
4				
5				
6				
7				
8				

SIGNATURES

Inspector
Signature

Date:

Superintendent
Signature

Date:

INSTRUCTIONS — Daily Construction Site Safety Inspection

Forbes Safety Solutions

PURPOSE

This form provides a standardized daily inspection checklist for construction sites.
It helps ensure compliance with OSHA regulations and company safety policies.
Complete this form at the start of each work day before work begins.

HOW TO USE

1. Fill in all header information (Project Name, Date, Inspector, Weather, Site Address).
2. Walk the entire site and inspect each item in every category.
3. Select 'Yes' if the item is compliant, 'No' if it is not, or 'N/A' if not applicable.
4. Add comments for any item marked 'No' — describe the specific issue observed.
5. The Summary section will automatically calculate compliance metrics.
6. Document all corrective actions needed in the Corrective Actions section.
7. Both the Inspector and Site Superintendent must sign and date the form.

RATING CRITERIA

Satisfactory — 90%+ compliance rate with no high-priority corrective actions needed.
Needs Improvement — 75-89% compliance rate or minor corrective actions identified.
Unsatisfactory — Below 75% compliance rate or significant safety hazards found.
Stop Work — Imminent danger identified; all work must cease until hazard is corrected.

CORRECTIVE ACTION PRIORITIES

High — Imminent danger or serious OSHA violation. Must be corrected immediately.
Medium — Potential hazard that should be corrected within 24 hours.
Low — Minor issue or best-practice improvement. Correct within one week.

RECORD KEEPING

Completed forms must be retained for the duration of the project plus 3 years.
Store copies in the project safety file and provide copies to the site superintendent.

Forms with 'Unsatisfactory' or 'Stop Work' ratings must be escalated to the Safety Director.

Quarter	Color Code	Tape/Tag Color
Q1 (Jan-Mar)	WHITE	White electrical tape
Q2 (Apr-Jun)	GREEN	Green electrical tape
Q3 (Jul-Sep)	RED	Red electrical tape
Q4 (Oct-Dec)	ORANGE	Orange electrical tape

AEGCP requires testing before first use, after repairs, and at least every 3 months

Generated: 2026-03-16 | Forbes Safety Solutions

FORBES SAFETY SOLUTIONS
ELECTRICAL TOOL & CORD INSPECTION LOG

Reference: 29 CFR 1926.404-405 | Assured Equipment Grounding Conduc

[illegible]

Period
January 1 - March 31
April 1 - June 30
July 1 - September 30
October 1 - December 31

tor Program (AEGCP)

[illegible]



[illegible]

EQUIPMENT PRE-USE INSPECTION LOG

Forbes Safety Solutions

EQUIPMENT INFORMATION

Equipment Type:		Equipment ID:	
Date:		Operator Name:	
Hours/Mileage:		Project/Site:	

PRE-USE INSPECTION CHECKLIST

#	Inspection Item	Status	Notes / Details
FLUID LEVELS			
1	Engine oil level within operating range		
2	Hydraulic fluid level within operating range		
3	Coolant level within operating range		
4	Fuel level adequate for planned work		
TIRES / TRACKS / UNDERCARRIAGE			
5	Tires/tracks in acceptable condition (no cuts, bulges, or excessive wear)		
LIGHTS & SIGNALS			
6	All lights operational (head, tail, work, warning)		
7	Turn signals and hazard lights functional		
SAFETY DEVICES			
8	Horn functional and audible		
9	Backup alarm operational		
10	Seatbelt in good condition and functional		
11	Fire extinguisher present, accessible, and charged		
12	Mirrors clean, adjusted, and undamaged		
STRUCTURAL / PROTECTIVE			
13	ROPS/FOPS intact and properly secured		
14	Boom/arm/bucket condition acceptable (if applicable)		
15	Outriggers functional and pads available (if applicable)		
16	Load chart visible and legible (if applicable)		

CONTROLS & OPERATION			
17	Brakes — service and parking brakes functional		
18	Steering responsive and operating normally		
19	All controls operating smoothly		
20	Gauges and instruments functioning properly		
GENERAL CONDITION			
21	No visible leaks (oil, hydraulic, coolant, fuel)		
22	Guards and covers in place and secure		
23	Cab/operator area clean and free of loose items		

INSPECTION SUMMARY	
Items Inspected	0
Items Passed	0
Items Failed	0
Not Applicable	0

OVERALL EQUIPMENT STATUS	
Equipment Determination:	

DEFICIENCIES FOUND / CORRECTIVE ACTIONS		
#	Deficiency Description	Action Taken / Required
1		
2		
3		
4		
5		
6		

OPERATOR CERTIFICATION & SIGNATURES
<i>I certify that I have inspected this equipment and it is in the condition indicated above. I am trained and authorized to operate this equipment.</i>

or
Signatu

Date:

or
Signatu

Date:

FE-014									
FE-015									
FE-016									
FE-017									
FE-018									
FE-019									
FE-020									

Notes / Deficiencies:

ON LOG

Year: _____

Review
Date: _____

_____ Date: _____

[illegible]

FIRE EXTINGUISHER

Monthly Visual Inspection Che

Use this checklist as a reference when performing monthly fire exting
Pass (P) or Fail (F) on the Monthly Inspection Log.

#	Inspection Item
1	Accessible & Visible
2	Pressure Gauge
3	Safety Pin & Tamper Seal
4	Physical Condition
5	Inspection Tag
6	Hose & Nozzle
7	Mounting & Height

ADDITIONAL REQUIREMENTS

- Annual professional inspection required by a certified fire pro
- 6-year maintenance: Internal examination for stored-pressure
- 12-year hydrostatic test required for applicable extinguisher t

- Immediately remove from service and replace any extinguisher.
- Document all deficiencies and corrective actions taken.
- Maintain records for a minimum of 1 year (check local requirements).

INSPECTION CRITERIA

Checklist | 29 CFR 1910.157 / NFPA 10

guisher inspections. Each item must be verified for every extinguisher. Mark

What to Check
Extinguisher is not blocked by storage, equipment, or materials. Clearly visible or location is marked with signage. Travel distance requirements met per NFPA 10.
Gauge needle is in the green/operable range. If gauge is missing, damaged, or reads outside the operable range, mark as Fail. Note: CO2 extinguishers do not have a pressure gauge — weigh instead.
Pull pin is in place and not bent. Tamper seal/indicator is intact and unbroken. If seal is broken or pin is missing, the extinguisher may have been used or tampered with.
No visible damage, dents, corrosion, or leakage on the cylinder. Check the bottom for corrosion. No chemical residue around the nozzle. Nameplate and operating instructions are legible.
Current inspection tag is attached. Previous monthly inspections are documented on the tag. Tag shows last professional service/annual inspection date. Replace tag if full or illegible.
Hose is not cracked, cut, or blocked. Nozzle is clear of debris and obstructions. Hose connections are tight and not corroded. For wheeled units, check the hose length and condition.
Extinguisher is properly mounted in bracket, cabinet, or on wall hook. Mounting height: top handle no more than 5 ft (60 in.) from floor for units ≤40 lbs; no more than 3.5 ft (42 in.) for heavier units. Cabinet door opens freely if applicable.

tection specialist (NFPA 10, Chapter 7).

≥ extinguishers every 6 years.

ypes.

er that fails inspection.

ments for longer retention).

FORBES SAFETY SOLUTIONS

First Aid Kit Inspection Log

Ref: 29 CFR 1926.50, ANSI Z308.1

Company: _____
Number: _____

Kit Location: _____
Year: _____

#	Supply Item	Par Level	Jan	Feb	Mar	Apr	May
1	Adhesive Bandages (assorted)						
2	Gauze Pads (3x3, 4x4)						
3	Gauze Rolls						
4	Medical Tape						
5	Antiseptic Wipes/Solution						
6	Antibiotic Ointment						
7	Burn Cream/Gel						
8	Eye Wash Solution						
9	Disposable Gloves (pairs)						
10	CPR Pocket Mask						
11	Scissors (bandage)						
12	Tweezers						
13	Instant Cold Packs						
14	Trauma Dressings						
15	Tourniquet						
16	Aspirin Packets						

Inspector Initials

--	--	--	--	--

Legend ✓ = Present / Adequate quantity

X = Missing / Needs restocking

Jun	Jul	Aug	Sep	Oct	Nov	Dec

--	--	--	--	--	--	--

FORKLIFT / HEAVY EQUIPMENT PRE-USE INSPECT

Forbes Safety Solutions | 29 CFR 1910.178 / 29 CFR 1926.602

Company Name: _____ Date: _____
 Equipment Type: _____ Equipment ID: _____
 Operator Name: _____ Meter _____
 Supervisor: _____ Shift: _____

SECTION 1: VISUAL / WALK-AROUND INSPECTION (Engine Off)

#	Inspection Item	Pass	Fail	N/A
1	Tires / Tracks — condition, inflation, wear			
2	Forks / Bucket — straight, no cracks, wear, pins secure			
3	Hydraulic Hoses & Cylinders — no leaks, cracks, or damage			
4	Fluid Levels — engine oil, coolant, hydraulic fluid			
5	Lights — headlights, tail lights, strobe/warning lights			
6	Horn — operational			
7	Backup Alarm — operational			
8	Seatbelt — present, functional, no fraying			
9	Fire Extinguisher — present, charged, accessible			
10	Mirrors — present, clean, properly adjusted			
11	ROPS / FOPS — intact, no damage, bolts tight			
12	Load Chart — legible and present (forklift)			
13	Data Plate / Capacity Plate — present and legible			
14	Battery / Fuel System — no leaks, connections secure			
15	General Cleanliness — no debris, grease buildup			

SECTION 2: OPERATIONAL CHECK (Engine Running)

#	Inspection Item	Pass	Fail	N/A
1	Steering — smooth, no excessive play			
2	Service Brakes — responsive, adequate stopping power			

3	Parking Brake — holds on grade			
4	Hydraulic Controls — smooth operation, no jerking			
5	Gauges & Warning Lights — all functional, no warnings			
6	Horn — sounds clearly			
7	Transmission — shifts smoothly, no grinding			
8	Mast Operation — raises, lowers, tilts smoothly (forklift)			
9	Boom Operation — extends, retracts, articulates (if applicable)			
10	Attachment Operation — functional (if applicable)			
11	Engine Performance — no unusual sounds, smoke, or vibration			
12	Exhaust System — no excessive smoke or unusual odor			

DEFICIENCY NOTES & CORRECTIVE ACTIONS

#	Deficiency Description	Corrective Action Taken
1		
2		
3		
4		
5		

EQUIPMENT STATUS DETERMINATION

☐ SAFE TO OPERATE — All items pass; no deficiencies found
 ☐ DO NOT OPERATE — Deficiencies found

SIGNATURES

Operator Signature: _____ Date: _____
 Supervisor Signature: _____ Date: _____

IMPORTANT: Do not operate equipment with any failed items until deficiencies are corrected. Report all deficiencies to your supervisor. If deficiencies are found, operators shall not operate a truck that is in need of repair when it is found to be unsafe.

ION

Notes / Deficiency

Notes / Deficiency

Status

und; equipment tagged out of se

--

or immediately. Per 29 CFR 1910.178(q)



Company:		Location:	
Inspector:		Date:	

Cylinder ID	Gas Type	Valve Cap On (Y/N)	Secured Upright (Y/N)

FORBES SAFETY SOLUTIONS

COMPRESSED GAS CYLINDER INSPECTION LOG

Reference: 29 CFR 1926.350 | CGA P-1

FORBES SAFETY SOLUTIONS

COMPRESSED GAS CYLINDER INSPECTION LOG

Reference: 29 CFR 1926.350 | CGA P-1

FORBES SAFETY SOLUTIONS

COMPRESSED GAS CYLINDER INSPECTION LOG

Reference: 29 CFR 1926.350 | CGA P-1

[illegible]

[illegible]

General Storage Requirements

- Store cylinders in a well-ventilated, dry area away from heat sources
- Keep cylinders upright and secured with chains, straps, or a proper rack
- Valve protection caps must be in place when cylinders are not in use
- Separate oxygen from fuel gas cylinders by 20 feet or a 5-ft noncombustible barrier
- Mark empty cylinders clearly with 'MT' or 'EMPTY' tags
- Never store cylinders near electrical panels or in confined spaces
- Post 'No Smoking' signs in cylinder storage areas

Handling & Transportation

- Never lift cylinders by the valve or cap
- Use proper cylinder carts/dollies for transport
- Close valves when cylinders are not in use, even momentarily
- Never use damaged, corroded, or leaking cylinders
- Do not drag, slide, or roll cylinders on their sides
- Never tamper with pressure relief devices

Hydrostatic Testing

- Cylinders must have current hydrostatic test dates (typically every 5 or 10 years per DOT/TC)
- Do not use cylinders past their test expiration date
- Return expired cylinders to the gas supplier for testing or replacement

Inspection Criteria

- Check for dents, bulges, gouges, cuts, or excessive corrosion
- Verify label legibility - gas type, hazard warnings, test date must be readable
- Inspect valve threads for damage or cross-threading
- Look for arc burns or torch damage on cylinder body
- Verify proper regulator and hose connections for in-use cylinders

Emergency Procedures

- If a leak is detected, move cylinder to a well-ventilated area if safe to do so
- For flammable gas leaks, eliminate ignition sources and evacuate area
- Contact the gas supplier for leaking cylinders that cannot be corrected
- In case of fire involving cylinders, evacuate and call emergency services

MENTS

FORBES SAFETY SOLUTIONS

Portable Generator Inspection Checklist

Ref: 29 CFR 1926.405, OSHA/NIOSH Generator Safety

Company: _____
Make/Model: _____
Inspector: _____

Generator ID: _____
Date: _____

#	Inspection Item	Status
1	Fuel level adequate, no leaks	
2	Oil level within operating range	
3	Coolant level adequate (if applicable)	
4	Air filter — clean, undamaged	
5	Exhaust system — no damage or leaks	
6	Grounding rod and conductor — connected	
7	GFCI protection on all outlets — functional	
8	Electrical connections and cords — no damage	
9	Emergency stop — accessible and functional	
10	Placement — 20+ ft from buildings, outdoors only	
11	CO monitor — present and functional nearby	
12	Fire extinguisher — nearby and charged	

Overall Status: _____

Inspector Signature: _____

Notes

Date:

HARNESS & LANYARD INSPECTION LOG

Company Name _____

Inspector Nam

[illegible]

Forbes Safety Solutions | Harness & Lanyard Inspection Log | Per 29 CFR 1926.502(d)

Equipment failing inspection must be immediately tagged and removed from service. Records must be maintained for equipment lifetime

[illegible]

Webbing Condition

Stitching Condition

D-Rings / Hardware

Buckles / Grommets

Labels Legible

Lanyard Condition

SRL (Self-Retracting Lifeli

Shock Absorber Pack

IMPORTANT REMINDERS:



ARNESS & LANYARD INSPECTION GUIDE

Inspect for Each Component — Per OSHA & Manufacturer Guidelines

• Look for cuts, frays, abrasions, or pulled stitches
• Check for chemical damage (discoloration, stiffness, softening)
• Inspect for UV degradation (fading, chalky texture)
• Check for heat/burn damage (hard, shiny spots)
• Verify no knotting or unauthorized modifications

• All stitching intact with no broken, pulled, or cut threads
• Check load-bearing stitch patterns at connection points
• Look for stitching that has pulled through webbing
• Verify contrasting-color thread visible (indicates load indicators)

• Check for cracks, distortion, or sharp edges
• Verify D-ring pivots freely (not seized or corroded)
• Inspect for excessive wear or pitting
• Back D-ring, front D-ring, and side D-rings if applicable
• Check that all rivets and grommets are secure

• Tongue buckles: check for distortion, loose tongue, proper engagement
• Quick-connect buckles: verify positive locking and release function
• Check for cracks, corrosion, or excessive wear
• Ensure friction buckles hold webbing securely
• Grommets not pulled loose or distorted

• Manufacturer name and address visible
• Date of manufacture readable
• Model/part number legible

- ANSI/OSHA compliance markings present
- Weight capacity rating visible
- If labels missing/unreadable — REMOVE FROM SERVICE

- Inspect full length for cuts, abrasion, kinks, or knots
- Check snap hooks for gate operation, lock function, and corrosion
- Verify snap hook gate closes fully and locks automatically
- Check for any evidence of deployment (shock absorber activation)
- Web lanyards: check stitching and webbing per above
- Wire rope lanyards: check for broken wires, kinks, corrosion

- Check housing for cracks, dents, or damage
- Verify line retracts smoothly under slight tension
- Test locking mechanism by sharp pull
- Inspect cable/webbing for damage at exit point
- Check hook/carabiner for proper gate function
- Verify fall indicator has not been deployed

- Check outer cover/pack for damage, tears, or openings
- Verify deployment indicators have NOT been activated
- Any sign of deployment = IMMEDIATE removal from service
- Check that pack is properly attached to lanyard
- Look for elongation or stretching of pack

5

Inspect ALL fall protection equipment BEFORE EACH USE per 29 CFR 1926.502(d).

Equipment involved in a fall arrest event MUST be immediately removed from service.

Equipment showing any defect MUST be tagged 'OUT OF SERVICE' and removed immediately.

Only the manufacturer or a qualified person may repair fall protection equipment.

Never use equipment beyond manufacturer's recommended service life.

Maintain inspection records for the lifetime of each piece of equipment.

Competent person must perform inspections — training documentation required.

LADDER INSPECTION LOG | 29 CFR 1926.1053

Date: _____

Inspection Frequency:

Reference: 29 CFR 1926.1053 — Ladders | Forbes Safety Solutions | Template generated 03/15/2026

FORBES SAFETY SOLUTIONS

LADDER INSPECTION GUIDE | 29 CFR 1926.1053

Component	What to Inspect
Rails (Side Rails)	Check both side rails for cracks, bends, dents, or corrosion. Verify rails are straight and free of sharp edges. Inspect for heat damage or chemical exposure damage.
Rungs / Steps	Test each rung for tightness — twist and push. Check for bends, cracks, grease, or slippery surfaces. Verify anti-slip material is intact. Check rung spacing is uniform.
Spreaders / Locks (Stepladders)	Open and close spreader arms. Verify locking mechanism engages fully. Check spreader braces and rivets for damage.
Feet / Shoes (Safety Feet)	Inspect rubber or pivoting feet for wear, cracks, or missing pads. Verify feet swivel freely and grip surfaces. Check for debris buildup.
Labels / Markings	Verify duty rating label is legible. Check for ANSI/OSHA compliance stickers. Confirm weight capacity, type rating, and warning labels are readable.
Rope & Pulley (Extension Ladders)	Inspect rope for fraying, cuts, or UV damage. Test pulley for smooth operation. Check rope attachment points and knots. Verify locks engage at each rung.
Hardware (Rivets, Bolts, Nuts)	Check all rivets for looseness or shearing. Inspect bolts and nuts for tightness. Look for missing hardware.
Overall Structure	Set ladder on flat surface — check for wobble or twist. Open fully and verify stability. Check for signs of overloading (permanent deformation).

IMPORTANT REMINDERS

- Ladders must be inspected before each use by the user AND periodically by a competent person.
- Defective ladders must be tagged "DO NOT USE" and removed from service immediately.
- Never attempt to repair a damaged ladder — remove from service and replace.
- Portable ladders must support at least 4x the maximum intended load (OSHA requirement).
- Extension ladders must extend 3 feet above the landing surface.
- Maintain 3-point contact at all times when climbing.
- Set extension ladders at a 4:1 ratio (1 foot out for every 4 feet of height).
- Metal ladders must NOT be used near exposed electrical conductors.

Reference: 29 CFR 1926.1053 | Forbes Safety Solutions | General Safety



Failure Criteria (Remove from Service)

Cracked, bent, or split rails; excessive corrosion or pitting; broken welds; evidence of heat damage; fiberglass rails showing exposed glass fibers

Loose, bent, broken, or missing rungs; damaged anti-slip surface; excessive grease/oil that cannot be cleaned; rung-to-rail connection compromised

Spreader does not lock fully open; broken or bent spreader arms; missing or damaged rivets; spreader allows ladder to fold during use

Missing, worn smooth, cracked, or hardened foot pads; feet do not pivot or grip; broken foot bracket

Duty rating label missing or illegible; safety warning labels destroyed; unable to determine ladder's weight capacity or type classification

Frayed, cut, or rotted rope; seized or broken pulley; rope attachment failure; rung locks do not engage or hold under load

Loose, missing, or sheared rivets; missing bolts or nuts; hardware corroded beyond function

Ladder wobbles, twists, or leans; permanent bowing or warping; evidence of repair with unauthorized methods (tape, wire, etc.)



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Reference: 29 CFR 1926.251 | Inspect slings before each use per OSHA requirements

Generated: 2026-03-16 | Forbes Safety Solutions

FORBES SAFETY SOLUTIONS
RIGGING & SLING INSPECTION LOG

Reference: 29 CFR 1926.251

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[illegible]

FORBES SAFETY SOLUTIONS

SLING REMOVAL CRITERIA BY TYPE

Reference: 29 CFR 1926.251 | ASME B30.9

Wire Rope Slings

- X REMOVE FROM SERVICE: Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand
- X REMOVE FROM SERVICE: Wear or scraping of one-third the original diameter of outside individual wires
- X REMOVE FROM SERVICE: Kinking, crushing, bird caging, or any other damage resulting in distortion of the rope
- X REMOVE FROM SERVICE: Evidence of heat damage
- X REMOVE FROM SERVICE: End attachments that are cracked, deformed, or worn
- X REMOVE FROM SERVICE: Hooks that have been opened more than 15% of the normal throat opening or twisted
- X REMOVE FROM SERVICE: Corrosion of the rope or end attachments
- X REMOVE FROM SERVICE: Missing or illegible identification tag

Synthetic Web Slings

- X REMOVE FROM SERVICE: Acid or caustic burns
- X REMOVE FROM SERVICE: Melting or charring of any part of the sling surface
- X REMOVE FROM SERVICE: Snags, punctures, tears, or cuts
- X REMOVE FROM SERVICE: Broken or worn stitching in load-bearing splices
- X REMOVE FROM SERVICE: Excessive abrasive wear
- X REMOVE FROM SERVICE: Knots in any part of the sling
- X REMOVE FROM SERVICE: Excessive pitting or corrosion, or lack of corrosion resistance on fittings
- X REMOVE FROM SERVICE: Distortion, excessive pitting, corrosion, cracking, or twisting of fittings
- X REMOVE FROM SERVICE: Missing or illegible sling identification

Chain Slings

- X REMOVE FROM SERVICE: Wear exceeding the allowance listed in ASME B30.9 (varies by chain size)
- X REMOVE FROM SERVICE: Stretch exceeding 3% of original chain length (measure 10-link section)
- X REMOVE FROM SERVICE: Nicks, gouges, or cracks in any link
- X REMOVE FROM SERVICE: Bent, twisted, or elongated links or fittings
- X REMOVE FROM SERVICE: Evidence of heat damage (discoloration/scaling)

- ✗ REMOVE FROM SERVICE: Excessive pitting or corrosion
- ✗ REMOVE FROM SERVICE: Weld splatter on any link
- ✗ REMOVE FROM SERVICE: Missing or illegible identification tag

Synthetic Round Slings

- ✗ REMOVE FROM SERVICE: Snags, punctures, tears, or cuts exposing core yarns
- ✗ REMOVE FROM SERVICE: Acid or caustic burns
- ✗ REMOVE FROM SERVICE: Evidence of heat damage (melting, charring, glazing)
- ✗ REMOVE FROM SERVICE: Knots in the sling
- ✗ REMOVE FROM SERVICE: Broken or damaged stitching in the cover
- ✗ REMOVE FROM SERVICE: Core yarn showing through cover
- ✗ REMOVE FROM SERVICE: Excessive abrasive wear on the cover
- ✗ REMOVE FROM SERVICE: Missing or illegible tag/label
- ✗ REMOVE FROM SERVICE: Hard or stiff spots indicating internal damage



e strand in one rope lay

ope structure

isted more than 10 degrees



SCAFFOLDING SAFETY INSPECTION CHECKLIST

Forbes Safety Solutions — Per 29 CFR 1926.451-454

Project Name:		Date:	
Location:		Time:	
Inspector Name:		Weather:	
Scaffold ID / Tag #:		Scaffold Type:	

FOUNDATION & BASE

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
1	Mudsills or adequate firm foundation in place		
2	Base plates installed on all legs		
3	Scaffold is plumb (vertical)		
4	Scaffold is level (horizontal)		
5	Screw jacks adjusted properly (not extended past limit)		
6	Scaffold positioned on stable, compacted ground		
7	No undermining or erosion at base		

STRUCTURE & FRAMING

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
8	Cross bracing installed on both sides at each level		
9	All brace connections secure and pinned		
10	Horizontal bracing / bearers properly installed		
11	Frames properly stacked and aligned		
12	Coupling pins in place at all frame connections		
13	Scaffold tied to structure at required intervals		
14	Tie-in connections secure and adequate		
15	No visible damage to frames, braces, or components		
16	All components are from the same manufacturer or certified compatible		

PLANKING & DECKING

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
17	Planks are scaffold-grade lumber or manufactured scaffold planks		
18	Planks extend 6" beyond supports (max 12")		
19	Planks overlap minimum 12" over supports		
20	No gaps greater than 1" between planks		

21	Planks secured to prevent displacement		
22	Planks not cracked, split, or visibly damaged		
23	Platform fully planked between guardrails		
24	No makeshift planking materials used		

ACCESS

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
25	Safe access provided (ladder, stairway, ramp, or integral access)		
26	Access ladder extends 3 feet above platform level		
27	Ladder rungs evenly spaced and in good condition		
28	Stair rails installed on open sides of stairways		
29	Access gates or chains at ladder openings		
30	Cross braces not used as access		

FALL PROTECTION

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
31	Top rail installed at 38" to 45" above platform		
32	Mid-rail installed at approximately mid-height		
33	Toeboards installed (min 3.5" high) on all open sides		
34	Guardrail system on all open sides and ends		
35	Personal fall arrest system available if required		
36	All fall protection hardware in good condition		
37	Screen/mesh installed where required (pedestrian traffic below)		

ELECTRICAL HAZARDS

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
38	Scaffold positioned minimum safe distance from power lines		
39	Power lines de-energized or insulated where required		
40	No electrical cords running through scaffold structure unsafely		
41	Ground-fault protection for tools used on scaffold		
42	Lightning risk assessed (suspend work if storms approach)		

LOAD CAPACITY & MATERIALS

#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
43	Load capacity posted and visible on scaffold		
44	Scaffold not overloaded beyond rated capacity		
45	Materials neatly organized and secured on platform		
46	No accumulation of debris or unnecessary materials		
47	Counterweights (if suspended scaffold) properly installed and secured		
48	Outriggers extended and secured (if mobile scaffold)		

MOBILE SCAFFOLD — ADDITIONAL ITEMS			
#	Inspection Item	Pass/Fail/N/A	Comments / Corrective Action
49	Casters locked when scaffold is in use		
50	Casters on firm, level surface		
51	No workers on platform during movement		
52	Height-to-base ratio does not exceed 3:1 (outdoors) or 4:1 (indoors)		
53	All tools and materials secured before moving		
54	Push/pull force applied at or near base		

INSPECTION RESULTS SUMMARY	
Total Items Inspected	8
Items Passed	0
Items Failed	0
Items N/A	0
Pass Rate	0.0%

OVERALL SCAFFOLD DISPOSITION	
Scaffold Status:	
Corrective Actions Required:	

COMPETENT PERSON SIGN-OFF (29 CFR 1926.451(f)(3))	
Competent Person Name (Print):	_____
Competent Person Signature:	_____
Date:	_____ Time: _____
Re-Inspection Required?	☐ Yes ☐ No If Yes, Date: _____
Supervisor Notification:	☐ Yes ☐ N/A Supervisor Name: _____

Note: This inspection must be performed by a competent person before each work shift and after any occurrence that could affect scaffold structural integrity (e.g., severe weather, impact). Per 29 CFR 1926.451(f)(3), a competent person must inspect scaffolds and scaffold components for visible defects before each work shift.

FORBES SAFETY SOLUTIONS

EXCAVATION / TRENCH DAILY INSPECTION CHECKLIST

29 CFR 1926 Subpart P | 29 CFR 1926.651 | 29 CFR 1926.652

PROJECT INFORMATION

Company Name: _____ Project Name: _____
Date: _____ Competent Person Name: _____
Job Location: _____ Depth: _____
Width: _____ Soil Classification: _____

⚠ This inspection must be completed by a Competent Person before each shift and after any rain, vibration, or other hazard-increasing event.

#	Inspection Item	Yes / No / N/A	Notes / Corrective Action
1	Utility locates verified (811 completed, marks visible)		
2	Protective system in place (sloping / benching / shoring / shielding — specify type in Notes)		
3	Protective system adequate for soil type and depth		
4	Spoil pile set back minimum 2 feet from trench edge		
5	Means of egress within 25 feet of travel (ladder / ramp / stairs)		
6	Water accumulation controlled (dewatering in place if needed)		
7	No undermining of adjacent structures (buildings, walls, utilities)		
8	Surface encumbrances removed or adequately supported		
9	Atmosphere tested (if >4 feet deep with potential hazardous atmosphere)		
10	Heavy equipment set back from trench edge		
11	Pedestrian and vehicle barriers / barricades in place		
12	Fall protection for workers near edge (above 6 feet)		
13	Adequate lighting for work area		
14	Emergency rescue equipment available and accessible		

DEFICIENCIES & CORRECTIVE ACTIONS

#	Deficiency Description	Corrective Action Taken	Completion Time
---	------------------------	-------------------------	-----------------

1			
2			
3			
4			
5			

COMPETENT PERSON CERTIFICATION

I certify that I have inspected this excavation/trench and all conditions are safe for entry, or all deficiencies have been corrected as noted above.

Print Name): _____

Signature: _____

Date: _____

Time: _____

RE-INSPECTION AFTER EVENT (Rain / Vibration / Other): _____ Time: _____ Initials: _____

FORBES SAFETY SOLUTIONS

Vehicle / Fleet Pre-Trip Inspection

Ref: DOT Pre-Trip Requirements, OSHA General Duty

Company: _____
Make/Model/Year: _____
Date: _____
Odometer: _____

Vehicle ID: _____
License Plate: _____
Driver Name: _____

EXTERIOR INSPECTION

#	Inspection Item	Status
1	Tires — condition and pressure	
2	Headlights — operation	
3	Taillights — operation	
4	Turn signals — operation	
5	Brake lights — operation	
6	Mirrors — condition and adjustment	
7	Windshield and wipers — condition	
8	Body damage — dents, cracks, rust	
9	Fluid leaks — under vehicle	

INTERIOR / SAFETY EQUIPMENT INSPECTION

#	Inspection Item	Status
10	Seatbelts — condition and operation	
11	Horn — operation	
12	Gauges / dashboard indicators	
13	Steering — operation, free play	
14	Brakes — service brake operation	
15	Parking brake — holds on incline	
16	AC / Heater — operation	
17	Fire extinguisher — present, charged	
18	First aid kit — present, stocked	
19	Emergency triangles / reflective kit	

Driver Signature: _____
Supervisor Review: _____

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Deficiency Notes

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Deficiency Notes

Date:

WEEKLY SAFETY OBSERVATION TRACKER

Forbes Safety Solutions

Week Of:		Project:		Observer:					
#	Date	Time	Location	Trade / Crew	Observation Type	Category	Description	Immediate Action Taken	Follow-Up Required
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									

24									
25									

WEEKLY OBSERVATION DASHBOARD

Forbes Safety Solutions

KEY METRICS

Total Observations	0
Safe Acts Observed	0
At-Risk Acts Observed	0
Unsafe Conditions Found	0
Follow-Ups Required	0
Safe Observation Rate	0.0%

OBSERVATIONS BY TYPE

Observation Type
Safe Act
At-Risk Act
Unsafe Condition

OBSERVATIONS BY CATEGORY

Category	Safe Acts	At-Risk	Unsafe Cond.	Total
PPE	0	0	0	0
Housekeeping	0	0	0	0
Fall Protection	0	0	0	0
Tools & Equipment	0	0	0	0
Communication	0	0	0	0
Ergonomics	0	0	0	0
Other	0	0	0	0
TOTAL	0	0	0	0

Count	% of Total
0	0.0%
0	0.0%
0	0.0%

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INSTRUCTIONS — Weekly Safety Observation Tracker

Forbes Safety Solutions

PURPOSE

This tracker captures safety observations made during site walks and work activities.

Regular observation tracking helps identify patterns, reinforce safe behaviors, and address risks.

The goal is to observe and document both safe and at-risk behaviors throughout the week.

HOW TO USE

1. Open the 'Observations' sheet and fill in the Week Of, Project, and Observer name.

2. Each time you observe a safety-related behavior or condition, log it as a new row.

3. Select the Observation Type from the dropdown:

- Safe Act — Worker following proper safety procedures
- At-Risk Act — Worker engaging in behavior that could lead to injury
- Unsafe Condition — Environmental or equipment hazard identified

4. Select the appropriate Category from the dropdown.

5. Describe what you observed in the Description column.

6. Note any immediate action taken (conversation, correction, etc.).

7. Mark Follow-Up Required as 'Y' if the issue needs further action beyond the immediate response.

8. Review the Dashboard sheet for automated summary statistics.

OBSERVATION CATEGORIES EXPLAINED

PE — Personal Protective Equipment use: hard hats, glasses, gloves, vests, boots, hearing protection.

Housekeeping — Work area cleanliness, material storage, waste management, walkway clearance.

Fall Protection — Guardrails, harnesses, ladders, scaffolding, floor openings, elevated work.

Tools & Equipment — Proper tool use, equipment condition, guarding, maintenance, inspections.

Communication — Signage, barricades, safety meetings, hazard communication, radio/signal use.

Ergonomics — Lifting techniques, repetitive motions, awkward postures, material handling.

Other — Any safety observation not covered by the categories above.

DASHBOARD

The Dashboard automatically calculates observation totals, safe vs. at-risk ratios, and category breakdowns.

Horizontal bar charts provide quick visual comparison of observation counts across categories.

The Safe Observation Rate highlights green at 80%+ and red below 80%.

o manual entry is needed on the Dashboard — all values are formula-driven.

BEST PRACTICES

im for a minimum of 5 observations per day during active construction.

arget an 80% or higher Safe Observation Rate — focus on catching people doing things RIGHT.

se observations as coaching opportunities, not punitive documentation.

are weekly summaries at toolbox talks to reinforce positive safety culture.

ack trends over multiple weeks to identify recurring issues.

WELDING EQUIPMENT DAILY

Forbes Safety Soluti

Ref: 29 CFR 1926.35

Company:	
Welder Name:	
Date:	
Equipment ID:	

INSPECTION ITEM

#	Inspection Item	Status (Pass/Fail)
1	Welding machine — general condition	
2	Cables/Leads — no damage, proper insulation	
3	Ground clamp — secure and functional	
4	Electrode holder — condition	
5	Gas cylinders — secured and upright	
6	Regulator/Flowmeter — functioning properly	
7	Hoses — no leaks or damage	
8	Ventilation equipment — operational	
9	Welding screens/curtains — in place	
10	Fire extinguisher — present and charged	
11	PPE available and in good condition	

WELDER SIGN-OFF

Welder Signature:	
Date:	

Forbes Safety Solutions — Safety i

Generated: 2026-03-1

INSPECTION LOG

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Notes / Deficiency

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FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Abrasive Blasting

REGULATORY REFERENCES

- 29 CFR 1926.57 — Ventilation
- 29 CFR 1910.94 — Ventilation (General Industry)
- 29 CFR 1926.1153 — Respirable Crystalline Silica
- 29 CFR 1926.101 — Hearing Protection
- 29 CFR 1926.62 — Lead Exposure in Construction
- OSHA Fact Sheet: Abrasive Blasting Safety

SCOPE & DESCRIPTION

This JHA covers abrasive blasting operations including containment setup, equipment inspection, active blasting, dust/air monitoring, cleanup, and waste disposal. Abrasive blasting generates extreme noise levels (120+ dB), airborne silica and toxic particulates, and high-velocity ricochet hazards. All work must comply with the applicable OSHA standards and the site-specific silica exposure control plan.

PROJECT INFORMATION

Project Name:		Date:	
Project Number:		Location:	
Contractor:		Supervisor:	
JHA Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Containment Setup	Silica dust release during setup Struck by containment materials Falls from elevation	M	Install blast enclosure/containment per engineering plan Use dust-rated tarps and negative-pressure ventilation Secure scaffolding/platforms with fall protection Pre-wet surfaces if feasible to suppress dust
2. Equipment Inspection	Pressurized hose failure Defective nozzle — uncontrolled blast Electrical hazards (compressor)	H	Inspect blast pot, hoses, couplings, and nozzles before each shift Verify dead-man switch is operational Check compressor grounding and lockout capability Replace worn nozzles and damaged hoses immediately
3. Blasting Operations	Silica/toxic dust inhalation (TLV exceedance) Extreme noise (120+ dB) Ricochet/flying particles Visibility reduction inside containment Skin abrasion from blast stream	H	Mandatory Type CE or Type C supplied-air respirator Double hearing protection (plugs + muffs) — NRR 30+ Full-body blast suit, leather gloves, metatarsal boots Maintain dead-man switch at all times Restrict access to blast zone — minimum 50 ft exclusion Use blast-rated lighting inside containment Continuous air monitoring for silica (PEL 50 µg/m ³)
4. Dust Monitoring	Overexposure to respirable crystalline silica Lead paint blast residue Inadequate ventilation	H	Conduct personal air sampling per 29 CFR 1926.1153 Monitor lead levels if paint contains lead (>0.06%) Verify negative-pressure ventilation is operational Document all exposure monitoring results Implement medical surveillance program
5. Cleanup	Residual dust inhalation Slip/trip on spent media Manual handling of heavy waste bags	M	Wear respirator during cleanup (minimum P100 or APF 10) Use HEPA-filtered vacuum — no dry sweeping Wet down spent media before collection Use proper lifting techniques; limit bag weight to 50 lbs Maintain ventilation until cleanup is complete
6. Waste Disposal	Hazardous waste exposure (lead, chromium) Improper disposal — environmental violation Ergonomic strain from heavy containers	M	Characterize waste per RCRA requirements Label and store in approved hazardous waste containers Coordinate with licensed hazardous waste hauler Maintain waste manifests and disposal records Use mechanical aids for heavy containers

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	
☐ Type CE Supplied-Air Blast Helmet	☐ Full-Body Blast Suit (leather/canvas)
☐ Double Hearing Protection (plugs + muffs, NRR 30+)	☐ Leather Blast Gloves
☐ Steel-Toe/Metatarsal Safety Boots	☐ P100 Respirator (cleanup operations)
☐ Safety Glasses (outside blast zone)	☐ High-Visibility Vest (outside containment)

EMERGENCY PROCEDURES

1. **SILICA/TOXIC DUST OVEREXPOSURE:** Immediately remove affected worker to fresh air. Administer oxygen if available. Call 911 if worker shows respiratory distress. Report to site safety officer.
2. **HOSE FAILURE/PRESSURE RELEASE:** Activate dead-man switch immediately. Shut down compressor. Evacuate blast zone. Do not re-enter until pressure is fully bled down and equipment is inspected.
3. **EYE/SKIN INJURY FROM RICOCHET:** Flush eyes with emergency eyewash for minimum 15 minutes. For skin abrasion, clean wound and apply sterile dressing. Seek medical evaluation for all eye injuries.
4. **NOISE-INDUCED INJURY:** Remove from noise exposure. If worker reports hearing loss, ringing, or pain, transport to occupational health clinic immediately.
5. **FIRE IN CONTAINMENT:** Activate fire alarm. Evacuate containment immediately. Use dry chemical extinguisher (Class ABC). Do not re-enter until fire department clears the area.
6. **EMERGENCY CONTACTS:** 911 for all emergencies. Site Safety Officer: _____. Poison Control: 1-800-222-1222.

ADDITIONAL NOTES / SITE-SPECIFIC REQUIREMENTS

- A written Silica Exposure Control Plan must be on-site and accessible to all workers.
- Alternative blast media (garnet, steel grit, walnut shell) should be evaluated to reduce silica exposure.
- All blasters must complete site-specific abrasive blasting safety orientation before starting work.
- Environmental containment must prevent off-site migration of blast residue.
- Medical surveillance is required for workers exposed above the action level ($25 \mu\text{g}/\text{m}^3$) for 30+ days/year.

WORKER SIGN-OFF

By signing below, I confirm that I have reviewed and understand this JHA, including all identified hazards and required control measures.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

REVISION HISTORY

Revision	Date	Description	Approved By
0		Initial Release	
1			

DISCLAIMER: This Job Hazard Analysis is a guideline for identifying hazards and implementing controls. It does not replace site-specific safety plans, competent person assessments, or regulatory requirements. All workers must comply with applicable OSHA standards and company safety policies. This JHA must be reviewed and updated whenever work conditions change.

JOB HAZARD ANALYSIS

Aerial Lift / Boom Lift Operations

Regulatory References: 29 CFR 1926.453, ANSI A92.22

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	JHA-031
Supervisor:		Reviewed By:	
Trade/Activity:	Aerial Lift / Boom Lift Operations	Permit Required:	☐ Yes ☐ No

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level	Control Measures
1. Pre-Use Inspection	Mechanical failure Hydraulic leaks Defective controls Tire/outrigger damage	H M H M	Complete manufacturer's pre-use checklist before each shift Inspect hydraulic hoses, fittings, and cylinders for leaks or damage Test all controls (lift, lower, swing, drive, emergency stop) at ground level Check tires for proper inflation; inspect outriggers for cracks Verify fall protection anchor points and SRL operation Tag out and remove from service any defective equipment
2. Work Area Assessment	Overhead power lines Unstable ground Overhead obstructions Pedestrian traffic	H H M M	Survey for overhead power lines — maintain min. 10 ft clearance (20 ft for >350kV) Assess ground conditions: slope, soft soil, holes, debris Identify overhead obstructions (beams, pipes, trusses) Establish barricades and exclusion zone around work area Coordinate with other trades to prevent simultaneous overhead work Check weather — wind speed, lightning risk
3. Lift Positioning & Setup	Tip-over on uneven ground Struck-by during positioning Outrigger failure	H M M	Position on firm, level surface; use cribbing or pads under outriggers Set outriggers fully before elevating platform Use spotter when driving/positioning lift near edges or obstacles Engage wheel locks / parking brake before elevating Verify rated capacity includes all occupants, tools, and materials Do NOT exceed manufacturer's maximum platform load
4. Elevated Work Operations	Falls from basket Electrocution Struck by boom Entanglement	H H H M	Wear full-body harness with lanyard attached to basket anchor point at all times Keep both feet on platform floor — do NOT stand on railings or use ladders in basket Maintain minimum approach distances to energized power

FORBES SAFETY SOLUTIONS

Task Step	Hazard	Risk Level	Control Measures
	Dropped objects	M	lines Do NOT wrap limbs or lanyards around structural members Use tool lanyards; secure all materials to prevent dropped objects Do NOT exceed rated platform capacity Keep platform gate/chain closed during operation
5. Repositioning	Tip-over during travel Struck-by pedestrians Overhead contact	H M H	Lower platform to stowed (travel) position before driving Use a ground spotter when traveling near personnel or obstructions Travel at slow speed; watch for floor openings, slopes, and debris Re-assess work area conditions at each new position Never drive with platform elevated unless machine is designed for it
6. Shutdown & Securing	Unauthorized use Hydraulic energy release Equipment damage	M L L	Lower platform fully; retract outriggers Turn off engine/power; remove and secure key Set parking brake and wheel chocks Clean platform of debris, tools, and materials Complete post-use inspection log Report any deficiencies discovered during operation

Additional Notes: All operators must possess valid aerial lift operator certification. Daily pre-use inspections are mandatory per ANSI A92.22. Wind speed must be monitored — cease operations if gusts exceed manufacturer limits (typically 28 mph).

FORBES SAFETY SOLUTIONS

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE	
☒ Hard Hat (ANSI Z89.1)	☒ Safety Glasses (ANSI Z87.1)
☒ Full-Body Harness w/ Lanyard	☒ High-Visibility Vest (Class 2/3)
☒ Steel/Composite Toe Boots	☒ Dielectric Gloves (near power lines)
☒ Hearing Protection (if applicable)	☒ Fall Restraint / SRL

EMERGENCY PROCEDURES

- In case of tip-over: Brace yourself inside the basket; do NOT jump. Activate emergency stop.
- Contact with power lines: Do NOT touch the machine or ground simultaneously. Jump clear with feet together if evacuation is necessary. Call 911 immediately.
- Fall from basket: Initiate rescue plan immediately. Ensure trained personnel perform aerial rescue within minutes to prevent suspension trauma.
- Medical emergency at height: Lower the platform to ground level if possible. Administer first aid. Call 911.
- Emergency lowering: Know location and operation of ground-level emergency controls on every machine used.
- Report all incidents, near-misses, and equipment malfunctions to the supervisor immediately.

FORBES SAFETY SOLUTIONS

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for the work to be performed.

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REVIEW & APPROVAL

Role	Name / Signature	Title	Date
Prepared By			
Reviewed By			
Approved By			
Site Supervisor			

REVISION HISTORY

Rev.	Date	Description	Author
0		Initial Release	
1			

JOB HAZARD ANALYSIS

Asphalt Paving

Regulatory References: 29 CFR 1926.200-203 (Signaling), NIOSH Asphalt Fumes Criteria Document, 29 CFR 1926.601

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	JHA-034
Supervisor:		Reviewed By:	
Trade/Activity:	Asphalt Paving Operations	Permit Required:	☐ Yes ☐ No

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level	Control Measures
1. Traffic Control Setup	Struck by passing vehicles Pedestrian intrusion Worker visibility	H M H	Implement Traffic Control Plan (TCP) per MUTCD standards Deploy signs, cones, arrow boards, and barricades before work begins All workers in Class 3 high-visibility garments Certified flaggers at all ingress/egress points Establish buffer zone between live traffic and work zone Conduct traffic control briefing with all crew before starting
2. Surface Preparation / Milling	Silica dust from milling Noise exposure (100+ dB) Struck by milling machine Pinch points	H H M M	Wet milling or dust suppression to control silica exposure Wear hearing protection — double protection recommended Maintain safe distance from milling drum during operation Spotter required when machine is backing or turning Sweep/vacuum milled surface before tack coat application Lock out milling machine before any maintenance or drum inspection
3. Asphalt Delivery & Transfer	Burns from hot mix (300-350°F) Struck by haul truck Backing vehicle incidents	H H H	Truck drivers follow paver operator signals only — one designated signal person Spotter guides all backing trucks into the paver hopper No personnel between truck and paver during coupling Wear heat-resistant gloves and long sleeves during material transfer Inspect truck bed for hang-ups before raising — stand clear of dump bed Do NOT ride on truck bed or tailgate
4. Paving Operations	Burns from hot asphalt Asphalt fume inhalation Pinch points on paver Heat stress	H H M H	Position workers upwind of paver when possible to reduce fume exposure Screed fume extraction system operational at all times if equipped Monitor asphalt fume exposure — provide respirators if PEL exceeded Keep hands/fingers clear of auger, conveyor, and screed

FORBES SAFETY SOLUTIONS

Task Step	Hazard	Risk Level	Control Measures
			pinch points Never reach into paver hopper — use shovels/lutes for material management Implement heat illness prevention: mandatory water, rest breaks, shade
5. Compaction / Rolling	Struck by roller Pinch/crush between roller and paver Burns from hot mat Vibration exposure	H H M M	Roller operators maintain 360° awareness — use mirrors and spotter No ground personnel within roller operating zone during compaction Sound horn before reversing direction Keep workers off freshly paved mat until cooled below 160°F for foot traffic Limit vibrating roller exposure time to reduce whole-body vibration Roller operators must have clear line of sight at all times
6. Traffic Control Removal	Struck by traffic during removal Premature traffic release Trip hazards	H M L	Remove traffic control devices in reverse order of installation (farthest from work zone first) Maintain traffic control until pavement is safe for public traffic Workers face oncoming traffic during device removal Verify all equipment, tools, and materials are removed from roadway Flaggers remain until all devices are collected Conduct final walk-through of work zone before opening to traffic

Additional Notes: Monitor ambient temperature and enforce heat illness prevention plan. Ensure water, rest, and shade per OSHA heat guidance. All flaggers must have valid traffic control certification.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE	
☒ Hard Hat (ANSI Z89.1)	☒ Safety Glasses (ANSI Z87.1)
☒ High-Visibility Vest / Shirt (Class 3)	☒ Steel/Composite Toe Boots (heat-resistant soles)
☒ Long Sleeves & Long Pants (burn protection)	☒ Heat-Resistant Gloves
☒ Hearing Protection (NRR 25+)	☒ Respirator (if fume levels exceed PEL)
☒ Sunscreen / Shade (heat stress)	☒ Knee Pads (hand work)

EMERGENCY PROCEDURES

- Burn from hot asphalt (300°F+): Cool burn with water immediately for at least 20 minutes. Do NOT attempt to remove adhered asphalt. Cover with sterile dressing and seek medical attention.
- Asphalt fume overexposure: Move worker upwind to fresh air. Seek medical evaluation for respiratory distress or nausea.
- Struck by vehicle/equipment: Call 911 immediately. Administer first aid. Secure the work zone to prevent additional incidents.
- Heat illness (heat stroke/exhaustion): Move to shade, cool with water/ice, call 911 if altered consciousness, confusion, or high body temperature.
- Equipment fire: Evacuate area. Use dry chemical or foam extinguisher — NOT water on hot asphalt fire. Call 911.
- Report all incidents, near-misses, and safety concerns to supervisor immediately.

FORBES SAFETY SOLUTIONS

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for the work to be performed.

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REVIEW & APPROVAL

Role	Name / Signature	Title	Date
Prepared By			
Reviewed By			
Approved By			
Site Supervisor			

REVISION HISTORY

Rev.	Date	Description	Author
0		Initial Release	
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FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Battery Energy Storage System (BESS) Maintenance

Document No: FSS-JHA-047

Regulatory References: NFPA 855 (Energy Storage Systems), 29 CFR 1910.269, NFPA 70E, UL 9540

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Work Description:	Battery Energy Storage System (BESS) Maintenance	Revision:	0

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. System Isolation and LOTO	Electrical shock (600V+ DC) Arc flash (high energy DC) Stranded energy — batteries remain energized even after isolation	H H H	Follow site-specific LOTO procedure; use Group LOTO for multiple workers Perform arc flash study; wear PPE per NFPA 70E incident energy calculation Verify zero energy state at each work point with CAT IV rated meter; batteries cannot be fully de-energized — maintain electrical safe work practices at all times
2. Enclosure Access and Environmental Monitoring	Oxygen depletion in enclosed space Toxic gas exposure (HF, HCN from thermal event) Heat exposure inside enclosure	H H M	Continuous atmospheric monitoring with 4-gas detector (O ₂ , LEL, CO, H ₂ S); add HF monitor for lithium-ion systems Verify ventilation system is operational before entry; establish evacuation alarm at 1 ppm HF Monitor temperature inside enclosure; ensure HVAC is functional; provide cooling PPE if needed
3. Battery Module Inspection	Electrical shock from module terminals Thermal runaway — battery fire with toxic gas Electrolyte exposure (skin/eye burns)	H H H	Wear voltage-rated gloves (Class 0 minimum); use insulated tools only; never bridge terminals Use thermal imaging to inspect modules before contact; identify swollen/damaged cells; do NOT disturb suspect modules — evacuate and contact manufacturer Wear chemical splash goggles and face shield; have spill kit with neutralizing agent; emergency eyewash within 10 seconds of travel
4. DC Bus Work and Connections	DC arc flash (extreme energy — does not self-extinguish) Electrical shock (600V+ DC) Dropped tools creating short circuits	H H H	Perform detailed arc flash risk assessment for DC systems; DC arcs do NOT cross zero — use DC-rated PPE and clearing devices Verify isolation; use insulated tools; maintain safe approach boundaries Use tool tethers; remove all metallic jewelry; cover exposed bus bars with insulating blankets
5. Thermal Management System Service	Refrigerant exposure Electrical contact with HVAC components	M M M	EPA Section 608 certified technicians only; use refrigerant leak detectors; ensure ventilation LOTO HVAC electrical feeds; verify de-energized before

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	Working in confined areas		service Follow confined space entry procedures if applicable; maintain communication with attendant
6. Re-Energization and System Verification	Arc flash during energization Unexpected fault current Thermal event during startup	H H M	Clear all personnel from arc flash boundaries; only qualified operators energize; close disconnects remotely if possible Verify all connections torqued to specification; remove all tools and temporary grounds before energization Monitor BMS for cell voltage/temperature anomalies during ramp-up; have fire suppression system armed and verified

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Arc-rated clothing per NFPA 70E arc flash study (often 40+ cal/cm² for BESS)
- Voltage-rated gloves (Class 0 minimum, 1000V DC) with leather protectors
- Arc-rated face shield and balaclava
- Safety glasses (ANSI Z87.1) under face shield
- Chemical splash goggles for electrolyte exposure risk
- Steel-toe/composite-toe EH-rated boots (ASTM F2413)
- 4-gas atmospheric monitor (O₂, LEL, CO, H₂S) + HF monitor
- Self-contained breathing apparatus (SCBA) staged at entry point for emergency
- Cut-resistant gloves for non-electrical tasks
- High-visibility vest when working in traffic areas

ADDITIONAL SAFETY REQUIREMENTS

- BESS systems contain stranded energy — batteries CANNOT be fully de-energized; treat all components as energized at all times
- Only manufacturer-trained and qualified electrical workers shall perform BESS maintenance
- Battery Management System (BMS) alarms must be reviewed before any enclosure entry
- Thermal imaging scan required before physical contact with any battery module
- Fire suppression system must be verified operational before maintenance begins
- Coordinate with utility/grid operator for system isolation; verify no remote energization capability
- Emergency response plan specific to thermal runaway must be reviewed with all workers before each shift

EMERGENCY PROCEDURES

- THERMAL RUNAWAY RESPONSE: Evacuate immediately; do NOT attempt to fight lithium-ion battery fire with water unless system is specifically designed for it; call 911; notify utility/system operator
- For toxic gas exposure (HF/HCN): Move to fresh air immediately; call 911; apply calcium gluconate gel to any skin exposure; do NOT induce vomiting
- For electrical shock: De-energize source if safe; do NOT touch victim in contact with energized equipment; call 911; begin CPR/AED if trained
- For arc flash burns: Remove from source; cool burns with water; do NOT remove melted clothing; call 911
- Emergency shutdown procedure posted at: _____
- Fire suppression system activation: _____
- First aid kit, AED, and SCBA located at: _____
- Nearest hospital/emergency room: _____
- Manufacturer emergency hotline: _____

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for this work activity.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

Role	Name / Signature	Date	Next Review Date
Prepared By			
Reviewed By			
Approved By			
Site Safety Manager			

DISCLAIMER: This JHA is a template provided by Forbes Safety Solutions for general guidance. It must be reviewed, customized, and approved by a qualified safety professional before use on any specific project. Site-specific conditions may require additional hazard controls not listed herein.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Cable Pulling / Wire Stringing

Regulatory References: 29 CFR 1910.269, 29 CFR 1926 Subpart V, IEEE 524

Document No: FSS-JHA-039 | Revision: 0 | Date: _____

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS TABLE

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Reel Setup & Pulling Equipment Positioning	Heavy reel handling (tip-over, crush) Equipment struck-by Uneven ground/terrain Traffic near setup area	H M M M	Use mechanical means (forklift, crane) to position reels; never roll by hand on grade Set reel jacks on firm, level ground; chock to prevent movement Verify pulling equipment capacity exceeds maximum pulling tension Establish traffic control for roadside operations per MUTCD Brief crew on pulling plan, communication signals, and emergency stops Position equipment to minimize cable bends and crossing hazards
2. Cable Feeding & Pulling Tension Monitoring	High pulling tension (cable snap/whip) Pinch points at sheaves/rollers Cable abrasion damage Communication failure	H H M M	Set tension limiter on puller per cable manufacturer MSBP specifications Monitor dynamometer continuously; stop if tension exceeds limits Apply approved cable lubricant to reduce friction per IEEE 524 Keep all personnel clear of cable path and behind sheave guards Establish continuous radio communication between reel and puller ends Emergency stop capability at both ends of pull
3. Cable Routing Through Conduit/Duct Bank	Cable jamming Existing cable damage Confined space in manholes Chemical exposure (lubricants)	M H H L	Conduct duct survey (mandrel test) before pulling to verify clear path Identify and protect existing cables in shared duct banks Follow confined space entry procedures for all manhole entries (29 CFR 1910.146)

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
			Atmospheric testing before and during manhole operations Use cable guides/rollers at all direction changes to prevent damage Use SDS-approved cable lubricants; provide PPE for chemical handling
4. Splice/Termination Preparation	Electrical contact (adjacent energized cables) Sharp cable edges/cutting tools Chemical exposure (splice materials) Ergonomic strain	H M M M	Verify zero-energy state on cable to be spliced/terminated; use LOTO Identify and maintain safe distance from adjacent energized cables Use proper cable-cutting and stripping tools; cut away from body Follow manufacturer splice/termination procedures exactly Use chemical-resistant gloves when handling splice compounds Provide adequate lighting and ergonomic positioning for workers
5. Testing & Energization Preparation	High-voltage testing (hipot) shock Incorrect cable identification Premature energization	H H H	Clear all personnel from cable route before high-potential testing Post warning signs: 'DANGER - HIGH VOLTAGE TESTING IN PROGRESS' Verify cable phase identification with multiple methods (tone, tag, trace) Ground all cable ends not being tested per IEEE 400 Confirm LOTO clearance before energization steps Notify control center and receive authorization before switching
6. Cleanup & Demobilization	Trip/slip hazards from materials Reel handling injuries Unsecured manhole/vault covers	L M M	Remove all pulling equipment, lubricant containers, and debris Secure all manhole and vault covers flush with grade Verify all cable openings are properly sealed (fire-stop, duct seal) Return reels and equipment using mechanical handling Conduct final site walkthrough for housekeeping Complete as-built documentation and pulling records

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

☐ Hard Hat (ANSI Z89.1 Type I, Class E)	☐ Safety Glasses (ANSI Z87.1)
☐ Leather Work Gloves (abrasion-resistant)	☐ Steel-Toe Boots (ASTM F2413)
☐ High-Visibility Vest (ANSI/ISEA 107 Class 2)	☐ FR-Rated Clothing (near energized lines)
☐ Hearing Protection (pulling equipment noise)	☐ Full-Body Harness (if working at height or near openings)
☐ Rubber Insulating Gloves (if near energized conductors)	☐ Knee Pads (for conduit work)

EMERGENCY PROCEDURES

1. If cable snaps or whips under tension, all personnel immediately take cover behind solid barriers. Do NOT attempt to grab a cable under tension. Account for all workers.
2. For pinch-point injuries at sheaves or rollers, stop all pulling operations immediately. Administer first aid and call 911 for crush injuries. Do NOT reverse equipment to free trapped limbs without medical guidance.
3. If overhead line contact occurs, assume everything in the work area is energized. Do NOT touch any equipment or cables. Evacuate using shuffle step (feet together). Call utility for emergency de-energization.
4. For manhole/confined space emergencies, do NOT enter for rescue without proper equipment. Activate retrieval system from surface. Call 911 and initiate confined space rescue plan.
5. For heavy reel handling injuries (strain, crush), stop operations and assess injury. Apply RICE protocol for strains. Call 911 for crush or suspected fracture injuries.
6. All incidents require immediate work stoppage, supervisor notification, and incident report within 24 hours.

Emergency Contact:	911 / Site-specific: _____
Assembly Point:	
Nearest Hospital:	
First Aid Kit Location:	

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures.

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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Name / Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

Next Review Date:	
Revision Notes:	

FORBES SAFETY SOLUTIONS | *Committed to Zero Incidents*

This document is valid only when all sections are completed and signatures obtained.

JOB HAZARD ANALYSIS

Concrete Cutting & Sawing

Regulatory References: 29 CFR 1926.1153 (Silica), 29 CFR 1926.300, Table 1 Silica Rule

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	JHA-033
Supervisor:		Reviewed By:	
Trade/Activity:	Concrete Cutting & Sawing	Permit Required:	☐ Yes ☐ No

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level	Control Measures
1. Layout & Marking	Striking embedded utilities/rebar Slips/trips Silica dust (pre-existing)	H L M	Scan concrete with GPR or X-ray to identify rebar, conduit, and utilities Mark cut lines clearly with chalk or marking paint Clear work area of debris, tools, and obstructions Verify depth of cut will not contact embedded utilities Review structural drawings to confirm cut will not compromise integrity Obtain engineering approval for structural cuts
2. Saw / Equipment Setup	Blade failure/breakage Electrical hazards Improper guarding	H H M	Inspect blade for cracks, missing segments, warping, or damage — replace if defective Verify blade RPM rating matches saw specifications Check all guards are in place and functioning properly Ensure GFCI protection on all electrical connections Inspect power cords for damage; route away from water and cutting path Test emergency shut-off before starting work
3. Wet Cutting Operations	Silica dust (reduced but present) Electrical shock from water Slurry slip hazard Blade kickback	M H M H	Provide continuous water flow to blade per Table 1 requirements Use GFCI protection on ALL electrical equipment in wet environment Contain slurry with berms/vacuum — prevent runoff to drains or waterways Maintain firm footing; use anti-slip footwear Allow blade to reach full speed before contacting concrete Never force blade; let it cut at its own pace to prevent kickback Operator must use both hands on saw at all times
4. Dry Cutting with Vacuum	Silica dust exposure Noise (95-110 dB) Flying debris	H H M	Use saw with integrated dust collection (vacuum shroud) per Table 1 Ensure HEPA vacuum is operating at manufacturer-specified

FORBES SAFETY SOLUTIONS

Task Step	Hazard	Risk Level	Control Measures
	Fire from sparks	M	flow rate Operator wears half-face APR with P100 filters as backup Wear hearing protection — double protection if >100 dB Wear face shield over safety glasses Clear all combustible materials within 35 ft of cutting area Have fire extinguisher within 25 ft
5. Material Removal	Heavy lifting (concrete sections) Pinch points Sharp edges Collapse of cut sections	M M M H	Plan removal sequence to prevent uncontrolled collapse of cut sections Use mechanical lifting (forklift, crane) for sections over 50 lbs Wear cut-resistant gloves when handling cut concrete Support cut sections before making final cuts to prevent falling Keep hands and feet clear of pinch points during removal Stack removed material in designated area away from work zone
6. Cleanup	Silica in settled dust Slurry disposal Tripping hazards	M M L	Use HEPA vacuum for dry dust cleanup — NEVER dry sweep or use compressed air Collect and properly dispose of slurry per local environmental regulations Decontaminate equipment before leaving the work area Remove all PPE carefully to avoid secondary silica exposure Inspect area for remaining trip hazards; patch or barricade open cuts Complete silica exposure log for the shift

Additional Notes: Silica exposure control plan required per 29 CFR 1926.1153. Follow Table 1 controls for each saw type. Maintain exposure monitoring records. All operators must complete silica awareness training.

FORBES SAFETY SOLUTIONS

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE	
☒ Hard Hat (ANSI Z89.1)	☒ Safety Glasses / Goggles (ANSI Z87.1)
☒ Face Shield (during cutting)	☒ Hearing Protection (NRR 25+)
☒ Respirator (N95 min / Half-Face APR w/ P100 for silica)	☒ High-Visibility Vest
☒ Steel/Composite Toe Boots	☒ Cut-Resistant Gloves
☒ Knee Pads (for slab cutting)	☒ Waterproof Clothing (wet cutting)

EMERGENCY PROCEDURES

- Blade contact injury: Apply direct pressure to wound. Call 911 for deep lacerations or amputations. Do NOT remove embedded blade fragments.
- Silica overexposure: Remove worker from exposure area. Seek medical evaluation for respiratory symptoms.
- Electrical shock (wet cutting): De-energize equipment. Do NOT touch the victim if still in contact with power. Call 911. Use GFCI on all circuits.
- Fire from dry cutting sparks: Use ABC fire extinguisher on-site. Clear combustibles from cutting area before work begins.
- Eye injury from debris: Flush eyes with clean water for 15 minutes. Seek medical attention.
- Report all incidents, near-misses, and equipment malfunctions to supervisor immediately.

FORBES SAFETY SOLUTIONS

WORKER SIGN-OFF

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REVIEW & APPROVAL

Role	Name / Signature	Title	Date
Prepared By			
Reviewed By			
Approved By			
Site Supervisor			

REVISION HISTORY

Rev.	Date	Description	Author
0		Initial Release	
1			

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

CONCRETE FORMWORK & SHORING

29 CFR 1926 Subpart Q — Concrete and Masonry Construction

PROJECT INFORMATION

Company Name:		Date:	
Project Name:		Supervisor:	
JHA Number:		Revision:	
Work Activity:	Concrete Formwork & Shoring Operations		
References:	29 CFR 1926 Subpart Q; 29 CFR 1926.703; ACI 347; OSHA STD 03-11-002		

HAZARD ANALYSIS

TASK STEP	HAZARD	RISK LEVEL	CONTROL MEASURES
1. Form Layout & Preparation	- Manual handling strain (heavy form panels 50-100+ lbs) - Struck-by falling panels during unloading - Pinch points during assembly - Uneven ground / trip hazards	HIGH	- Use mechanical lifting devices (crane/forklift) for panels >50 lbs - Tag lines on suspended loads; never stand under - Leather gloves required during handling - Pre-task housekeeping; level staging area - Two-person minimum for panel handling - Stretch & flex program before shift start
2. Shoring / Reshoring Installation	- Formwork collapse / structural failure - Falls from elevated work surfaces - Struck-by falling shoring components - Crushing during jack/post adjustment	HIGH	- Engineered shoring design by qualified person per 29 CFR 1926.703(b) - Inspect all shoring components before installation - Fall protection required above 6 ft (guardrails or PFAS) - Hard hats mandatory in shoring zone - Do not exceed rated load capacity—verify manufacturer specs - Exclusion zone below active shoring installation
3. Rebar Placement & Tying	- Impalement on protruding rebar - Cuts / lacerations from rebar ends and tie wire - Repetitive motion injury (tying) - Falls from elevated rebar mats	HIGH	- Rebar caps (mushroom type) on all protruding vertical rebar per OSHA - Cut-resistant gloves (ANSI A4 minimum) required - Automatic rebar tying tools to reduce repetitive strain - Fall protection on rebar mats above 6 ft; use rebar runner planks - Pre-shift inspection of rebar caps and covers
4. Form Inspection Before Pour	- Formwork blowout during pour (catastrophic failure) - Undetected damage to ties, braces, or strongbacks - Unauthorized modifications to engineered system	MEDIUM	- Qualified person inspection before each concrete pour per 1926.703(e) - Document inspection on pre-pour checklist - Verify form tie spacing matches engineering drawings - Check all braces, walers, and strongbacks for secure connection - Stop-work authority for any deficiency found
5. Concrete Placement (Pump / Bucket / Chute)	- Concrete burns (alkaline pH 12–13 causes chemical burns) - Silica dust exposure (cutting / grinding cured concrete)	HIGH	- Full concrete PPE: rubber boots, long sleeves, alkali-resistant gloves, splash goggles - Immediate skin wash stations within 25 ft of pour area - Pump operator certification; safety meeting before pump setup

	• Struck-by from concrete pump hose whip • Engulfment in wet concrete (wall / deep forms) • Noise exposure from pumps and vibrators		• Hose restraint cables on all pump line couplings • Workers shall not enter forms during placement • Hearing protection required near pumps/vibrators (>85 dBA)
6. Form Stripping & Shoring Removal	• Premature stripping (structural collapse) • Falls during elevated stripping work • Struck-by falling form panels and hardware • Concrete edge sharpness (lacerations)	HIGH	• Concrete cylinder break tests must meet minimum PSI before stripping • Qualified person authorization required—document on permit • Controlled demolition sequence per engineering plan • Exclusion zone below stripping operations; barricade and signage • Fall protection (PFAS or guardrails) on all elevated stripping • Cut-resistant gloves during handling of stripped forms

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

PPE ITEM	STANDARD	NOTES
Hard Hat (Type I, Class E)	ANSI/ISEA Z89.1-2014	Required at all times in work zone
Safety Glasses / Goggles	ANSI/ISEA Z87.1-2020	Splash goggles during concrete pour
Alkali-Resistant Gloves	ANSI/ISEA 105-2016	Rubber/nitrile for wet concrete; leather for form handling
Steel-Toe Rubber Boots	ASTM F2413-18	Waterproof rubber boots during concrete placement
High-Vis Safety Vest (Class 2)	ANSI/ISEA 107-2020	Required on all active construction sites
Fall Protection Harness	ANSI Z359.11-2021	Full-body harness for work above 6 ft
Hearing Protection	ANSI S3.19 / S12.6	Required near pumps, vibrators, saws (>85 dBA)
Respiratory Protection	NIOSH 42 CFR Part 84	N95 minimum when cutting/grinding concrete (silica)
Long Sleeves / Coveralls	—	Prevent concrete contact burns; alkali-resistant material preferred

EMERGENCY PROCEDURES

Emergency Contact: 911 for all life-threatening emergencies

First Aid Station: Located at _____ (identify before each shift)

Concrete Burns: Immediately flush affected skin with clean water for 20+ minutes. Remove contaminated clothing. Seek medical attention for persistent irritation or chemical burns.

Eye Contact: Flush eyes immediately with clean water for at least 15 minutes at nearest eyewash station. Seek medical attention.

Formwork Collapse: Evacuate area immediately. Account for all personnel. Do not re-enter until qualified engineer inspects and clears the area. Notify Project Manager and Safety Department.

Fall Injury: Do not move injured person unless in immediate danger. Call 911. Provide first aid as trained. Document incident per company procedures.

Fire / Pump Fuel Spill: Use nearest fire extinguisher if safe to do so. Evacuate to designated muster point. Call fire department.

Nearest Hospital: _____ (identify before each shift)

CREW ACKNOWLEDGMENT & SIGN-OFF

By signing below, I acknowledge that I have reviewed this JHA, understand the identified hazards and required control measures, and agree to follow all safety procedures.

#	PRINTED NAME	SIGNATURE	COMPANY / TRADE	DATE	UNDERSTOOD (INITIALS)
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REVIEW & APPROVAL

ROLE	SIGNATURE	DATE	PRINTED NAME
Prepared By:			
Reviewed By (Supervisor):			
Approved By (Safety Mgr):			
Client/GC Representative:			

DISCLAIMER

This JHA is a template intended to be customized for site-specific conditions. It does not replace a qualified safety professional's assessment. Employers remain responsible for compliance with all applicable OSHA standards and local regulations. This document should be reviewed and updated whenever work conditions change.

JOB HAZARD ANALYSIS

Concrete Placement & Finishing Operations

Applicable Standards: 29 CFR 1926 Subpart Q (1926.700–1926.706) — Concrete & Masonry; 29 CFR 1926.1153 — Respirable Crystalline Silica; ACI 347 — Formwork

Project Name: _____	Date: _____
Location: _____	Supervisor: _____
Crew Members: _____	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
1	Inspect formwork, shoring, and bracing for structural adequacy	Formwork collapse under concrete weight; shoring failure; workers struck by falling forms	Competent person inspects all formwork per ACI 347 and 1926.703(a). Verify shoring designed by qualified engineer for anticipated loads. Check bracing connections, wedges, and tie spacing. No worker under forms being raised/moved.	
2	Place and tie reinforcing steel (rebar) and embed items	Impalement on exposed rebar ends; cuts/lacerations from wire ties; manual handling strain; falls from elevated rebar mats	Install rebar caps (mushroom type) on all exposed vertical rebar per 1926.701(b). Cut-resistant gloves for tie wire work. Two-person carry for rebar >20 ft. Planking over rebar mats for worker access. Rebar impalement protection required at all heights.	
3	Set up and position concrete pump truck — outriggers, boom reach, and exclusion zone	Pump truck tip-over; boom contact with overhead power lines; struck-by from boom swing; outrigger bearing failure	Level truck on firm ground. Fully extend outriggers with timber cribbing pads. Maintain min 20-ft clearance from power lines per 1926.1408. Establish swing radius exclusion zone. Certified pump operator only. Pre-pour safety briefing with all crew.	
4	Receive and place concrete from ready-mix trucks	Struck-by from chute swing; contact with wet concrete (alkaline burns pH 12+); silica dust from dry areas; slip hazards	Spotter guides trucks — wheel chocks on grade. Long sleeves, waterproof gloves, rubber boots, and splash-proof goggles for all workers contacting concrete. Eye wash station on-site. Wash skin immediately upon contact. No kneeling in wet concrete.	
5	Consolidate concrete using internal vibrators	Hand-arm vibration syndrome (HAVS); electrical shock from vibrator in wet conditions; noise exposure >85 dBA	GFCI protection on all electrical vibrators. Limit continuous vibrator use to 15-min intervals. Anti-vibration gloves. Hearing protection required (ear plugs + muffs near pump). Rotate vibrator operators to limit exposure.	
6	Screed, bull float, and finish concrete surface	Ergonomic strain (bending/kneeling for extended periods); silica exposure during power trowel operations; slips on wet surface	Knee boards for finishing. Rotate finishers every 30 min. Wet methods during cutting/grinding per 1926.1153 Table 1. Non-slip rubber boots. Power trowel operators trained — kill switch functional. Dust mask or respirator for dry finishing.	
7	Apply curing compound or wet cure methods	Chemical inhalation from curing compounds (VOC exposure); skin irritation; slip hazard on treated surfaces	Review SDS for curing compound. Apply with low-pressure sprayer to minimize aerosolization. Half-face respirator with OV cartridge in enclosed areas. Chemical-resistant gloves. Barricade cured areas to prevent foot traffic until set.	
8	Strip forms and remove shoring per engineered sequence	Premature form removal (structural collapse); falling forms/shores; pinch points between forms and structure; nail punctures	Strip only after concrete reaches specified strength (cylinder break tests or maturity method). Follow engineer's reshoring sequence. Two workers minimum for panel	

⚠ This JHA must be reviewed and signed by all crew members before work begins. Conditions on the jobsite may change — reassess hazards throughout the shift and update this JHA as necessary.

REVIEW & APPROVAL

Reviewed By (Print Name)

Signature

Date

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

JHA INFORMATION			
JHA Title:	Confined Space Entry	JHA Number:	FSS-JHA-027
Project Name:		Date:	
Location:		Revision:	0
Regulatory References:	29 CFR 1910.146 (Permit-Required Confined Spaces); 29 CFR 1926 Subpart AA (Confined Spaces in Construction)		
Prepared By:		Approved By:	
Competent Person:		Supervisor:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Space Identification & Hazard Assessment	• Unidentified permit-required conditions • Unknown atmospheric hazards • Engulfment potential • Energy sources not identified	H	• Survey and inventory all confined spaces on site • Classify each space as permit-required or non-permit per 1910.146 • Post warning signs at all confined space entries ("DANGER — Confined Space") • Review historical data, SDS, and process info for each space • Identify all energy sources requiring lockout/tagout • Conduct pre-entry hazard assessment with competent person
2. Atmospheric Testing	• Oxygen deficiency (<19.5%) • Oxygen enrichment (>23.5%) • Toxic gas exposure (H₂S, CO) • Flammable atmosphere (>10% LEL)	H	• Calibrate multi-gas detector before each use per manufacturer specs • Test atmosphere before entry in this order: O₂, combustibles, toxics • Test at multiple levels (top, middle, bottom) of space • Continuous monitoring required during all entry operations • Establish action levels: O₂ 19.5-23.5%, LEL <10%, H₂S <10ppm, CO <25ppm • Document all readings on entry permit • Evacuate immediately if readings exceed action levels
3. Ventilation Setup	• Inadequate air circulation • Introduction of contaminants via ventilation • Recirculation of hazardous atmosphere • Noise exposure from blowers	M	• Position blower intake in clean air source — away from exhaust/contaminants • Direct forced air to lowest point of space for heavier-than-air gases • Allow adequate ventilation time before entry (minimum 15 minutes) • Re-test atmosphere after ventilation before allowing entry • Maintain continuous mechanical ventilation during all entry operations • Use intrinsically safe ventilation equipment in flammable atmospheres
4. Entry Permit Completion	• Incomplete hazard communication • Missing authorization • Inadequate rescue planning • Untrained personnel entry	M	• Complete all sections of confined space entry permit • Verify atmospheric test results recorded on permit • Confirm rescue plan and rescue team availability • List all authorized entrants, attendants, and entry supervisor • Verify all entrants have current confined space training • Entry supervisor signs permit — post at entry point • Permit valid for one shift only; renew for subsequent shifts
5. Entry & Work Operations	• Atmospheric changes during work • Engulfment by stored materials • Entrapment in converging geometry • Electrical/mechanical energy contact	H	• Attendant stationed at entry point at all times — no exceptions • Maintain continuous communication (visual, voice, radio, or hardwired) • Entrants wear retrieval harness with lifeline attached to tripod/davit • Continuous atmospheric monitoring with audible/visual alarms • All energy sources locked out/tagged out before entry • Limit number of entrants to essential personnel only • Entrants authorized to self-evacuate at any time without question
6. Exit & Permit Closeout	• Residual hazards left in space • Incomplete documentation • Failure to secure space after exit	L	• All entrants exit space and are accounted for • Remove all tools, equipment, and materials from space • Close and secure space entry point to prevent unauthorized entry • Entry supervisor cancels permit and documents closeout

			• Review any incidents or near-misses during entry • File completed permit with project safety records • Debrief crew on lessons learned
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REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	Specification / ANSI Standard	Condition / Notes
Hard Hat	ANSI/ISEA Z89.1, Type I or II	Bump cap may be acceptable in low-clearance spaces
Safety Glasses / Goggles	ANSI/ISEA Z87.1+	Splash-proof goggles if liquid hazards present
Full-Body Harness with Retrieval D-Ring	ANSI/ASSP Z359.1	Dorsal D-ring for fall arrest; sternal for retrieval
Supplied Air Respirator (SAR) or SCBA	NIOSH 42 CFR Part 84; ANSI Z88.2	Required when atmosphere cannot be made safe
Chemical-Resistant Gloves	ANSI/ISEA 105; EN 374	Select based on chemical exposure present
Steel-Toe Safety Boots	ASTM F2413 (I/75 C/75)	Chemical-resistant soles if needed
High-Visibility Vest	ANSI/ISEA 107, Class 2	Required for surface crew visibility
Hearing Protection	ANSI S3.19 / S12.6 (NRR ≥ 25 dB)	Required when ventilation noise exceeds 85 dBA

EMERGENCY PROCEDURES

Atmospheric Emergency / Alarm:

- All entrants evacuate space IMMEDIATELY upon alarm activation
- Attendant initiates rescue procedures — does NOT enter the space
- Attendant calls 911 and activates on-site rescue team
- Account for all entrants by name — report to rescue team
- Provide rescue team with atmospheric data and space configuration
- On-site rescue team enters only with proper equipment and training

Entrant Down / Unresponsive:

- Attendant attempts non-entry rescue using retrieval system (tripod/davit)
- Call 911 and activate confined space rescue team
- NEVER enter the space to attempt rescue without proper equipment and backup
- If extracted, begin CPR/AED and treat for atmospheric exposure
- Provide EMS with SDS information on potential chemical exposures

Engulfment Emergency:

- Shut off all material flow sources immediately
- Call 911 — request confined space rescue with engulfment capability
- Do not attempt to pull victim from engulfment material
- Maintain communication with victim if conscious
- Provide rescue team with material type and estimated depth

Emergency Contact Information:

- Emergency Services: 911
- Confined Space Rescue Team: [Insert Name & Phone]
- Site Safety Manager: [Insert Name & Phone]
- Nearest Hospital: [Insert Name, Address & Phone]
- Poison Control: 1-800-222-1222

WORKER SIGN-OFF — I HAVE READ AND UNDERSTAND THIS JHA

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REVIEW & APPROVAL

Role	Name / Signature	Date	Initials
Prepared By (Author)			
Reviewed By (Safety Manager)			
Approved By (Project Manager)			
Client / Owner Rep			

This JHA must be reviewed and updated whenever job conditions change, after any incident, or at minimum annually.

FORBES SAFETY SOLUTIONS**JOB HAZARD ANALYSIS****DEMOLITION — JOB HAZARD ANALYSIS**

Reference: 29 CFR 1926 Subpart T — Demolition

PROJECT INFORMATION

Company Name:	[Enter Company Name]
Project Name:	[Enter Project Name]
Date:	[MM/DD/YYYY]
Supervisor:	[Enter Supervisor Name]
JHA Number:	[JHA-DM-001]
Work Activity:	Demolition — 29 CFR 1926 Subpart T

JOB HAZARD ANALYSIS — TASK STEPS & CONTROLS

The following analysis identifies task steps, associated hazards, risk levels, and control measures for demolition operations. All workers must review this JHA before commencing work.

Task Step	Hazard(s)	Risk Level (H/M/L)	Control Measures
1. Engineering Survey & Pre-Demolition Planning	Unidentified structural weaknesses, unknown hazardous materials, incomplete utility mapping, adjacent structure damage	H	• Engineering survey conducted by competent person per 1926.850(a) • Written demolition plan developed and reviewed • Structural drawings obtained and reviewed • Adjacent properties assessed for exposure risk • Survey documented and kept on-site at all times
2. Utility Disconnection & Verification	Electrical contact/electrocution, gas line rupture/explosion, water main flooding, telecom/fiber damage	H	• All utilities identified, disconnected, and capped by utility provider • Written confirmation obtained from each utility company • Lockout/tagout (LOTO) procedures applied per 1926.417 • Test all conductors as de-energized before work begins • Utility map posted at site entrance
3. Hazardous Material Abatement (Asbestos, Lead, PCBs)	Asbestos fiber inhalation (mesothelioma), lead dust exposure, PCB contamination, silica dust, chemical burns	H	• Comprehensive hazmat survey by licensed inspector before demolition • Asbestos abatement by licensed contractor per 1926.1101 • Lead abatement per 1926.62; blood lead level monitoring for workers • Negative air pressure enclosures for abatement areas • Air monitoring throughout abatement; clearance testing before proceeding • Waste manifested and disposed at licensed facility
4. Structural Weakening Sequence	Premature/uncontrolled collapse, falls from height, struck-by falling debris, floor/wall failure	H	• Sequential demolition plan followed top-down per 1926.850(e) • No workers permitted on structures being weakened unless protected • Continuous structural monitoring by competent person • Temporary shoring/bracing installed as required • Exclusion zones established and enforced around weakening areas • Floor openings covered or barricaded per 1926.502
5. Mechanical Demolition (Excavator, Wrecking Ball, Shears)	Struck-by debris/projectiles, equipment rollover, dust inhalation (silica), noise exposure, flying glass/concrete	H	• Minimum exclusion zone of 1.5x building height maintained • Dust suppression: continuous water spray on demolition face • Silica exposure monitoring per 1926.1153 (Table 1 or exposure assessment) • ROPS/FOPS on all demolition equipment • Operator protected in enclosed cab with HEPA filtration • Spotters posted at exclusion zone perimeter
6. Debris Removal & Material Sorting	Struck-by falling debris, crushing by heavy equipment, rebar puncture wounds, hidden hazmat in rubble, dust exposure	M	• Debris chutes or crane/bucket for upper floor removal • No materials dropped from height outside designated chutes • Workers clear of equipment swing radius at all times • Material sorted: concrete, metals, wood, hazmat waste • Dust suppression maintained during loading/hauling • All loads secured before transport per DOT requirements
7. Site Stabilization & Final Clearance	Unstable foundations/basements, open excavations, standing water, residual contamination	M	• Below-grade structures filled or properly shored • Environmental clearance sampling completed • Open excavations barricaded or backfilled • Final site inspection documented by competent person • Erosion and sediment controls installed per SWPPP

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- ☐ Hard hat (ANSI Z89.1 Type I, Class E) — required at all times on site
- ☐ Safety glasses with side shields (ANSI Z87.1) — required at all times; goggles for dust exposure
- ☐ High-visibility vest (ANSI/ISEA 107 Class 2 minimum) — required at all times
- ☐ Steel-toed boots (ASTM F2413) with puncture-resistant soles and metatarsal guards
- ☐ Cut-resistant gloves (ANSI A4 minimum) for debris handling; chemical-resistant gloves for hazmat
- ☐ Hearing protection (NRR 25+) required during mechanical demolition operations
- ☐ Respiratory protection: N95 minimum for dust; half-face P100 for lead; full-face with HEPA for asbestos
- ☐ Personal Fall Arrest System (PFAS) for work above 6 feet
- ☐ Disposable Tyvek coveralls during hazardous material abatement operations
- ☐ Face shield for cutting/sawing operations with projectile hazards

EMERGENCY PROCEDURES

Emergency Contact Number:	<i>[Enter Phone Number]</i>
Nearest Hospital:	<i>[Enter Hospital Name & Address]</i>
Site Assembly Point:	<i>[Enter Location]</i>
First Aid Kit Location:	<i>[Enter Location]</i>
AED Location:	<i>[Enter Location]</i>
Fire Extinguisher Locations:	<i>[Enter Locations]</i>
Hazmat Spill Kit Location:	<i>[Enter Location]</i>
Decontamination Station:	<i>[Enter Location — Required for Hazmat Operations]</i>

CREW SIGN-OFF — I HAVE REVIEWED AND UNDERSTAND THIS JHA

By signing below, each crew member acknowledges they have reviewed this Job Hazard Analysis, understand the identified hazards and control measures, and agree to follow all safety procedures outlined herein.

Printed Name	Signature	Date

ADDITIONAL HAZARDS / SITE-SPECIFIC NOTES

Use this section to document any additional hazards, site-specific conditions, or supplemental control measures not covered above.

JHA REVIEW & APPROVAL

Role	Name / Signature	Date
Prepared By (Competent Person):		
Reviewed By (Site Superintendent):		
Approved By (Project Manager):		

DISCLAIMER: This JHA template is provided as a starting point for site-specific hazard analysis. It must be reviewed and customized by a competent person familiar with the specific project conditions. Forbes Safety Solutions is not liable for misuse or failure to adapt this template to actual site conditions. Always consult current OSHA regulations and site-specific safety plans.

JOB HAZARD ANALYSIS

Directional Drilling / Boring

Regulatory References: 29 CFR 1926.651, CGA Best Practices, 811 Call Before You Dig

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	JHA-032
Supervisor:		Reviewed By:	
Trade/Activity:	Directional Drilling / Boring	Permit Required:	☐ Yes ☐ No

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level	Control Measures
1. Utility Locate Verification	Striking unmarked utilities Inaccurate locate markings Incomplete records	H H M	Verify 811 ticket is current and all utilities have responded Pothole/vacuum excavate to physically expose utilities within 5 ft of bore path Compare field marks against utility maps and as-built drawings Mark all exposed utilities with flags/stakes and record depths If discrepancies found, stop work and re-request locates Use ground-penetrating radar (GPR) for added verification in congested areas
2. Drill Rig Setup	Heavy equipment tip-over Caught-in/between Noise exposure Traffic hazards	H M M H	Position rig on firm, level ground; use crane mats if needed Establish traffic control plan with signs, cones, flaggers per MUTCD Set exclusion zone around rig — minimum 10 ft from rotating components Inspect all rig safety guards, E-stops, and shutdown devices Verify pipe rack is secure and pipe handling area is clear Conduct safety briefing with all crew before startup
3. Pilot Bore	Striking existing utilities Drilling fluid release (frac-out) Entanglement in drill string	H H H	Use electronic locating/sonde to track bore head position and depth continuously Monitor drilling fluid pressure — do NOT exceed formation fracture pressure Maintain 2 ft minimum separation from known utilities Station spotter at bore path to watch for surface heaving or fluid emergence Never reach into rotating drill string; use wrenches designed for breakout Wear hearing protection; rig produces 85-95 dB
4. Back-Ream	Entanglement Fluid spill High torque / sudden release	H M M	Ensure reamer guards are installed and rotating parts are shielded Maintain safe distance from reamer and drill string during rotation

FORBES SAFETY SOLUTIONS

Task Step	Hazard	Risk Level	Control Measures
	Noise	M	Monitor mud returns — loss of returns indicates potential frac-out Use proper pipe handling tools (no hands near threads under torque) Keep mud containment pits/tanks maintained and not overflowing Have vacuum truck on standby for fluid management
5. Product Pullback	Pipe whip/snap Heavy load handling Trench collapse at exit pit Entanglement	H M H H	Inspect swivel, pulling head, and product pipe connections before pullback Keep personnel clear of pipe under tension — establish exclusion zone Shore or slope exit pit per 29 CFR 1926.652 Use tag lines on suspended pipe — never guide by hand near rotating joints Monitor pull force — stop if resistance exceeds design parameters Spotter at exit pit to guide product emergence
6. Cleanup & Demobilization	Slips/trips on drilling mud Heavy equipment movement Environmental contamination	M M M	Pump out and properly dispose of all drilling fluid per local regulations Backfill entry/exit pits and compact to original grade Clean up all spilled drilling fluid from surrounding areas Restore ground surface, seed/sod as required by permit Secure all equipment for transport; check load securement Complete as-built documentation with bore depth and alignment records

Additional Notes: All utility locates must be verified and valid (within 10-14 business days depending on jurisdiction).
 Pothole/vacuum excavate to expose all utilities within 5 ft of bore path. Maintain bore logs with depth and fluid pressure records.

FORBES SAFETY SOLUTIONS

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE	
☒ Hard Hat (ANSI Z89.1)	☒ Safety Glasses (ANSI Z87.1)
☒ High-Visibility Vest (Class 2/3)	☒ Steel/Composite Toe Boots
☒ Hearing Protection (NRR 25+)	☒ Cut-Resistant Gloves
☒ Face Shield (during fluid ops)	☒ Rubber Boots (wet conditions)

EMERGENCY PROCEDURES

- Utility strike (gas): Evacuate area immediately. Do NOT operate switches/ignition. Call 911 and gas utility emergency line.
- Utility strike (electric): Stay clear of equipment. Assume all ground in area is energized. Call 911 and utility provider.
- Utility strike (water/sewer): Shut down drill. Notify utility. Contain flow to prevent environmental damage.
- Drilling fluid release (frac-out): Stop drilling immediately. Contain fluid with berms/vacuum truck. Notify environmental coordinator.
- Entanglement injury: Activate E-stop on drill rig immediately. Do NOT attempt to reverse rotation. Call 911.
- Report all incidents, near-misses, and utility contacts to supervisor and 811 immediately.

FORBES SAFETY SOLUTIONS

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for the work to be performed.

#	Print Name	Signature	Company	Date	Time
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REVIEW & APPROVAL

Role	Name / Signature	Title	Date
Prepared By			
Reviewed By			
Approved By			
Site Supervisor			

REVISION HISTORY

Rev.	Date	Description	Author
0		Initial Release	
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FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Drywall Hanging & Finishing

Document No: FSS-JHA-049

Regulatory References: 29 CFR 1926 Subpart M (Fall Protection), 29 CFR 1926.1153 (Respirable Crystalline Silica)

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Work Description:	Drywall Hanging & Finishing	Revision:	0

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Material Staging and Delivery	Heavy lifting (4×12 sheet = 90+ lbs) Struck by falling material Slips/trips over staged materials	H M M	Use mechanical aids (drywall cart, boom lift) for transport; team lift for sheets; limit manual carries to 2 people per sheet minimum Stack sheets vertically against structural walls; secure to prevent tipping; establish exclusion zones during overhead lifts Maintain clear walkways; designate staging areas; housekeeping throughout shift
2. Sheet Cutting and Fitting	Knife cuts Dust from scoring/cutting Eye irritation from gypsum particles	M L L	Use retractable utility knives; cut away from body; replace blades frequently (dull blades require more force) Score and snap rather than saw when possible; use dust collection on power tools Safety glasses required at all times; dust mask for extended cutting operations
3. Hanging (Walls and Ceilings)	Ergonomic strain — overhead work, heavy sheets Falls from stilts or scaffolding Screw gun injuries Struck by falling sheet	H H L M	Use drywall lift (panel hoist) for all ceiling work; rotate overhead tasks every 20 minutes; provide anti-fatigue mats Drywall stilts: max 24" height on level surfaces only, no near openings/edges; scaffolding must be fully decked with guardrails per 1926 Subpart M Wear appropriate gloves; keep fingers clear of bit; use depth-setting clutch Two-person minimum for ceiling sheets; secure sheets immediately after positioning
4. Taping and Mudding	Ergonomic strain (repetitive arm/shoulder motion) Skin irritation from joint compound Eye irritation from compound dust	M L L	Use automatic taping tools (bazooka/flat box) to reduce repetitive motion; take breaks every 30 minutes Wear nitrile gloves; wash hands frequently; moisturizing skin care program Safety glasses required; ventilate workspace
5. Sanding	Silica dust exposure (respirable crystalline silica) Eye irritation from joint	H M H	MANDATORY: Use vacuum-attached sanding system per 29 CFR 1926.1153 Table 1; if not feasible — full exposure assessment and medical surveillance required; never dry

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	compound dust Falls from stilts/scaffolding Noise from power sanders	M	sand without dust controls Wear safety goggles (sealed); face shield for overhead sanding Same stilt/scaffold requirements as hanging; additional caution — reduced visibility from dust Hearing protection required when using power sanders; maintain below 85 dB TWA with engineering controls
6. Cleanup	Silica dust (re-suspended during cleanup) Slips on compound residue Cuts from scrap materials	H M L	Use HEPA-filtered vacuum for all dust cleanup — NEVER dry sweep silica-containing dust; wet methods as secondary control Damp-mop compound residue from floors; post wet floor signs Wear cut-resistant gloves when handling scrap; use covered waste containers

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Safety glasses (ANSI Z87.1) — required at all times; sealed goggles for sanding operations
- N95 respirator minimum for sanding operations (half-face APR with P100 for extended sanding)
- Hard hat (ANSI Z89.1) when overhead hazards present
- Cut-resistant gloves (ANSI A3) for handling sheets and cutting
- Nitrile gloves for taping/mudding
- Steel-toe/composite-toe boots (ASTM F2413)
- Knee pads for lower wall work
- Hearing protection for power sanding operations (NRR 25+)
- Back support belt (optional, for material handling — does not replace proper lifting technique)
- High-visibility vest if working near other trades

ADDITIONAL SAFETY REQUIREMENTS

- Silica exposure control plan must be established per 29 CFR 1926.1153 before any sanding operations
- Competent person required for all scaffold erection and use
- Pre-task safety briefing required before each shift
- All stilts must be inspected daily; damaged stilts removed from service immediately
- Material Safety Data Sheets (SDS) for joint compounds must be available on site
- Housekeeping is continuous — maintain clear egress paths at all times

EMERGENCY PROCEDURES

- Call 911 for all serious injuries; notify site supervisor immediately
- For eye exposure to dust/compound: Flush with clean water for 15 minutes; seek medical attention if irritation persists
- For falls from stilts/scaffolding: Do not move victim; stabilize and call 911; report incident to supervisor
- For deep lacerations: Apply direct pressure; elevate limb; call 911 if bleeding cannot be controlled
- For suspected silica overexposure: Move to fresh air; seek medical evaluation; document exposure incident
- First aid kit located at: _____
- Nearest hospital/emergency room: _____
- Emergency assembly point: _____
- Site emergency contact: _____

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for this work activity.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

Role	Name / Signature	Date	Next Review Date
Prepared By			
Reviewed By			
Approved By			
Site Safety Manager			

DISCLAIMER: This JHA is a template provided by Forbes Safety Solutions for general guidance. It must be reviewed, customized, and approved by a qualified safety professional before use on any specific project. Site-specific conditions may require additional hazard controls not listed herein.

JOB HAZARD ANALYSIS

Electrical Rough-In — Commercial & Residential

Applicable Standards: 29 CFR 1926 Subpart K (1926.400–1926.449) — Electrical; NFPA 70E — Electrical Safety in the Workplace; 29 CFR 1926.405 — Wiring Methods; NEC Article 210–230

Project Name: _____	Date: _____
Location: _____	Supervisor: _____
Crew Members: _____	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
1	Review electrical drawings and conduct panel board layout / circuit identification	Errors from outdated drawings leading to incorrect installation; conflict with other trades; energized existing circuits in remodel work	Verify drawings are latest revision (RFI log current). Coordinate with GC and other trades on routing conflicts. Use non-contact voltage tester on ALL existing wiring before handling. Lock-out/tag-out (LOTO) per 1926.417 on any energized panel.	
2	Install electrical boxes (junction, device, and panel enclosures)	Struck-by from overhead work; cuts from sheet metal box edges; falls from ladders or scaffolds; dust/debris in eyes	Wear safety glasses and cut-resistant gloves. Inspect ladder before each use — three-point contact. Secure boxes per NEC mounting requirements. Hard hat in multi-trade work areas. Deburr box knockouts before pulling wire.	
3	Run conduit (EMT, rigid, or PVC) and support per NEC spacing requirements	Musculoskeletal injury from overhead conduit installation; struck-by from falling conduit; cuts from conduit reaming; silica dust from concrete penetrations	Use mechanical benders — no improvised bending methods. Two-person lift for runs >10 ft. Support per NEC 358.30 (EMT) intervals. Ream all cut ends to prevent wire insulation damage. Core drill with dust collection or wet method for concrete penetrations.	
4	Pull conductors through conduit and cable tray systems	Electrical shock from contact with existing energized conductors; hand/finger pinch or crush injuries at pull points; eye injury from wire snap-back	Confirm circuits de-energized — LOTO verified with voltage tester at point of work. Wear leather gloves at pull points. Safety glasses mandatory. Communication between puller and feeder (radios for long runs). Wire pulling lubricant to reduce tension.	
5	Make conductor terminations and splices in junction boxes	Electrocution from energized circuits; arc flash from improper connections; cuts from wire strippers; confined space in electrical rooms	Zero-energy verification at each termination point. Use insulated tools rated for voltage class. Proper wire nut or compression connector sizing — no electrical tape as primary splice method. Follow NEC box fill calculations (314.16).	
6	Install grounding electrode system and equipment bonding conductors	Electrocution during ground rod driving; struck-by from hammer/driver; inadequate grounding creating future shock hazard	De-energize all circuits during grounding work. Use ground rod driver — never strike rod directly with hammer. Verify ground resistance with fall-of-potential test (<25 ohms per NEC 250.53). Torque all bonding connections to manufacturer specs.	
7	Install temporary power distribution and GFCI protection	Electrical shock from improper temporary wiring; fire from overloaded circuits; tripping hazards from cords	All temporary power circuits protected by GFCI per 1926.405(a)(2)(ii). Assured equipment grounding conductor program as alternative. No daisy-chaining power strips. Protect cords from damage — elevate or use cord covers across walkways.	
8	Conduct insulation resistance testing (megger test) on completed circuits	Electric shock from test voltage (500V–1000V DC); damage to sensitive equipment; miswired circuits	Verify all circuits isolated before testing. Post warning signs at both ends during megger test. Only qualified electricians perform testing. Discharge conductors after testing.	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
			Document readings per circuit.	
9	Energize panels and perform circuit verification / labeling	Arc flash during initial energization; electrocution; burns from fault current; incorrect circuit identification	Energize with panel door closed — stand to the side (arc flash protection position). Wear appropriate PPE per NFPA 70E arc flash risk assessment (Category 2 minimum for 208V panels). Verify each circuit with receptacle tester. Label all breakers accurately.	

 **This JHA must be reviewed and signed by all crew members before work begins.** Conditions on the jobsite may change — reassess hazards throughout the shift and update this JHA as necessary.

REVIEW & APPROVAL

Reviewed By (Print Name)

Signature

Date

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Energized Electrical Work

Regulatory References: NFPA 70E, 29 CFR 1910.331-335, 29 CFR 1926 Subpart K

Document No: FSS-JHA-037 | Revision: 0 | Date: _____

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS TABLE

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Energized Work Permit & Justification	Unnecessary exposure to electrical hazards Inadequate planning Failure to justify energized work	H H M	Complete Energized Electrical Work Permit (EEWP) per NFPA 70E Document justification: de-energizing creates greater hazard or is infeasible Obtain approval from qualified electrical safety supervisor Perform shock and arc flash risk assessments Brief all workers on specific hazards, boundaries, and emergency plan
2. Approach Boundary Establishment	Unauthorized personnel in danger zone Incorrect boundary distances Arc flash exposure	H H H	Determine Limited, Restricted, and Arc Flash boundaries per NFPA 70E Table 130.4(E)(a) Mark boundaries with barricades, tape, and warning signs Post arc flash labels with incident energy (cal/cm ²) on equipment Only qualified persons within Limited Approach Boundary Attendant posted to control access at boundary perimeter
3. Arc Flash PPE Donning	Inadequate PPE rating Improper donning Heat stress from PPE	H M M	Select PPE based on incident energy analysis (cal/cm ² rating) Inspect all PPE for damage, cleanliness, and proper rating before use Don arc-rated layers: base layer, coverall/flash suit, hood, gloves, boots Verify all gaps sealed: no exposed skin within arc flash boundary Monitor workers for heat stress; rotate personnel as needed

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
4. Voltage Testing & Verification	Contact with energized parts Faulty test equipment Incorrect readings	H M H	Use voltage-rated test instruments rated for the voltage present Verify tester operation on known live source BEFORE and AFTER testing (Live-Dead-Live method) Maintain safe approach distances while testing Use insulated tools and one-hand technique Communicate readings clearly to all team members
5. Energized Work Execution	Arc flash (temps to 35,000°F) Arc blast (pressure wave) Electrical shock Burns Secondary blast-force injuries	H H H H H	Only qualified electrical workers perform energized tasks Work one phase/conductor at a time; insulate adjacent conductors Use insulated hand tools rated for voltage Position body to minimize exposure; turn face away from potential arc Maintain minimum approach distance per NFPA 70E Safety watch/attendant present with rescue equipment ready No loose clothing, jewelry, or conductive items
6. Re-establishment of Covers/Barriers	Accidental contact during closeout Unsecured covers Incomplete restoration	H M M	Replace all covers, guards, and barriers before removing PPE Verify all connections are secure and properly torqued Confirm no tools or materials left inside equipment Update arc flash labels if modifications were made Close out Energized Electrical Work Permit Document all work performed and any anomalies found

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

☐ Arc-Rated Face Shield / Hood (cal/cm ² per hazard analysis)	☐ Arc-Rated Coveralls or Flash Suit
☐ Voltage-Rated Insulating Gloves with Leather Protectors	☐ Safety Glasses (ANSI Z87.1) under face shield
☐ Dielectric Safety Boots	☐ Hard Hat (ANSI Z89.1 Type I, Class E)
☐ Hearing Protection (arc blast noise)	☐ Arc-Rated Balaclava
☐ FR Underwear/Base Layers	☐ Voltage-Rated Insulating Blankets/Mats

EMERGENCY PROCEDURES

1. In case of arc flash event, evacuate all personnel from the immediate area. Call 911 immediately. Do NOT attempt to touch the victim until power is confirmed de-energized.
2. For electrical shock, de-energize the circuit from a safe location using insulated tools. Begin CPR/AED if victim is unresponsive. Do NOT move the victim unless in immediate danger.
3. For arc blast injuries (pressure wave), assess for internal injuries, hearing damage, and burns. Treat burns with sterile dressings; do NOT apply ointments or remove fused clothing.
4. If secondary fire occurs from arc flash, use Class C fire extinguisher (CO2 or dry chemical). Evacuate if fire cannot be controlled within 30 seconds.
5. All arc flash incidents require immediate notification to safety department, investigation, and incident report within 24 hours regardless of injury severity.
6. Ensure AED is staged within 2 minutes of the work area. Two qualified first aid/CPR responders must be present.

Emergency Contact:	911 / Site-specific: _____
Assembly Point:	
Nearest Hospital:	
First Aid Kit Location:	

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures.

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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Name / Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

Next Review Date:	
Revision Notes:	

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This document is valid only when all sections are completed and signatures obtained.

JOB HAZARD ANALYSIS

Excavation & Trenching Operations

Applicable Standards: 29 CFR 1926 Subpart P (1926.650–1926.652); OSHA Excavation Standard; 29 CFR 1926.651(c) — Utility Locates

Project Name: _____	Date: _____
Location: _____	Supervisor: _____
Crew Members: _____	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
1	Conduct pre-excavation site survey and review utility locate markings (811 call confirmation)	Utility strikes (gas, electric, water, fiber); unmarked underground hazards	Verify 811 utility locate completed (min. 48 hrs prior). Review as-built drawings. Hand-dig within 18" of marked utilities. Use ground-penetrating radar for unknown areas.	
2	Establish excavation perimeter barricades and traffic control	Struck-by from vehicles or mobile equipment; unauthorized entry into excavation zone	Install high-visibility barricades and warning signs per MUTCD standards. Assign flaggers for active roadways. Maintain 6-ft setback for spoil piles from trench edge.	
3	Perform soil classification by competent person (visual and manual tests)	Incorrect soil classification leading to inadequate protective systems; cave-in risk	Competent person conducts thumb penetration, plasticity, and dry strength tests per 29 CFR 1926.652 Appendix A. Document soil type (A, B, or C) in writing. Reassess after rain events.	
4	Excavate trench using hydraulic excavator	Equipment tip-over; struck-by from bucket swing; overhead power line contact	Ensure operator is trained/certified. Maintain 10-ft clearance from power lines (20-ft for >350kV). No workers in swing radius. Ground guide with radio communication required. Spotters for blind spots.	
5	Install protective system — shoring, shielding, or sloping per soil classification	Cave-in / trench collapse; engulfment; crushing injuries	Install system before any worker enters trench >5 ft deep (OSHA 1926.652). Use tabulated data for shoring specs. Hydraulic shores installed from top down. Trench boxes rated for soil type and depth.	
6	Place access/egress ladders within 25 ft of lateral travel for all workers	Inability to escape during emergency; falls from ladder; ladder displacement	Position ladders per 1926.651(c)(2) — max 25 ft travel distance. Ladders extend 3 ft above trench edge. Secure at top to prevent displacement. Inspect daily before use.	
7	Monitor atmospheric conditions in trench (>4 ft deep)	Oxygen deficiency; toxic gases (H ₂ S, CO, methane); hazardous atmosphere from nearby operations	Continuous atmospheric monitoring with 4-gas meter (O ₂ , LEL, CO, H ₂ S). Calibrate instrument daily. Ventilate with mechanical blowers if readings are abnormal. Rescue plan and retrieval system in place.	
8	Perform work activities within the trench (pipe installation, utility repair, etc.)	Struck-by from falling materials/tools; manual handling injuries; water accumulation	Keep materials/tools 2 ft back from trench edge. Use buckets or tool lanyards to lower items. Pump standing water continuously. No workers under suspended loads. Competent person inspects trench daily and after weather events.	
9	Backfill operations and compaction	Workers caught between equipment and trench wall; uncontrolled soil movement; vibration exposure	Clear all personnel from trench before backfilling. Remove shoring bottom-up. Backfill in lifts and compact per engineer specs. Operator maintains visual contact with spotter. Anti-vibration gloves for compaction equipment.	
10	Demobilize equipment and restore site	Struck-by during equipment movement; unguarded open	Barricade any open excavations left overnight with steel plates or fencing. Restore traffic	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
		excavations; trip hazards	control. Final inspection by competent person. Document JHA completion and any incidents.	

 **This JHA must be reviewed and signed by all crew members before work begins.** Conditions on the jobsite may change — reassess hazards throughout the shift and update this JHA as necessary.

REVIEW & APPROVAL

Reviewed By (Print Name)

Signature

Date

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Firewatch Operations

Regulatory References: 29 CFR 1926.352, NFPA 51B, OSHA Hot Work Requirements

Document No: FSS-JHA-040 | Revision: 0 | Date: _____

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS TABLE

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Fire Watch Area Preparation (35-ft Radius)	Undetected combustible materials Failure to identify fire pathways Inadequate preparation scope	H H M	Inspect minimum 35-foot radius in ALL directions from hot work (including floors above/below) Remove or cover all combustible materials with fire-resistant blankets Wet down combustible floors, walls, and surfaces that cannot be removed Seal floor openings, cracks, and gaps where sparks could travel Verify no flammable vapors or gases present (use combustible gas indicator) Document all conditions on the Hot Work Permit before work begins
2. Fire Suppression Equipment Staging	Inadequate equipment for fire type Equipment malfunction Inaccessible extinguishers	H M M	Stage minimum one 20-lb ABC fire extinguisher within 10 feet of hot work Verify extinguisher inspection is current (monthly tag, annual service) Stage fire hose or water supply if available on site Position fire blankets within arm's reach of fire watch position Verify all fire extinguishers are unobstructed and accessible Confirm fire watch knows extinguisher operation (PASS technique)
3. Hot Work Monitoring	Fire/explosion from sparks/slag Distraction from duty Burns from hot materials Smoke inhalation	H H M M	Fire watch must maintain CONTINUOUS visual observation of hot work area Fire watch has NO other duties during monitoring - sole responsibility is fire detection Monitor for sparks, slag, and heat transfer to combustibles in all directions

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
			Maintain line of sight to all areas sparks could reach Fire watch has STOP WORK authority if unsafe conditions develop Position upwind from smoke/fumes; wear respiratory protection
4. Post-Work Fire Watch (Min 30 Min NFPA / 60 Min Some Sites)	Smoldering material (delayed ignition) Premature fire watch termination Failure to detect hidden hot spots	H H M	Continue fire watch minimum 30 minutes after hot work per NFPA 51B (or 60 min per site requirements) Check all surfaces within 35-ft radius for heat using back of hand (do NOT touch directly) Use thermal imaging camera if available to detect hidden hot spots Monitor areas above, below, and behind walls/partitions from hot work location Do NOT leave post until watch period is complete and area is confirmed cold If ANY heat or smoke is detected, restart the post-work watch timer
5. Area Release & Permit Closeout	Premature area release Incomplete permit documentation Residual hazards unaddressed	M L M	Conduct final area inspection - confirm no hot spots, smoke, or odors Remove fire-resistant coverings and verify no hidden damage beneath Sign and close the Hot Work Permit with time and date Notify the hot work operator and permit issuer of completion Return fire suppression equipment to proper storage locations Restore all fire protection systems that were impaired (sprinklers, alarms)
6. Documentation & Recordkeeping	Incomplete records (audit/compliance failure) Lost permits/documentation Failure to record near-miss events	M L M	Complete all sections of the Hot Work Permit (front and back) Record start time, end time, and post-watch completion time Document any abnormal conditions, near misses, or concerns File completed permit per site document retention policy (min 1 year) Report all fire incidents and near misses to safety dept within 24 hours Include fire watch records in daily safety documentation package

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

☐ Hard Hat (ANSI Z89.1)	☐ Safety Glasses (ANSI Z87.1)
☐ FR-Rated Clothing	☐ Steel-Toe Boots (ASTM F2413)
☐ Leather Work Gloves	☐ High-Visibility Vest (ANSI/ISEA 107 Class 2)
☐ Hearing Protection (as needed near hot work)	☐ Respiratory Protection (N95 minimum for smoke/fumes)
☐ Face Shield (if near active hot work)	☐ Fire-Resistant Blanket/Shield (for spark protection)

EMERGENCY PROCEDURES

1. If fire is detected: Attempt extinguishment ONLY if safe and fire is small (incipient stage). If fire exceeds extinguisher capability, evacuate immediately and call 911.
2. Activate fire alarm and building notification systems if fire cannot be controlled within 30 seconds. Initiate site evacuation per emergency action plan.
3. For burn injuries, cool the burn with clean, cool running water for at least 10 minutes. Do NOT apply ice, butter, or ointments. Cover with sterile dressing and seek medical attention.
4. If smoke inhalation is suspected, move the victim to fresh air immediately. Administer oxygen if available and trained. Call 911 for any respiratory distress.
5. For explosion events, evacuate all personnel to a minimum 500-ft radius. Account for all workers. Do NOT re-enter until hazardous materials team clears the area.
6. Fire watch must NOT leave the area until formally relieved by a qualified replacement or the required post-work watch period is complete.

Emergency Contact:	911 / Site-specific: _____
Assembly Point:	
Nearest Hospital:	
First Aid Kit Location:	

WORKER SIGN-OFF

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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Name / Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

Next Review Date:	
Revision Notes:	

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JOB HAZARD ANALYSIS

HVAC Installation & Service

Document No: FSS-JHA-050

Regulatory References: 29 CFR 1926 Subpart K (Electrical), 29 CFR 1910.147 (LOTO), EPA Section 608 (Refrigerants)

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Work Description:	HVAC Installation & Service	Revision:	0

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Equipment Placement/Rigging	Heavy lifting (condensing units 150-400+ lbs) Falls from rooftops/ladders Struck by suspended loads Crane/rigging failure	H H H H	Use crane or mechanical lifting equipment; never exceed equipment load ratings; rigging by qualified riggers only 100% tie-off for rooftop work; ladder safety (3-point contact, 4:1 ratio, secured at top); guardrails at roof edges Establish exclusion zone under suspended loads; use tag lines; never stand under crane boom Inspect all rigging equipment before each lift; qualified signal person required; pre-lift meeting for all critical lifts
2. Ductwork Fabrication and Installation	Sharp sheet metal cuts Falls from ladders/lifts Noise from fabrication tools Ergonomic strain (overhead installation)	H M M M	Wear cut-resistant gloves (ANSI A4+); deburr all cut edges; handle sheet metal with proper technique — never slide hands along edges Use appropriate access equipment (scissor lift preferred over ladders); fall protection per 1926 Subpart M Hearing protection required during fabrication; maintain below 85 dB TWA where possible Use mechanical lifts for duct sections; limit overhead work duration; rotate tasks
3. Refrigerant Line Brazing	Burns from torch/molten brazing material Fire — combustible materials ignition Toxic fumes from brazing flux Oxygen displacement in confined spaces	H H M H	Wear heat-resistant gloves and long sleeves; keep fire extinguisher within 10 feet; fire watch for 30 min after brazing Clear combustibles within 35 feet; use fire blankets on adjacent surfaces; hot work permit required per NFPA 51B Ensure adequate ventilation; use low-fume brazing alloys; respiratory protection if ventilation inadequate Never braise in confined spaces without ventilation and atmospheric monitoring; nitrogen purge lines during brazing to prevent oxidation and copper contamination
4. Electrical Connections	Electrical shock/electrocution Arc flash Incorrect wiring (fire risk)	H H M	LOTO all circuits per 29 CFR 1910.147; verify de-energized with rated meter; only qualified electricians perform connections Arc flash PPE per NFPA 70E hazard assessment; maintain approach boundaries Verify against wiring diagrams; use appropriately rated

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
			wire/breakers; torque all connections to specification
5. System Startup and Commissioning	Refrigerant exposure (asphyxiation risk in enclosed spaces) Electrical contact during testing High-pressure line failure	H M M	EPA Section 608 certified technicians only; check for leaks with electronic detector before startup; ensure ventilation in mechanical rooms; refrigerant monitors in enclosed spaces Use insulated test equipment; maintain clearances from energized components; only qualified personnel test Verify all connections and fittings before pressurizing; use nitrogen for initial pressure test; stand clear of fittings during test
6. Maintenance/Service Work	Electrical contact with live components Refrigerant burns (rapid expansion) and inhalation Confined spaces (ductwork, mechanical rooms) Biological hazards (mold, bacteria in drain pans/coils)	H H H M	LOTO before any service; verify de-energized; assume all wiring is live until tested Recover refrigerant before opening system; wear safety goggles and gloves for potential releases; EPA 608 compliance Evaluate for confined space entry per 29 CFR 1910.146; atmospheric testing, attendant, rescue plan if applicable Wear N95 respirator and gloves when cleaning coils/drain pans; use EPA-registered biocide; avoid pressure washing mold (aerosolization)

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Safety glasses (ANSI Z87.1) — required at all times
- Hard hat (ANSI Z89.1 Type I, Class E) when overhead hazards present
- Cut-resistant gloves (ANSI A4+) for sheet metal handling
- Heat-resistant gloves for brazing operations
- Voltage-rated gloves for electrical work (class per voltage level)
- Steel-toe/composite-toe EH-rated boots (ASTM F2413)
- Hearing protection (NRR 25+) for fabrication and power tool use
- N95 or half-face respirator for confined space and coil cleaning
- Full-body harness with shock-absorbing lanyard for rooftop/elevated work (ANSI Z359)
- Arc-rated clothing per NFPA 70E for electrical work
- High-visibility vest for exterior work areas

ADDITIONAL SAFETY REQUIREMENTS

- EPA Section 608 certification required for all technicians handling refrigerants
- Hot work permit required for all brazing operations per NFPA 51B
- Confined space entry permit required for ductwork and mechanical room entry where applicable
- Pre-task safety briefing required before each shift or when conditions change
- All LOTO procedures must follow site-specific energy control program per 29 CFR 1910.147
- Refrigerant leak detection and recovery equipment must be on site during all commissioning and service
- Coordinate with other trades to prevent conflicting operations (e.g., welding near refrigerant lines)

EMERGENCY PROCEDURES

- Call 911 for all serious injuries; notify site supervisor immediately
- For refrigerant inhalation: Move to fresh air immediately; administer oxygen if available; call 911; do NOT induce vomiting if ingested
- For refrigerant skin/eye contact (frostbite): Do NOT rub affected area; flush with lukewarm water; seek medical attention
- For electrical shock: De-energize if safe; do NOT touch victim in contact with source; call 911; begin CPR/AED if trained
- For burns from brazing: Cool with water for 20 minutes; do not apply ice; cover loosely; seek medical attention for burns larger than palm-sized
- For falls: Do not move victim; stabilize and call 911; activate rescue plan for suspended workers
- Fire response: Use ABC extinguisher; activate fire alarm; evacuate per site plan
- First aid kit and AED located at: _____
- Nearest hospital/emergency room: _____
- Emergency assembly point: _____
- Site emergency contact: _____

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for this work activity.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

Role	Name / Signature	Date	Next Review Date
Prepared By			
Reviewed By			
Approved By			
Site Safety Manager			

DISCLAIMER: This JHA is a template provided by Forbes Safety Solutions for general guidance. It must be reviewed, customized, and approved by a qualified safety professional before use on any specific project. Site-specific conditions may require additional hazard controls not listed herein.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Mechanical Insulation / Pipe Wrapping

REGULATORY REFERENCES

- 29 CFR 1926.1101 — Asbestos (removal of existing insulation)
- 29 CFR 1910.132 — General Requirements for PPE
- 29 CFR 1926.451 — Scaffolding (General Requirements)
- 29 CFR 1926.1053 — Ladders
- 29 CFR 1910.1200 — Hazard Communication
- EPA NESHAP 40 CFR 61, Subpart M — Asbestos

SCOPE & DESCRIPTION

This JHA covers mechanical insulation and pipe wrapping operations including existing insulation assessment and removal (with asbestos identification), surface preparation, insulation cutting and fitting, metal jacketing and banding, sealing and finishing, and waste disposal. Legacy insulation may contain asbestos, requiring specialized abatement procedures. Workers face hazards from thermal burns on hot pipes, sharp tool injuries, ergonomic strain from overhead work, fiber inhalation, and falls from scaffolding or ladders.

PROJECT INFORMATION

Project Name:		Date:	
Project Number:		Location:	
Contractor:		Supervisor:	
JHA Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Existing Insulation Assessment / Removal	Asbestos exposure (friable ACM) Other hazardous fibers (refractory ceramic) Falls from scaffolding/ladders Cuts from removal tools	H	AHERA-accredited inspector must assess before any disturbance Assume ACM until lab analysis confirms otherwise (NESHAP) Licensed asbestos abatement contractor for confirmed ACM Full negative-pressure enclosure for friable ACM removal Workers in powered air-purifying respirators (PAPR) Disposable Tyvek suits, gloves, boot covers Wet removal methods to minimize fiber release Air monitoring during and after removal
2. Surface Preparation	Thermal burns from hot pipes/equipment Sharp edges on pipe supports/hangers Chemical exposure from cleaning solvents Residual asbestos fibers	M	Verify pipe/equipment temperature — lockout/tagout if feasible Heat-resistant gloves rated for pipe temperature Cut-resistant gloves for handling sharp metal Confirm asbestos clearance before surface prep begins Clean surfaces per insulation manufacturer specifications
3. Insulation Cutting & Fitting	Knife/tool cuts (box cutters, insulation knives) Dust/fiber inhalation (fiberglass, mineral wool) Eye irritation from fibers Ergonomic strain — overhead/awkward positions	M	Use retractable safety knives; cut away from body Cut-resistant gloves mandatory N95 respirator minimum for fiberglass/mineral wool cutting Safety glasses or goggles — no contact lenses Long sleeves and pants to prevent skin irritation Rotate overhead work; use adjustable scaffolding to optimize height Pre-cut insulation at ground level when possible
4. Jacketing / Banding	Lacerations from sheet metal edges Pinch points during banding tool operation Falls from scaffolding Dropped tools/materials from height	H	Cut-resistant gloves (ANSI A4 minimum) for metal handling Deburr all cut metal edges before installation Banding tool training required — keep hands clear of tensioner 100% tie-off on scaffolding above 6 ft Scaffold daily inspection by competent person Tool lanyards for all hand tools at height Toe boards and debris nets to protect workers below
5. Sealing & Finishing	Chemical exposure (sealants, mastics, adhesives) Slippery surfaces from sealant overspray Ergonomic strain from	M	Review SDS for all sealants and adhesives Chemical-resistant gloves; avoid skin contact Ventilation in enclosed areas — organic vapor respirator if needed Clean overspray immediately to prevent slip hazard

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	repetitive motion		Ergonomic breaks; alternate between tasks
6. Waste Disposal	Asbestos waste handling (regulated) Fiberglass/mineral wool skin irritation Sharp metal scraps — puncture/laceration Manual handling of heavy waste bags	M	Asbestos waste double-bagged in labeled 6-mil poly bags Non-ACM insulation waste in covered containers Metal scraps in designated sharp-waste bins All waste characterized and disposed per EPA/state regulations Proper lifting techniques; limit bag weight to 50 lbs Maintain waste manifests for all hazardous materials

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	
☐ Hard Hat (ANSI Z89.1)	☐ Safety Glasses / Goggles (fiber protection)
☐ N95 or P100 Respirator (fiber cutting/removal)	☐ PAPR (asbestos removal operations)
☐ Cut-Resistant Gloves (ANSI A4 for jacketing)	☐ Heat-Resistant Gloves (hot pipe work)
☐ Long-Sleeve Shirt / Tyvek Coveralls	☐ Steel-Toe Safety Boots
☐ Fall Protection Harness (scaffolding above 6 ft)	☐ Tool Lanyards (work at height)

EMERGENCY PROCEDURES

1. ASBESTOS FIBER RELEASE: Stop work immediately. Evacuate area and seal off. Notify site safety officer and client. Do NOT attempt cleanup — licensed abatement contractor required. Air monitoring must be conducted before re-entry.
2. THERMAL BURN FROM HOT PIPE: Cool burn with clean, cool water for 10+ minutes. Remove clothing near burn unless adhered. Cover with sterile dressing. Seek medical attention for second-degree burns or larger.
3. SEVERE LACERATION (METAL/KNIFE): Apply direct pressure with clean cloth. Elevate injured limb. Call 911 if bleeding is uncontrolled. Do not remove embedded objects.
4. FALL FROM SCAFFOLDING: Call 911. Do not move victim if spinal injury suspected. If in fall arrest harness, initiate suspension trauma rescue within 15 minutes. Monitor vitals.
5. FIBER INHALATION / RESPIRATORY DISTRESS: Move to fresh air. If difficulty breathing, administer oxygen if available. Call 911. Provide SDS information on fiber type to responders.
6. EMERGENCY CONTACTS: 911 for all emergencies. Site Safety Officer: _____. Poison Control: 1-800-222-1222. Asbestos Abatement Coordinator: _____.

ADDITIONAL NOTES / SITE-SPECIFIC REQUIREMENTS

- All existing insulation must be surveyed for asbestos content before any disturbance per NESHAP requirements.
- Insulation workers must complete asbestos awareness training per 29 CFR 1926.1101(k)(9).
- Scaffolding must be erected and inspected by a competent person per Subpart L.
- Hot pipe insulation requires temperature verification — lockout/tagout of heat source preferred.
- Material Safety Data Sheets for all insulation products, adhesives, and sealants must be on-site.

WORKER SIGN-OFF

By signing below, I confirm that I have reviewed and understand this JHA, including all identified hazards and required control measures.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

REVISION HISTORY

Revision	Date	Description	Approved By
0		Initial Release	
1			

DISCLAIMER: This Job Hazard Analysis is a guideline for identifying hazards and implementing controls. It does not replace site-specific safety plans, competent person assessments, or regulatory requirements. All workers must comply with applicable OSHA standards and company safety policies. This JHA must be reviewed and updated whenever work conditions change.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

JHA INFORMATION			
JHA Title:	Mobile Crane Lift Operations	JHA Number:	FSS-JHA-030
Project Name:		Date:	
Location:		Revision:	0
Regulatory References:	29 CFR 1926 Subpart CC (Cranes & Derricks in Construction); ASME B30.5 (Mobile and Locomotive Cranes); OSHA 29 CFR 1926.1400-1442		
Prepared By:		Approved By:	
Competent Person:		Supervisor:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Lift Planning & Load Chart Review	• Crane overload / tip-over • Incorrect load weight estimation • Unanticipated boom/load radius • Inadequate lift plan for critical lifts	H	• Conduct lift planning meeting with operator, rigger, and signal person • Determine actual load weight (weigh or calculate — add rigging weight) • Reference crane load chart for configuration, radius, and boom length • Ensure lift does not exceed 75% of rated capacity (critical lift threshold) • Develop written Critical Lift Plan for loads >75% capacity or special conditions • Review swing path, travel route, and landing zone for obstructions • Verify operator certification (NCCCO or equivalent) is current
2. Ground Preparation & Crane Setup	• Ground failure under outriggers • Crane instability on slopes • Underground voids / utilities • Insufficient outrigger extension	H	• Evaluate ground conditions — bearing capacity must support crane + load reactions • Place outrigger pads/mats sized to distribute ground bearing pressure • Extend all outriggers fully and level crane within 1% grade • Call 811 / utility locate before setting up over unknown subsurface • Confirm level using crane's built-in level indicator • Barricade swing radius to prevent unauthorized access • Set up on compacted, stable surface — no soft fill or excavation edges
3. Rigging & Load Attachment	• Rigging failure / sling breakage • Improper hitch causing load shift • Struck by rigging hardware • Pinch points during attachment	H	• Qualified rigger selects rigging based on load weight and sling angles • Inspect all slings, shackles, and hardware before each lift — reject damaged gear • Match sling capacity to load — account for sling angle reduction factor • Use proper hitch type (basket, choker, vertical) for load geometry • Ensure load is properly balanced and center of gravity identified • Rig tag lines to control load orientation during lift • Never stand under suspended load — stay out of fall zone
4. Load Pick & Travel	• Tip-over during lift or swing • Overhead power line contact • Struck by swinging load • Two-blocking the hoist • Loss of load control in wind	H	• Use designated signal person with clear communication (hand signals or radio) • Perform initial test lift — raise load 6 inches, hold, verify stability • Maintain minimum 20-ft clearance from power lines (or de-energize / use spotter) • Anti-two-block device must be functional — test at start of shift • Monitor wind speed — cease operations if wind exceeds crane chart limits • Clear all personnel from swing radius and load travel path • Operator must have clear line of sight to load at all times • Never travel with load over occupied areas
5. Load Placement & Unhooking	• Pinch/crush during placement • Load shift on landing • Premature unhooking • Unstable load support	M	• Land load on adequate dunnage/cribbing to support weight evenly • Use tag lines to guide load into final position — never push/pull by hand • Do not unhook until load is confirmed stable and properly

			supported • Rigger signals all clear before operator slacks rigging • Keep hands and body clear of pinch points during landing • Block and secure load against movement before releasing rigging • Verify load placement matches engineered drawings if applicable
6. Crane Breakdown & Demobilization	• Boom contact with structures during retraction • Outrigger retraction on unsupported crane • Transport hazards on roadway • Improper securing for transport	M	• Retract boom fully and secure in boom rest/travel position • Retract outriggers only after boom is fully secured • Verify swing lock is engaged before transport • Inspect crane for damage and document in operator log • Ensure all loose components are secured for transport • Develop transport plan for oversized loads (permits, escorts) • Restore site — remove outrigger pads, fill any ground depressions • File completed lift plan and inspection records with project documentation

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	Specification / ANSI Standard	Condition / Notes
Hard Hat	ANSI/ISEA Z89.1, Type I, Class E	Required for all personnel in crane operating zone
Safety Glasses	ANSI/ISEA Z87.1+	Impact-rated with side shields
High-Visibility Vest	ANSI/ISEA 107, Class 2 minimum	Required for all ground personnel
Work Gloves (Rigger's Gloves)	ANSI/ISEA 105, Cut Level A4+	Leather palm for rigging work
Steel-Toe Safety Boots	ASTM F2413 (I/75 C/75)	Puncture-resistant soles recommended
Fall Protection Harness	ANSI/ASSP Z359.1	Required when working at heights on crane or load
Hearing Protection	ANSI S3.19 / S12.6 (NRR ≥ 25 dB)	Required near crane engine operations
Communication Radio	N/A — operational requirement	Dedicated channel for crane operator, signal person, rigger

EMERGENCY PROCEDURES

Crane Tip-Over / Structural Failure:

- Sound alarm — all personnel evacuate crane operating zone immediately
- Call 911 — report crane incident with potential trapped persons
- Establish exclusion zone (minimum 1.5x boom length radius)
- Account for all personnel at assembly point
- Do not approach overturned crane — risk of fuel/hydraulic spill and secondary collapse
- Notify crane manufacturer/engineer for recovery planning
- Preserve scene for OSHA investigation

Overhead Power Line Contact:

- Operator stays in cab — DO NOT exit crane (equipotential zone)
- If crane is drivable, move away from power line contact
- If must exit: JUMP clear — do not step down (step potential danger)
- Call 911 and utility emergency — report power line contact
- Keep all personnel at least 35 feet from crane and any grounded equipment
- Do not touch crane or load until utility confirms line is de-energized

Rigging Failure / Dropped Load:

- Operator sets brakes and secures crane — do not attempt to recover
- Evacuate drop zone and establish exclusion perimeter
- Account for all personnel — check for injuries
- Call 911 if any injuries or structural damage to occupied areas
- Inspect all rigging and crane before any further lifts
- Conduct incident investigation and root cause analysis

Emergency Contact Information:

- Emergency Services: 911
- Crane Company Emergency: [Insert Name & Phone]
- Site Safety Manager: [Insert Name & Phone]
- Nearest Hospital: [Insert Name, Address & Phone]
- Utility Emergency: [Insert Local Utility Number]

WORKER SIGN-OFF — I HAVE READ AND UNDERSTAND THIS JHA

#	Print Name	Signature	Company / Trade	Date
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REVIEW & APPROVAL

Role	Name / Signature	Date	Initials
Prepared By (Author)			
Reviewed By (Safety Manager)			
Approved By (Project Manager)			
Client / Owner Rep			

This JHA must be reviewed and updated whenever job conditions change, after any incident, or at minimum annually.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

JHA INFORMATION			
JHA Title:	Overhead Power Line Work	JHA Number:	FSS-JHA-026
Project Name:		Date:	
Location:		Revision:	0
Regulatory References:	29 CFR 1926.1408 (Power Line Safety — Equipment Operations); 29 CFR 1910.269 (Electric Power Generation, Transmission & Distribution); NESC (National Electrical Safety Code)		
Prepared By:		Approved By:	
Competent Person:		Supervisor:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Pre-Work Planning & Utility Notification	• Unknown energized lines • Incorrect voltage identification • Inadequate clearance planning • Failure to notify utility owner	H	• Contact utility owner to identify all overhead lines and voltages • Obtain and review as-built drawings of line locations • Conduct pre-job safety briefing with all crew members • Develop written work plan specifying minimum approach distances (MAD) • Verify utility has been notified per 29 CFR 1926.1408 • Assign qualified electrical worker as crew lead
2. Establishing Minimum Approach Distances	• Electrocution from insufficient clearance • Arc flash exposure • Induced voltage on equipment • Misjudged distances	H	• Reference OSHA Table A (29 CFR 1926.1408) for MAD by voltage • Post MAD signage at work area boundaries • Use non-conductive measuring devices to verify distances • Install visible warning barriers (cones, flagging, barricades) • Designate a dedicated spotter for all equipment movement • Brief all personnel on MAD requirements — no exceptions
3. Equipment Setup & Grounding	• Electrical contact during setup • Inadequate grounding • Equipment tip-over on uneven terrain • Ground faults	H	• Set up equipment outside MAD zone; use outrigger pads on firm ground • Install protective grounds per utility requirements • Use ground-fault circuit interrupters on all portable tools • Verify continuity of grounding system before work begins • Ensure aerial lifts have insulated booms rated for voltage present • Conduct equipment pre-use inspection per manufacturer specs
4. Conductor Work (De-Energized or Hot Stick)	• Electrocution / arc flash • Falls from structures/poles • Induced voltage from adjacent energized lines • Tool drop strikes	H	• Confirm lockout/tagout and test-before-touch on de-energized circuits • Use insulated hot-stick tools rated for voltage class • Wear arc-rated FR clothing meeting NFPA 70E requirements • Install personal grounds at worksite bracket • Use 100% tie-off fall protection on poles/structures • Employ tool lanyards to prevent dropped objects • Maintain communication with ground crew at all times
5. Re-Energization & Testing	• Premature energization • Arc flash during switching • Personnel in danger zone • Residual stored energy	H	• Remove all grounds and protective devices in reverse order • Verify all personnel clear of MAD zone before re-energization • Coordinate with utility control center for switching sequence • Use proper switching PPE (arc flash suit per incident energy calc) • Perform step-and-touch voltage testing after energization • Document all switching operations in job log
6. Site Restoration	• Residual energized components • Trip/fall hazards from equipment • Incomplete cleanup • Public access to hazard area	M	• Verify all circuits are properly energized or de-energized per plan • Remove all barriers, signs, grounds, and temporary equipment • Inspect work area for debris, tools, and hardware left behind • Restore public barriers and warning signs as needed • Conduct post-job debrief with crew — document lessons learned • File completed JHA with project safety records

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	Specification / ANSI Standard	Condition / Notes
Hard Hat (Class E — Electrical)	ANSI/ISEA Z89.1, Class E (20kV rated)	Inspect before each use; replace if damaged
Arc-Rated FR Clothing	NFPA 70E; ASTM F1506	Cal rating must meet or exceed incident energy
Insulated Rubber Gloves w/ Leather Protectors	ASTM D120; OSHA 1910.137	Class matched to voltage; test per schedule
Safety Glasses / Arc-Rated Face Shield	ANSI/ISEA Z87.1+	Arc-rated face shield for switching operations
Dielectric Safety Footwear	ASTM F2413 (EH rated)	Electrical hazard rated; inspect soles for damage
Fall Protection Harness & Lanyard	ANSI/ASSP Z359.1; ANSI Z359.13	100% tie-off required above 4 ft
High-Visibility Vest	ANSI/ISEA 107, Class 2 minimum	Required in all roadway/traffic areas
Hearing Protection	ANSI S3.19 / S12.6 (NRR ≥ 25 dB)	Required during loud operations

EMERGENCY PROCEDURES

Electrical Contact / Electrocutation:

- DO NOT touch the victim if still in contact with energized source
- Call 911 immediately and request utility emergency response
- De-energize the circuit if safe to do so (utility switching)
- If victim is clear, begin CPR/AED — electrical injuries require cardiac monitoring
- Treat for burns — cover with sterile dressings, do not apply ointments
- All electrical contact incidents require hospital evaluation regardless of apparent severity

Arc Flash Burn:

- Remove victim from hazard zone to safe area
- Cool burns with clean water — do not remove adhered clothing
- Cover burns with sterile, non-adherent dressings
- Call 911 for burns involving face, airway, hands, or large body area
- Monitor for shock symptoms and keep victim warm

Fall from Height:

- Call 911 immediately — do not move victim unless in immediate danger
- Stabilize head and neck — assume spinal injury until cleared
- Control bleeding with direct pressure
- Monitor breathing and circulation; provide CPR if needed
- Activate site emergency plan and notify project management

Emergency Contact Information:

- Emergency Services: 911
- Utility Emergency Dispatch: [Insert Local Utility Number]
- Site Safety Manager: [Insert Name & Phone]
- Nearest Hospital: [Insert Name, Address & Phone]
- Poison Control: 1-800-222-1222

WORKER SIGN-OFF — I HAVE READ AND UNDERSTAND THIS JHA

#	Print Name	Signature	Company / Trade	Date
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REVIEW & APPROVAL

Role	Name / Signature	Date	Initials
Prepared By (Author)			
Reviewed By (Safety Manager)			
Approved By (Project Manager)			
Client / Owner Rep			

This JHA must be reviewed and updated whenever job conditions change, after any incident, or at minimum annually.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Painting & Coating (Industrial)

REGULATORY REFERENCES

- 29 CFR 1926.66 — Spraying Operations
- 29 CFR 1910.107 — Spray Finishing Using Flammable/Combustible Materials
- 29 CFR 1926.55 — Gases, Vapors, Fumes, Dusts, and Mists
- 29 CFR 1926.155 — Definitions (Fire Protection)
- 29 CFR 1910.1200 — Hazard Communication (GHS/SDS)
- NFPA 33 — Standard for Spray Application Using Flammable or Combustible Materials

SCOPE & DESCRIPTION

This JHA covers industrial painting and coating operations including surface preparation, mixing/thinning of coatings, spray application, brush/roller application, drying/curing phases, and cleanup with solvent handling. These operations involve significant exposure to flammable vapors, toxic fumes (isocyanates, VOCs), and fire/explosion risks. Strict adherence to ventilation, PPE, and hot work permit requirements is mandatory.

PROJECT INFORMATION

Project Name:		Date:	
Project Number:		Location:	
Contractor:		Supervisor:	
JHA Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Surface Preparation	Dust/particulate inhalation Chemical exposure (degreasers, etching agents) Noise from power tools Eye injury from grinding/wire brushing	M	Use local exhaust ventilation or respiratory protection Wear chemical-resistant gloves and splash goggles Hearing protection required for power tool use Full face shield for grinding/wire brush operations Review SDS for all cleaning chemicals before use
2. Mixing / Thinning	Flammable vapor ignition Toxic fume inhalation (isocyanates, solvents) Skin/eye contact with chemicals Spill — environmental contamination	H	Mix in designated, well-ventilated area only No ignition sources within 20 ft of mixing area Wear organic vapor respirator (APF 10 minimum) Chemical-resistant gloves, apron, and splash goggles Use grounded/bonded containers to prevent static Have spill kit and fire extinguisher within 25 ft Follow manufacturer mixing ratios exactly
3. Spray Application	Flammable vapor accumulation — explosion risk Toxic fume inhalation (isocyanates, VOCs) Overspray — skin/eye exposure Fire from static discharge Falls from elevated platforms	H	Maintain continuous forced-air ventilation (10% LEL max) Supplied-air respirator for isocyanate coatings Full Tyvek suit, chemical gloves, hood, and face shield Ground all spray equipment and conductive flooring Post NO SMOKING / NO OPEN FLAME signs Fall protection required above 6 ft Continuous LEL monitoring in spray area Hot work permit required if any ignition sources nearby
4. Brush / Roller Application	VOC inhalation in confined/poorly ventilated areas Skin contact with coatings Ergonomic strain (repetitive motion, awkward postures) Slips on wet/coated surfaces	M	Ensure adequate ventilation — minimum 4 air changes/hour Organic vapor respirator in enclosed areas Chemical-resistant gloves; long sleeves Anti-fatigue mats; rotate tasks to reduce strain Non-slip footwear; clean spills immediately
5. Drying / Curing	Continued off-gassing of VOCs/isocyanates Fire risk from heat lamps or curing ovens Unauthorized entry to curing area	M	Maintain ventilation during entire curing period Monitor VOC levels until below PEL Keep heat sources away from flammable vapors Barricade and sign curing area — restricted access Fire watch as required per hot work permit
6. Cleanup & Solvent Handling	Flammable solvent ignition	H	Clean equipment in designated ventilated area Organic vapor respirator and chemical gloves

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	Toxic vapor inhalation during cleaning Improper disposal — environmental violation Spontaneous combustion (solvent-soaked rags)		required Dispose of solvent waste in approved, sealed containers Solvent-soaked rags in self-closing metal cans ONLY No solvent down drains — use licensed waste hauler Bond and ground solvent containers during transfer

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	
☐ Supplied-Air Respirator (isocyanate coatings)	☐ Organic Vapor Respirator (standard coatings)
☐ Full Tyvek Coveralls / Chemical Suit	☐ Chemical-Resistant Gloves (nitrile or neoprene)
☐ Splash-Proof Safety Goggles / Face Shield	☐ Steel-Toe Safety Boots (non-sparking soles)
☐ Hearing Protection (power tool operations)	☐ High-Visibility Vest (outdoor operations)

EMERGENCY PROCEDURES

1. FIRE / EXPLOSION: Activate fire alarm. Evacuate all personnel from spray area. Use Class B fire extinguisher (dry chemical or CO2). Do not use water on solvent fires. Call 911.
2. CHEMICAL INHALATION: Move victim to fresh air immediately. If not breathing, begin CPR. Call 911. Provide SDS to emergency responders. Do not administer mouth-to-mouth if isocyanate exposure is suspected — use bag-valve mask.
3. SKIN / EYE CONTACT: Remove contaminated clothing immediately. Flush skin with water for 15+ minutes. For eye exposure, use emergency eyewash for minimum 15 minutes. Seek medical attention.
4. CHEMICAL SPILL: Evacuate immediate area. Don appropriate PPE. Contain spill with absorbent material. Do not wash into drains. Notify environmental coordinator.
5. FALL FROM ELEVATION: Do not move the victim. Call 911. Keep victim warm and monitor breathing. If fall arrest system activated, treat for suspension trauma.
6. EMERGENCY CONTACTS: 911 for all emergencies. Site Safety Officer: _____. Poison Control: 1-800-222-1222. Local Fire Department: _____.

ADDITIONAL NOTES / SITE-SPECIFIC REQUIREMENTS

- Safety Data Sheets (SDS) must be available on-site for all coatings, thinners, and solvents.
- Atmospheric monitoring (LEL, O2, VOC) is required in enclosed/confined spray areas.
- Hot work permits are required when spray operations are near welding, cutting, or grinding.
- Isocyanate-containing coatings require specific medical surveillance per OSHA guidelines.
- All spray equipment must be inspected and maintained per manufacturer specifications.

WORKER SIGN-OFF

By signing below, I confirm that I have reviewed and understand this JHA, including all identified hazards and required control measures.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

REVISION HISTORY

Revision	Date	Description	Approved By
0		Initial Release	
1			

DISCLAIMER: This Job Hazard Analysis is a guideline for identifying hazards and implementing controls. It does not replace site-specific safety plans, competent person assessments, or regulatory requirements. All workers must comply with applicable OSHA standards and company safety policies. This JHA must be reviewed and updated whenever work conditions change.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Pipeline / Underground Utility Installation

Applicable Standards: 29 CFR 1926 Subpart P (Excavations) • 29 CFR 1926.651 (General Requirements) • 29 CFR 1926.652 (Protective Systems)
 • CGA Best Practices (Common Ground Alliance 811) • MUTCD (Traffic Control) • 29 CFR 1926.353 (Ventilation for Welding) • 29 CFR 1910.146 (Permit-Required Confined Spaces)

PROJECT INFORMATION

Company Name:		Date:	
Project/Site:		JHA Number:	
Supervisor:		Work Activity:	
Location/Address:		Permit #:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

TASK STEP	HAZARD	RISK (H/M/L)	CONTROL MEASURES
1. Utility Locate & Potholing (811 Verification)	- Struck-by existing utilities (gas, electric, fiber, water) - Electrocution from unmarked power lines - Damage to pressurized gas line - Inadequate locate markings	H	- Call 811 minimum 48–72 hours before excavation — verify ticket is active and valid - Obtain utility locate maps and cross-reference with as-built drawings - Pothole (soft-dig) with vacuum excavation or hand tools within 24" of marked utilities - Competent person verifies all locates before mechanical excavation - Mark tolerance zones with white paint per CGA Best Practices - Photograph all markings before work begins for documentation
2. Excavation & Trench Setup	- Cave-in / trench collapse - Engulfment - Falls into excavation - Hazardous atmosphere (methane, CO, H₂S, low O₂) - Contact with groundwater - Heavy equipment struck-by	H	- Competent person performs soil classification per 29 CFR 1926.651 - Install trench protective system: sloping, benching, shoring, or trench shield per soil type - Excavations >4 ft. deep require protective system; >20 ft. requires PE-stamped design - Atmospheric monitoring before entry and continuously in deep trenches (>4 ft.) - Install barricades, guardrails, and warning signs around excavation perimeter - Ladders within 25 ft. of all workers for emergency egress - Spotter required for all heavy equipment near trench edge - Daily trench inspection by competent person; re-inspect after rain or changed conditions
3. Pipe Laying / Welding	- Struck-by pipe or materials during lifting - Caught-between during pipe placement - Welding burns and UV radiation - Fire/explosion from hot work near gas utilities	H	- Rigging inspection before each lift — competent rigger directs crane/excavator - Tag lines on all suspended loads; no workers under suspended pipe - Hot work permit required for all welding/cutting operations - Welding screens/curtains to protect nearby workers from UV/sparks

TASK STEP	HAZARD	RISK (H/M/L)	CONTROL MEASURES
	- Ergonomic strain (heavy lifting) - Fume inhalation		- Fire watch with extinguisher during and 30 min. after hot work - Welding fume extraction or natural ventilation for trench welding - Proper lifting techniques; mechanical assists for pipe >50 lbs. - Gas detection monitor in continuous operation near gas utilities
4. Backfill & Compaction	- Struck-by heavy equipment - Crushing/caught-between compaction equipment and trench walls - Damaged pipe from improper backfill - Noise exposure >85 dBA - Whole-body vibration	M	- Spotter for all heavy equipment operations near trench - Verify no workers in trench during machine backfill operations - Follow engineered backfill specifications (lift thickness, material type) - Compaction testing per project specifications - Hearing protection required near compaction equipment - Anti-vibration gloves and equipment operator rest intervals - Maintain minimum safe distance from trench edge for equipment (per soil type)
5. Pressure Testing	- High-pressure line failure / rupture - Projectile hazard from fitting failure - Exposure to test medium (water, air, or inert gas) - Noise from pressurized release	H	- Written pressure test procedure approved by engineer - Establish exclusion zone — no personnel within blast radius during pressurization - Inspect all fittings, joints, and connections before test initiation - Gradual pressurization in stages with hold periods per specification - Calibrated pressure gauges — minimum two independent gauges - Bleed pressure safely before disconnecting any fittings - Hearing protection during controlled pressure release - Emergency shutoff valve accessible at all times
6. Site Restoration & Demobilization	- Traffic exposure on roadways - Uneven ground / trip hazards - Remaining excavation openings - Improper waste disposal	M	- Traffic control plan (TTC) per MUTCD — flaggers, cones, signs, arrow boards - High-visibility Class 3 vests for all workers near traffic - Verify all excavations backfilled and compacted to grade - Install permanent surface restoration (asphalt, concrete, sod) per permit requirements - Remove all construction debris and dispose per environmental regulations - Conduct final site walk-through with supervisor — document with photos - Update as-built drawings with actual utility locations

FORBES SAFETY SOLUTIONS

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

PPE ITEM	SPECIFICATION / STANDARD	WHEN REQUIRED
Hard Hat	ANSI/ISEA Z89.1, Type I, Class E (electrical rated)	All times within excavation work zone
High-Visibility Vest	ANSI/ISEA 107, Class 3 (for roadway/traffic exposure)	All workers on site; Class 3 required near traffic
Steel/Composite Toe Boots	ASTM F2413 — puncture-resistant, metatarsal guard recommended	All times on site; waterproof if groundwater present
Safety Glasses	ANSI Z87.1 — impact-rated, anti-fog	All times; goggles for grinding, cutting, or dusty conditions
Hearing Protection	ANSI S3.19 — NRR 25+ dB (plugs or muffs)	Near heavy equipment, compaction, or pneumatic tools (>85 dBA)
Cut-Resistant Gloves	ANSI/ISEA 105, Cut Level A4 minimum	Pipe handling, material moving, general excavation tasks
Welding Hood / Shield	ANSI Z87.1, Shade 10-12 for arc welding	All welding and cutting operations
Welding Gloves	ANSI/ISEA 105 — heat and flame resistant	All welding and hot work operations
Respiratory Protection	NIOSH-approved P100 or supplied air as required	Trench atmospheres with contaminants; welding fume exposure
Fall Protection Harness	ANSI Z359.11 — full body harness with lanyard	Work adjacent to excavations >6 ft. deep without guardrails
Gas Detection Monitor	4-gas monitor: O ₂ , LEL, CO, H ₂ S — bump tested daily	All personnel entering excavations >4 ft. deep

EMERGENCY PROCEDURES

EMERGENCY PROCEDURES
Trench Rescue: If a cave-in occurs, call 911 immediately. Do NOT enter the trench to rescue — this is a confined space rescue requiring trained technical rescue teams. Protect remaining trench walls from further collapse.
Struck Utility — Gas: Evacuate upwind immediately. Establish 300 ft. exclusion zone. Call gas company emergency line. Do NOT attempt to cap or repair. Eliminate ignition sources.
Struck Utility — Electric: Assume all conductors are energized. Do NOT touch the line or equipment in contact with it. Call utility emergency number. Establish exclusion zone equal to wire span length.
Hazardous Atmosphere: Remove worker from trench immediately if gas monitor alarms. Ventilate with mechanical blower. Do not re-enter until atmosphere is confirmed safe by competent person with calibrated monitor.
Medical Emergency: Administer first aid. Call 911 and provide exact location and nature of injury. Designate someone to guide emergency vehicles to site. First aid kit and AED on site at all times.
Emergency Contacts: Competent Person: _____ 811 Ticket #: _____ Local EMS: 911 Gas Co. Emergency: _____ Electric Co. Emergency: _____

FORBES SAFETY SOLUTIONS

WORKER ACKNOWLEDGMENT & SIGN-OFF

By signing below, I acknowledge that I have reviewed this JHA, understand the identified hazards and control measures, and agree to follow all safety procedures outlined herein. I have been trained on the use of required PPE and emergency procedures for this work activity.

#	PRINTED NAME	SIGNATURE	DATE
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JHA REVIEW & APPROVAL

This JHA must be reviewed and approved before work commences. Review is required whenever scope, conditions, personnel, or site conditions change. The competent person must re-assess the trench and protective systems at the start of each shift.

ROLE	NAME	SIGNATURE	DATE
Prepared By (Safety Professional)			
Reviewed By (Competent Person)			
Approved By (Project Manager)			
Approved By (HSE Manager)			

REVISION HISTORY

REV #	DATE	DESCRIPTION	REVISED BY

DISCLAIMER: *This JHA template is provided as a guide for safety planning and does not replace site-specific hazard assessments. Employers are responsible for ensuring compliance with all applicable OSHA standards, state and local regulations, utility owner requirements, and company-specific safety programs. The competent person must adapt this document to reflect actual site conditions, soil classification, protective systems, and personnel qualifications.*

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Pole Setting / Utility Pole Installation

Regulatory References: 29 CFR 1910.269, 29 CFR 1926 Subpart V, NESC

Document No: FSS-JHA-038 | Revision: 0 | Date: _____

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS TABLE

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Hole Augering / Excavation	Underground utility strike Excavation cave-in Auger caught on obstruction Noise/vibration exposure	H H M M	Complete 811 utility locate request minimum 48 hours prior Hand dig within 18 inches of marked utilities (tolerance zone) Verify auger guard and emergency shutoff are operational Maintain safe distance from rotating auger (10-ft minimum) Barricade open holes immediately; cover if left unattended Wear hearing protection during augering operations
2. Pole Inspection & Rigging	Defective pole (rot, splits, cracks) Improper rigging failure Struck by during handling	M H H	Inspect pole for damage, splits, rot, and hardware defects per ANSI O5.1 Reject any pole failing visual or sounding inspection Attach rigging at designated lift point (manufacturer recommendation) Use tag lines to control pole swing (minimum 2 tag lines) All personnel clear of swing radius during rigging Verify sling/choker capacity exceeds pole weight by 5:1 safety factor
3. Pole Setting with Crane/Boom Truck	Struck by pole during setting Overhead line contact Crane tip-over Pinch points	H H H M	Conduct pre-lift meeting covering load weight, radius, ground conditions Maintain minimum approach distance (MAD) from energized lines per 29 CFR 1926.1408 Use a qualified signal person; establish clear hand signals Set outriggers on firm ground with cribbing; verify level

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
			Do NOT exceed crane load chart capacity at any boom angle Keep all personnel out of the swing/fall zone Use tag lines to guide pole into hole; never use hands directly
4. Pole Tamping & Backfill	Pole shifting/falling before secured Hand/foot injury during tamping Ergonomic strain	H M M	Do NOT release crane/boom until pole is plumb and tamped Tamp in 6-inch lifts with approved tamping equipment Keep hands and feet clear of tamping zone Verify pole plumb with level before final backfill Compact backfill to prevent future pole settlement Use mechanical tamper for large-diameter holes when available
5. Hardware & Crossarm Installation	Falls during climbing Dropped tools/materials Overhead line proximity	H M H	100% fall protection required when climbing or working above 4 feet Use approved climbing equipment (belt, gaffs, positioning lanyard) Haul hardware and tools up with hand line; never carry while climbing Install tool lanyards on all hand tools Maintain MAD from all energized conductors Use insulated tools if working near energized lines
6. Conductor Stringing	Overhead line contact Conductor snap-back Falls from elevation Traffic near work zone	H H H M	Establish proper grounding/bonding before stringing near energized lines Use calibrated tension equipment; do not exceed conductor rated tension All workers on poles tied off 100% during stringing Establish traffic control per MUTCD for road crossings Use pulling ropes and guards at road crossings Clear area below stringing operations of all personnel

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

☐ Hard Hat (ANSI Z89.1 Type I, Class E)	☐ Safety Glasses (ANSI Z87.1)
☐ High-Visibility Vest (ANSI/ISEA 107 Class 2)	☐ Steel-Toe Boots (ASTM F2413)
☐ Leather Work Gloves	☐ FR-Rated Clothing (near energized lines)
☐ Climbing Belt and Positioning Lanyard	☐ Fall Protection Harness (100% tie-off above 4 ft)
☐ Hearing Protection (during augering)	☐ Rubber Insulating Gloves (if near energized lines)

EMERGENCY PROCEDURES

1. If a pole begins to fall uncontrolled, all personnel move perpendicular to the fall path. Sound air horn or yell 'POLE DOWN' immediately.
2. For overhead line contact with equipment, assume all metal is energized. Stay in the cab or hop clear with feet together. Do NOT touch the ground and equipment simultaneously.
3. In case of excavation cave-in, do NOT enter the excavation. Call 911 and initiate rescue per the site-specific rescue plan.
4. For crane tip-over, evacuate the radius of the boom length plus pole length. The operator should remain in the cab if safer than exiting.
5. For falls from poles, call 911 immediately. Do NOT move the victim unless in immediate life-threatening danger. Administer first aid for suspension trauma.
6. All struck-by incidents require immediate medical evaluation even if no visible injury. Report to site supervisor and complete incident documentation.

Emergency Contact:	911 / Site-specific: _____
Assembly Point:	
Nearest Hospital:	
First Aid Kit Location:	

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures.

#	Print Name	Signature	Company	Date
1				
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Name / Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

Next Review Date:	
Revision Notes:	

FORBES SAFETY SOLUTIONS | *Committed to Zero Incidents*

This document is valid only when all sections are completed and signatures obtained.

JOB HAZARD ANALYSIS

Rigging & Crane Lift Operations

Applicable Standards: 29 CFR 1926 Subpart CC (1926.1400–1926.1442) — *Cranes & Derricks*; ASME B30.5 — *Mobile Cranes*; ASME B30.9 — *Slings*; OSHA 1926.1431 — *Hoisting Personnel*

Project Name: _____	Date: _____
Location: _____	Supervisor: _____
Crew Members: _____	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
1	Conduct pre-lift planning — review lift plan, load weight, crane capacity at required radius	Crane overloading (structural failure/tip-over); incorrect load weight estimate; inadequate ground conditions	Qualified rigger calculates total load (object + rigging + block). Verify crane load chart at planned radius and boom length — stay below 75% of rated capacity for routine lifts. Review ground bearing capacity. Document lift plan — critical lifts (>75% capacity) require engineered lift plan.	
2	Set up crane on firm, level ground — extend outriggers and verify LMI/anti-two-block function	Crane tip-over from inadequate ground support; outrigger pad failure; LMI malfunction leading to undetected overload	Level crane within 1% grade (or per manufacturer spec). Outriggers fully extended with timber mats rated for ground pressure. Function-test LMI (Load Moment Indicator) and anti-two-block device before first lift. Daily crane inspection per 1926.1412.	
3	Inspect all rigging hardware — slings, shackles, hooks, and spreader beams	Rigging failure from damaged or overloaded hardware; dropped load; struck-by from failed rigging component	Qualified rigger inspects all rigging per ASME B30.9 — reject any sling with visible damage, broken wires, or missing ID tags. Verify hardware WLL (Working Load Limit) exceeds calculated sling loads. Use proper sling angles (never <30° included angle). Document inspection.	
4	Rig the load — attach slings, connect shackles, verify center of gravity, install taglines	Crush injuries during rigging attachment; pinch points between load and rigging; unbalanced load; tag line entanglement	Only qualified riggers attach hardware to loads. Hands clear of pinch points — use push/pull sticks. Verify CG with trial lift (raise 6-12 inches and pause). Install taglines of sufficient length — never wrap around hands. Use softeners on sling contact edges.	
5	Clear the lift zone — establish swing radius barricades and verify power line clearance	Workers struck by suspended load or crane components; boom contact with overhead power lines (electrocution); unauthorized entry into lift zone	Barricade swing radius plus 10 ft. Assign signal person with dedicated radio channel. Verify min 20-ft clearance from power lines per 1926.1408 (or use table for voltage >350kV). No personnel under suspended load at any time. Air horn for lift initiation warning.	
6	Execute the lift — signal person directs crane operator through pick, swing, and travel	Struck-by from load swing; crane tip-over during dynamic loading; loss of communication between operator and signal person; two-blocking	Standard hand signals or radio per 1926.1419–1926.1421. Smooth, controlled movements — no sudden stops or swings. Monitor LMI continuously. One signal person at a time (designated). Stop lift immediately for any "all stop" signal from any worker.	
7	Set and land the load at designated location	Crush injuries during landing; workers caught between load and structure; loss of load control in wind; rigging snagging on structure	Tagline operators guide load to within 12 inches. Landing zone crew clear until load is within 2 ft of landing. Use dunnage/cribbing at set point. Workers approach from upwind side only. Release load tension before disconnecting rigging. Wind speed limit: suspend lifts if sustained winds >20 mph (or per lift plan).	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
8	Disconnect rigging from landed load	Load shift after tension release; falling hardware when disconnecting; residual energy in rigging (snap-back)	Verify load is stable and fully supported before disconnecting. Rigger confirms no residual tension on slings. Remove rigging from topside when possible. Stack rigging hardware properly — never leave on ground in walkways. Inspect rigging for damage before next lift.	
9	Multi-crane lifts (when applicable) — coordinated dual-crane operations	Unequal load sharing leading to overload; boom collision; communication failure between operators; loss of synchronization	Engineered lift plan mandatory for all multi-crane lifts. Each crane limited to 75% of capacity at max radius. Dedicated signal person for each crane + lift director. Pre-lift meeting with all operators. Continuous radio communication. Abort procedure agreed upon and rehearsed.	
10	Secure crane at end of shift — boom stow, lockout, and documentation	Unattended crane movement; boom interference with other operations; theft/vandalism	Boom lowered and secured per manufacturer procedure. Swing lock engaged. Main disconnect locked out. Remove keys. Complete operator daily log — note any deficiencies. Report maintenance items to crane coordinator. Barricade crane perimeter if left on-site.	

 **This JHA must be reviewed and signed by all crew members before work begins.** Conditions on the jobsite may change — reassess hazards throughout the shift and update this JHA as necessary.

REVIEW & APPROVAL

Reviewed By (Print Name)

Signature

Date

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Road / Highway Work Zone Operations

REGULATORY REFERENCES

- 29 CFR 1926.200-203 — Signs, Signals, and Barricades
- Manual on Uniform Traffic Control Devices (MUTCD), Part 6
- OSHA Work Zone Safety Guidance
- 23 CFR 630 Subpart J — Work Zone Safety and Mobility
- OSHA Fact Sheet: Highway Work Zone Safety
- ANSI/ISEA 107 — High-Visibility Safety Apparel

SCOPE & DESCRIPTION

This JHA covers road and highway work zone operations including Temporary Traffic Control (TTC) setup per approved traffic control plans, pavement marking/stripping, guardrail installation, sign placement, milling/patching, and TTC removal. Struck-by incidents from motorized traffic are the leading cause of death in highway work zones. All personnel must maintain extreme situational awareness and comply with MUTCD and state DOT requirements at all times.

PROJECT INFORMATION

Project Name:		Date:	
Project Number:		Location:	
Contractor:		Supervisor:	
JHA Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. TTC Setup per Plan	Struck by traffic (highest risk) Struck by work vehicles placing devices Workers exposed to high-speed traffic Inadequate taper/buffer distances	H	Deploy TTC per MUTCD-compliant Traffic Control Plan (TCP) Install signs and devices in direction of traffic flow Use truck-mounted attenuator (TMA) as shadow vehicle All workers in ANSI Class 3 high-visibility apparel Spotter/flagger positioned per TCP Advance warning signs placed first before lane closures Minimum buffer space per MUTCD Table 6C-2
2. Pavement Marking / Striping	Struck by passing traffic Inhalation of paint/thermoplastic fumes Burns from thermoplastic equipment (400°F+) Moving equipment in active lanes	H	Positive lane separation (barriers or channelizers) Organic vapor respirator for thermoplastic operations Heat-resistant gloves and face shield near kettle Spotter required for all equipment movement Maintain work vehicle escape route at all times High-visibility apparel mandatory; reflective at night
3. Guardrail Installation	Struck by traffic Struck by equipment (pile driver, bobcat) Crush hazard — guardrail sections during handling Noise exposure from pile driving	H	Positive barrier protection where feasible Designated equipment swing zone — no workers in radius Two-person minimum for guardrail section handling Mechanical lifting for heavy sections Double hearing protection for pile driving operations Communication protocol: radio + hand signals
4. Sign Placement	Struck by traffic while placing/adjusting signs Overhead utility contact (tall signs) Manual handling injuries Wind-related sign blow-over during installation	M	Place signs from behind barrier where possible Utility locate completed before post driving Minimum 10 ft clearance from overhead power lines Sandbag bases for temporary signs in wind Never stand on traffic side of sign being placed High-visibility apparel at all times
5. Milling / Patching	Struck by traffic or work zone equipment Heat stress from asphalt and sun exposure Burns from hot-mix asphalt (300°F+) Noise from milling machine (100+ dB) Silica dust from milling operations	H	TTC in place per approved TCP before operations begin Heat stress prevention: water, shade, rest breaks per OSHA guidance Long sleeves, heat-resistant gloves near hot mix Hearing protection mandatory (NRR 25+) Wet milling or dust suppression for silica control Air monitoring for silica if dry cutting/milling Equipment operators maintain 360° awareness
6. TTC Removal	Struck by traffic (devices removed against traffic)	H	Remove devices against the direction of traffic

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	flow) Struck by other work vehicles Distracted motorists entering work zone		flow Use TMA shadow vehicle during removal All workers in Class 3 high-visibility apparel Maintain lane closure until all devices and personnel are clear Final sweep to ensure no devices remain in travel lanes Notify traffic management center of reopening

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	
☐ ANSI Class 3 High-Visibility Vest/Shirt (reflective for night)	☐ Hard Hat (ANSI Z89.1 Type I, Class E)
☐ Steel-Toe Safety Boots	☐ Hearing Protection (NRR 25+ for milling/pile driving)
☐ Heat-Resistant Gloves (asphalt/thermoplastic)	☐ Safety Glasses / Tinted Safety Glasses
☐ Organic Vapor Respirator (striping/thermoplastic)	☐ P100 Respirator (milling/silica operations)
☐ Sun Protection (SPF 30+ sunscreen, wide-brim hard hat)	☐ Cut-Resistant Gloves (guardrail handling)

EMERGENCY PROCEDURES

1. **STRUCK-BY-VEHICLE INCIDENT:** Call 911 immediately. Do NOT move victim unless in imminent danger of further strikes. Activate emergency TTC — close lane(s) to protect scene. Administer first aid / control bleeding. Assign someone to guide emergency vehicles to scene.
2. **VEHICLE INTRUSION INTO WORK ZONE:** Sound air horn / alert all workers. All personnel move behind positive barrier or to designated escape route. Activate emergency traffic control. Do not attempt to stop or redirect the intruding vehicle.
3. **HEAT-RELATED ILLNESS:** Move worker to shaded area. Remove excess clothing. Apply cool water/ice packs to neck, armpits, groin. If confusion, loss of consciousness, or no sweating — call 911 (heat stroke). Provide water if conscious.
4. **THERMAL BURN (HOT MIX/THERMOPLASTIC):** Cool with clean water for 10+ minutes. Do not remove adhered material. Cover with sterile dressing. Seek medical attention for burns >3 inches.
5. **EQUIPMENT CONTACT WITH OVERHEAD UTILITIES:** Stay in equipment cab if possible. If exiting, JUMP clear — do not step. Call utility company and 911. Establish 35 ft exclusion zone. No one touches equipment until de-energized.
6. **EMERGENCY CONTACTS:** 911 for all emergencies. Site Safety Officer: _____. State DOT TMC: _____. Utility Emergency: _____.

ADDITIONAL NOTES / SITE-SPECIFIC REQUIREMENTS

- An approved Traffic Control Plan (TCP) must be on-site and followed at all times.
- All flaggers must hold current state flagger certification.
- Night work requires retroreflective apparel meeting ANSI 107 Class 3 requirements.
- Internal traffic control plans (ITCP) required for equipment movement within the work zone.
- Pre-shift safety briefing must include escape routes, TMA position, and communication protocol.
- Speed monitoring/enforcement should be coordinated with law enforcement when available.

WORKER SIGN-OFF

By signing below, I confirm that I have reviewed and understand this JHA, including all identified hazards and required control measures.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

REVISION HISTORY

Revision	Date	Description	Approved By
0		Initial Release	
1			

DISCLAIMER: This Job Hazard Analysis is a guideline for identifying hazards and implementing controls. It does not replace site-specific safety plans, competent person assessments, or regulatory requirements. All workers must comply with applicable OSHA standards and company safety policies. This JHA must be reviewed and updated whenever work conditions change.

JOB HAZARD ANALYSIS

Roofing Operations — Commercial & Residential

Applicable Standards: 29 CFR 1926 Subpart M (1926.500–1926.503) — Fall Protection; 29 CFR 1926.501(b)(10) — Roofing; OSHA 3150 — Fall Protection in Construction

Project Name: _____	Date: _____
Location: _____	Supervisor: _____
Crew Members: _____	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
1	Establish roof access via ladder, scaffold, or aerial lift	Falls from height during access/egress; ladder tip-over or displacement; overreaching	Extension ladder extends 3 ft above roof edge. Secure at top and base. 4:1 ratio setup. Use ladder stabilizer on soft ground. Three-point contact rule enforced. Workers wear 100% tie-off harness when transitioning to roof.	
2	Install perimeter fall protection (guardrails, warning line system, or personal fall arrest)	Unprotected roof edge — falls to lower level (leading cause of roofing fatalities)	Install guardrails meeting 1926.502(b) — 42" top rail, 21" mid rail, capable of 200 lb force. For low-slope roofs: warning line at 6 ft from edge + safety monitor OR personal fall arrest system. Anchor points rated 5,000 lbs per worker.	
3	Hoist materials to roof level using crane, conveyor, or manual methods	Struck-by from falling materials; overloaded hoist; musculoskeletal injuries from manual lifting	Establish exclusion zone below hoisting area. Tag loads — no riding loads. Inspect rigging hardware pre-use. Limit manual carries to <50 lbs per person. Two-person lift for bundles. Hard hats mandatory in hoist zone.	
4	Remove existing roofing materials (tear-off operations)	Falls through weakened decking or skylights; exposure to asbestos/lead in older buildings; nail puncture wounds	Survey for fragile decking and skylights — cover or guard per 1926.502(i). Pre-demolition hazmat survey for buildings pre-1980. Cut-resistant gloves and puncture-resistant boot insoles. Debris chute or controlled drop zone for waste.	
5	Inspect and repair roof deck substrate	Structural collapse of weakened deck; falls through openings; splinter/cut injuries	Competent person evaluates structural integrity before loading. Cover all deck openings — secure covers labeled "HOLE" per 1926.502(i). Replace rotted decking before proceeding. Maximum material staging load per structural engineer limits.	
6	Install underlayment, insulation, and vapor barrier	Heat illness (especially on dark roofs in summer); slips on smooth membrane; adhesive/solvent fume inhalation	Implement heat illness prevention plan — water, rest, shade per OSHA guidance. Cool-down breaks every 20 min when >90°F. Non-slip footwear required. Half-face respirator with OV cartridge for adhesive application. Ventilation for enclosed areas.	
7	Install primary roofing system (shingles, membrane, or metal panels)	Repetitive motion injuries; nail gun injuries; burns from hot-applied materials (BUR/modified bitumen); electrical contact with rooftop equipment	Sequential trigger on nail guns only (no bump firing). Hot kettle operators trained and certified — fire extinguisher within 25 ft. Maintain 10-ft clearance from electrical equipment. Rotate task assignments to reduce repetitive strain.	
8	Perform edge and flashing detail work (drip edge, valley, penetrations)	Falls from roof edge during low-position work; lacerations from sheet metal; dropped tools striking workers below	100% personal fall arrest at roof edge — 6-ft max free fall. Use retractable SRL when working near edge. Cut-resistant gloves for metal flashing. Tool lanyards on all hand tools. Drop zone barricaded below.	

Step #	Job Steps	Potential Hazards	Hazard Controls	Responsible Person
9	Conduct final inspection, cleanup, and debris removal	Puncture wounds from exposed fasteners; trip hazards from debris; struck-by during waste removal	Magnetic nail sweeper on deck and ground level. Bundle debris for controlled lowering — no throwing materials. Maintain fall protection until last worker descends. Final walkthrough by supervisor. Document punch list items.	

 **This JHA must be reviewed and signed by all crew members before work begins.** Conditions on the jobsite may change — reassess hazards throughout the shift and update this JHA as necessary.

REVIEW & APPROVAL

Reviewed By (Print Name)	Signature	Date
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FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

JHA INFORMATION			
JHA Title:	Scaffolding Erection & Dismantling	JHA Number:	FSS-JHA-029
Project Name:		Date:	
Location:		Revision:	0
Regulatory References:	29 CFR 1926.451 (General Requirements — Scaffolds); 29 CFR 1926.452 (Specific Types); 29 CFR 1926.453 (Aerial Lifts); 29 CFR 1926.454 (Training)		
Prepared By:		Approved By:	
Competent Person:		Supervisor:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Site Assessment & Base Preparation	• Unstable ground conditions • Underground utilities • Overhead power line proximity • Uneven or sloped terrain • Pedestrian/vehicle traffic	H	• Competent person conducts site survey before erection begins • Verify soil bearing capacity at scaffold location — compact or improve as needed • Call 811 / utility locate to identify underground utilities • Survey for overhead power lines — maintain minimum 10 ft clearance (20 ft for >50kV) • Level ground surface; use compacted gravel fill if needed • Barricade scaffold zone to restrict unauthorized access • Establish traffic control plan if near vehicle routes
2. Mud Sill / Base Plate Placement	• Point loading causing settlement • Base plate sliding/shifting • Uneven load distribution • Improper sill sizing	M	• Place mud sills (min 2x10 lumber or engineered sills) under all base plates • Mud sills must extend minimum 6 inches beyond base plate on each side • Ensure base plates are centered on mud sills • Verify level with spirit level — shim as needed (no scrap wood for shimming) • Never use concrete blocks, bricks, or unstable materials as base support • Lock screw jacks after leveling — do not exceed maximum extension
3. Frame Erection & Bracing	• Falls during erection (no guardrails yet) • Scaffold collapse from improper bracing • Struck by falling components • Manual handling injuries	H	• Erectors must use personal fall arrest systems (harness + lanyard) until guardrails installed • Install cross-bracing on every frame bay — both sides • Plumb and level each lift before proceeding to next tier • Use manufacturer's coupling/locking pins — no substitutions • Two-person minimum for frame erection — use tag lines for heavy components • Secure components against wind during erection (tie-off partially erected sections) • Install tie-ins to structure per manufacturer specs (every 26 ft vertical, 30 ft horizontal)
4. Platform Installation & Guardrails	• Falls from incomplete platforms • Planks sliding or tipping • Gaps between planks > 1 inch • Missing guardrail components	H	• Install scaffold planks full width — maximum 1-inch gap between planks • Planks must extend minimum 6 inches beyond support, maximum 12 inches • Secure planks to prevent displacement (cleats, hooks, or wire ties) • Install guardrails: top rail at 38-45 inches, mid rail, and toe board (4 inches min) • Guardrail must withstand 200 lb force at any point in any direction • Install access ladder or stair tower — no climbing on cross-braces • Inspect all planks for defects — reject cracked, warped, or damaged planks
5. Scaffold Inspection & Tagging	• Use of uninspected scaffold • Overloading beyond rated capacity • Defects missed during inspection • Unauthorized modifications	M	• Competent person inspects scaffold before each work shift • Apply scaffold tag system: GREEN (safe), YELLOW (restrictions), RED (do not use) • Document inspection findings on scaffold inspection form • Post load capacity signage on scaffold (must not exceed 4x max intended load) • Re-inspect after any alteration, weather event, or extended non-use

			• Do not modify scaffold without competent person approval • Train all scaffold users on tag system and load limits per 1926.454
6. Dismantling (Reverse Sequence)	• Falls during dismantling • Scaffold instability as components removed • Struck by falling components • Premature removal of ties/bracing	H	• Dismantle in reverse order of erection — top down • Erectors wear personal fall arrest at all times during dismantling • Do not remove tie-ins until dismantling reaches that level • Lower components to ground — never throw or drop • Maintain bracing integrity at each stage of dismantling • Barricade exclusion zone below dismantling operations • Stack and organize components for transport/storage upon removal • Competent person supervises entire dismantling operation

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	Specification / ANSI Standard	Condition / Notes
Hard Hat	ANSI/ISEA Z89.1, Type I, Class E	Chin strap required during erection/dismantling
Full-Body Fall Arrest Harness	ANSI/ASSP Z359.1; Z359.11	Required for erectors until guardrails installed
Self-Retracting Lifeline (SRL)	ANSI/ASSP Z359.14	Preferred over shock-absorbing lanyard for scaffold work
Safety Glasses	ANSI/ISEA Z87.1+	Impact-rated with side shields
Work Gloves (Cut-Resistant)	ANSI/ISEA 105, Cut Level A4+	Dexterity sufficient for pin/coupler handling
Steel-Toe Safety Boots	ASTM F2413 (I/75 C/75)	Ankle support; slip-resistant soles
High-Visibility Vest	ANSI/ISEA 107, Class 2 minimum	Required at all times on scaffold operations
Hearing Protection	ANSI S3.19 / S12.6 (NRR ≥ 25 dB)	Required when hammering or using power tools

EMERGENCY PROCEDURES

Fall from Scaffold:

- Call 911 immediately — do not move the victim unless in immediate danger
- Stabilize head and neck — assume spinal injury until medically cleared
- Control bleeding with direct pressure; apply tourniquet if trained and needed
- Cover victim to prevent shock — keep warm and still
- Clear area below scaffold and restrict access
- Preserve scene for investigation — do not alter scaffold

Scaffold Collapse / Structural Failure:

- Sound alarm — evacuate all personnel from scaffold and surrounding area
- Call 911 and report potential trapped/injured workers
- Establish exclusion zone — no re-entry until structural engineer clears area
- Account for all personnel by name at assembly point
- Do not attempt rescue from collapsed structure without professional rescue team
- Preserve all evidence for OSHA and incident investigation

Struck by Falling Object:

- Clear area and provide first aid to injured worker
- Call 911 for head injuries, fractures, or significant bleeding
- Apply ice/pressure to impact site; immobilize fractures
- Monitor for signs of concussion (dizziness, nausea, confusion)
- All head impacts require medical evaluation — do not allow worker to refuse

Emergency Contact Information:

- Emergency Services: 911
- Site Safety Manager: [Insert Name & Phone]
- Competent Person: [Insert Name & Phone]
- Nearest Hospital: [Insert Name, Address & Phone]
- OSHA Area Office: [Insert Local Number]

WORKER SIGN-OFF — I HAVE READ AND UNDERSTAND THIS JHA

#	Print Name	Signature	Company / Trade	Date
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REVIEW & APPROVAL

Role	Name / Signature	Date	Initials
Prepared By (Author)			
Reviewed By (Safety Manager)			
Approved By (Project Manager)			
Client / Owner Rep			

This JHA must be reviewed and updated whenever job conditions change, after any incident, or at minimum annually.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Solar Panel Installation

Document No: FSS-JHA-046

Regulatory References: 29 CFR 1926 Subpart M (Fall Protection), NFPA 70, 29 CFR 1926 Subpart K (Electrical)

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Work Description:	Solar Panel Installation	Revision:	0

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Racking/Mounting Structure Installation	Falls from roof/elevated structure Struck by falling materials Heat stress (rooftop work) Pinch points during assembly	H M H M	100% tie-off; install guardrails/warning lines per 1926 Subpart M Establish controlled access zone below; use tool lanyards Implement heat illness prevention plan (water, rest, shade); monitor wet-bulb globe temperature Wear cut-resistant gloves; use proper torque wrenches for fasteners
2. Panel Placement and Securing	Falls from height Struck by panels in wind Ergonomic strain (repetitive bending/kneeling) Electrical shock — panels energized by sunlight	H H M H	Personal fall arrest system (PFAS) with roof anchors rated to 5,000 lbs Stop work when winds exceed 25 mph; two-person lifts; secure panels immediately Use knee pads; rotate tasks every 30 min; provide ergonomic training Cover panels with opaque material during handling; wear voltage-rated gloves; assume all panels are energized in daylight
3. DC Wiring and String Connections	Electrical shock from DC voltage (cannot fully de-energize during daylight) Arc flash at connectors Cuts from wire stripping	H H L	Work with voltage-rated gloves (Class 00 min); use insulated tools; cover exposed conductors immediately Verify polarity before making connections; use MC4-rated connectors only; never disconnect under load Use proper wire strippers; wear cut-resistant gloves
4. Inverter/Combiner Box Installation	Electrical shock (AC and DC) Arc flash at combiner/inverter Heavy lifting	H H M	LOTO all AC sources; verify zero energy state; DC side — open all string disconnects and verify with rated meter Perform arc flash risk assessment per NFPA 70E; wear appropriate PPE category Use mechanical lifting aids; two-person team for units over 50 lbs
5. System Testing and Commissioning	Electrical shock during testing Arc flash at high-voltage points Unexpected energization	H H M	Only qualified electrical workers perform testing; use CAT III/IV rated meters Wear arc-rated PPE per NFPA 70E; maintain approach boundaries Establish clear communication protocol; use lockout tags on

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
			all disconnects until final commissioning
6. Site Cleanup	Falls from ladders Cuts from debris/packaging Slip/trip hazards	M L M	Three-point contact on ladders; inspect before use Wear cut-resistant gloves; dispose of packaging properly Clear walkways continuously; remove tools and debris from roof surface

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Hard hat (ANSI Z89.1 Type I, Class E)
- Safety glasses (ANSI Z87.1) with side shields
- Voltage-rated gloves (Class 00 minimum) with leather protectors for electrical work
- Arc-rated clothing per NFPA 70E hazard assessment
- Cut-resistant gloves (ANSI A4 minimum) for material handling
- Steel-toe/composite-toe boots (ASTM F2413)
- Full-body harness with shock-absorbing lanyard and roof anchor (ANSI Z359)
- High-visibility vest (ANSI/ISEA 107 Class 2)
- Knee pads for rooftop work
- Sunscreen (SPF 30+) and wide-brim hard hat attachment

ADDITIONAL SAFETY REQUIREMENTS

- Solar panels cannot be fully de-energized during daylight hours — treat all DC conductors as energized
- Pre-task safety briefing (tailgate talk) required before each shift
- Weather monitoring required — stop all rooftop work during lightning, high winds (>25 mph), or wet conditions
- All fall protection equipment must be inspected daily before use
- Only qualified electricians shall perform wiring and commissioning activities per NFPA 70
- Rooftop fire safety: maintain clear access to fire department connections and roof hatches at all times

EMERGENCY PROCEDURES

- Call 911 for all life-threatening injuries; notify site supervisor immediately
- For electrical shock: Do NOT touch the victim if still in contact with source; de-energize if safe to do so; call 911; begin CPR/AED if trained
- For falls: Do not move victim; stabilize and call 911; activate rescue plan for suspended workers within 6 minutes
- For heat-related illness: Move to shade immediately; apply cool water; call 911 if altered consciousness
- First aid kit and AED located at: _____
- Nearest hospital/emergency room: _____
- Emergency assembly point: _____
- Site emergency contact: _____

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for this work activity.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

Role	Name / Signature	Date	Next Review Date
Prepared By			
Reviewed By			
Approved By			
Site Safety Manager			

DISCLAIMER: This JHA is a template provided by Forbes Safety Solutions for general guidance. It must be reviewed, customized, and approved by a qualified safety professional before use on any specific project. Site-specific conditions may require additional hazard controls not listed herein.

FORBES SAFETY SOLUTIONS**JOB HAZARD ANALYSIS****STEEL ERECTION — JOB HAZARD ANALYSIS**

Reference: 29 CFR 1926 Subpart R — Steel Erection

PROJECT INFORMATION

Company Name:	[Enter Company Name]
Project Name:	[Enter Project Name]
Date:	[MM/DD/YYYY]
Supervisor:	[Enter Supervisor Name]
JHA Number:	[JHA-SE-001]
Work Activity:	Steel Erection — 29 CFR 1926 Subpart R

JOB HAZARD ANALYSIS — TASK STEPS & CONTROLS

The following analysis identifies task steps, associated hazards, risk levels, and control measures for steel erection operations. All workers must review this JHA before commencing work.

Task Step	Hazard(s)	Risk Level (H/M/L)	Control Measures
1. Site Preparation & Layout	Uneven terrain, underground utilities, overhead power lines, heavy equipment traffic	H	• Conduct site survey; identify/mark all utilities • Verify minimum clearance from power lines (20 ft for lines up to 350kV per Table A) • Establish equipment travel paths and barricades • Ground conditions assessed by competent person
2. Unloading & Staging Steel Members	Struck-by falling steel, crushing injuries during rigging, overloaded crane, pinch points	H	• Use tag lines to control loads; never stand under suspended loads • Inspect all rigging gear before each lift; remove defective slings • Establish exclusion zone around unloading area • Store steel on level ground with adequate dunnage and chocking
3. Column Erection & Plumbing	Falls from height, column tip-over, struck-by tools/bolts, structural instability	H	• 100% tie-off required above 15 ft (steel erection standard) • Anchor bolts inspected and verified per erection drawings • Columns guyed or braced immediately upon placement • Connectors use personal fall arrest systems with retractable lanyards
4. Beam Setting & Connection	Falls from height, struck-by steel beams, hand/finger crush injuries, unstable structural members	H	• Double connections or equivalent per 1926.756(c)(1) • Connectors positioned with PFAS to structural steel • Beam secured with minimum 2 bolts before load released • Communication via radio between crane operator, signalman, and connectors
5. Decking Installation	Falls through openings, falls from leading edge, slipping on unsecured decking, falling objects	H	• Controlled Decking Zone (CDZ) established per 1926.760 • CDZ limited to 90 ft / 3000 sq ft ahead of leading edge • Decking bundles secured immediately upon placement • Safety net systems or PFAS for workers outside CDZ
6. Bolt-Up & Final Connections	Falls from height, dropped tools/bolts striking workers below, hand injuries, ergonomic strain	M	• Tool lanyards required for all hand tools at height • Tethered bolt bags; no loose hardware in pockets • 100% tie-off maintained during bolt-up operations • Torque values verified per structural engineer specifications
7. Welding & Cutting Operations	Welding burns, arc flash eye injury, fire/explosion, toxic fume inhalation, hot work ignition	H	• Hot work permit obtained before each welding session • Fire watch maintained for 30 minutes after welding ceases • Welding screens/curtains deployed to protect adjacent workers • Forced ventilation or respiratory protection for confined areas • Fire extinguisher within 20 ft of welding operations

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- ☐ Hard hat (ANSI Z89.1 Type I, Class E) — required at all times on site
- ☐ Safety glasses with side shields (ANSI Z87.1) — required at all times
- ☐ Welding hood/goggles (Shade 10-14) — required during welding/cutting operations
- ☐ High-visibility vest (ANSI/ISEA 107 Class 2 minimum) — required at all times
- ☐ Steel-toed boots (ASTM F2413) with puncture-resistant soles
- ☐ Cut-resistant gloves (ANSI A4 minimum) for steel handling; welding gloves for hot work
- ☐ Personal Fall Arrest System (PFAS): full-body harness, shock-absorbing lanyard, and SRL
- ☐ Hearing protection (NRR 25+) when noise exceeds 85 dBA
- ☐ Welding leathers/flame-resistant clothing during welding and cutting operations

EMERGENCY PROCEDURES

Emergency Contact Number:	<i>[Enter Phone Number]</i>
Nearest Hospital:	<i>[Enter Hospital Name & Address]</i>
Site Assembly Point:	<i>[Enter Location]</i>
First Aid Kit Location:	<i>[Enter Location]</i>
AED Location:	<i>[Enter Location]</i>
Fire Extinguisher Locations:	<i>[Enter Locations]</i>
Rescue Plan for Fall Arrest:	<i>[Describe Suspension Trauma Rescue Procedure]</i>

CREW SIGN-OFF — I HAVE REVIEWED AND UNDERSTAND THIS JHA

By signing below, each crew member acknowledges they have reviewed this Job Hazard Analysis, understand the identified hazards and control measures, and agree to follow all safety procedures outlined herein.

Printed Name	Signature	Date

ADDITIONAL HAZARDS / SITE-SPECIFIC NOTES

Use this section to document any additional hazards, site-specific conditions, or supplemental control measures not covered above.

JHA REVIEW & APPROVAL

Role	Name / Signature	Date
Prepared By (Competent Person):		
Reviewed By (Site Superintendent):		
Approved By (Project Manager):		

DISCLAIMER: This JHA template is provided as a starting point for site-specific hazard analysis. It must be reviewed and customized by a competent person familiar with the specific project conditions. Forbes Safety Solutions is not liable for misuse or failure to adapt this template to actual site conditions. Always consult current OSHA regulations and site-specific safety plans.

JOB HAZARD ANALYSIS

Structural Steel Welding

Regulatory References: 29 CFR 1926.350-354, AWS D1.1 Structural Welding Code, 29 CFR 1926 Subpart R (Steel Erection)

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	JHA-035
Supervisor:		Reviewed By:	
Trade/Activity:	Structural Steel Welding	Permit Required:	☐ Yes ☐ No

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level	Control Measures
1. Weld Prep & Joint Fit-Up	Falls from steel (elevated work) Cuts from sharp edges Pinch points during fit-up Grinding sparks/debris	H M M M	100% tie-off when working at height — fall protection per Subpart R Inspect walking/working surfaces for ice, grease, debris Use cut-resistant gloves when handling steel members Verify bolt torque and fit-up alignment before welding Grind joint prep with guarded grinder; wear face shield Secure members with erection bolts/clamps before releasing crane
2. Equipment Setup & Cable Routing	Electrical shock Trip hazards from cables Damaged equipment	H M M	Inspect welding machine, cables, electrode holder, and ground clamp daily Replace damaged cables, connectors, or insulation immediately Route cables to minimize trip hazards; cover or elevate at walkways Ensure proper grounding — ground clamp directly on workpiece or structure Keep welder dry and away from standing water Verify correct voltage/polarity settings for weld procedure
3. Tack Welding	UV radiation (arc flash) Burns from spatter Fume exposure Fire	H M H H	Wear welding helmet (Shade 10-14) and FR clothing for ALL welds including tacks Erect welding screens/curtains to protect adjacent workers from UV Clear combustibles within 35 ft or cover with fire-resistant blankets Position fire extinguisher within 25 ft of welding location Assign fire watch for duration of work plus 30 minutes post-weld Verify adequate ventilation or use local exhaust / fume extraction
4. Multi-Pass Welding	Prolonged fume exposure (Mn, Cr ⁶⁺)	H H	Use local exhaust ventilation (LEV) positioned within 12-18 inches of arc

FORBES SAFETY SOLUTIONS

Task Step	Hazard	Risk Level	Control Measures
	UV radiation Burns Fire Fatigue at height	M H M	Wear P100 respirator with OV cartridge — required for galvanized or stainless steel Monitor exposure to manganese and hexavalent chromium per 29 CFR 1926.1152/1126 Take breaks to prevent fatigue — especially critical at elevated positions Maintain fire watch — continuous observation during multi-pass welding Inspect interpass temperature with contact thermometer per WPS requirements
5. Post-Weld Inspection	Burns from hot steel Falls during inspection Grinding hazards	M H M	Allow welds to cool before handling — test temperature before touching Maintain fall protection during inspection — do NOT remove harness Use magnetic particle or ultrasonic testing per AWS D1.1 inspection requirements Grind repairs with guarded grinder; wear face shield and hearing protection Mark rejected welds clearly for repair; document all inspection results Verify weld meets WPS parameters (size, profile, discontinuities)
6. Cleanup	Hot slag and spatter Welding rod stub disposal Fire from smoldering materials	M L M	Allow all slag and spatter to cool before sweeping up Collect used welding rod stubs in metal container — do NOT leave on steel members Fire watch inspects area 30 minutes after last weld — confirm no smoldering Disconnect and properly store welding cables and equipment Clean work area of all debris, tools, and consumables Complete weld log and daily inspection documentation

Additional Notes: Hot work permit required for all welding operations. Fire watch must remain 30 minutes after welding ceases. All welders must have current AWS certification for the applicable process (SMAW, FCAW, GMAW). Welding on galvanized steel requires enhanced respiratory protection for hexavalent chromium.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE	
☒ Hard Hat (ANSI Z89.1)	☒ Welding Helmet (Shade 10-14)
☒ Safety Glasses under Helmet (ANSI Z87.1)	☒ Welding Jacket / FR Clothing
☒ Welding Gloves (leather gauntlet)	☒ Steel/Composite Toe Boots
☒ Hearing Protection	☒ Respirator (P100 w/ OV cartridge for fumes)
☒ Fall Protection Harness & Lanyard	☒ Fire-Resistant Boot Covers / Spats

EMERGENCY PROCEDURES

- Fall from steel: Activate rescue plan immediately. Trained rescuers deploy to retrieve fallen worker within minutes to prevent suspension trauma. Call 911.
- Welding fume overexposure (manganese, hexavalent chromium): Move worker to fresh air immediately. Seek medical evaluation. Review ventilation adequacy.
- Burn injury: Cool burn with water. Remove smoldering clothing (not if adhered). Cover with sterile dressing. Seek medical attention.
- Fire from welding sparks: Use ABC fire extinguisher. Activate fire watch procedure. If fire cannot be controlled immediately, evacuate and call 911.
- Electrical shock from welder: De-energize equipment. Do NOT touch victim if still in contact with energized source. Administer CPR if needed. Call 911.
- Arc flash eye injury (flash burn): Irrigate eyes with clean water. Apply cool compress. Seek medical evaluation — symptoms may be delayed 6-12 hours.
- Report all incidents, near-misses, and equipment malfunctions to supervisor immediately.

FORBES SAFETY SOLUTIONS

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for the work to be performed.

#	Print Name	Signature	Company	Date	Time
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REVIEW & APPROVAL

Role	Name / Signature	Title	Date
Prepared By			
Reviewed By			
Approved By			
Site Supervisor			

REVISION HISTORY

Rev.	Date	Description	Author
0		Initial Release	
1			

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Substation Maintenance

Document No: FSS-JHA-048

Regulatory References: 29 CFR 1910.269, NFPA 70E, NESC (National Electrical Safety Code), IEEE C2

PROJECT INFORMATION

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Work Description:	Substation Maintenance	Revision:	0

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Switching and Isolation	Arc flash (extreme energy levels) Electrocution during switching operations Induced voltage from adjacent energized equipment	H H H	Follow switching order approved by system operator; wear full arc flash PPE per incident energy study Only qualified switchmen perform operations; verify visible open gap on disconnect switches Maintain Minimum Approach Distance (MAD) per 1910.269 Table R-3; treat adjacent circuits as energized
2. Grounding and Testing	Step and touch potential Electrocution from stored energy (capacitance) Induced voltage on de-energized lines	H H H	Test for absence of voltage with rated equipment; apply temporary protective grounds (TPGs) on all phases Ground all capacitive sources; wait for discharge time; test with hot stick-mounted voltmeter Apply grounds as close to work location as possible; use equipotential zone grounding mat
3. Transformer Inspection/Maintenance	PCB exposure (older equipment) Hot oil burns Fall hazards (climbing transformer) SF6 gas exposure (gas-insulated equipment)	H H M H	Check nameplate for PCB content; if suspect, sample and test per EPA 40 CFR 761; use appropriate PPE and disposal Verify oil temperature before opening; wear heat-resistant gloves; have spill containment in place Use fall protection when climbing; three-point contact on ladders; ensure structural integrity of platforms SF6 is an asphyxiant — monitor oxygen levels; ventilate confined areas; by-products from arcing are toxic (use supplied air for suspected decomposition)
4. Breaker/Relay Testing	Unexpected breaker operation Stored spring energy (mechanism) Electrical contact during testing	H H M	Rack breaker to test position; verify control power isolated; follow manufacturer test procedures Block breaker mechanism before working on springs; wear face shield during spring compression work Use appropriately rated test equipment; maintain clearances; only qualified relay technicians perform testing
5. Bus Work and Connections	Arc flash during connection work Falls from elevated bus structures Induced voltage from parallel	H H H	Verify de-energized and grounded; apply equipotential grounding; wear arc-rated PPE Use aerial lifts or scaffolding with fall protection; 100% tie-off above 4 feet Install temporary protective grounds bracketing work area;

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	conductors		use insulated tools
6. Re-Energization	Arc flash during energization Equipment failure on first energization Personnel in restricted area	H H H	Remove all temporary grounds; verify all tools/personnel clear; energize remotely from control room when possible Perform insulation resistance testing before energization; have protection systems in service Complete personnel sweep; verify all LOTO devices removed; obtain authorization from system operator before switching

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Arc-rated clothing per NFPA 70E incident energy study (often 40+ cal/cm² for substation work)
- Arc-rated face shield with balaclava (or arc flash suit hood for higher incident energies)
- Voltage-rated gloves (class per voltage level) with leather protectors
- Safety glasses (ANSI Z87.1) under face shield at all times
- Dielectric overshoes or EH-rated safety boots (ASTM F2413)
- Hard hat (ANSI Z89.1 Type I, Class E) — arc-rated for flash hazard areas
- Hearing protection (breaker operation can exceed 85 dB)
- FR-rated high-visibility vest
- Respiratory protection available for SF₆/PCB exposure potential
- Fall protection harness (ANSI Z359) for elevated work

ADDITIONAL SAFETY REQUIREMENTS

- All work within substation requires approved switching orders and clearance tags
- Minimum Approach Distances (MAD) per 29 CFR 1910.269 Table R-3 must be maintained at all times
- Two-person rule: minimum two qualified workers present for all substation work
- Ground grid integrity must be verified before any maintenance activities
- Induced voltages from parallel circuits can be lethal — always apply temporary protective grounds
- Wildlife/pest inspection before work — snakes, wasps, and rodents common in substations
- All test equipment must be CAT IV rated for substation environments

EMERGENCY PROCEDURES

- For electrocution: De-energize using emergency trip if safe; do NOT touch victim in contact with energized equipment; call 911; begin CPR/AED if trained and victim is clear of source
- For arc flash: Evacuate area; do NOT remove melted clothing; cool burns with water; call 911; treat for shock
- For SF₆ exposure: Move victim to fresh air; administer oxygen if available; call 911; SF₆ decomposition products are extremely toxic — do NOT re-enter without SCBA
- For PCB spill: Contain with absorbent; avoid skin contact; notify EPA if spill exceeds 1 lb; document per 40 CFR 761
- Fire response: Use CO₂ or dry chemical extinguisher on electrical fires — NEVER water on energized equipment
- Emergency switching procedures posted at: _____
- First aid kit, AED, and emergency supplies located at: _____
- Nearest hospital/emergency room: _____
- Utility dispatch/control room: _____

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures for this work activity.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

Role	Name / Signature	Date	Next Review Date
Prepared By			
Reviewed By			
Approved By			
Site Safety Manager			

DISCLAIMER: This JHA is a template provided by Forbes Safety Solutions for general guidance. It must be reviewed, customized, and approved by a qualified safety professional before use on any specific project. Site-specific conditions may require additional hazard controls not listed herein.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

TREE TRIMMING / VEGETATION MANAGEMENT NEAR POWER LINES

29 CFR 1910.269 | ANSI Z133 — Arboricultural Operations Safety

PROJECT INFORMATION

Company Name:		Date:	
Project Name:		Supervisor:	
JHA Number:		Revision:	
Work Activity:	Tree Trimming / Vegetation Management Near Energized Power Lines		
References:	29 CFR 1910.269; 29 CFR 1910.331-335; ANSI Z133-2017; OSHA 1910.333(c)(3); MUTCD		

MINIMUM APPROACH DISTANCE (MAD) REFERENCE TABLE

Per 29 CFR 1910.269 Table R-6 / Table R-7 — Verify voltage with utility before work begins.

VOLTAGE RANGE	MAD — QUALIFIED LINE-CLEARANCE	MAD — UNQUALIFIED PERSONNEL
0 – 50 V	No specific distance	No specific distance
51 V – 750 V	Avoid contact	Avoid contact
751 V – 15 kV	2 ft 1 in (0.64 m)	10 ft (3.05 m)
15.1 kV – 36 kV	2 ft 4 in (0.72 m)	10 ft (3.05 m)
36.1 kV – 46 kV	2 ft 7 in (0.77 m)	10 ft (3.05 m)
46.1 kV – 72.5 kV	3 ft 3 in (0.98 m)	10 ft (3.05 m)
72.6 kV – 121 kV	3 ft 4 in (1.02 m)	10 ft (3.05 m)
138 kV – 145 kV	3 ft 10 in (1.17 m)	10 ft (3.05 m)
161 kV – 169 kV	4 ft 3 in (1.29 m)	16 ft (4.88 m)
230 kV – 242 kV	5 ft 3 in (1.59 m)	16 ft (4.88 m)

HAZARD ANALYSIS

TASK STEP	HAZARD	RISK LEVEL	CONTROL MEASURES
1. Pre-Work Site Assessment & Utility Coordination	• Unidentified energized power lines (electrocution) • Overhead widow-makers (dead/hanging limbs) • Uneven terrain / hidden ground hazards • Inadequate communication with utility provider	HIGH	• Contact utility company 72 hrs minimum before work; confirm line status • Walk-through hazard assessment by qualified person before work begins • Identify all power lines within work zone; determine voltage level • Reference MAD table to establish approach distances • Mark exclusion zones with flagging tape / barricades • Document assessment on pre-work checklist
2. Establishing Work Zone & Traffic Control	• Vehicle strikes on roadway work zones • Unauthorized pedestrian entry into drop zone • Inadequate sight distance for traffic	HIGH	• Traffic control plan per MUTCD (Manual on Uniform Traffic Control Devices) • Cones, signs, and flaggers as required for roadway work • High-visibility apparel Class 2 minimum; Class 3 for flaggers • Establish drop zone perimeter — no unauthorized entry • Spotter positioned for traffic exposure areas • Work vehicle emergency lighting activated
3. Aerial Lift Positioning & Setup	• Electrocution from boom contact with power lines • Aerial lift tip-over on uneven ground • Falls from aerial lift bucket • Entanglement with overhead conductors during positioning	HIGH	• Only line-clearance qualified workers within 10 ft of energized lines per 29 CFR 1910.269 • Insulated aerial lift (Category A or B per ANSI A92.2) for line-clearance work • Set outriggers on firm, level ground; use cribbing/pads as needed • Operator must wear full-body harness attached to boom/bucket anchor point • Pre-use inspection of lift per manufacturer checklist • Maintain MAD at all times — use spotter for boom movements
4. Limb Cutting & Removal Sequence	• Electrocution from limb contact with power line • Chain saw kickback • Struck-by falling limbs (gravity hazard) • Overhead widow-makers dropping unexpectedly • Hand/arm laceration from saw	HIGH	• Cut sequence planned to direct limb fall away from power lines • Three-cut method for large limbs (undercut, top cut, stub removal) • Chain saw with anti-kickback chain and chain brake engaged between cuts • Ground crew clear of drop zone; voice/radio communication before each cut • Inspect canopy for widow-makers before and during cutting • Never reach across or work between energized conductors • Use insulated tools rated for voltage present when within MAD
5. Chipper Operations	• Entanglement / caught-in chipper feed mechanism • Struck-by ejected material from discharge chute • Noise exposure (>100 dBA typical) • Flying debris eye/face injuries	HIGH	• Dedicated spotter positioned at chipper infeed at all times • No loose clothing, jewelry, or lanyards near chipper • Feed brush butt-end first; stand to the side of infeed • Emergency stop bar functional — test before each use • Position discharge chute away from personnel and traffic • Hearing protection required (NRR 25+ minimum) • Face shield and safety glasses required during chipper operation
6. Site Cleanup & Restoration	• Manual handling strain (heavy limbs/debris) • Tripping on debris during cleanup • Traffic exposure during barricade removal • Residual overhead hazards (partially cut limbs)	MEDIUM	• Team lifting for debris >50 lbs; use mechanical assistance when possible • Systematic cleanup — work outward from trunk to perimeter • Final overhead inspection before releasing work zone • Remove traffic control devices in reverse order of placement • Document completion on JHA close-out section

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

PPE ITEM	STANDARD	NOTES
Hard Hat (Type I, Class E)	ANSI/ISEA Z89.1-2014	Electrical rated; required at all times in work zone
Safety Glasses + Face Shield	ANSI/ISEA Z87.1-2020	Face shield for chipper / chain saw operations
Chain Saw Chaps (8+ layers)	ASTM F1897 / UL Certified	Required for all ground-level chain saw operations
Chain Saw Protective Gloves	ASTM F2675-19	Left-hand cut protection minimum
Steel-Toe / Chain Saw Boots	ASTM F2413-18 / F2413-11	Cut-resistant chain saw boots for ground operations
High-Vis Safety Vest (Class 2/3)	ANSI/ISEA 107-2020	Class 3 for flaggers; Class 2 minimum for all crew
Fall Protection Harness	ANSI Z359.11-2021	Full-body harness for aerial lift / climbing operations
Hearing Protection (NRR 25+)	ANSI S3.19 / S12.6	Required during chipper and chain saw operations
Dielectric Gloves (if applicable)	ASTM D120 / OSHA Table R-6	Voltage-rated rubber gloves for line-clearance qualified workers
Climbing Saddle / Lanyard	ANSI Z133-2017 Sec. 8	For tree climbing operations when aerial lift not feasible

EMERGENCY PROCEDURES

Emergency Contact: 911 for all life-threatening emergencies

First Aid Station: Located at _____ (identify before each shift)

Electrocution / Electrical Contact: DO NOT touch the victim if still in contact with energized source. Call 911 immediately. De-energize line if possible (utility dispatch: _____). Begin CPR/AED only after source is de-energized or victim is clear. All crew trained in CPR/AED required on site.

Fall from Height: Do not move injured person unless in immediate danger. Stabilize C-spine if suspected injury. Call 911. Provide first aid as trained.

Chain Saw Laceration: Apply direct pressure to wound. Use tourniquet for severe arterial bleeding per Stop the Bleed protocol. Call 911.

Chipper Entanglement: Hit emergency stop immediately. Call 911. Do not attempt to reverse-free a victim—wait for emergency services.

Struck-by Falling Limb: Assess injuries. Call 911 for head, neck, or back injuries. Maintain airway. Provide first aid as trained.

Nearest Hospital: _____ (identify before each shift)

CREW ACKNOWLEDGMENT & SIGN-OFF

By signing below, I acknowledge that I have reviewed this JHA, understand the identified hazards and required control measures, and agree to follow all safety procedures. Line-clearance qualified workers must be identified with (Q) next to their name.

#	PRINTED NAME	SIGNATURE	COMPANY / TRADE	DATE	UNDERSTOOD (INITIALS)
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REVIEW & APPROVAL

ROLE	SIGNATURE	DATE	PRINTED NAME
Prepared By:			
Reviewed By (Supervisor):			
Approved By (Safety Mgr):			
Client/GC Representative:			

DISCLAIMER

This JHA is a template intended to be customized for site-specific conditions. It does not replace a qualified safety professional's assessment or utility coordination. Employers remain responsible for compliance with all applicable OSHA standards, ANSI Z133, and local regulations. Only line-clearance qualified workers may work within minimum approach distances of energized power lines. This document should be reviewed and updated whenever work conditions change.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Underground Vault Entry

Regulatory References: 29 CFR 1910.146, 29 CFR 1910.269(e)

Document No: FSS-JHA-036 | Revision: 0 | Date: _____

Project Name:		Date:	
Location:		JHA Number:	
Supervisor:		Permit Required:	☐ Yes ☐ No
Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS TABLE

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Vault Identification & Access	Traffic near vault opening Unauthorized access Unknown vault condition	H M H	Set up traffic control (cones, signs, flaggers) per MUTCD Verify vault location against utility maps Barricade work area with minimum 10-ft perimeter Post confined space entry signage Remove vault cover using proper lifting techniques/tools
2. Atmospheric Testing	Toxic atmosphere (H2S, CO) Oxygen deficiency/enrichment Explosive atmosphere (LEL)	H H H	Test atmosphere BEFORE entry at all levels (top, middle, bottom) Calibrate multi-gas detector per manufacturer specs O2: 19.5%-23.5%, LEL: <10%, CO: <25 ppm, H2S: <10 ppm Continuous atmospheric monitoring throughout entry Document all readings on confined space entry permit
3. Ventilation Setup	Inadequate air supply Recirculation of contaminated air Noise from blower equipment	H M M	Position forced-air ventilation blower at vault opening Ensure fresh air intake is upwind and away from exhaust sources Supply ductwork to bottom of vault for positive ventilation Run ventilation minimum 15 minutes before entry Retest atmosphere after ventilation and before entry
4. Entry & Work Operations	Falls during entry/exit Ergonomic strain (cramped space)	H M H	Use fixed ladder or approved entry/egress equipment Attendant stationed at vault opening at all times

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	Electrical contact Insects/vermin	M	Entrant wears full-body harness connected to retrieval system Verify all circuits de-energized and LOTO applied before work Rotate workers to minimize time in cramped positions Inspect vault for insects/vermin before and during entry
5. Cable/Equipment Work	Electrical contact with energized cables Pinch points Cuts from cable/tools Chemical exposure (cable insulation)	H M M L	Confirm zero-energy state on all cables before handling Use voltage-rated insulating gloves and tools Identify and mark ALL conductors in the vault Use proper cable-cutting tools; secure cable ends Wear chemical-resistant gloves if handling splicing compounds Maintain communication with surface attendant at all times
6. Exit & Securing Vault	Falls during exit Leaving vault unsecured Tool/equipment left below	M M L	Inventory all tools and materials before exiting Exit using fixed ladder with three-point contact Replace vault cover securely; verify flush with grade Remove traffic control devices only after vault is secured Complete confined space permit closeout documentation Debrief crew on any issues encountered

REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

☐ Hard Hat (ANSI Z89.1 Type I, Class E)	☐ Safety Glasses (ANSI Z87.1)
☐ FR-Rated Clothing	☐ Steel-Toe Boots (ASTM F2413)
☐ Rubber Insulating Gloves (Class appropriate)	☐ Full-Body Harness with Retrieval Line
☐ Multi-Gas Detector (LEL, O2, CO, H2S)	☐ High-Visibility Vest (ANSI/ISEA 107 Class 2)
☐ Hearing Protection (if noise >85 dBA)	☐ Respiratory Protection (SCBA/SAR if required)

EMERGENCY PROCEDURES

1. If atmospheric alarm sounds, immediately evacuate the vault using the retrieval system. Do NOT re-enter until atmosphere is retested and verified safe.
2. In case of water intrusion or flooding, evacuate immediately. Notify supervisor and de-energize all electrical sources if safe to do so.
3. If a worker becomes unresponsive, activate the retrieval system from the surface. Do NOT enter the vault for rescue without proper equipment and training.
4. For electrical contact, de-energize the source if safe. Call 911 immediately. Begin CPR if the victim is unresponsive and not breathing.
5. Administer first aid for insect bites/stings. Seek medical attention for allergic reactions. Ensure EpiPen is available if known allergies exist.
6. Report all incidents to site supervisor immediately. Complete incident report within 24 hours.

Emergency Contact:	911 / Site-specific: _____
Assembly Point:	
Nearest Hospital:	
First Aid Kit Location:	

WORKER SIGN-OFF

By signing below, I acknowledge that I have reviewed and understand this Job Hazard Analysis, the associated hazards, and the required control measures.

#	Print Name	Signature	Company	Date
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Name / Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

Next Review Date:	
Revision Notes:	

FORBES SAFETY SOLUTIONS | *Committed to Zero Incidents*

This document is valid only when all sections are completed and signatures obtained.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Waterproofing / Below-Grade Work

REGULATORY REFERENCES

- 29 CFR 1926 Subpart P — Excavations
- 29 CFR 1926.55 — Gases, Vapors, Fumes, Dusts, and Mists
- 29 CFR 1926.651 — Specific Excavation Requirements
- 29 CFR 1926.652 — Requirements for Protective Systems
- 29 CFR 1926.150-155 — Fire Protection and Prevention
- OSHA Technical Manual, Section V, Ch. 2 — Excavations

SCOPE & DESCRIPTION

This JHA covers waterproofing and below-grade construction operations including excavation access, surface preparation, primer and membrane application (cold-applied and torch/hot-applied), seam sealing, drainage board installation, and backfill coordination. Work occurs adjacent to or within excavations, creating combined hazards of cave-in, solvent vapor exposure, thermal burns, falls, and struck-by incidents from overhead operations.

PROJECT INFORMATION

Project Name:		Date:	
Project Number:		Location:	
Contractor:		Supervisor:	
JHA Prepared By:		Reviewed By:	

JOB HAZARD ANALYSIS

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Excavation Access	Cave-in / wall collapse Falls into excavation Struck by falling objects from surface Hazardous atmosphere (gases in soil)	H	Competent person must inspect excavation daily and after rain Shoring, sloping, or shielding per Subpart P Ladder access within 25 ft of all workers Barricades and warning signs around excavation perimeter Atmospheric testing before entry (O2, LEL, H2S, CO) Hard hats mandatory for all workers near excavation
2. Surface Preparation	Dust inhalation from grinding/cleaning Hand/arm vibration from power tools Struck by debris Proximity to excavation edge	M	Dust mask / P100 respirator for grinding operations Anti-vibration gloves; limit continuous tool use to 30 min Face shield and safety glasses for grinding Maintain 2 ft setback from unprotected excavation edge Secure tools to prevent dropping into excavation
3. Primer / Membrane Application	Solvent vapor inhalation (high VOC primers) Skin/eye contact with bituminous products Slippery surfaces from adhesive overspray Torch/hot-applied membrane — burn hazard	H	Organic vapor respirator in below-grade applications Forced-air ventilation to maintain vapors below PEL Chemical-resistant gloves, long sleeves, splash goggles Non-slip footwear; clean overspray immediately Hot work permit for torch-applied membranes Fire extinguisher within 10 ft of torch operations Fire watch for 30 minutes after torch use
4. Seam Sealing	Solvent/adhesive vapor exposure Burns from heat welding equipment Ergonomic strain (kneeling, bending)	M	Ventilation and respiratory protection as per primer application Heat-resistant gloves for heat-welded seams Knee pads and anti-fatigue mats for extended kneeling Rotate workers to minimize repetitive strain Inspect all seams per manufacturer quality requirements
5. Drainage Board Installation	Manual handling of heavy boards/rolls Cuts from utility knives Falls from ladders/staging Struck by overhead debris during installation	M	Two-person lifts for heavy rolls; mechanical aids when possible Cut-resistant gloves; retractable utility knives Ladder safety: 3-point contact, secured at top Hard hat required; overhead protection barriers Coordinate with crane/overhead operations
6. Backfill Coordination	Struck by heavy equipment Workers trapped between wall and equipment	H	Dedicated spotter for all backfill equipment operations No workers between wall and equipment — enforced exclusion zone

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
	Excavation collapse during backfill Vibration damage to fresh membrane		Competent person verifies membrane cure before backfill Backfill in controlled lifts per geotechnical spec High-visibility vests mandatory for all ground personnel Communication protocol between equipment operator and crew

PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	
☐ Hard Hat (ANSI Z89.1 Type I, Class E)	☐ Organic Vapor Respirator / P100 Combination
☐ Chemical-Resistant Gloves (nitrile or neoprene)	☐ Heat-Resistant Gloves (torch operations)
☐ Splash-Proof Safety Goggles	☐ Steel-Toe Safety Boots (puncture-resistant sole)
☐ High-Visibility Vest (Class 2 minimum)	☐ Knee Pads (membrane application)
☐ Face Shield (grinding operations)	☐ Hearing Protection (equipment operations)

EMERGENCY PROCEDURES

1. EXCAVATION COLLAPSE / CAVE-IN: Call 911 immediately. Do NOT enter the excavation to attempt rescue. Shut down all equipment. Initiate trench rescue protocol. Only trained trench rescue personnel may enter.
2. SOLVENT VAPOR OVEREXPOSURE: Remove worker to fresh air. Administer oxygen if available. If unconscious, place in recovery position. Call 911. Provide SDS to responders.
3. THERMAL BURN (TORCH/HOT MEMBRANE): Cool burn with clean, cool water for 10+ minutes. Do not remove adhered membrane from skin. Cover with sterile dressing. Seek immediate medical attention for burns larger than palm size.
4. FALL INTO EXCAVATION: Call 911. Do not move victim if spinal injury suspected. Lower rescue equipment, not personnel, unless trained. Keep victim warm and monitor vitals.
5. STRUCK BY EQUIPMENT/DEBRIS: Secure the area. Administer first aid. Call 911 for serious injuries. Preserve scene for incident investigation.
6. EMERGENCY CONTACTS: 911 for all emergencies. Site Safety Officer: _____. Poison Control: 1-800-222-1222.

ADDITIONAL NOTES / SITE-SPECIFIC REQUIREMENTS

- Competent Person for excavation must be identified and on-site during all below-grade work.
- Daily excavation inspection logs must be maintained and available for review.
- Waterproofing manufacturer's application guidelines must be followed for warranty compliance.
- All torch/hot-work operations require an active Hot Work Permit.
- Coordination meetings with backfill crew must occur before any heavy equipment approaches the work zone.

WORKER SIGN-OFF

By signing below, I confirm that I have reviewed and understand this JHA, including all identified hazards and required control measures.

#	Print Name	Signature	Date	Company/Trade
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REVIEW & APPROVAL

This JHA has been reviewed and approved by the following authorized personnel:

Role	Signature	Date
Prepared By (Safety Professional)		
Reviewed By (Site Supervisor)		
Approved By (Project Manager)		
Client Representative (if required)		

REVISION HISTORY

Revision	Date	Description	Approved By
0		Initial Release	
1			

DISCLAIMER: This Job Hazard Analysis is a guideline for identifying hazards and implementing controls. It does not replace site-specific safety plans, competent person assessments, or regulatory requirements. All workers must comply with applicable OSHA standards and company safety policies. This JHA must be reviewed and updated whenever work conditions change.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

JHA INFORMATION			
JHA Title:	Welding & Cutting Operations	JHA Number:	FSS-JHA-028
Project Name:		Date:	
Location:		Revision:	0
Regulatory References:	29 CFR 1926.350-354 (Welding & Cutting); ANSI Z49.1 (Safety in Welding, Cutting, and Allied Processes); NFPA 51B (Fire Prevention During Welding)		
Prepared By:		Approved By:	
Competent Person:		Supervisor:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

Task Step	Hazard	Risk Level (H/M/L)	Control Measures
1. Hot Work Area Preparation	• Fire from combustible materials nearby • Explosion near flammable storage • Inadequate ventilation • Unauthorized area access	H	• Survey 35-foot radius for combustible/flammable materials • Remove combustibles or protect with fire-resistant blankets/shields • Verify no flammable vapors present — use combustible gas detector • Ensure adequate ventilation (natural or mechanical) • Wet down combustible floors/surfaces if they cannot be relocated • Barricade hot work area and post warning signs • Coordinate with other trades to eliminate ignition sources
2. Equipment Inspection & Setup	• Gas leaks from regulators/hoses • Electrical shock from damaged cables • Cylinder tip-over • Flashback into cylinders	H	• Inspect all hoses, regulators, gauges, and connections for damage • Check welding leads and electrode holders for damaged insulation • Secure gas cylinders upright with chains/straps to a stable structure • Verify flashback arrestors installed on oxy-fuel equipment • Test all connections with soapy water for leaks — no open flame test • Confirm ground clamp securely attached to workpiece • Ensure fire extinguisher (minimum 20 lb ABC) within 20 feet
3. Fire Watch Establishment	• Undetected fire ignition • Sparks reaching hidden combustibles • Delayed response to fire • Fire watch leaving post prematurely	H	• Assign trained fire watch with no other duties during hot work • Equip fire watch with appropriate extinguisher and communication device • Fire watch must have clear view of all areas where sparks may reach • Fire watch authorized to stop work if unsafe conditions develop • Maintain fire watch for minimum 30 minutes after hot work ceases • Brief fire watch on alarm procedures and evacuation routes • Document fire watch assignments on hot work permit
4. Welding / Cutting Operations	• UV/IR radiation eye burns (arc eye) • Burns from molten metal/sparks • Toxic fume inhalation (manganese, hexavalent chromium, zinc) • Electrical shock • Noise exposure exceeding 85 dBA	H	• Wear proper shade lens (Shade 10-14 for arc; Shade 3-5 for oxy-fuel) • Use welding screens/curtains to protect nearby workers from UV • Position body to minimize fume inhalation — stay upwind • Use local exhaust ventilation or fume extraction at source • Wear dry insulated welding gloves — never touch electrode with bare hands • Keep body insulated from workpiece and ground • Monitor for fume fever symptoms (zinc) — seek medical attention if ill • Wear hearing protection in high-noise operations
5. Post-Work Fire Watch (30 Min Minimum)	• Smoldering materials • Hidden fire behind walls/ceilings • Delayed ignition of combustibles	M	• Continue fire watch for minimum 30 minutes after completion • Inspect all areas where sparks and heat may have traveled • Check behind walls, below floors, and above ceilings for hot spots • Use thermal imaging camera if available for hidden heat detection • Do not leave area unattended until fire watch period complete

6. Equipment Shutdown & Area Cleanup	• Residual heat on materials • Gas leaks from improperly closed valves • Trip hazards from leads/hoses • Improper cylinder storage	L	• Document fire watch completion time on hot work permit • Close cylinder valves, bleed lines, and release regulator pressure • Disconnect welding leads and coil neatly for storage • Allow hot materials to cool before handling — mark with "HOT" signs • Return cylinders to proper storage (oxygen separated from fuel by 20 ft or firewall) • Replace cylinder caps for transport/storage • Clean work area of slag, spatter, and electrode stubs • Close out hot work permit and file with safety records
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REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE)

PPE Required	Specification / ANSI Standard	Condition / Notes
Welding Helmet (Auto-Darkening or Fixed Shade)	ANSI/ISEA Z87.1+; Shade 10-14 (arc)	Shade selected based on amperage/process
Safety Glasses (worn under helmet)	ANSI/ISEA Z87.1+ with side shields	Clear or shade 2 for under-helmet use
Flame-Resistant Welding Jacket/Sleeves	ANSI/ISEA 105; ASTM F2302	Leather or FR cotton — no synthetic materials
Welding Gloves (Insulated Leather)	ANSI/ISEA 105; EN 12477	Gauntlet style; dry at all times
Steel-Toe Safety Boots (Metatarsal Guard)	ASTM F2413 (I/75 C/75 Mt/75)	Leather uppers; no lace-up eyelets exposed
Respiratory Protection	NIOSH 42 CFR Part 84; ANSI Z88.2	P100 half-face minimum; SAR for confined areas
Hearing Protection	ANSI S3.19 / S12.6 (NRR ≥ 25 dB)	Required during grinding and high-amp welding
FR Skull Cap / Beanie	NFPA 2112	Protect scalp from spark/spatter

EMERGENCY PROCEDURES

Fire During Hot Work:

- Fire watch activates alarm and attempts extinguishment with provided extinguisher
- If fire exceeds extinguisher capability, evacuate area immediately
- Call 911 — provide location, type of fire, and materials involved
- Shut off gas cylinders if safe to do so
- Activate site fire alarm and evacuate to assembly point
- Account for all personnel at assembly area

Burn Injury:

- Remove victim from heat source to safe area
- Cool burns immediately with clean, cool water (20 minutes minimum)
- Remove clothing/jewelry near burn (do not remove if adhered to skin)
- Cover with sterile, non-adherent dressing
- Call 911 for second-degree burns larger than palm size, or any third-degree burns
- Do not apply butter, ointment, or ice to burns

Fume Inhalation / Respiratory Distress:

- Move victim to fresh air immediately
- Call 911 if victim has difficulty breathing, dizziness, or confusion
- Administer supplemental oxygen if trained and available
- Monitor for metal fume fever symptoms (flu-like onset 4-12 hours post-exposure)
- Provide EMS with welding rod/base metal SDS information

Emergency Contact Information:

- Emergency Services: 911
- Site Safety Manager: [Insert Name & Phone]
- Nearest Hospital: [Insert Name, Address & Phone]
- Poison Control: 1-800-222-1222
- Fire Department Non-Emergency: [Insert Local Number]

WORKER SIGN-OFF — I HAVE READ AND UNDERSTAND THIS JHA

#	Print Name	Signature	Company / Trade	Date
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REVIEW & APPROVAL

Role	Name / Signature	Date	Initials
Prepared By (Author)			
Reviewed By (Safety Manager)			
Approved By (Project Manager)			
Client / Owner Rep			

This JHA must be reviewed and updated whenever job conditions change, after any incident, or at minimum annually.

FORBES SAFETY SOLUTIONS

JOB HAZARD ANALYSIS

Wind Turbine Maintenance & Inspection

Applicable Standards: 29 CFR 1926 Subpart M (Fall Protection) • 29 CFR 1910.269 (Electric Power Generation) • 29 CFR 1910.147 (LOTO) • NFPA 70E (Arc Flash) • OSHA Wind Energy eTool • ANSI Z359 (Fall Protection Systems) • ANSI/ISEA 121 (Dropped Object Prevention)

PROJECT INFORMATION

Company Name:		Date:	
Project/Site:		JHA Number:	
Supervisor:		Work Activity:	
Turbine ID:		Crew Size:	

JOB HAZARD ANALYSIS — TASK BREAKDOWN

TASK STEP	HAZARD	RISK (H/M/L)	CONTROL MEASURES
1. Pre-Task Safety Briefing & LOTO Verification	• Failure to identify hazards • Incomplete lockout/tagout • Energized components • Arc flash exposure	H	• Conduct tailboard meeting reviewing scope, hazards, and emergency plan • Verify LOTO per 29 CFR 1910.147 — each worker applies personal lock • Confirm zero-energy state with voltage tester • Review rescue plan and confirm rescue-trained personnel on site • Check weather forecast — abort if winds >35 mph or lightning within 30 miles
2. Climb/Ascent to Nacelle (Ladder or Service Lift)	• Falls from 300+ feet • Cardiac event during climb • Dropped objects • Fatigue/overexertion • Ergonomic strain	H	• 100% tie-off with dual-lanyard system or self-retracting lifeline (SRL) • Use climb-assist system or service elevator where available • Verify anchor points and SRL inspection current • Mandatory rest stops per climb protocol • Tool tethering for all hand tools and equipment • Radio communication maintained at all times • Medical fitness-for-duty certification current
3. Hub Access and Transfer	• Falls during nacelle-to-hub transfer • Confined space conditions in hub • Rotating equipment (blade pitch system) • Pinch points	H	• Verify blade pitch system is locked out before hub entry • Use hub-specific fall protection anchorage • Confined space entry permit if ventilation is inadequate • Atmospheric monitoring (O₂, LEL, CO, H₂S) before entry • Maintain communication with ground crew • Never work alone in hub — minimum two-person team
4. Gearbox / Generator Inspection & Service	• Electrical contact with energized components • Arc flash • Hydraulic fluid under pressure • Rotating equipment • Noise exposure >85 dBA • Slips on oil residue	H	• Verify LOTO on all energy sources (electrical, hydraulic, pneumatic) • Wear arc-rated PPE per NFPA 70E arc flash boundary calculations • Use insulated tools for electrical work • Bleed hydraulic pressure before disconnecting lines • Hearing protection required in nacelle • Clean spills immediately — maintain housekeeping • Follow OEM service manual procedures

TASK STEP	HAZARD	RISK (H/M/L)	CONTROL MEASURES
5. Blade Inspection / Repair	- Falls from blade or platform - Suspended at height in harness - Lightning strike - High wind gust exposure - Dropped tools/materials - UV/weather exposure	H	- Platform or rope-access crew with SPRAT/IRATA certification 100% tie-off with twin-leg Y-lanyard or SRL - Lightning 30-30 rule: suspend work if <30 sec between flash and thunder - Wind speed limit: abort exterior blade work at >25 mph sustained - All tools and materials tethered per ANSI/ISEA 121 - Sunscreen, hydration, and shade breaks for outdoor exposure
6. Descent & LOTO Release	- Falls during descent (fatigue) - Premature LOTO removal - Equipment left in nacelle - Incomplete task verification	M	- Controlled descent using climb-assist or service elevator 100% tie-off maintained until ground level - Systematic LOTO removal — each worker removes own lock - Verify all tools accounted for (tool inventory check) - Supervisor sign-off on completed work before energization - Post-task debrief documenting lessons learned

FORBES SAFETY SOLUTIONS

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS

PPE ITEM	SPECIFICATION / STANDARD	WHEN REQUIRED
Full Body Harness	ANSI Z359.11 — Class III full body harness with dorsal D-ring	All work at height; donned before ascending tower
Twin-Leg SRL / Y-Lanyard	ANSI Z359.14 — self-retracting lifeline, 6 ft. max arrest distance	100% tie-off during climb, nacelle, hub, and blade work
Hard Hat with Chin Strap	ANSI/ISEA Z89.1, Type I, Class E — chin strap rated for at-height use	All times on site and during tower/nacelle operations
Arc-Rated Clothing	NFPA 70E — minimum 8 cal/cm ² arc rating (or per arc flash study)	Electrical inspection, LOTO verification, generator/switchgear work
Dielectric Gloves	ASTM D120 — Class 00 or higher, voltage-rated for task	Any work on or near energized electrical components
Safety Glasses / Goggles	ANSI Z87.1 — impact-rated, anti-fog	All maintenance tasks; goggles for grinding/cutting
Hearing Protection	ANSI S3.19 — NRR 25+ dB (plugs or muffs)	Inside nacelle during generator operation or when noise >85 dBA
Rescue/Descent Device	ANSI Z359.4 — controlled descent device, rated for user + tools	Staged at nacelle; all personnel trained in self-rescue
High-Visibility Vest	ANSI/ISEA 107, Class 2 minimum	Ground-level operations and when working near vehicles
Tool Lanyards / Tethers	ANSI/ISEA 121 — rated for tool weight	All hand tools and small equipment used at height

EMERGENCY PROCEDURES & RESCUE PLAN

EMERGENCY PROCEDURES
Rescue Plan: Trained rescue team on site with nacelle rescue kit (descent device, stretcher, trauma bag). Self-rescue and assisted-rescue drills completed within last 12 months.
Fall from Height: Activate rescue team immediately. Do not leave suspended worker hanging >6 minutes (suspension trauma). Use pre-rigged descent system to lower worker to ground.
Medical Emergency at Height: Stabilize worker in nacelle. Contact emergency services and advise of high-angle rescue need. Use service elevator for patient transport if available.
Severe Weather / Lightning: Monitor weather continuously via SCADA and portable weather station. Evacuate nacelle immediately if lightning within 30 miles (30-30 rule) or winds exceed safe threshold.
Fire in Nacelle: Evacuate immediately via controlled descent. Do NOT attempt fire suppression if automatic system fails. Account for all personnel at ground-level muster point.
Emergency Contacts: Site Safety Officer: _____ Local EMS: 911 Nearest Hospital: _____ Poison Control: 1-800-222-1222

FORBES SAFETY SOLUTIONS

WORKER ACKNOWLEDGMENT & SIGN-OFF

By signing below, I acknowledge that I have reviewed this JHA, understand the identified hazards and control measures, and agree to follow all safety procedures outlined herein.

#	PRINTED NAME	SIGNATURE	DATE
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JHA REVIEW & APPROVAL

This JHA must be reviewed and approved before work commences. Review is required whenever scope, conditions, or personnel change.

ROLE	NAME	SIGNATURE	DATE
Prepared By (Safety Professional)			
Reviewed By (Site Supervisor)			
Approved By (Project Manager)			
Approved By (HSE Manager)			

REVISION HISTORY

REV #	DATE	DESCRIPTION	REVISED BY

DISCLAIMER: This JHA template is provided as a guide for safety planning and does not replace site-specific hazard assessments. Employers are responsible for ensuring compliance with all applicable OSHA standards, manufacturer requirements, and company-specific safety programs. This document should be adapted to reflect actual site conditions, equipment, and personnel qualifications.

PPE ISSUE & TRACKING LOG

Forbes Safety Solutions | Ref: 29 CFR 1910.132

[illegible]

Forbes Safety Solutions — Safety is Our Standard

Generated: 2026-03-16

PPE INVENTORY SUMMARY

Forbes Safety Solutions

PPE Item Type	Quantity in Stock	Reorder Level	Last Order Date
Hard Hat			
Safety Glasses			
Harness			
Gloves			
Hi-Vis Vest			
Respirator			
Face Shield			
Ear Plugs			
Steel Toe Boots			
Other			

OSHA's Form 300 — Log of Work-Related Injuries and Illnesses

Forbes Safety Solutions — [Company Name]

Establishment Name: _____

Year: _____ City/State: _____

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OSHA's Form 300A — Summary of Work-Related Injuries and Illnesses

Forbes Safety Solutions

Establishment Information	
Establishment Name:	
Street Address:	
City, State, ZIP:	
Industry Description:	
Standard Industrial Classification (SIC):	
NAICS Code:	
Year:	
Annual Average Number of Employees:	
Total Hours Worked by All Employees:	

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	

Number of Days	
Total number of days away from work	
Total number of days of job transfer or restriction	

Injury and Illness Types	
Total number of injuries	
(1) Skin disorders	
(2) Respiratory conditions	
(3) Poisonings	
(4) Hearing loss	
(5) All other illnesses	

Certification — Post from February 1 to April 30 of the year following the year covered by this report

Company Executive Name: _____

Title: _____

Phone: _____

Signature: _____ Date: _____

nd Illnesses

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OSHA's Form 301 — Injury and Illness Incident Rep

Forbes Safety Solutions

Information About the Employee	
Full Name:	
Street Address:	
City, State, ZIP:	
Date of Birth:	
Date Hired:	
Gender:	

Information About the Physician or Other Health Care Professional	
Name of Physician/HCP:	
Facility Name:	
Facility Street Address:	
Facility City, State, ZIP:	
Was employee treated in emergency room? (Yes/No):	
Was employee hospitalized overnight as an inpatient? (Yes/No):	

Information About the Case	
Case Number from OSHA 300 Log:	
Date of Injury/Illness:	
Time Employee Began Work:	
Time of Event:	
What was the employee doing just before the incident occurred?:	
What happened? (Describe the event):	
What was the injury or illness? (Describe the injury/illness, body parts affected, object/substance):	
What object or substance directly harmed the employee?:	
If employee died, date of death:	

Completed By	

Name:	
Title:	
Phone:	
Date:	
Signature:	

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OSHA 300 Recordkeeping Instructions

Forbes Safety Solutions

WHEN TO RECORD

You must record work-related injuries and illnesses that result in:

- Death
- Days away from work
- Restricted work or transfer to another job
- Medical treatment beyond first aid
- Loss of consciousness
- A significant injury or illness diagnosed by a physician or other licensed health care professional

You must record work-related needle stick injuries and sharps injuries, medical removal cases, hearing loss cases (s tuberculosis cases.

WHAT QUALIFIES AS RECORDABLE

An injury or illness is recordable if it is work-related and results in one of the outcomes listed above.

First Aid Only — NOT Recordable:

- Using non-prescription medications at nonprescription strength
- Tetanus immunizations
- Cleaning, flushing, or soaking wounds on the surface of the skin
- Using wound closure devices such as butterfly bandages and Steri-Strips
- Using hot or cold therapy
- Using any non-rigid means of support (elastic bandages, wraps, non-rigid back belts)
- Using temporary immobilization devices while transporting an accident victim
- Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister
- Eye patches
- Removing foreign bodies from the eye using only irrigation or a cotton swab
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs, or
- Finger guards
- Massages
- Drinking fluids for relief of heat stress

EXEMPTIONS

Partially exempt industries (low-hazard industries) with 10 or fewer employees are exempt from routinely keeping However, all employers covered by OSHA must report:

- All work-related fatalities within 8 hours
- All work-related inpatient hospitalizations, amputations, and losses of an eye within 24 hours

Check OSHA's list of partially exempt industries (based on NAICS codes) to determine if your establishment qualifie

POSTING REQUIREMENTS

The OSHA 300A Summary must be posted in the workplace from February 1 to April 30 of the year following the year covered by the summary.

The 300A Summary must be certified by a company executive before posting.

Keep these records for 5 years following the year they cover.

You must make the OSHA 300 Log, 300A Summary, and 301 Incident Report forms available to employees, former employees, and the public.

HOW TO USE THIS KIT

1. OSHA 300 Log: Record each recordable injury/illness as it occurs. Use one case number per incident.
2. OSHA 300A Summary: Totals auto-calculate from the 300 Log. Complete company info, have an executive certify the summary.
3. OSHA 301 Incident Report: Complete one form per recordable incident within 7 calendar days of learning of the incident.

Retain all records for a minimum of 5 years after the end of the calendar year they cover.

For questions, visit www.osha.gov or call 1-800-321-OSHA (6742).

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r other simple means

[Redacted]

OSHA injury and illness records.

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are covered by the form.

employees, and their representatives.

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, and post.
injury/illness.

CONFIDENTIAL SPACE ENTR

Forbes Safety Solutic

Ref: 29 CFR 1910.146 | 29 CFR 1920.146

Company:	
Space ID / Location:	
Date:	
Time In:	
Time Out:	
Purpose of Entry:	

PRE-ENTRY CHECK

#	Pre-Entry Item	Yes	No	N/A
1	Space isolated (lockout/tagout)?			
2	Atmosphere tested?			
3	Ventilation in place?			
4	Rescue equipment staged?			
5	Communication established?			
6	Entry supervisor briefed crew?			

ATMOSPHERIC MONI'

Acceptable Limits: O₂ 19.5–23.5% | LEL <10% | CO <25 ppm | H₂S <10 ppm

[illegible]

PERSONNEL	
Entry Supervisor:	
Attendant(s):	
Entrant(s):	

EMERGENCY CONTACTS & RESCUE	
Emergency Contact Name/Phone:	
Rescue Service:	
Rescue Service Phone:	
Nearest Hospital:	

PERMIT CANCELLATION	
Reason for Cancellation:	
Time of Cancellation:	
Cancelled By (Signature):	
Date:	

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LIST

[illegible]

MONITORING

[illegible]

RESCUE SERVICE

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Our Standard

FORBES SAFETY SOLUTIONS

EXCAVATION PERMIT

Reference: 29 CFR 1926 Subpart P

PROJECT INFORMATION

Company:		Project Name:
Location:		Permit #:
Date Issued:		Competent Person:

EXCAVATION DETAILS

Excavation Purpose:	
Depth (ft):	Length (ft):
Soil Classification:	Protective System:

PRE-EXCAVATION CHECKLIST

#	Checklist Item	Yes
1	811/One-Call utility locate request complete?	
2	Locate marks valid (less than 30 days old)?	
3	Underground utility map reviewed?	
4	Competent person designated and on-site?	
5	Protective system designed for soil conditions?	
6	Means of egress provided (ladder within 25 ft of travel)?	
7	Traffic control plan in place?	
8	Adjacent structures assessed for stability?	
9	Spoil pile placed minimum 2 ft from edge?	
10	Surface water controls / dewatering plan in place?	
11	Warning system for mobile equipment established?	
12	Personal protective equipment available?	

ATMOSPHERIC MONITORING (Required if depth > 4 ft with potential hazardous atmosphere)

Parameter	Action Level	Reading 1	Time
Oxygen (O ₂)	19.5% - 23.5%		
LEL (Combustible Gas)	< 10% LEL		
Carbon Monoxide (CO)	< 35 ppm		
Hydrogen Sulfide (H ₂ S)	< 10 ppm		
Monitoring Instrument:			

PERMIT VALIDITY

Valid From:		Valid To:
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This permit must be renewed if conditions change (weather, soil, adjacent work, etc.)

AUTHORIZATION SIGNATURES

Competent Person:	Print Name:	
Project Supervisor:	Print Name:	
Safety Manager:	Print Name:	

Reference: 29 CFR 1926 Subpart P - Excavations

Generated: 2026-03-16 | Forbes Safety Solutions

UTIONS

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part P

Width (ft):			

No	N/A	Comments

Reading 2	Time	Reading 3	Time
Calibration Date:			

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Signature:		Date:	
Signature:		Date:	
Signature:		Date:	

HOT WORK PERMIT

Forbes Safety Solutions

Ref: 29 CFR 1926.352 | NFPA 51B



THIS PERMIT IS VALID FOR A SINGLE SHIFT

Company:	
Location:	
Date:	
Time Start:	
Time End:	
Type of Hot Work:	(Welding / Cutting / Brazing / Grinding / Other)

PRE-WORK SAFETY CHECKLIST

#	Checklist Item	Yes	No	N/A
1	Fire watch assigned?			
2	Fire extinguisher within 20 ft?			
3	Combustibles removed/covered within 35 ft?			
4	Sprinkler system working?			
5	Floors swept of debris?			
6	Openings/cracks in walls/floors covered?			
7	Ventilation adequate?			

FIRE WATCH

Fire Watch Name:	
Fire Watch Duration:	
Post-Work Fire Watch (min 30 min):	
Fire Watch Completion Sign-Off:	

Note: Fire watch must continue for a minimum of 30 minutes after hot work is completed.

AUTHORIZATION SIGNATURES

Requester Name:		Signature:
Issuer (Safety/Supervisor):		Signature:
Fire Watch:		Signature:

THIS PERMIT EXPIRES AT THE END OF THE CURRI

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Generated: 2026-03-16



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	Notes





	Date: _____
	Date: _____
	Date: _____

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FORBES SAFETY SOLUTIONS

Aerial Lift / MEWP Safety Program

OSHA Compliance Program

Prepared for:

[COMPANY NAME]

Regulatory References:

29 CFR 1926.453 | ANSI A92.22 | ANSI A92.24

Date: [DATE] | Revision: [REV NUMBER]

Prepared by: [SAFETY MANAGER NAME / TITLE]

Table of Contents

1. Purpose and Scope

This Aerial Lift / Mobile Elevating Work Platform (MEWP) Safety Program establishes the requirements and procedures for the safe operation of aerial lifts and MEWPs used by [COMPANY NAME]. This program has been developed to comply with OSHA regulations and applicable ANSI standards.

This program applies to all employees, operators, and subcontractors who operate, inspect, or work from aerial lifts and MEWPs at [COMPANY NAME] work sites. It covers all types of MEWPs including boom lifts (articulating and telescoping), scissor lifts, and crane-suspended personnel platforms.

1.1 Regulatory References

- 29 CFR 1926.453 – Aerial Lifts (Construction)
- 29 CFR 1910.67 – Vehicle-Mounted Elevating and Rotating Work Platforms (General Industry)
- ANSI A92.22 – Safe Use of MEWPs
- ANSI A92.24 – Training Requirements for the Use, Operation, Inspection, Testing, and Maintenance of MEWPs
- ANSI A92.20 – Design, Calculations, and Test Requirements for MEWPs
- Manufacturer operating manuals and specifications

1.2 Definitions

MEWP (Mobile Elevating Work Platform): A mobile machine designed to move persons, tools, and materials to working positions, including boom lifts, scissor lifts, and similar equipment.

Boom Lift (Group B MEWP): A MEWP with a boom assembly that moves the platform beyond the base/chassis (articulating boom, telescoping boom, or combination). Includes both self-propelled and trailer/vehicle-mounted units.

Scissor Lift (Group A MEWP): A MEWP in which the platform can only move vertically and is within the base footprint. The lifting mechanism is typically a scissor (pantograph) linkage.

Personnel Platform (Crane-Suspended): A work platform suspended from a crane hook used to elevate personnel, permitted only when conventional means (scaffolding, ladders, aerial lifts) are not feasible or would create a greater hazard.

2. Types of MEWPs

MEWP Type	Description	Typical Applications	Fall Protection Required
Articulating Boom Lift	Boom with multiple hinge points allowing up-and-over reach; platform extends beyond the base	Utility work, steel erection, bridge work, tree trimming, elevated electrical/mechanical work	Full body harness + lanyard attached to manufacturer anchor point (REQUIRED)
Telescoping Boom Lift	Straight boom extending to full reach; platform extends well beyond the base	High-reach applications, structural steel, utility pole work, signage installation	Full body harness + lanyard attached to manufacturer anchor point (REQUIRED)
Scissor Lift	Vertically elevating platform within the base footprint; pantograph mechanism	Interior/exterior finishing, ceiling work, HVAC, painting, light fixture installation	NOT required by OSHA when guardrails are installed and in proper condition. Recommended on rough terrain.
Crane-Suspended Personnel Platform	Work platform attached to crane hook; used only when other means are not feasible	Steel erection at height, confined/limited access areas, emergency rescue	Full body harness + lanyard attached to platform structural member or designated anchor (REQUIRED)

NOTE: Per OSHA 29 CFR 1926.453, employees in boom-type aerial lifts **MUST** wear a full body harness with a lanyard attached to the boom or basket. Tying off to an adjacent structure is prohibited unless the manufacturer's manual specifically allows it. OSHA does **NOT** require fall protection harnesses in scissor lifts when guardrails are in place, but employers may impose more stringent requirements.

3. Roles and Responsibilities

3.1 Program Administrator

[SAFETY MANAGER NAME / TITLE] is responsible for:

- Implementing and maintaining this Aerial Lift / MEWP Safety Program
- Ensuring all MEWP operators are trained and authorized
- Maintaining operator training and authorization records
- Ensuring MEWPs are inspected and maintained per manufacturer requirements
- Investigating MEWP-related incidents and near-misses
- Conducting periodic audits of MEWP operations for compliance

3.2 Supervisors

- Verify operators are trained and authorized before allowing MEWP operation
- Ensure a site assessment is performed before MEWP use (ground conditions, overhead hazards, weather)
- Ensure pre-use inspections are completed and documented
- Enforce fall protection requirements and safe operating procedures
- Ensure rescue plans are in place before elevated work begins

3.3 MEWP Operators

- Complete required MEWP operator training and familiarization before operating any MEWP
- Perform a pre-use inspection before each use (see Appendix A)
- Operate the MEWP in accordance with this program, manufacturer instructions, and the operator's manual
- Wear required fall protection (harness in boom lifts)
- Report any deficiencies, malfunctions, or incidents immediately
- Exercise stop-work authority if conditions become unsafe

4. Operator Training and Familiarization

All MEWP operators shall be trained before operating any MEWP, per 29 CFR 1926.453, ANSI A92.24, and this program.

4.1 Training Components

Training shall include three components:

4.1.1 Theory Training (Classroom)

- Types of MEWPs and their limitations
- OSHA regulations and ANSI standards applicable to MEWPs
- Hazard recognition (tip-over, electrocution, fall, caught-between, struck-by)
- Pre-use inspection procedures
- Fall protection requirements for each MEWP type
- Load capacity and platform loading limits
- Emergency and rescue procedures

4.1.2 Practical Training (Hands-On Demonstration)

- Operating the controls (travel, boom, platform, outriggers/stabilizers)
- Performing a complete pre-use inspection
- Positioning and maneuvering the MEWP safely
- Operating ground-level emergency controls (lowering/override)
- Proper donning and connecting of fall protection equipment

4.1.3 Familiarization

Before operating a specific MEWP for the first time, operators shall receive familiarization on that particular machine, including:

- Location and function of all controls and safety devices
- Maximum platform capacity and height
- Emergency lowering procedures for that specific model
- Any unique features or limitations

4.2 Retraining

Operators shall be retrained when:

- The operator is observed operating the MEWP unsafely
- The operator is involved in a MEWP incident or near-miss
- A different type or category of MEWP is to be operated (e.g., scissor lift operator moving to boom lift)
- Workplace conditions change that affect safe operation
- A minimum of every three (3) years per ANSI A92.24

5. Pre-Use Inspection

A pre-use inspection shall be performed by the operator before each use, at the beginning of each shift, and after the MEWP has been left unattended. The inspection shall include:

5.1 Visual / Walk-Around Inspection (Before Starting)

- Tires / tracks – condition, pressure (if applicable), no flat spots
- Hydraulic system – no visible leaks at hoses, fittings, or cylinders
- Structural members – boom, scissor arms, platform – no cracks, bends, or weld damage
- Platform guardrails – secure, undamaged, mid-rail and toe boards in place
- Platform floor – clean, non-slip surface, no holes or damage
- Outriggers / stabilizers (if equipped) – functional, pads present and intact
- Placards, labels, and operator's manual – legible and present
- Lanyard anchor point(s) – present and secure

5.2 Functional Test (After Starting)

- Engine / motor – starts properly, no unusual noises or smoke
- All controls (ground and platform) – function smoothly in all directions
- Emergency stop button(s) – functional at ground and platform level
- Emergency lowering system – functional (test at ground level)
- Horn / audible alarm – working
- Travel alarm / motion alarm – working (if equipped)
- Brakes (travel and swing) – functional
- Platform tilt alarm / sensor (if equipped) – functional

NOTE: If any deficiency is identified during the pre-use inspection that affects safe operation, the MEWP shall be taken out of service immediately, tagged or locked out, and reported to the supervisor. Do not operate a defective MEWP.

6. Safe Operating Procedures

6.1 General Requirements

- Only trained and authorized operators shall operate MEWPs.
- Read and understand the operator's manual for the specific MEWP before use.
- Do not exceed the rated platform capacity (including personnel, tools, and materials).
- Keep both feet on the platform floor at all times. Do not stand on guardrails, mid-rails, or use ladders/planks on the platform.
- Maintain a minimum 3-point contact when entering/exiting the platform at ground level.
- Keep the platform gate/chain closed and secured during operation.

6.2 Travel and Positioning

- Travel with the platform in the fully lowered (stowed) position whenever possible.
- On scissor lifts: do not drive with the platform elevated unless the manufacturer allows it. Check the operator's manual for maximum drive height.
- Boom lifts shall not be driven with the platform elevated unless the manufacturer allows it and the terrain is suitable.
- Watch for overhead obstructions, doorways, and structural members during travel and positioning.
- Avoid sudden starts, stops, or turns that could destabilize the MEWP.
- Use a spotter when traveling in congested areas or areas with limited visibility.

6.3 Outriggers and Stabilizers

When outriggers or stabilizers are provided:

- Outriggers/stabilizers must be fully deployed and set on firm, level ground before elevating the platform.
- Use outrigger pads to prevent sinking into soft ground.
- Do not set outriggers on unstable surfaces (manholes, grates, slopes exceeding manufacturer limits).
- Do not retract outriggers/stabilizers while the platform is elevated.

6.4 Wind Speed Limits

Condition	Action Required
Wind below 28 mph (12.5 m/s)	Normal operations permitted (follow manufacturer limits if lower)
Wind 28 mph or greater	Cease outdoor MEWP operations unless manufacturer permits higher wind speeds for the specific model
Gusts exceeding limits	Lower platform to stowed position and secure MEWP

NOTE: Manufacturer wind speed limits always take precedence. Many boom lifts have lower wind

speed limits than scissor lifts. Always consult the operator's manual for the specific machine.

6.5 Ground Conditions

- The ground must be firm, level, and capable of supporting the MEWP's total weight (machine + load).
- Do not operate on slopes exceeding the manufacturer's rated slope limit.
- Avoid operating near open trenches, excavations, or drop-offs.
- Be aware of underground voids, manholes, and utilities that may not support the MEWP's weight.
- Use cribbing or ground protection mats on soft or unimproved surfaces.

7. Fall Protection Requirements

Fall protection requirements for MEWPs vary by equipment type:

7.1 Boom Lifts (Articulating and Telescoping)

Fall protection is REQUIRED.

- All occupants of boom lifts shall wear a full body harness with a short (≤ 6 ft) lanyard or self-retracting lifeline (SRL).
- The lanyard/SRL shall be attached to the manufacturer-designated anchor point on the boom or platform.
- Do not tie off to adjacent structures, poles, or steel unless the manufacturer's manual specifically permits it.
- Body belts are NOT permitted as fall protection in aerial lifts (29 CFR 1926.453(b)(2)(v)).

7.2 Scissor Lifts

Fall protection harnesses are NOT required by OSHA when the scissor lift's guardrail system is installed and in proper condition. However:

- Guardrails must be installed on all open sides of the platform (top rail, mid-rail, toe board).
- The platform gate/chain must be closed and secured.
- [COMPANY NAME] may require harness use in specific situations (e.g., rough terrain, outdoor use, or client-specific requirements).
- If any guardrail component is missing or damaged, the scissor lift shall not be used until repaired.

7.3 Crane-Suspended Personnel Platforms

All occupants shall wear a full body harness with a lanyard attached to the structural members of the platform, independent of any other connection. Additional requirements per 29 CFR 1926.1431 apply.

8. Overhead Hazards

MEWP operators and supervisors shall identify and mitigate overhead hazards before elevated operations begin:

8.1 Electrical Hazards

- Maintain a minimum clearance of 10 feet from all energized power lines (50 kV and below).
- For voltages above 50 kV, maintain clearances per OSHA Table A (29 CFR 1926.1408).
- Treat all overhead lines as energized unless confirmed de-energized and grounded in writing by the utility owner.
- A spotter shall be used when working near (but outside the minimum clearance of) energized lines.

8.2 Other Overhead Hazards

- Overhead pipes, beams, trusses, ductwork, and structural members – watch for contact during boom/platform movement.
- Overhead cranes in facilities – coordinate with crane operators before operating a MEWP in the crane's swing/travel path.
- Tree limbs and vegetation – assess for fall hazards and contact potential.
- Falling object hazards from above – wear hard hats and assess overhead work activities.

9. Rescue Procedures

A rescue plan shall be developed and communicated before any work from a MEWP at height. Personnel shall not be elevated until rescue procedures are in place.

9.1 Primary Rescue – Ground-Level Controls

Most MEWPs are equipped with ground-level emergency controls that allow a trained person on the ground to lower the platform in an emergency:

1. Locate the ground-level emergency controls (typically at the base of the boom or chassis).
2. Activate the emergency lowering system per the manufacturer's procedure.
3. Lower the platform slowly and completely to ground level.
4. Provide first aid or call emergency services as appropriate.

9.2 Secondary Rescue Methods

If ground-level controls are inoperable or access is obstructed, the following secondary methods may be used:

- Use of a second MEWP to reach the stranded platform (if available and feasible)
- Fire department aerial ladder or rescue unit
- Rope rescue by trained personnel (only if a qualified rescue team is on site)

9.3 Suspension Trauma

If a worker falls from a boom lift and is suspended in a harness, suspension trauma (harness hang syndrome) can occur within minutes. Rescue must be initiated immediately:

- Call 911 and initiate rescue procedures immediately.
- The suspended worker should pump their legs and try to stand in the harness straps to maintain circulation.
- Once rescued, do not lay the worker flat – place them in a seated or semi-reclined position until medical personnel arrive.

10. Training

[COMPANY NAME] shall ensure all MEWP operators, supervisors, and affected employees receive appropriate training.

10.1 Operator Training Summary

Training Type	When Required	Content
Initial Operator Training	Before first MEWP operation	Theory (classroom) + practical (hands-on) + evaluation per ANSI A92.24
Familiarization	Before operating each new/different MEWP model	Specific controls, capacity, emergency procedures, unique features of the machine
Retraining	After unsafe operation,	Refresher on theory and practical skills, focus on

Training Type	When Required	Content
	incident, or changes; minimum every 3 years	deficiency areas
Supervisor Training	Before overseeing MEWP operations	Site assessment, rescue planning, fall protection requirements, MEWP hazards
Awareness Training	Before working near MEWP operations	Struck-by hazards, exclusion zones, communication with operator

10.2 Training Records

Training records shall include the trainee's name, date of training, type of MEWP(s) covered, trainer's name and qualifications, and evaluation results. Records shall be maintained using the Operator Training Record (Appendix B).

11. Recordkeeping

[COMPANY NAME] shall maintain the following MEWP-related records:

- Pre-use inspection checklists (Appendix A)
- Operator training and familiarization records (Appendix B)
- Maintenance and repair records for all company-owned MEWPs
- Rental equipment inspection documentation
- Incident and near-miss investigation reports
- Rescue plan documentation

Record Type	Retention Period
Pre-use inspection checklists	Minimum 3 months (recommended 1 year)
Operator training records	Duration of employment + 3 years
Maintenance records	Life of the equipment
Incident reports	Minimum 5 years

Appendix A: MEWP Pre-Use Inspection Checklist

[COMPANY NAME]

MEWP / Aerial Lift Pre-Use Inspection Checklist

Date: _____

Equipment Type (Boom Lift / Scissor Lift / Other): _____

Make / Model: _____

Unit Number / Serial Number: _____

Operator Name: _____

Project / Site Name: _____

Hours on Meter: _____

Mark each item: ✓ = OK X = Deficiency N/A = Not Applicable

Visual / Walk-Around Inspection

- ☐ Tires / wheels – proper inflation, no damage or flat spots
- ☐ Hydraulic system – no visible leaks (hoses, fittings, cylinders)
- ☐ Structural members – boom, scissor arms, platform – no cracks, bends, or damage
- ☐ Platform guardrails – top rail, mid-rail, and toe boards secure and undamaged
- ☐ Platform floor – clean, non-slip surface, no holes or damage
- ☐ Platform gate / chain – present and functional
- ☐ Outriggers / stabilizers (if equipped) – functional, pads present
- ☐ Lanyard anchor point(s) – present and secure (boom lifts)
- ☐ Placards, load ratings, and operator's manual – legible and present
- ☐ Battery / fuel – adequate charge or fuel level
- ☐ Pins, bolts, fasteners – secure, retaining devices in place
- ☐ No unauthorized modifications to the MEWP

Functional Test

- ☐ Engine / motor – starts and runs properly
- ☐ Platform controls – all functions operate smoothly (up, down, extend, retract, swing, travel)

- ☐ Ground controls – all functions operate smoothly
- ☐ Emergency stop – functional (test at platform and ground level)
- ☐ Emergency lowering system – functional
- ☐ Horn / audible alarm – working
- ☐ Travel alarm / motion alarm – working (if equipped)
- ☐ Travel brakes – functional
- ☐ Swing brake / lock (boom lifts) – functional
- ☐ Platform tilt alarm / sensor (if equipped) – functional
- ☐ Limit switches (if equipped) – functional

Work Site Assessment

- ☐ Ground conditions – firm, level, capable of supporting MEWP weight
- ☐ Overhead hazards identified (power lines, structures, other equipment)
- ☐ Power line clearance maintained (minimum 10 ft for ≤ 50 kV)
- ☐ Wind speed within limits (below 28 mph or manufacturer limit)
- ☐ Pedestrian / vehicle traffic controls in place (cones, barriers)
- ☐ Rescue plan communicated and equipment available

Deficiencies / Comments

Equipment Status: ☐ Fit for Use ☐ Restricted Use (explain) ☐ Out of Service / Do Not Use

Operator Signature

Date

Supervisor Acknowledgment

Date

Appendix B: MEWP Operator Training Record

[COMPANY NAME]

MEWP / Aerial Lift Operator Training Record

Employee Information

Employee Name: _____

Job Title: _____

Employee ID / SSN (last 4): _____

Department / Crew: _____

Training Details

Date of Training: _____

Trainer Name: _____

Trainer Qualifications: _____

Type of Training:

- ☐ Initial Operator Training
- ☐ Familiarization (new/different model)
- ☐ Retraining
- ☐ Refresher (3-year renewal)

MEWP Type(s) Covered:

- ☐ Boom Lift – Articulating
- ☐ Boom Lift – Telescoping
- ☐ Scissor Lift
- ☐ Crane-Suspended Personnel Platform
- ☐ Other: _____

Specific Make / Model (for familiarization):

Training Content Covered

- ☐ OSHA regulations and ANSI standards overview
- ☐ Types of MEWPs and their capabilities/limitations
- ☐ Hazard recognition (tip-over, electrocution, falls, struck-by, caught-between)
- ☐ Pre-use inspection procedures
- ☐ Safe operating procedures (travel, positioning, outriggers, platform loading)
- ☐ Fall protection requirements by MEWP type
- ☐ Wind speed limits and weather considerations
- ☐ Ground conditions assessment
- ☐ Overhead hazard identification (power lines, structures)
- ☐ Emergency and rescue procedures
- ☐ Emergency lowering / ground-level controls
- ☐ Manufacturer-specific operating instructions (familiarization)

Practical Evaluation

Operator demonstrated competency in the following:

- ☐ Completed a full pre-use inspection
- ☐ Operated all platform and ground controls correctly
- ☐ Traveled safely (stowed position, awareness of surroundings)
- ☐ Positioned platform at working height correctly
- ☐ Demonstrated proper fall protection use (boom lift)
- ☐ Operated emergency lowering system
- ☐ Demonstrated awareness of load limits and platform capacity

Evaluation Result: ☐ PASS – Authorized to Operate ☐ FAIL – Requires Additional Training

If FAIL, describe deficiencies:

Trainee Signature

Date

Trainer Signature

Date

Supervisor / Program Administrator

Date

FORBES SAFETY SOLUTIONS

Asbestos Awareness Program

Identification, Protection & Compliance

Company:	<u>[COMPANY NAME]</u>
Prepared By:	<u>[NAME / TITLE]</u>
Effective Date:	<u>[DATE]</u>
Revision:	<u>[REV NUMBER]</u>
Regulatory Ref:	<u>29 CFR 1926.1101 / 29 CFR 1910.1001</u>

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Table of Contents

1. Purpose & Scope

[COMPANY NAME] is committed to protecting employees from the hazards associated with asbestos exposure. This program establishes procedures for identifying asbestos-containing materials (ACM), minimizing exposure, and ensuring compliance with OSHA standards for both general industry and construction.

This program applies to all employees, contractors, and visitors at [COMPANY NAME] worksites where asbestos-containing materials may be present or disturbed.

2. Regulatory References

- 29 CFR 1926.1101 — Asbestos (Construction Industry)
- 29 CFR 1910.1001 — Asbestos (General Industry)
- 40 CFR 61 Subpart M — National Emission Standards for Asbestos
- EPA AHERA — Asbestos Hazard Emergency Response Act
- OSHA Fact Sheet: Asbestos

3. Definitions

3.1 Types of Asbestos

- **Chrysotile (White Asbestos):** Most commonly used form (~95% of asbestos in buildings). Serpentine fiber with curly structure.
- **Amosite (Brown Asbestos):** Amphibole fiber commonly found in insulation, ceiling tiles, and thermal products.
- **Crocidolite (Blue Asbestos):** Most hazardous amphibole fiber, primarily found in pipe insulation and spray-on coatings.

3.2 Common Locations in Construction

- Thermal system insulation (pipes, boilers, ducts)
- Floor tiles and mastic/adhesive
- Roofing materials (felts, shingles)
- Siding and transite panels
- Pipe wrap and lagging
- Fireproofing and spray-applied materials
- Joint compound and texture coatings
- Gaskets and packing materials

3.3 Exposure Classifications

Class	Description	Activities
Class I	Highest risk	Removal of thermal system insulation or surfacing ACM
Class II	High risk	Removal of other ACM (flooring, siding, roofing, gaskets)

Class III	Moderate risk	Repair and maintenance of ACM where ACM may be disturbed
Class IV	Lower risk	Custodial activities in areas with ACM (cleanup of ACM debris)

- **Maintenance Activities:** Any work that disturbs or may disturb ACM. Maintenance workers must receive Class III training at minimum.

4. Permissible Exposure Limits

OSHA has established the following exposure limits for airborne asbestos fibers:

Limit Type	Concentration	Averaging Period
PEL (Permissible Exposure Limit)	0.1 f/cc	8-hour TWA
Excursion Limit	1.0 f/cc	30-minute average

NOTE: There is no safe level of asbestos exposure. All exposures shall be reduced to the lowest feasible level regardless of the PEL.

5. Roles & Responsibilities

5.1 Management

- Provide resources for asbestos identification, abatement, and training
- Ensure compliance with federal, state, and local asbestos regulations
- Designate a competent person for asbestos-related work
- Maintain records of all asbestos surveys, monitoring, and training

5.2 Competent Person

A designated competent person must be present on-site during any Class I, II, III, or IV asbestos work. The competent person shall:

- Be trained in asbestos identification, hazards, and control measures
- Have the authority to take prompt corrective action
- Conduct frequent and regular inspections of the work area
- Ensure proper engineering controls, work practices, and PPE are in use
- For Class I/II work: complete EPA-accredited training (Contractor/Supervisor course)

5.3 Supervisors

- Ensure work does not disturb suspect or known ACM without proper protocols
- Stop work if unexpected ACM is encountered
- Enforce regulated area boundaries and access controls

5.4 Employees

- Attend all required asbestos awareness or operations training
- Do not disturb suspected asbestos-containing materials
- Report any damaged or deteriorating materials that may contain asbestos
- Use all required PPE and follow decontamination procedures

5.5 Safety Department

- Administer and coordinate asbestos program activities
- Arrange for exposure monitoring and building surveys
- Maintain training records, monitoring data, and medical surveillance files

6. Exposure Monitoring

6.1 Initial Monitoring

[COMPANY NAME] shall conduct initial exposure monitoring for all employees who may be exposed to airborne asbestos at or above the PEL. Monitoring shall be representative of the 8-hour TWA and 30-minute short-term exposure.

6.2 Periodic Monitoring

- Required at least every 6 months for employees exposed at or above the PEL or excursion limit
- May be reduced to every 6 months if results are below action level (0.1 f/cc)
- Monitoring may be discontinued if two consecutive samples taken 7 days apart are below the action level

6.3 Additional Monitoring

Additional monitoring shall be performed whenever changes in processes, controls, or personnel may result in new or increased exposures.

6.4 Employee Notification

Employees shall be notified of monitoring results within 15 working days of receipt. Notification must be in writing and include the corrective action being taken if the PEL is exceeded.

7. Regulated Areas

Regulated areas shall be established wherever airborne asbestos concentrations exceed or are expected to exceed the PEL. Requirements include:

- Demarcation with warning signs and barrier tape
- Access limited to authorized, trained, and properly equipped personnel
- Warning signs displaying: "DANGER — ASBESTOS — CANCER AND LUNG DISEASE HAZARD — AUTHORIZED PERSONNEL ONLY"
- No eating, drinking, smoking, or applying cosmetics in regulated areas

8. Engineering & Work Practice Controls

8.1 Engineering Controls

- Wet methods — keep ACM adequately wet to suppress fiber release
- Local exhaust ventilation with HEPA filtration
- Isolation and enclosure of work areas (negative pressure enclosures for Class I)
- Glove bags for small-scale pipe insulation removal
- HEPA-filtered vacuum equipment for cleanup

8.2 Prohibited Practices

- High-speed abrasive disc saws without HEPA exhaust
- Dry sweeping or shoveling of asbestos debris
- Compressed air to remove asbestos from surfaces
- Employee rotation as a means to reduce exposure

9. Respiratory Protection

When engineering controls alone cannot reduce exposure below the PEL, respiratory protection shall be provided in accordance with 29 CFR 1910.134 and the [COMPANY NAME] Respiratory Protection Program.

Exposure Level	Minimum Respirator
Up to 1.0 f/cc	Half-face APR with P100 filters
Up to 10 f/cc	Full-face APR with P100 filters
Above 10 f/cc or unknown	PAPR with HEPA filters or supplied air respirator
IDLH or emergency	Full-face pressure-demand SCBA or combination SCBA/SAR

All respirator users must be medically evaluated, fit tested annually, and trained in proper use, maintenance, and storage.

10. Medical Surveillance

Medical surveillance shall be provided at no cost to employees who are or will be exposed to airborne asbestos at or above the PEL or excursion limit for 30 or more days per year. The program includes:

- Pre-placement examination (medical/work history, chest X-ray, pulmonary function test)
- Annual examination (updated history, chest X-ray as recommended, pulmonary function test)
- Termination examination (within 30 days of last day of employment if not examined within the previous year)
- Physician's written opinion provided to employer and employee

11. Decontamination Procedures

11.1 Personnel Decontamination

For Class I and II work, a decontamination unit shall be established adjacent to the regulated area with:

- Clean room (for donning clean clothing and PPE)
- Shower room (with water to remove fibers from skin)
- Equipment room (for removal of contaminated PPE)

Workers shall shower before leaving the regulated area. Disposable clothing shall be bagged wet for disposal.

11.2 Equipment Decontamination

- All tools and equipment shall be HEPA-vacuumed or wet-wiped before removal from regulated area
- Reusable PPE shall be decontaminated after each use

12. Disposal Requirements

All asbestos waste shall be handled as regulated waste:

- Double-bagged in 6-mil polyethylene bags or sealed in leak-tight containers
- Labeled with asbestos warning labels per OSHA and DOT requirements
- Transported by licensed asbestos waste hauler
- Disposed of at permitted landfill in accordance with EPA 40 CFR 61 Subpart M
- Waste manifests retained for minimum of 30 years

13. Training Requirements

13.1 Asbestos Awareness Training (All Employees)

Employees who may work in areas where ACM is present but will not disturb it shall receive awareness training covering:

- Health effects of asbestos exposure
- Locations of ACM in the workplace
- Recognition of damage or deterioration
- Proper response to fiber release episodes

13.2 Training by Exposure Class

Class	Training Hours	Content Requirements
Class I	32 hours + 8 hr annual	EPA-accredited contractor/supervisor course; all hazards and controls
Class II	8 hours minimum	Hazard identification, controls, PPE for specific ACM type
Class III	16 hours minimum	Asbestos hazards, O&M procedures, work practice controls
Class IV	2 hours minimum	Awareness training plus cleanup procedures

13.3 Refresher Training

Annual refresher training is required for all classes. Training records shall be maintained for the duration of employment plus 30 years.

14. Recordkeeping

- Exposure monitoring records — retained for 30 years per 29 CFR 1910.1020
- Medical surveillance records — retained for duration of employment plus 30 years
- Training records — retained for duration of employment plus 30 years
- Building asbestos surveys — retained for the life of the building
- Abatement project records — retained for 30 years
- Waste disposal manifests — retained for 30 years

15. Program Review

This program shall be reviewed annually or whenever there is a change in processes, regulations, or after any asbestos-related incident. Reviews shall be documented and approved by the Safety Department.

Appendix A: Asbestos Identification Checklist

Use this checklist to identify potential ACM during building surveys and pre-renovation inspections.

Item	Location	Material Type	Condition	Presumed ACM?	Sample Taken?
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No
			☐ Good ☐ Fair ☐ Poor	☐ Yes ☐ No	☐ Yes ☐ No

Surveyed By: _____ Date: _____

Building / Location: _____

Notes: _____

Appendix B: Worker Notification Form

This form must be completed and provided to employees within 15 working days of receiving exposure monitoring results.

Date of Notification: _____

Employee Name: _____ Employee ID: _____

Job Title: _____

Work Location / Area: _____

Monitoring Results:

Date(s) of Monitoring: _____

8-Hour TWA Result: _____ f/cc

30-Minute Excursion Result: _____ f/cc

Result	Check
Below Action Level (0.1 f/cc)	☐
At or Above PEL (0.1 f/cc TWA)	☐
Above Excursion Limit (1.0 f/cc / 30 min)	☐

Corrective Actions Taken (if above PEL):

Supervisor Signature: _____ Date: _____

Employee Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

BEHAVIOR-BASED SAFETY (BBS) PROGRAM

Proactive Safety Observations & Continuous Improvement

Prepared for:
[COMPANY NAME]

Effective Date: [DATE]
Revision: [REV #]

Table of Contents

1. Purpose and Scope

This Behavior-Based Safety (BBS) Program establishes a structured, observation-based approach to identifying and reinforcing safe work behaviors and addressing at-risk behaviors at [COMPANY NAME]. The purpose is to proactively reduce incidents by understanding why people behave the way they do and creating a positive safety culture where safe behaviors are recognized and reinforced.

This program applies to all [COMPANY NAME] employees, supervisors, managers, and subcontractors. The BBS program supplements — but does not replace — existing safety programs, regulatory compliance requirements, and engineering controls.

2. Regulatory References

- OSHA Voluntary Protection Programs (VPP) — 29 CFR 1900.27
- ANSI/ASSP Z10-2019 — Occupational Health and Safety Management Systems
- ISO 45001:2018 — Occupational Health and Safety Management Systems
- OSHA General Duty Clause — Section 5(a)(1) of the OSH Act
- National Safety Council (NSC) BBS best practices and guidelines

3. BBS Program Overview

3.1 What BBS Is

Behavior-Based Safety is a proactive safety process that uses systematic observation, data collection, and positive reinforcement to improve safety performance. BBS is founded on the principle that most workplace injuries result from at-risk behaviors that can be identified, understood, and modified through a structured peer-to-peer observation and feedback process.

- A data-driven approach to understanding workplace safety behaviors
- A tool for identifying barriers to safe work practices
- A positive reinforcement system that encourages safe behaviors
- A continuous improvement cycle that drives measurable results
- An employee-driven process that empowers workers to participate in safety

3.2 What BBS Is NOT

It is critical that all employees understand that BBS is not a disciplinary or blame-based system:

- BBS is NOT a "gotcha" program designed to catch workers doing something wrong

- BBS is NOT a replacement for engineering controls, machine guarding, or regulatory compliance
- BBS is NOT a substitute for management accountability or hazard elimination
- BBS is NOT used for individual performance reviews, discipline, or termination decisions
- BBS observations are NOT used to assign blame after an incident occurs

If employees perceive BBS as a blame tool, the program will fail. Trust, anonymity, and positive reinforcement are the foundation of an effective BBS program.

4. Safety Observation Process

4.1 Observation Cycle

The BBS observation process follows a continuous cycle:

1. Identify critical behaviors to observe (see Section 5)
2. Conduct field observations using the Safety Observation Card
3. Provide immediate positive feedback for safe behaviors observed
4. Engage in coaching conversations for at-risk behaviors (see Section 9)
5. Record observation data on the Safety Observation Card
6. Submit completed observation cards to the BBS Coordinator
7. Compile, trend, and analyze observation data (see Section 7)
8. Identify systemic barriers and implement corrective actions
9. Share results with the workforce and celebrate improvements
10. Repeat the cycle with updated critical behavior checklists

4.2 Observation Frequency

[COMPANY NAME] shall establish observation frequency goals based on workforce size:

- Minimum of [NUMBER] observations per week per work crew or department
- Each trained observer should complete at least [NUMBER] observations per month
- Observation goals should be tracked and reported monthly
- Quality of observations is more important than quantity — never sacrifice thoroughness for volume

5. Critical Behaviors Checklist Development

The critical behaviors checklist is the foundation of the observation process. It identifies the specific safe and at-risk behaviors to observe in the field.

5.1 Developing the Checklist

- Review incident history, near-miss reports, and OSHA injury logs to identify common at-risk behaviors
- Conduct employee focus groups to identify behaviors they see daily
- Perform job hazard analyses (JHAs) to identify critical safe behavior steps
- Consult with supervisors on the most frequently observed at-risk behaviors
- Prioritize behaviors that have the highest injury potential or frequency

5.2 Checklist Categories

The following categories should be represented on the observation checklist:

- Personal Protective Equipment (PPE) — proper selection and use
- Body positioning and ergonomics — lifting, reaching, bending
- Tools and equipment — proper use, inspection, housekeeping
- Procedures — following established work methods and permits
- Communication — alerting others to hazards, coordinating tasks
- Housekeeping — maintaining clean and organized work areas
- Line of fire — awareness of struck-by, caught-between, and overhead hazards

5.3 Updating the Checklist

The critical behaviors checklist shall be reviewed and updated at least quarterly based on observation data trends, new incident types, and employee feedback. The BBS Steering Committee is responsible for approving checklist revisions.

6. Observation Methodology

Effective observations require a non-intrusive, respectful approach that builds trust:

6.1 How to Observe Without Being Intrusive

- Observe from a reasonable distance that does not disrupt the work activity
- Observe for 3-5 minutes before engaging the worker in conversation
- Focus on behaviors, not individuals — observe what people do, not who they are
- Use the observation card to guide your focus, but do not read from it like a checklist during the observation
- Never sneak up on workers or hide while observing — transparency builds trust
- Choose observation times that cover different shifts, tasks, and weather conditions

6.2 Conducting the Observation

11. Select a work area and review the critical behaviors checklist
12. Position yourself where you can see the work clearly without interfering
13. Observe for safe behaviors first — note what is going right
14. Note any at-risk behaviors — focus on the behavior, not the person
15. After observing, approach the worker and initiate a coaching conversation
16. Begin with positive feedback on safe behaviors observed
17. Discuss any at-risk behaviors using a non-confrontational approach
18. Ask open-ended questions to understand barriers to safe behavior
19. Complete the Safety Observation Card after the conversation

7. Data Collection and Trending

[COMPANY NAME] shall collect, compile, and analyze BBS observation data to identify trends and drive improvement:

- All completed Safety Observation Cards shall be submitted to the BBS Coordinator within 24 hours
- Data shall be entered into the BBS tracking database or spreadsheet
- Calculate percent safe scores by behavior category on a weekly and monthly basis
- Graph trends over time to identify improving and declining behavior categories
- Identify the top three at-risk behavior categories each month for targeted intervention
- Share data summaries with the workforce through safety meetings, bulletin boards, and electronic communications
- Use data to prioritize training, toolbox talks, and engineering control improvements

8. Positive Reinforcement Strategies

Positive reinforcement is the most effective tool for sustaining safe behaviors. [COMPANY NAME] shall implement the following strategies:

- Verbal recognition during observations — thank workers for safe behaviors observed
- Peer-to-peer safety recognition cards or tokens
- Monthly safety recognition awards based on observation participation and safe behavior scores
- Crew or department recognition for achieving observation goals and improvement targets
- Safety milestone celebrations (e.g., 100 consecutive safe observations, zero-incident milestones)

- Highlight positive BBS stories in company newsletters, toolbox talks, and safety meetings

Reinforcement should be immediate, specific, and sincere. Generic praise ("good job") is less effective than specific recognition ("I noticed you positioned your body correctly and used three points of contact on the ladder").

9. Coaching Conversations

When at-risk behaviors are observed, the observer shall engage in a coaching conversation using the following approach:

9.1 Coaching Framework

20. Open positively — acknowledge safe behaviors first
21. Describe the at-risk behavior objectively — state what you observed, not what you think
22. Explain the potential consequence — help the worker understand the risk
23. Ask for the worker's perspective — "What made it difficult to do it the safe way?"
24. Collaborate on a solution — "What would help you do this safely every time?"
25. Thank the worker for the conversation and encourage continued safe behaviors

9.2 Coaching Principles

- Never use an accusatory or confrontational tone
- Focus on the behavior, not the person's character or attitude
- Listen actively and seek to understand barriers
- Respect the worker's dignity and experience
- Follow up on commitments made during the coaching conversation

10. Peer Observation vs. Supervisor Observation

10.1 Peer Observations

Peer-to-peer observations are the preferred method for BBS data collection:

- Workers are more comfortable being observed by peers than by supervisors
- Peer observations reduce the perception of surveillance or discipline
- Peers have firsthand knowledge of the tasks and can identify subtle at-risk behaviors
- Peer observations build a sense of shared ownership for safety

10.2 Supervisor Observations

Supervisor observations supplement but do not replace peer observations:

- Supervisors should conduct observations to demonstrate leadership commitment
- Supervisor observations focus on the same critical behaviors as peer observations
- Supervisor observations should emphasize positive reinforcement
- Supervisors must avoid using observations as a disciplinary checkpoint

10.3 Anonymity

Observation cards should not require the name of the observed worker. Data is collected on behaviors, not individuals. Observer names may be recorded for tracking participation, but observed workers remain anonymous in the BBS database.

11. Barrier Analysis

Understanding why unsafe behaviors occur is essential to sustained improvement. [COMPANY NAME] shall conduct barrier analysis when trends show persistent at-risk behaviors:

11.1 Common Barriers to Safe Behavior

- Inadequate tools or equipment — workers improvise when proper tools are unavailable
- Time pressure — production demands incentivize shortcuts
- Lack of training or knowledge — workers are unaware of the safe procedure
- Uncomfortable PPE — workers remove or fail to use PPE that is ill-fitting or hot
- Workplace design — awkward access, poor lighting, or cluttered work areas
- Peer pressure — group norms accept certain at-risk behaviors
- Habit — long-established behaviors are difficult to change without intervention

11.2 Addressing Barriers

For each identified barrier, [COMPANY NAME] shall develop and implement targeted corrective actions following the hierarchy of controls: elimination, substitution, engineering controls, administrative controls, and PPE. Barrier analysis results and corrective actions shall be documented and tracked to completion.

12. Continuous Improvement Cycle

The BBS program operates on a Plan-Do-Check-Act (PDCA) cycle:

- **Plan:** Develop critical behavior checklists, set observation goals, train observers
- **Do:** Conduct observations, provide feedback, collect data
- **Check:** Analyze data, identify trends, conduct barrier analysis
- **Act:** Implement corrective actions, update checklists, recognize improvements

The BBS Steering Committee shall review program effectiveness quarterly and make adjustments to observation targets, critical behaviors, and reinforcement strategies based on data.

13. Leading vs. Lagging Indicators

BBS programs should track both leading (proactive) and lagging (reactive) indicators to measure program effectiveness:

13.1 Leading Indicators

- Number of observations completed per week/month
- Percent safe scores by behavior category
- Observation participation rate (percentage of trained observers actively participating)
- Number of coaching conversations conducted
- Number of barriers identified and corrected
- Training completion rates for BBS observers

13.2 Lagging Indicators

- OSHA recordable incident rate (TRIR)
- Lost-time injury rate (LTIR)
- Near-miss reporting rate
- Workers' compensation claims and costs

A successful BBS program will show improving leading indicators (more observations, higher percent safe scores) that precede improving lagging indicators (fewer injuries and claims).

14. Roles and Responsibilities

14.1 BBS Steering Committee

- Oversee the BBS program and set strategic direction
- Review observation data and trends quarterly
- Approve critical behavior checklist revisions

- Allocate resources for training, recognition, and barrier removal

14.2 BBS Coordinator

- Manage day-to-day BBS program operations
- Compile and analyze observation data
- Prepare monthly and quarterly BBS reports
- Coordinate observer training and refresher sessions

14.3 Trained Observers

- Conduct observations per established frequency goals
- Provide positive feedback and coaching conversations
- Submit observation cards promptly and completely

14.4 All Employees

- Participate in observations willingly and openly
- Accept coaching conversations as a positive interaction
- Report barriers to safe behavior to supervisors or observers

15. Training Requirements

- All observers shall complete BBS observer training (minimum 4 hours) before conducting observations
- Training shall cover: observation techniques, coaching conversations, data recording, positive reinforcement, and barrier analysis
- All employees shall receive BBS awareness orientation explaining the program purpose, process, and their role
- Annual refresher training for all observers
- BBS Steering Committee members shall receive additional training on data analysis and program management

16. Recordkeeping

- All Safety Observation Cards shall be retained for a minimum of three (3) years
- Monthly and quarterly BBS data summaries shall be archived
- Barrier analysis reports and corrective action records shall be maintained
- Training records (attendees, dates, topics) shall be kept on file

- BBS Steering Committee meeting minutes shall be documented and retained

17. Revision History

Revision	Date	Author	Description
1.0	[DATE]	[NAME]	Initial Release

Appendix A: Safety Observation Card

Complete this card for each BBS observation. Do not record the observed worker's name.

Field	Details
Observer Name	
Date / Time	
Location / Work Area	
Task Being Observed	
Department / Crew	

Behavior Category	Safe ✓	At-Risk ✓	Comments / Barriers Noted
PPE — Proper use and condition			
Body Positioning / Ergonomics			
Tools & Equipment Use			
Procedures / Work Methods			
Communication / Coordination			
Housekeeping / Organization			
Line of Fire Awareness			
Other: _____			

Coaching Conversation Conducted? ☐ Yes ☐ No

Worker Response: ☐ Positive ☐ Neutral ☐ Resistant

Notes / Barriers Identified: _____

Observer Signature: _____ Date: _____

Appendix B: Monthly BBS Data Summary Form

Compile monthly observation data to track trends and report to the BBS Steering Committee.

Field	Details
Reporting Period	
Total Observations Completed	
Observation Goal	
Goal Attainment %	
Number of Active Observers	

Behavior Category	# Safe	# At-Risk	% Safe	Trend (↑ ↓ →)
PPE				
Body Positioning				
Tools & Equipment				
Procedures				
Communication				
Housekeeping				
Line of Fire				

Top 3 At-Risk Behaviors This Month:

1. _____
2. _____
3. _____

Barriers Identified and Corrective Actions Recommended:

Prepared by: _____ Date: _____

FORBES SAFETY SOLUTIONS

Bloodborne Pathogens Exposure Control Plan

OSHA Compliance Program

Prepared for:

[COMPANY NAME]

Regulatory References:

29 CFR 1910.1030 | 29 CFR 1910.141 | 29 CFR 1926.50

Date: [DATE] | Revision: [REV NUMBER]

Prepared by: [SAFETY MANAGER NAME / TITLE]

Table of Contents

1. Purpose and Scope

This Bloodborne Pathogens Exposure Control Plan (ECP) has been developed in accordance with OSHA's Bloodborne Pathogens Standard, 29 CFR 1910.1030. The purpose of this plan is to eliminate or minimize employee occupational exposure to blood and other potentially infectious materials (OPIM).

This plan applies to all employees of [COMPANY NAME] who may reasonably anticipate contact with blood or OPIM as a result of performing their job duties. This includes, but is not limited to, first aid responders, maintenance personnel, supervisors trained in first aid, and any other employees identified in the exposure determination.

1.1 Regulatory Reference

- 29 CFR 1910.1030 – Bloodborne Pathogens
- 29 CFR 1910.141 – Sanitation
- 29 CFR 1926.50 – Medical Services and First Aid (Construction)
- State-specific OSHA plan requirements (where applicable)

1.2 Definitions

Bloodborne Pathogens: Pathogenic microorganisms present in human blood that can cause disease in humans, including Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), and Human Immunodeficiency Virus (HIV).

Other Potentially Infectious Materials (OPIM): Human body fluids including semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, and any body fluid visibly contaminated with blood.

Occupational Exposure: Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or OPIM that may result from the performance of an employee's duties.

Universal Precautions: An approach to infection control in which all human blood and OPIM are treated as if known to be infectious for HBV, HCV, HIV, and other bloodborne pathogens.

Engineering Controls: Controls that isolate or remove the bloodborne pathogen hazard from the workplace (e.g., sharps containers, self-sheathing needles, biohazard bags).

2. Exposure Determination

The following is an exposure determination based on job classifications at [COMPANY NAME]. This determination was made without regard to the use of personal protective equipment (PPE).

2.1 Category I – Job Classifications with Routine Exposure

All employees in the following job classifications have occupational exposure to bloodborne pathogens:

Job Classification	Tasks / Procedures Involving Exposure
Designated First Aid Responders	Administering first aid, CPR, wound care, AED use
Safety Manager / Safety Officers	Accident response, first aid, exposure incident investigation
Field Supervisors (First Aid Trained)	Emergency first aid response, transporting injured workers
Maintenance / Janitorial Staff	Cleaning blood/OPIM contaminated surfaces, waste disposal

2.2 Category II – Job Classifications with Non-Routine Exposure

Employees in the following classifications may have exposure to bloodborne pathogens in non-routine or emergency situations:

Job Classification	Potential Exposure Situations
All Field Crew Members	Good Samaritan first aid, responding to co-worker injury
Equipment Operators	Contact with contaminated equipment or surfaces
Office Personnel	Assisting with injury at office location

2.3 Category III – No Occupational Exposure

Employees with no reasonably anticipated occupational exposure to blood or OPIM during the normal course of their duties are not covered under this plan. If job duties change, the exposure determination shall be updated.

NOTE: This exposure determination must be reviewed and updated annually, or whenever new job classifications, tasks, or procedures are introduced that may involve occupational exposure.

3. Roles and Responsibilities

3.1 Program Administrator

[SAFETY MANAGER NAME / TITLE] is responsible for the overall administration and implementation of this Exposure Control Plan, including:

- Maintaining and updating the Exposure Control Plan annually
- Ensuring all employees with occupational exposure receive initial and annual training
- Coordinating the Hepatitis B vaccination program
- Managing post-exposure evaluation and follow-up procedures
- Maintaining required records (training, medical, sharps injury log)
- Ensuring availability of PPE, engineering controls, and cleanup supplies
- Reviewing and updating the exposure determination when job duties change

3.2 Supervisors

- Ensure employees under their supervision comply with this plan
- Ensure first aid kits are stocked and accessible at all work locations
- Report all exposure incidents immediately to the Program Administrator
- Ensure contaminated areas are properly cleaned and decontaminated

3.3 Employees

- Follow universal precautions at all times
- Use provided PPE and engineering controls as trained
- Report all exposure incidents immediately to their supervisor
- Attend all required bloodborne pathogens training
- Participate in the Hepatitis B vaccination program or sign the declination form

4. Universal Precautions

[COMPANY NAME] requires the observance of Universal Precautions at all times. All blood and OPIM shall be treated as if known to be infectious for bloodborne pathogens, regardless of the perceived status of the source individual.

Universal Precautions apply to the following:

- Blood and all body fluids containing visible blood
- Semen and vaginal secretions
- Cerebrospinal, synovial, pleural, peritoneal, pericardial, and amniotic fluids
- Any unfixed human tissue or organ
- HIV-containing cell or tissue cultures, organ cultures, and culture medium

5. Engineering and Work Practice Controls

5.1 Engineering Controls

Engineering controls shall be used as the primary method to eliminate or minimize employee exposure. The following engineering controls are implemented:

- Sharps disposal containers placed in all first aid stations and field vehicles
- Self-sheathing needles in all first aid kits (where needles are provided)
- Puncture-resistant containers for handling contaminated sharps and broken glass
- Biohazard bags for disposal of contaminated waste
- Hands-free (foot-operated or automatic) waste receptacles where feasible

Engineering controls shall be examined and maintained or replaced on a regular schedule to ensure their effectiveness.

5.2 Work Practice Controls

1. Wash hands immediately (or as soon as feasible) after removal of gloves or other PPE.
2. Wash hands and any other exposed skin with soap and water, or flush mucous membranes with water, immediately following contact with blood or OPIM.
3. Do not eat, drink, smoke, apply cosmetics/lip balm, or handle contact lenses in work areas where there is a reasonable likelihood of exposure.
4. Do not bend, recap, or remove contaminated needles or other contaminated sharps unless required by a specific procedure and accomplished through a one-handed technique or mechanical device.
5. Place contaminated sharps in appropriate sharps containers immediately after use.
6. Do not pick up broken glass with bare hands; use mechanical means (brush and dustpan, tongs, or forceps).
7. Specimens of blood or OPIM shall be placed in leak-proof, labeled containers during handling, storage, and transport.

6. Personal Protective Equipment (PPE)

[COMPANY NAME] provides, at no cost to employees, appropriate personal protective equipment for protection against bloodborne pathogens. PPE is considered appropriate only if it does not permit blood or OPIM to pass through to or reach the employee's clothing, skin, eyes, mouth, or other mucous membranes.

6.1 PPE Selection

Task / Activity	Required PPE
First aid / wound care	Disposable nitrile gloves, safety glasses, CPR pocket mask
Cleaning blood spills	Disposable nitrile gloves, safety glasses/goggles, disposable gown (if splash potential)
Handling contaminated waste	Heavy-duty utility gloves, safety glasses
CPR / Rescue breathing	CPR pocket mask or bag-valve mask, disposable gloves

6.2 PPE Use Requirements

- PPE shall be worn whenever there is a potential for exposure to blood or OPIM.
- Gloves shall be replaced as soon as practical when visibly contaminated, torn, or punctured.
- All used PPE shall be removed before leaving the work area and placed in designated biohazard containers.
- Disposable gloves shall not be washed or reused.
- Hypoallergenic gloves or glove liners shall be provided to employees who have documented allergies to standard glove materials.

7. Hepatitis B Vaccination Program

[COMPANY NAME] shall make the Hepatitis B vaccination series available to all employees who have occupational exposure, at no cost to the employee, within 10 working days of initial assignment to a position with exposure potential.

7.1 Vaccination Requirements

- The vaccination is provided after the employee has received bloodborne pathogens training and within 10 working days of initial assignment.
- The vaccination series consists of three (3) doses administered over a six-month period.
- Employees who decline the vaccination must sign the OSHA-required Hepatitis B Vaccine Declination Form (see Appendix B).
- Employees who initially decline may later opt to receive the vaccination at no cost.
- Vaccination records shall be maintained in the employee's confidential medical file.

7.2 Post-Vaccination Titer Testing

Antibody testing (titer) shall be made available 1-2 months after completion of the three-dose vaccination series to confirm immunity. If the titer results indicate inadequate immunity, the employee shall be counseled by a healthcare professional regarding revaccination and/or additional evaluation.

8. Post-Exposure Evaluation and Follow-Up

In the event of an exposure incident, the following procedures shall be followed immediately:

8.1 Immediate Actions

1. Wash the exposed area immediately with soap and running water. For mucous membrane exposure (eyes, nose, mouth), flush with clean water for at least 15 minutes.
2. Report the incident to the immediate supervisor and Program Administrator as soon as possible.
3. Complete the Post-Exposure Incident Report Form (see Appendix A).
4. The exposed employee shall be referred to a qualified healthcare professional for confidential medical evaluation.

8.2 Information Provided to Healthcare Professional

The following information shall be provided to the evaluating healthcare professional:

- A copy of 29 CFR 1910.1030
- A description of the employee's duties as they relate to the exposure
- Documentation of the route(s) of exposure and circumstances of the incident
- Results of the source individual's blood testing, if available and legally obtainable
- All medical records relevant to the appropriate treatment of the employee, including vaccination status

8.3 Healthcare Professional's Written Opinion

The employer shall obtain and provide the employee with a copy of the evaluating healthcare professional's written opinion within 15 days of the evaluation. The written opinion shall be limited to:

- Whether the Hepatitis B vaccination is indicated and if the employee has received it
- That the employee has been informed of the results of the evaluation
- That the employee has been told about any medical conditions resulting from the exposure that require further evaluation or treatment

NOTE: All other findings and diagnoses shall remain confidential and shall not be included in the written opinion.

9. Housekeeping and Decontamination

9.1 General Requirements

- All work areas shall be maintained in a clean and sanitary condition.
- A written cleaning schedule shall be established for each work area, identifying the method of decontamination based on the type of surface, soil present, and tasks performed.
- All equipment and environmental/working surfaces shall be cleaned and decontaminated after contact with blood or OPIM.

9.2 Blood Spill Cleanup Procedures

1. Restrict access to the contaminated area.
2. Don appropriate PPE (nitrile gloves, safety glasses, gown if needed).
3. Absorb visible blood/OPIM with disposable absorbent material.
4. Clean the area with soap and water.
5. Disinfect the area with an EPA-registered tuberculocidal disinfectant or a freshly prepared bleach solution (1:10 dilution of household bleach to water).
6. Place all contaminated materials in a labeled biohazard bag for proper disposal.
7. Remove and dispose of PPE in biohazard container. Wash hands thoroughly.

9.3 Regulated Waste Disposal

Contaminated waste shall be placed in closable, leak-proof containers or bags that are labeled with the biohazard symbol or color-coded red. Sharps shall be placed in puncture-resistant, labeled sharps containers. Disposal of regulated waste shall be handled by a licensed medical waste contractor.

10. Labels and Signs

Warning labels shall be affixed to containers of regulated waste, refrigerators/freezers containing blood or OPIM, and other containers used to store, transport, or ship blood or OPIM. Labels shall include the following:

- The biohazard symbol (fluorescent orange or orange-red)
- The word "BIOHAZARD"
- Labels shall be affixed to the container by string, wire, adhesive, or other method to prevent loss or unintentional removal

Red bags or red containers may be substituted for labels.

11. Training

[COMPANY NAME] shall ensure that all employees with occupational exposure receive training at the time of initial assignment and at least annually thereafter. Training shall be provided at no cost and during working hours.

11.1 Training Content

Training shall include, at a minimum:

- An accessible copy of 29 CFR 1910.1030 and an explanation of its contents
- A general explanation of the epidemiology, symptoms, and modes of transmission of bloodborne diseases
- An explanation of this Exposure Control Plan and how to obtain a copy
- Recognition of tasks that may involve exposure
- An explanation of the use and limitations of engineering controls, work practices, and PPE
- Information on the Hepatitis B vaccination program
- Emergency procedures for blood and OPIM exposure incidents
- Post-exposure evaluation and follow-up procedures
- Signs, labels, and color coding used at [COMPANY NAME]

11.2 Training Records

Training records shall include the date of training, content or summary of the training session, names and qualifications of trainer(s), and names and job titles of attendees. Records shall be maintained for a minimum of three (3) years from the date of training.

12. Recordkeeping

12.1 Medical Records

Medical records for each employee with occupational exposure shall be maintained in accordance with 29 CFR 1910.1020. Records shall include:

- Employee name and Social Security number

- Hepatitis B vaccination status and dates
- Results of examinations, medical testing, and follow-up procedures
- Healthcare professional's written opinion(s)
- A copy of information provided to the healthcare professional

Medical records shall be maintained for the duration of employment plus 30 years and are confidential.

12.2 Sharps Injury Log

A Sharps Injury Log shall be maintained to record percutaneous injuries from contaminated sharps. The log shall contain, at a minimum:

- Type and brand of device involved in the incident
- The department or work area where the incident occurred
- An explanation of how the incident occurred

The Sharps Injury Log shall be maintained for five (5) years from the date of the injury, and kept in a manner that protects employee confidentiality.

12.3 Annual Review

This Exposure Control Plan shall be reviewed and updated at least annually, and whenever new or revised tasks and procedures affect occupational exposure. The review shall consider:

- Changes in technology that eliminate or reduce exposure (e.g., safer needle devices)
- Documentation of employee input in identifying, evaluating, and selecting engineering and work practice controls
- Applicable new or revised regulatory requirements

Appendix A: Post-Exposure Incident Report Form

[COMPANY NAME]

Post-Exposure Incident Report Form

Date of Incident: _____

Time of Incident: _____

Location of Incident: _____

Name of Exposed Employee: _____

Job Title: _____

Supervisor Name: _____

Incident Description

Task Being Performed at Time of Exposure: _____

Route of Exposure (check all that apply):

- ☐ Needlestick / Sharps Injury
- ☐ Mucous Membrane (eyes, nose, mouth)
- ☐ Non-Intact Skin (cut, abrasion, dermatitis)
- ☐ Other: _____

Body Part(s) Affected: _____

Type and Brand of Device Involved (if sharps): _____

Description of How Incident Occurred: _____

Source Individual Information

Source Individual Name (if known): _____

Was source individual's blood tested? ☐ Yes ☐ No ☐ Refused ☐ Unknown

Results (if available): _____

Post-Exposure Actions Taken

- ☐ Area washed/flushed immediately
- ☐ Employee referred to healthcare professional
- ☐ Source individual blood testing requested
- ☐ Employee blood testing conducted

Healthcare Facility / Provider Name: _____

Date of Medical Evaluation: _____

Exposed Employee Signature

Date

Supervisor Signature

Date

Safety Manager Signature

Date

Hepatitis B Vaccine Declination Form

FORBES SAFETY SOLUTIONS

Compressed Gas Cylinder Safety Program

Safe Handling, Storage & Use of Compressed Gas Cylinders

Prepared for:

[COMPANY NAME]

Reference Standards:

29 CFR 1926.350 | 29 CFR 1910.101 | CGA P-1

Date: [DATE] | Revision: [REV NUMBER]

Table of Contents

1. Purpose

This Compressed Gas Cylinder Safety Program establishes requirements for the safe handling, storage, transportation, and use of compressed gas cylinders at [COMPANY NAME] in compliance with OSHA standards 29 CFR 1926.350 (Gas Welding and Cutting), 29 CFR 1910.101, and Compressed Gas Association (CGA) Pamphlet P-1.

Compressed gas cylinders present serious hazards including high-pressure release, asphyxiation, fire, explosion, and toxic exposure. This program ensures these hazards are controlled through proper procedures and training.

2. Scope

This program applies to all [COMPANY NAME] employees, contractors, and subcontractors who handle, store, transport, or use compressed gas cylinders including but not limited to:

- Oxygen, acetylene, argon, nitrogen, helium, CO2
- Propane, hydrogen, natural gas
- Specialty gases (calibration gases, medical gases)
- Compressed air cylinders

3. Responsibilities

3.1 Management

- Provide adequate storage facilities and handling equipment
- Ensure employees are trained before working with compressed gases
- Fund cylinder inspection, maintenance, and replacement

3.2 Safety Manager

- Develop and maintain this program
- Conduct training on compressed gas cylinder safety
- Perform periodic inspections of cylinder storage and use areas
- Maintain safety data sheets (SDS) for all compressed gases

3.3 Supervisors

- Enforce cylinder safety requirements in their work areas
- Ensure proper storage, handling, and use procedures are followed
- Remove unsafe cylinders from service

3.4 Employees

- Follow all procedures in this program
- Inspect cylinders before use
- Report damaged, leaking, or unidentified cylinders immediately
- Complete required training

4. Cylinder Identification

4.1 Labeling Requirements

Positive identification of the gas contents is essential before use. The following identification methods shall be used:

1. Read the label: The cylinder label or stenciled name is the **ONLY** reliable method of identifying contents
2. Check the SDS: Verify the safety data sheet matches the cylinder contents
3. DOT markings: Verify Department of Transportation markings on the cylinder shoulder

4.2 Color Coding Warning

IMPORTANT: Color coding of cylinders is **NOT** a reliable method of identification. Color codes vary between manufacturers and are not standardized across the industry. **NEVER** rely solely on cylinder color to identify contents.

- Always read the label or stencil on the cylinder
- If a label is missing, illegible, or the contents are uncertain, do **NOT** use the cylinder
- Tag unidentified cylinders as "Contents Unknown" and return to the supplier
- Never deface, remove, or alter cylinder labels or markings

5. Storage Requirements

5.1 General Storage Rules

- Store cylinders upright (vertical) and secured to prevent falling
- Chain, strap, or otherwise restrain cylinders to a wall, rack, or other stable structure
- Valve protection caps must be in place when cylinders are not in active use
- Store in well-ventilated areas, away from elevators, stairs, and gangways
- Protect from extreme heat, direct sunlight, and corrosive environments
- Keep away from electrical circuits, open flames, and ignition sources
- Post "No Smoking" signs in all cylinder storage areas

5.2 Separation of Fuel and Oxidizer Gases

Fuel gases (acetylene, propane, hydrogen) and oxidizers (oxygen) must be separated during storage:

- **Minimum 20-foot separation** between fuel gas cylinders and oxygen cylinders, OR
- **5-foot-high noncombustible barrier** with a fire-resistance rating of at least one-half hour between fuel and oxidizer storage

This requirement applies per 29 CFR 1926.350(a)(10) and CGA P-1.

5.3 Storage Area Organization

- Separate full cylinders from empty cylinders
- Label storage areas clearly: "FULL," "EMPTY," "IN USE"
- Use "first in, first out" (FIFO) rotation for cylinder inventory
- Do not store cylinders near exits or in locations that would block emergency egress
- Flammable gas storage rooms shall meet NFPA requirements for ventilation and electrical classification

6. Handling and Transport

6.1 Moving Cylinders

- Always use a suitable hand truck, cart, or cylinder trolley designed for cylinder transport
- Secure cylinders to the cart during transport
- Valve protection caps must be in place during transport
- Never drag, slide, or roll cylinders on their side

- Never drop cylinders or allow them to strike each other violently
- Never lift cylinders by the valve or valve protection cap
- Use a cradle, sling board, or pallet when hoisting cylinders by crane; never use a choker sling or electromagnet

6.2 Vehicle Transport

- Secure cylinders upright in a ventilated vehicle
- Do not transport in enclosed vehicle passenger compartments
- Keep valve protection caps in place
- Do not leave cylinders unattended in direct sunlight in a closed vehicle
- Follow DOT transportation regulations for quantities exceeding exempt amounts

7. Regulator Use

Regulators reduce the high cylinder pressure to a safe working pressure. Proper use is critical:

- Use only regulators and fittings designed for the specific gas and cylinder type
- Never use oil, grease, or lubricants on regulators, valves, or fittings (especially oxygen)
- Inspect regulator connections for damage before attaching to the cylinder
- Open cylinder valves slowly — "crack" the valve slightly before attaching the regulator to clear debris (except with acetylene or flammable gas in a confined area)
- Stand to the side of the regulator when opening the cylinder valve
- After attaching the regulator, check connections for leaks using approved leak-detection solution
- Never use Teflon tape on CGA connections (they are designed for metal-to-metal seal)
- Release pressure from regulators when not in use

8. Leak Testing

Test all connections for leaks after assembly using approved leak detection methods:

- Use a commercially available leak-detection solution (soapy water solution is acceptable)
- Apply solution to all connections; look for bubbles
- NEVER use a flame to check for leaks

- If a leak is detected at the valve, close the valve and attempt to tighten the packing nut gently
- If a leak cannot be stopped, move the cylinder to a well-ventilated area (outdoors if possible), tag it, and notify the supplier
- Evacuate the area if a large or uncontrollable leak occurs; contact emergency services

9. Prohibited Practices

The following practices are strictly prohibited:

- Using cylinders as rollers, supports, or for any purpose other than containing gas
- Dropping cylinders or allowing them to fall
- Heating cylinders to increase discharge pressure (using open flame, electric heat, steam)
- Tampering with safety relief devices
- Refilling cylinders — only authorized suppliers may refill
- Mixing gases in cylinders
- Using damaged, dented, corroded, or leaking cylinders
- Storing cylinders without valve protection caps when not connected to a system
- Using adapters to force incorrect regulators onto cylinders
- Using cylinders with unknown or unreadable contents
- Striking an arc on a cylinder

10. Acetylene-Specific Requirements

Acetylene presents unique hazards and requires special precautions per 29 CFR 1926.350(a) and CGA Pamphlet G-1:

- **Never exceed 15 psi gauge pressure** — acetylene becomes unstable and potentially explosive above 15 psig (approximately 29.4 psia). Regulators must be set to ensure working pressure stays below this limit.
- Always open acetylene cylinder valves slowly — no more than one and one-half turns
- Keep the wrench on the valve stem during use for quick shutoff in emergencies
- Do not use acetylene from a cylinder in a horizontal position — allow an upright cylinder that has been lying on its side to stand upright for a minimum of 30 minutes before use to allow the acetone to settle

- Acetylene cylinders contain porous mass and acetone — rough handling can damage the interior mass, creating voids where acetylene can decompose
- If an acetylene cylinder has been exposed to fire or excessive heat, evacuate the area (minimum 300 feet), call the fire department, and keep the cylinder cool with water if it can be done safely from a distance

11. Empty Cylinder Management

- Mark or tag empty cylinders clearly as "EMPTY" or "MT"
- Close the valve and replace the valve protection cap
- Store empty cylinders separately from full cylinders
- Return empty cylinders to the supplier promptly
- Treat "empty" cylinders with the same care as full cylinders — they still contain residual pressure and gas
- Never completely empty a cylinder — leave a slight positive pressure (25 psi minimum) to prevent contamination

12. Training

All employees who handle, transport, store, or use compressed gas cylinders shall be trained on:

4. Hazards of compressed gases (pressure, flammability, toxicity, asphyxiation, reactivity)
5. Proper cylinder identification (labeling, NOT color coding)
6. Storage requirements (upright, secured, separated by type)
7. Safe handling and transport procedures
8. Regulator use and leak testing
9. Prohibited practices
10. Acetylene-specific requirements
11. Empty cylinder management
12. Emergency procedures for leaks, fires, and cylinder damage

Training shall be provided before initial assignment and refreshed annually or when procedures change.

13. Recordkeeping

- Cylinder inventory records (type, quantity, location, supplier)
- Storage area inspection records
- Employee training records
- Incident/near-miss reports involving cylinders
- SDS for all compressed gases on-site

Appendix A: Compressed Gas Cylinder Inspection Checklist

Inspector Name: _____

Location / Job Site: _____

Date: _____

Individual Cylinder Inspection:

Item	Cyl. ID / Label	Gas Type	Cap On?	Secured ?	Condition	Leak?	In Date?	Pass/Fail

Inspection Criteria — Check each cylinder for:

- Readable label identifying contents
- Valve protection cap in place (when not in use)
- Cylinder secured upright and stable
- No visible damage (dents, gouges, corrosion, arc strikes, fire damage)
- No leaks (hissing sound, odor, frost formation)
- Hydrostatic test date within acceptable range

- Proper separation of fuel gases and oxidizers

Corrective Actions Taken:

Inspector Signature: _____

Date: _____

Appendix B: Storage Area Assessment Form

Location / Job Site: _____

Assessed By: _____

Date: _____

Storage Area Compliance Checklist:

Requirement	Yes	No	N/A	Comments
Cylinders stored upright and secured				
Valve protection caps in place on stored cylinders				
Fuel gases separated from oxidizers by 20 ft or 5-ft barrier				
Full and empty cylinders separated and labeled				
Storage area well-ventilated				
"No Smoking" signs posted				
Away from electrical circuits and ignition sources				
Protected from weather, direct sunlight, and extreme heat				
Away from elevators, stairs, and egress routes				
Fire extinguisher within 25 feet				
SDS available for all gases stored				
Cylinders protected from vehicle traffic				

Corrective Actions Required:

Assessor Signature: _____

Date: _____

Corrective Action Completed By: _____

Date Completed: _____

CONFINED SPACE ENTRY PROGRAM

Written Safety Program

[COMPANY NAME]

[Company Address]

[City, State ZIP]

[Phone Number]

Revision Date: [MM/DD/YYYY]

Revision Number: [1.0]

Prepared by Forbes Safety Solutions

Document Control

This document is the property of [COMPANY NAME]. It must be reviewed and updated at least annually or when conditions change.

Revision #	Date	Description of Change	Approved By
1.0	[Date]	Initial Release	[Name/Title]

Table of Contents

Note: Right-click and select "Update Field" to refresh the Table of Contents after editing.

1. Purpose and Scope

1.1 Purpose

The purpose of this Confined Space Entry Program is to establish the procedures and practices necessary to protect employees from the hazards of entry into permit-required confined spaces. This program complies with OSHA's Permit-Required Confined Spaces standard and provides a systematic approach to identifying confined spaces, evaluating their hazards, and implementing controls to ensure safe entry and work.

Confined spaces represent some of the most hazardous work environments. Atmospheric hazards, engulfment, entrapment, and other serious dangers claim an average of 92 worker lives each year. This program is designed to prevent such incidents at [COMPANY NAME].

1.2 Scope

This program applies to all [COMPANY NAME] employees, subcontractors, and temporary workers who may enter or work in or around confined spaces. This includes, but is not limited to:

- Storage tanks, process vessels, and silos
- Vaults, pits, and manholes
- Pipelines and ductwork large enough for employee entry
- Boilers, furnaces, and heat exchangers
- Sewers, storm drains, and underground utility vaults
- Hoppers, bins, and rail tank cars
- Excavations and trenches that meet confined space criteria
- Attic spaces, crawl spaces, and similar areas with limited access

1.3 Regulatory References

- 29 CFR 1910.146 – Permit-Required Confined Spaces (General Industry)
- 29 CFR 1926 Subpart AA – Confined Spaces in Construction
- 29 CFR 1910.147 – Control of Hazardous Energy (Lockout/Tagout)
- 29 CFR 1910.134 – Respiratory Protection
- 29 CFR 1910.1200 – Hazard Communication
- ANSI/ASSE Z117.1 – Safety Requirements for Confined Spaces
- NFPA 350 – Guide for Safe Confined Space Entry and Work

2. Definitions

Confined Space: A space that (1) is large enough and so configured that an employee can bodily enter and perform assigned work, (2) has limited or restricted means for entry or exit, and (3) is not designed for continuous employee occupancy.

Permit-Required Confined Space (PRCS): A confined space that has one or more of the following characteristics: (1) contains or has a potential to contain a hazardous atmosphere, (2) contains a material that has the potential for engulfing an entrant, (3) has an internal configuration such that an entrant could be trapped or asphyxiated, or (4) contains any other recognized serious safety or health hazard.

Non-Permit Confined Space: A confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

Acceptable Entry Conditions: Conditions that must exist in a permit space to allow safe entry and work. Includes atmospheric monitoring results within acceptable limits.

Atmospheric Testing: The process of monitoring the air within a confined space using calibrated direct-reading instruments to determine if the atmosphere is safe for entry.

Authorized Entrant: An employee who is authorized by the employer to enter a permit space.

Attendant: An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties.

Entry Supervisor: The person responsible for determining if acceptable entry conditions are present at a permit space, for authorizing entry, overseeing entry operations, and terminating entry.

Engulfment: The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance.

Hazardous Atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following: flammable gas/vapor/mist >10% of LEL; airborne combustible dust; oxygen <19.5% or >23.5%; atmospheric concentration of any substance exceeding its PEL; any other condition that is IDLH.

Hot Work: Operations capable of providing a source of ignition (e.g., riveting, welding, cutting, burning, heating).

Immediately Dangerous to Life or Health (IDLH): Any condition that poses an immediate or delayed threat to life, or that would cause irreversible adverse health effects, or that would interfere with an individual's ability to escape unaided from a permit space.

Isolation: The process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as blanking or blinding, misaligning or removing sections of lines, pipes, or ducts; a double block and bleed system; lockout or tagout; or blocking or disconnecting all mechanical linkages.

Inerting: The displacement of the atmosphere in a permit space by a noncombustible gas to such an extent that the resulting atmosphere is noncombustible. **WARNING:** An inerted space is IDLH and requires supplied air for entry.

Retrieval System: The equipment used for non-entry rescue of persons from permit spaces, including a retrieval line, chest or full-body harness, wristlets, and a mechanical device or fixed point sufficient to aid in rescue.

3. Roles and Responsibilities

3.1 Employer / Management

- Establish, implement, and maintain this Confined Space Entry Program
- Identify and evaluate all confined spaces in the workplace
- Inform employees of the existence, location, and danger of permit-required confined spaces by posting danger signs or other effective means
- Provide all necessary confined space entry equipment at no cost to employees
- Ensure all employees involved in confined space operations are properly trained
- Coordinate entry operations when both host employer and contractor employees will be working in or near permit spaces
- Conduct annual program review and update as necessary
- Ensure rescue services are available and capable of responding in a timely manner
- Maintain all required documentation and records

3.2 Entry Supervisor

- Know the hazards that may be faced during entry, including the mode, signs/symptoms, and consequences of exposure
- Verify that all tests specified by the permit have been conducted and that all procedures and equipment are in place before endorsing the permit and allowing entry
- Terminate the entry and cancel the permit when entry operations are completed or when a prohibited condition arises
- Verify that rescue services are available and that means for summoning them are operable
- Remove unauthorized individuals from the permit space or its vicinity
- Determine that entry operations remain consistent with the terms of the permit and acceptable entry conditions are maintained
- Ensure the permit is completed, signed, and posted at the entry point

3.3 Authorized Entrant

- Know the hazards that may be faced during entry, including the mode, signs/symptoms, and consequences of exposure
- Properly use all equipment as required (PPE, monitoring equipment, communications, rescue equipment)
- Communicate with the attendant as necessary so the attendant can monitor entrant status and alert entrants to evacuate if necessary
- Alert the attendant when the entrant recognizes any warning sign or symptom of a dangerous condition or detects a prohibited condition

- Exit the permit space as quickly as possible when ordered to evacuate, when recognizing signs of exposure, when a prohibited condition exists, or when an evacuation alarm is activated

3.4 Attendant

- Know the hazards that may be faced during entry, including the mode, signs/symptoms, and consequences of exposure
- Remain outside the permit space during entry operations and maintain an accurate count of entrants
- Maintain effective and continuous communication with authorized entrants
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain
- Order the entrants to evacuate immediately if a prohibited condition is detected, if behavioral effects of exposure are observed, if a situation outside the space could endanger entrants, or if the attendant cannot effectively perform all required duties
- Summon rescue and emergency services as soon as it is determined that entrants may need assistance
- Perform non-entry rescue procedures as specified in the rescue plan
- Do NOT enter the permit space for any reason unless relieved by another authorized attendant
- Keep unauthorized persons from entering the permit space
- Inform entrants and the entry supervisor if unauthorized persons enter the space

4. Confined Space Entry Procedures

4.1 Space Identification and Evaluation

[COMPANY NAME] shall identify all confined spaces in the workplace using the Space Inventory Form (Appendix C). Each space shall be evaluated to determine if it is a permit-required confined space. The evaluation shall consider:

- Configuration and physical characteristics of the space
- Potential for hazardous atmospheres (from the process, materials stored, adjacent operations, or the space itself)
- Potential for engulfment by stored materials
- Internal configuration hazards (inwardly converging walls, floors that slope to a smaller cross-section)
- Other recognized serious hazards (mechanical, electrical, hydraulic, thermal, chemical)
- Historical information about the space (previous incidents, materials processed)

Spaces shall be re-evaluated whenever conditions change, processes are modified, or new information about the space becomes available.

4.2 Permit System

A Confined Space Entry Permit (Appendix A) shall be completed and authorized before any employee enters a permit-required confined space. The permit shall include:

- Space identification and location
- Purpose of entry and authorized duration
- Date and time of entry authorization and expiration
- Names of authorized entrants, attendants, and the entry supervisor
- Hazards of the permit space
- Measures used to isolate the permit space and eliminate or control hazards (lockout/tagout, ventilation, etc.)
- Acceptable entry conditions (atmospheric limits, temperature, etc.)
- Results of initial and periodic atmospheric tests with tester's initials
- Rescue and emergency services and how to summon them
- Communication procedures between entrants and attendants
- Equipment required (PPE, testing, communications, lighting, barriers)
- Hot work permit number (if applicable)
- Any other permits issued in connection with the entry (e.g., hot work, lockout/tagout)

The permit shall be posted at the entry point and shall be valid for one work shift only. Permits shall be canceled when entry operations are completed or when a prohibited condition arises. Canceled permits shall be retained for at least one year for program review.

4.3 Atmospheric Testing

Atmospheric testing is mandatory before any entry into a permit-required confined space and shall continue throughout the duration of entry. Testing shall be performed in the following order:

4.3.1 Testing Sequence

Atmospheric testing shall always be performed in this specific order:

- 1. OXYGEN (O₂) — Test first because combustible gas meters require adequate oxygen to function accurately. Acceptable range: 19.5% to 23.5%.
- 2. COMBUSTIBLE GASES (LEL) — Test second. Acceptable level: Less than 10% of the Lower Explosive Limit (LEL).
- 3. TOXIC GASES — Test third. Common toxic gases and their Permissible Exposure Limits include: Hydrogen Sulfide (H₂S): Less than 10 ppm; Carbon Monoxide (CO): Less than 25 ppm. Additional toxic substances shall be tested based on the specific hazards of the space.

4.3.2 Atmospheric Monitoring Requirements

- Testing shall be conducted at multiple levels within the space (top, middle, bottom) because gases stratify by weight
- Initial testing shall be performed from outside the space using remote probes or sampling lines
- Continuous monitoring shall be maintained throughout the duration of the entry
- If continuous monitoring is not feasible, periodic monitoring shall be conducted at intervals not exceeding 15 minutes
- All atmospheric monitoring results shall be documented on the Atmospheric Testing Log (Appendix B) and on the entry permit
- If the atmosphere is found to be outside acceptable limits at any time, all entrants shall immediately evacuate the space

4.3.3 Acceptable Atmospheric Conditions

Atmospheric Hazard	Acceptable Level	Action Level	IDLH Level
Oxygen (O ₂)	19.5% – 23.5%	< 19.5% or > 23.5%	< 16%
Combustible Gas (LEL)	< 10% LEL	≥ 10% LEL	≥ 20% LEL
Hydrogen Sulfide (H ₂ S)	< 10 ppm	≥ 10 ppm	100 ppm
Carbon Monoxide (CO)	< 25 ppm	≥ 25 ppm	1,200 ppm

4.3.4 Instrument Calibration

All atmospheric monitoring instruments shall be:

- Calibrated according to the manufacturer's instructions before each day of use (bump test minimum)
- Full calibration performed at intervals specified by the manufacturer (typically monthly or per manufacturer's schedule)
- Calibrated using certified calibration gas that is traceable to NIST standards
- Maintained with current calibration records that include date, gas concentrations used, and person performing calibration
- Removed from service immediately if calibration fails or if the instrument is damaged
- Replaced or repaired by qualified personnel only

4.4 Ventilation

Mechanical ventilation shall be provided to maintain acceptable atmospheric conditions within the permit space:

- Forced-air ventilation shall be used to maintain oxygen levels within the acceptable range and to reduce concentrations of toxic and combustible gases below action levels
- Ventilation equipment shall be positioned to direct fresh air into the space and to avoid recirculating contaminated air
- The air supply for ventilation shall be from a clean source — never from areas where contaminants may be present
- Ventilation shall be started before entry and continued for a sufficient time to purge the space before the initial entry
- Ventilation shall continue throughout the duration of entry operations
- If ventilation is interrupted, all entrants shall evacuate and the space shall be re-tested before re-entry
- Natural ventilation alone is generally NOT sufficient for permit-required confined spaces

4.5 Isolation and Lockout/Tagout

Before entry, the permit space shall be isolated from all energy sources and material inputs:

- All pipes, lines, and ducts carrying materials into the space shall be blanked, blinded, disconnected, or double block-and-bleed
- All mechanical equipment within the space shall be locked out and tagged out per 29 CFR 1910.147
- Electrical energy sources shall be de-energized and locked out
- Hydraulic, pneumatic, and other stored energy sources shall be relieved, blocked, and secured
- Physical barriers shall be used where blanking/blinding is not feasible

- The entry supervisor shall verify all isolation and LOTO measures before authorizing entry

4.6 Rescue Procedures

[COMPANY NAME] shall ensure that rescue services are available for confined space emergencies. The following rescue hierarchy shall be used:

4.6.1 Non-Entry Rescue (Preferred)

Non-entry rescue is the preferred rescue method and shall be used whenever possible:

- Each authorized entrant shall wear a chest or full-body harness with a retrieval line attached to the center of the back near shoulder level, above the head, or at another point approved by the manufacturer
- The other end of the retrieval line shall be attached to a mechanical retrieval device or fixed point outside the space
- The retrieval system shall be configured so that rescue can begin as soon as the need is recognized
- A mechanical retrieval device (tripod with winch) shall be available at vertical entries exceeding 5 feet in depth
- Retrieval lines shall be managed to prevent entanglement and to maintain the ability to retrieve the entrant at all times

4.6.2 Entry Rescue

If non-entry rescue is not feasible or fails, entry rescue shall be performed only by trained rescue personnel:

- Entry rescuers shall be trained in CPR, first aid, and the use of rescue equipment including SCBA/SAR
- Rescuers shall practice rescue operations at least once every 12 months using simulated confined space conditions
- Rescue services shall be capable of responding within a timeframe appropriate to the identified hazards
- If using a third-party rescue service (fire department, etc.), [COMPANY NAME] shall evaluate the service's capabilities, response time, and ability to function in the specific permit spaces
- Rescue personnel shall be provided with all information about the space, its hazards, and the conditions of the entrants
- Rescuers entering the space shall be treated as authorized entrants and all entry procedures shall apply

4.7 Contractor Coordination

When [COMPANY NAME] hires contractors to perform confined space work on company premises, the following coordination shall occur:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program
- Apprise the contractor of the hazards identified in the specific permit space(s)
- Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces
- Coordinate entry operations with the contractor when both host and contractor employees will be working in or near the same permit space
- Debrief the contractor after entry operations regarding any hazards confronted or created during entry
- Obtain the contractor's confined space program and entry procedures for review

5. Training Requirements

5.1 General Training

All employees who may be involved in confined space operations shall receive training appropriate to their assigned duties. Training shall be provided before the employee is first assigned duties involving confined spaces and before there is a change in assigned duties.

5.2 Training by Role

5.2.1 Authorized Entrant Training

- Recognition of confined space hazards (atmospheric, physical, engulfment, entrapment)
- Signs, symptoms, and consequences of exposure to atmospheric hazards
- Proper use of atmospheric monitoring equipment
- Proper use of personal protective equipment (PPE), including respiratory protection
- Communication procedures with the attendant
- Emergency and self-rescue procedures
- Prohibition against unauthorized self-rescue by other entrants

5.2.2 Attendant Training

- All topics covered in Authorized Entrant Training
- Duties and responsibilities of the attendant role
- Procedures for summoning rescue and emergency services
- Non-entry rescue procedures and equipment use
- Maintaining an accurate count and identity of entrants
- Recognizing behavioral effects of hazard exposure in entrants
- Procedures for preventing unauthorized entry

5.2.3 Entry Supervisor Training

- All topics covered in Authorized Entrant and Attendant Training
- Permit completion, authorization, and cancellation procedures
- Hazard assessment and acceptable entry condition verification
- Coordination of entry operations and multi-employer communication
- Authority to terminate entry and cancel permits
- Program administration and documentation requirements

5.2.4 Rescue Team Training

- All topics covered in Authorized Entrant Training
- CPR and first aid certification (current)

- Use of rescue equipment (retrieval systems, SCBA/SAR, patient packaging)
- Practice rescue operations at least once every 12 months using simulated conditions representative of actual permit spaces
- Recognition and treatment of medical emergencies common to confined space incidents

5.3 Retraining

Retraining shall be provided when:

- Job duties change or new confined spaces are introduced
- A change in permit space operations creates a hazard about which the employee has not been trained
- The employer has reason to believe there are deviations from the entry procedures or inadequacies in the employee's knowledge
- After any confined space incident or near miss
- At minimum, annual refresher training shall be provided to maintain competency

5.4 Training Documentation

Training records shall include: employee name and signature, date(s) of training, trainer name and qualifications, topics covered, and duration. Records shall be maintained for the duration of employment plus three years. Use the Training Sign-Off Sheet (Appendix E) to document each session.

6. Inspection and Audit Procedures

6.1 Permit Review

[COMPANY NAME] shall review canceled entry permits within one year of each entry to ensure that the program is protecting employees. The review shall evaluate:

- Whether the permit procedures were followed correctly
- Whether the atmospheric testing results were within acceptable limits
- Whether rescue provisions were adequate
- Whether any problems or deviations occurred during entry
- Whether any corrective actions are needed to improve the program

6.2 Annual Program Audit

A comprehensive audit of the entire Confined Space Entry Program shall be conducted annually. The audit shall be performed by a person knowledgeable about confined space entry and shall evaluate:

- Space inventory accuracy and completeness
- Permit adequacy and compliance
- Atmospheric monitoring procedures and instrument calibration records
- Training adequacy and currency of all involved employees
- Rescue plan effectiveness and rescue drill results
- Equipment condition and availability
- Contractor coordination effectiveness
- Incident and near-miss investigation results and corrective actions
- Compliance with applicable OSHA standards

6.3 Equipment Inspection

All confined space entry equipment shall be inspected before each use and maintained per manufacturer specifications:

- Atmospheric monitoring instruments — daily bump test, monthly full calibration
- Ventilation equipment — functional test, power source verification
- Retrieval systems (tripod, winch) — mechanical inspection, cable/harness check
- Communication equipment — functional test before each entry
- Respiratory protection — inspection per 29 CFR 1910.134
- Personal protective equipment — visual inspection for damage, proper fit verification
- Lighting — functional test, intrinsically safe verification where required

7. Documentation and Recordkeeping

[COMPANY NAME] shall maintain the following records:

Record Type	Retention Period	Responsible Party
Confined Space Inventory	Duration of space existence + 1 year	Safety Manager
Entry Permits (canceled)	Minimum 1 year	Entry Supervisor
Atmospheric Testing Logs	1 year minimum (retain with permit)	Entry Supervisor
Instrument Calibration Records	Duration of instrument service + 1 year	Safety Manager
Training Records	Duration of employment + 3 years	Safety Manager
Rescue Drill Records	5 years minimum	Safety Manager
Incident/Near Miss Reports	5 years minimum	Safety Manager
Annual Program Audit Reports	5 years minimum	Management
Contractor Coordination Records	Duration of contract + 1 year	Safety Manager

All records shall be readily accessible for review by OSHA compliance officers, employees, and their designated representatives.

Appendix A: Confined Space Entry Permit

Field	Information
Permit Number:	[]
Space Name/ID:	[]
Space Location:	[]
Purpose of Entry:	[]
Date of Entry:	[]
Time Authorized:	[] Time Expires: []

Personnel

Role	Name(s)
Entry Supervisor:	
Authorized Entrant(s):	
Attendant(s):	
Rescue Team/Service:	

Hazard Identification

- ☐ Hazardous Atmosphere ☐ Oxygen Deficiency ☐ Oxygen Enrichment
- ☐ Flammable Gas/Vapor ☐ Toxic Gas/Vapor ☐ Combustible Dust
- ☐ Engulfment Hazard ☐ Entrapment Hazard ☐ Mechanical Hazard
- ☐ Electrical Hazard ☐ Thermal Hazard ☐ Noise Hazard
- ☐ Falling Object Hazard ☐ Slip/Trip/Fall Hazard ☐ Other: _____

Hazard Control Measures

- ☐ Lockout/Tagout completed ☐ Lines blanked/blinded/disconnected
- ☐ Mechanical ventilation in place ☐ Continuous atmospheric monitoring
- ☐ Pedestrian/vehicle barricades ☐ Hot work permit issued (#____)
- ☐ Retrieval system in place ☐ Communication system verified
- ☐ Emergency services notified ☐ Other: _____

Atmospheric Test Results

Time	O ₂ (%)	LEL (%)	H ₂ S (ppm)	CO (ppm)	Other	Tester Initials

Required PPE / Equipment

- ☐ Hard Hat ☐ Safety Glasses ☐ Hearing Protection ☐ Gloves (Type: ____)
- ☐ Steel-Toe Boots ☐ FR Clothing ☐ Chemical-Resistant Suit
- ☐ Full-Body Harness with Retrieval Line ☐ SCBA ☐ SAR (Supplied Air)
- ☐ Explosion-Proof Lighting ☐ GFCI Protected Power ☐ Radio/Communication
- ☐ Multi-Gas Monitor ☐ Tripod/Winch ☐ Other: _____

Authorization

I verify that all precautions have been taken, acceptable entry conditions exist, and rescue services are available.

Entry Supervisor Signature: _____ Date/Time: _____

Permit Canceled By: _____ Date/Time: _____

Reason for Cancellation: ☐ Work Complete ☐ Prohibited Condition ☐ Shift Change ☐ Other:

Appendix B: Atmospheric Testing Log

Field	Information
Space Name/ID:	[]
Permit Number:	[]
Date:	[]
Monitor Make/Model:	[]
Monitor Serial #:	[]
Last Calibration Date:	[]
Bump Test Performed:	☐ Yes ☐ No Time: [] By: []

Monitoring Results

Test at top, middle, and bottom of space. Record all readings.

Time	Level (T/M/B)	O ₂ (%)	LEL (%)	H ₂ S (ppm)	CO (ppm)	Other (specify)	Tester Initials

Acceptable Limits: O₂: 19.5–23.5% | LEL: <10% | H₂S: <10 ppm | CO: <25 ppm

Tester Signature: _____ Date: _____

Appendix C: Confined Space Inventory Form

This inventory shall be reviewed and updated at least annually. All spaces shall be evaluated to determine permit-required status.

Space ID #	Space Name / Description	Location	Permit Required? (Y/N)	Primary Hazards	Last Evaluation Date	Evaluated By

Inventory Completed By: _____ Date: _____

Reviewed By: _____ Date: _____

Appendix D: Pre-Entry Checklist

Field	Information
Space Name/ID:	[]
Permit Number:	[]
Date:	[]
Entry Supervisor:	[]

Pre-Entry Verification

#	Item	Yes	No	N/A	Initials
1	Has the space been identified and evaluated?				
2	Has the entry permit been completed and authorized?				
3	Have all entrants, attendants, and supervisors been trained?				
4	Has the space been isolated (LOTO, blanking, blinding)?				
5	Has atmospheric testing been performed (O ₂ , LEL, toxics)?				
6	Are atmospheric readings within acceptable limits?				
7	Is mechanical ventilation in place and operating?				
8	Is continuous atmospheric monitoring available?				
9	Is the retrieval system set up and operational?				
10	Is rescue equipment on-site and ready for use?				
11	Has the rescue service been notified/confirmed?				
12	Is communication equipment tested and working?				
13	Is all required PPE available and properly fitted?				
14	Are barricades/barriers in place around the entry point?				
15	Is the entry permit posted at the entry point?				
16	Has a pre-entry safety briefing been conducted?				
17	Is hot work permit issued (if applicable)?				
18	Is adequate lighting available (intrinsically safe if required)?				

Entry Supervisor Signature: _____ Date: _____

Appendix E: Training Sign-Off Sheet

Field	Information
Training Topic:	Confined Space Entry Program
Training Date:	[]
Training Location:	[]
Trainer Name:	[]
Trainer Qualifications:	[]
Training Duration:	[]

Topics Covered

- ☐ Confined space identification and classification
- ☐ Permit system and entry procedures
- ☐ Atmospheric testing procedures and instrument operation
- ☐ Ventilation requirements and procedures
- ☐ Roles and responsibilities (entrant, attendant, supervisor)
- ☐ Isolation and lockout/tagout requirements
- ☐ Rescue procedures (non-entry and entry rescue)
- ☐ Personal protective equipment use
- ☐ Emergency procedures and evacuation
- ☐ Applicable OSHA standards (29 CFR 1910.146, 1926 Subpart AA)

Employee Acknowledgment

By signing below, I acknowledge that I have received training in the above topics, understand the material presented, had the opportunity to ask questions, and agree to comply with the confined space entry requirements of [COMPANY NAME].

#	Employee Name (Print)	Employee Signature	Date	Role Trained (E/A/S/R)

E = Entrant | A = Attendant | S = Supervisor | R = Rescue

Trainer Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

Permit-Required Confined Space Entry Program

Enhanced/Comprehensive

Prepared for:
[COMPANY NAME]

Regulatory References:
29 CFR 1910.146 | 29 CFR 1926 Subpart AA

Effective Date: [DATE]
Review Date: [ANNUAL REVIEW DATE]

Table of Contents

1. Purpose and Scope

This Permit-Required Confined Space Entry Program establishes comprehensive procedures for the safe identification, evaluation, and entry of permit-required confined spaces at [COMPANY NAME] worksites. This program applies to all employees, contractors, and subcontractors who may enter, supervise, or support confined space entry operations.

This enhanced program exceeds minimum regulatory requirements by incorporating best practices for atmospheric monitoring, rescue planning, contractor coordination, and annual program review to ensure the highest level of worker protection.

2. Regulatory References

- 29 CFR 1910.146 — Permit-Required Confined Spaces (General Industry)
- 29 CFR 1926 Subpart AA — Confined Spaces in Construction
- ANSI/ASSE Z117.1 — Safety Requirements for Confined Spaces
- NFPA 350 — Guide for Safe Confined Space Entry and Work
- OSHA Confined Space CPL Directive

3. Definitions

Confined Space:

A space that: (1) is large enough for an employee to enter and perform work; (2) has limited or restricted means of entry or exit; and (3) is not designed for continuous employee occupancy.

Permit-Required Confined Space (PRCS):

A confined space that has one or more of the following characteristics: (1) contains or has the potential to contain a hazardous atmosphere; (2) contains a material that has the potential to engulf an entrant; (3) has an internal configuration such that an entrant could be trapped or asphyxiated; or (4) contains any other recognized serious safety or health hazard.

Atmospheric Hazard:

An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following: flammable gas/vapor/mist >10% LEL, airborne combustible dust, oxygen <19.5% or >23.5%, atmospheric concentration of any substance exceeding its PEL.

Entry:

The action by which any part of an employee's body breaks the plane of an opening into a permit-required confined space.

Alternate Entry Procedures:

Entry procedures used when the employer can demonstrate that the only hazard in the space is a controlled atmospheric hazard that can be eliminated through continuous forced air ventilation alone.

4. Roles and Responsibilities

4.1 Employer / Program Administrator

- Develop, implement, and maintain this written confined space program
- Designate a Confined Space Program Administrator
- Ensure adequate resources for equipment, training, and rescue services
- Conduct annual program reviews and updates
- Maintain the confined space inventory

4.2 Entry Supervisor

- Verify all entry conditions and authorize entry by signing the permit
- Ensure all pre-entry testing is completed and documented
- Ensure rescue services are available and have been notified
- Cancel the entry permit and terminate entry when conditions warrant
- Remove unauthorized individuals from the area
- Ensure acceptable entry conditions are maintained throughout entry

4.3 Authorized Entrant

- Know the hazards and symptoms of exposure
- Use equipment properly (PPE, communication, monitoring)
- Communicate with attendant continuously
- Alert the attendant when warning signs or symptoms are recognized
- Exit the space immediately when ordered or when hazards are detected

4.4 Attendant

- Remain at the entry point at all times during entry operations
- Monitor entrants and conditions inside and outside the space
- Maintain an accurate count of all entrants in the space
- Order evacuation when conditions warrant
- Summon rescue services when needed — never enter the space for rescue
- Prevent unauthorized entry

4.5 Rescue Team

- Be trained and equipped for confined space rescue operations
- Practice rescue from representative spaces at least annually
- Be available within an appropriate response time
- Ensure at least one member is trained in first aid and CPR

5. Confined Space Identification and Inventory

A comprehensive survey shall be conducted of all worksite areas to identify confined spaces. Each identified space shall be:

1. Documented in the Confined Space Inventory Log (Appendix B)
2. Evaluated for permit-required characteristics
3. Classified as permit-required or non-permit confined space
4. Marked with appropriate warning signage: "DANGER — PERMIT-REQUIRED CONFINED SPACE — DO NOT ENTER"
5. Re-evaluated whenever conditions change or at least annually

Common confined spaces include but are not limited to: manholes, vaults, tanks, vessels, silos, bins, hoppers, pits, pipelines, trenches, excavations, tunnels, and ductwork.

6. Hazard Assessment

Prior to any entry, a thorough hazard assessment shall be conducted for each permit-required confined space. The assessment shall evaluate:

- Atmospheric hazards (toxic, flammable, oxygen-deficient/enriched)
- Physical hazards (engulfment, entrapment, moving parts, energized equipment)
- Chemical hazards (residual materials, cleaning agents)
- Biological hazards (mold, bacteria, animal waste)
- Thermal hazards (extreme heat/cold)
- Noise hazards
- Configuration hazards (converging walls, sloped floors)

The hazard assessment shall be documented on the entry permit and reviewed with all entry personnel before entry begins.

7. Atmospheric Testing and Monitoring

7.1 Testing Requirements

Atmospheric testing shall be conducted before entry and continuously during entry operations. Testing shall be performed in the following order:

1. Oxygen (O₂) — test first, as other sensors require adequate oxygen to function
2. Combustible gases (LEL) — test second
3. Toxic gases (H₂S, CO, and others as identified) — test third

Testing shall be conducted at multiple levels within the space (top, middle, bottom) to account for stratification of gases.

7.2 Acceptable Atmospheric Levels

Parameter	Acceptable Level	Action Level	IDLH
Oxygen (O ₂)	19.5% – 23.5%	< 19.5% or > 23.5%	< 16%
LEL (Combustible Gas)	< 10% LEL	≥ 10% LEL	≥ 20% LEL
Hydrogen Sulfide (H ₂ S)	< 10 ppm	≥ 10 ppm	100 ppm
Carbon Monoxide (CO)	< 25 ppm	≥ 25 ppm	1,200 ppm
Sulfur Dioxide (SO ₂)	< 2 ppm	≥ 2 ppm	100 ppm
Ammonia (NH ₃)	< 25 ppm	≥ 25 ppm	300 ppm

7.3 Instrument Calibration

All atmospheric monitoring instruments shall be calibrated according to manufacturer specifications and at minimum before each day of use with known concentration calibration gas. Calibration records shall be maintained.

8. Ventilation Requirements

Mechanical ventilation shall be used to control atmospheric hazards within permit-required confined spaces:

- Forced air ventilation shall supply clean, breathable air to the space
- Ventilation equipment shall be positioned to prevent recirculation of contaminated air
- Air supply intake shall be located in a clean air zone away from exhaust or contamination sources
- Ventilation shall operate continuously during entry when used as an atmospheric control measure
- Ventilation alone does not eliminate the need for atmospheric monitoring

Ventilation rate shall be sufficient to maintain atmospheric conditions within acceptable levels as defined in Section 7.2.

9. Entry Permit System

No employee shall enter a permit-required confined space without a valid, signed entry permit. The permit shall include:

- Space identification and location
- Purpose of entry and authorized duration
- Names of authorized entrants, attendants, and entry supervisor
- Hazards of the space and control measures
- Atmospheric monitoring results (pre-entry and continuous)
- Rescue and emergency procedures and contact information
- Communication procedures
- Equipment required (PPE, ventilation, lighting, barriers)
- Hot work permit number (if applicable)
- Lockout/tagout verification

Permits are valid for one shift only and shall be posted at the entry point. Completed permits shall be retained for at least one year for annual program review. A comprehensive entry permit form is provided in Appendix A.

10. Entry Procedures

10.1 Pre-Entry Checklist

1. Conduct a pre-entry briefing with all entry team members
2. Complete lockout/tagout/isolation of all energy sources
3. Verify rescue services are available and have been notified
4. Test the atmosphere — O₂, LEL, H₂S, CO (in that order, at multiple levels)

5. Verify ventilation equipment is operational
6. Ensure all required PPE and equipment is available and inspected
7. Complete and sign the entry permit
8. Post the permit at the entry point
9. Establish communication between entrant(s) and attendant
10. Verify barriers and signage are in place

10.2 During Entry

- Continuous atmospheric monitoring shall be maintained
- The attendant shall maintain communication with entrants at all times
- The attendant shall maintain an accurate count of entrants
- The entry supervisor shall periodically verify conditions remain acceptable
- If any atmospheric reading exceeds acceptable levels, all entrants shall immediately evacuate

10.3 Post-Entry

- All tools and equipment shall be removed from the space
- A head count of all entrants shall be verified
- The space shall be secured against unauthorized re-entry
- The entry permit shall be closed out with time and signature
- The completed permit shall be filed for record retention

11. Communication Procedures

Effective communication shall be established and maintained between the attendant and entrants throughout the entry operation. Acceptable communication methods include:

- Voice communication (direct or hands-free radio)
- Visual contact
- Hardwired intercom or telephone
- Rope signals (tug-line) — as a secondary backup only

Communication shall be tested before entry begins. If communication is lost at any time, entrants shall immediately evacuate the space.

12. Rescue and Emergency Services

12.1 Rescue Planning

Rescue planning shall be completed before any entry operation begins. The entry employer shall evaluate and select the appropriate rescue method:

- Self-rescue: entrant exits the space independently using retrieval systems
- Non-entry rescue: entrant is retrieved without another person entering the space (e.g., retrieval line and tripod)
- Entry rescue: trained rescuers enter the space to recover the entrant

12.2 On-Site Rescue Team

When on-site rescue is designated, the rescue team shall:

- Be trained in confined space rescue and first aid/CPR
- Practice making permit space rescues at least once every 12 months using representative simulated conditions
- Be equipped with appropriate PPE and rescue equipment
- Be notified prior to each entry and remain on standby

12.3 Off-Site Rescue Service

When relying on off-site rescue services, the employer shall:

- Evaluate the rescue service's ability to respond in a timely manner
- Document response time — rescue must be achievable within a timeframe appropriate to the identified hazards
- Provide the rescue service with access to the space for practice and planning
- Ensure the rescue service is informed of the hazards of each space
- Verify annually that the service is capable and willing to respond

12.4 Retrieval Systems

Each authorized entrant shall use a chest or full-body harness with a retrieval line attached to a mechanical retrieval device or fixed anchor point when entering vertical spaces deeper than 5 feet. Wristlets may be used as an alternative if the employer can demonstrate that a harness is infeasible or creates a greater hazard.

13. Alternate Entry Procedures (Reclassification)

A permit-required confined space may be reclassified as a non-permit confined space under the following conditions (per 29 CFR 1910.146(c)(7)):

1. The space poses no actual or potential atmospheric hazards, OR
2. All hazards within the space are eliminated without entry, OR
3. The only hazard is a controlled atmospheric hazard that can be eliminated by continuous forced air ventilation alone (alternate entry per 1910.146(c)(5))

For alternate entry procedures:

- Continuous forced air ventilation shall be maintained throughout entry
- Atmospheric testing shall demonstrate the space is safe before entry
- A full entry permit is not required, but documentation of conditions and ventilation shall be maintained
- If hazards arise during entry, all entrants shall exit and the space reverts to permit-required status

14. Contractor Coordination

When contractors perform permit-required confined space entry at [COMPANY NAME] worksites:

14.1 Host Employer Responsibilities

- Inform contractors of permit-required confined spaces and their hazards
- Inform contractors of any precautions or procedures that the host has implemented for the protection of employees in or near the spaces
- Coordinate entry operations when both host and contractor employees will be working in or near the space
- Debrief the contractor at the conclusion of entry operations regarding any hazards encountered

14.2 Contractor Responsibilities

- Obtain all available information from the host employer about the confined space hazards
- Ensure contractor employees are properly trained and equipped
- Inform the host employer of the permit space program the contractor will follow
- Inform the host employer of any hazards encountered or created during entry

15. Training

All employees involved in confined space operations shall receive training before initial assignment and whenever there is a change in duties, a change in space conditions, or inadequacies in the program are identified. Training shall cover:

15.1 All Affected Employees

- Hazards of confined spaces and recognition of symptoms
- This written program and its requirements
- Prohibition against unauthorized entry

15.2 Authorized Entrants

- All items above plus:
- Proper use of atmospheric monitoring equipment
- Proper use of PPE and rescue equipment
- Communication procedures
- Emergency and evacuation procedures

15.3 Attendants

- Duties and responsibilities of attendants
- Emergency notification procedures
- Non-entry rescue techniques
- When to order evacuation

15.4 Entry Supervisors

- All entrant and attendant training
- Permit completion and authorization
- Hazard assessment and control evaluation
- Permit cancellation and termination of entry

15.5 Rescue Team Members

- All entrant training
- Confined space rescue techniques
- First aid and CPR (current certification)
- Annual practice rescue drills from representative spaces

16. Annual Program Review

[COMPANY NAME] shall review this confined space program at least annually, using the cancelled entry permits retained from the previous 12 months. The review shall evaluate:

- Whether the program adequately protects employees
- Any deficiencies identified during entry operations
- Incidents, near-misses, or rescue events
- Changes in confined space inventory
- Employee feedback and training effectiveness
- Equipment condition and adequacy

The review shall be documented and any revisions to the program shall be implemented promptly.

17. Recordkeeping

- Entry permits: retained for at least one year
- Training records: maintained for duration of employment
- Atmospheric monitoring calibration records: maintained for 3 years
- Confined space inventory: updated annually and when conditions change
- Annual program review documentation: retained for 5 years
- Rescue service evaluations: retained for 3 years
- Incident and near-miss reports: retained for 5 years

Appendix A: Confined Space Entry Permit

(Comprehensive Fillable Form)

Permit Number:	
Date:	
Space Location/ID:	
Purpose of Entry:	
Entry Supervisor:	
Phone/Radio:	
Estimated Entry Time:	
Estimated Exit Time:	

Authorized Personnel

Role	Name	Signature
Entrant #1		
Entrant #2		
Entrant #3		
Attendant #1		
Attendant #2		
Entry Supervisor		

Hazard Assessment

Hazard	Present? (Y/N)	Controls in Place
Atmospheric (toxic/flammable)		
Oxygen deficiency/enrichment		
Engulfment		
Entrapment		
Mechanical/moving parts		
Electrical		
Thermal extremes		
Other:		

Pre-Entry Atmospheric Monitoring

Parameter	Reading #1 (Top)	Reading #2 (Mid)	Reading #3 (Bottom)	Acceptable?
O ₂ (%)				
LEL (%)				
CO (ppm)				
H ₂ S (ppm)				
Other:				

Instrument Make/Model: _____ Serial #: _____ Last Calibration: _____

Required Equipment Checklist

Equipment	Available? (Y/N)	Equipment	Available? (Y/N)
Atmospheric monitor		Ventilation blower	
Retrieval system/tripod		Communication equipment	
Full-body harness		Fire extinguisher	
SCBA/SAR		Barricades/signage	
Lighting		GFCI for all electrical	

Lockout/Tagout Verification

All energy sources isolated and locked out? ☐ Yes ☐ No

LOTO verified by: _____ Time: _____

Rescue Provisions

☐ On-site rescue team on standby ☐ Off-site rescue service notified

Rescue Service Contact: _____ Phone: _____

Estimated Response Time: _____

Authorization

I have reviewed conditions and authorize entry into this confined space.

Entry Supervisor Signature: _____ Date/Time: _____

Permit Closure

All entrants have exited: ☐ Yes Space secured: ☐ Yes

Closed by: _____ Date/Time: _____

Conditions encountered / notes: _____

Appendix B: Confined Space Inventory Log

Document all identified confined spaces at the worksite.

Facility / Worksite: _____ Conducted by: _____ Date: _____

Space ID	Location / Description	Type	PRCS? (Y/N)	Known Hazards	Last Assessment Date
CS-001					
CS-002					
CS-003					
CS-004					
CS-005					
CS-006					
CS-007					
CS-008					
CS-009					
CS-010					

Type codes: MH = Manhole, TK = Tank/Vessel, VT = Vault, PT = Pit, PP = Pipeline, TR = Trench, OT = Other

Reviewed by: _____ Date: _____

Appendix C: Pre-Entry Atmospheric Monitoring Record

Use this form to document continuous atmospheric monitoring during entry operations.

Permit Number:	
Space Location/ID:	
Date:	
Monitor Operator:	
Instrument Make/Model:	
Serial Number:	
Calibration Date:	

Monitoring Readings

Time	O ₂ (%)	LEL (%)	CO (ppm)	H ₂ S (ppm)	Other	Initials

Action Taken for Out-of-Range Readings

Time	Parameter	Reading	Action Taken

Monitoring completed by: _____ Signature: _____

Entry Supervisor review: _____ Date: _____

FORBES SAFETY SOLUTIONS

CRANE & RIGGING SAFETY

Program

29 CFR 1926 Subpart CC

[COMPANY NAME]

[ADDRESS]

[CITY, STATE ZIP]

Effective Date: [DATE]

Revision: [REV #]

Approved By: [NAME/TITLE]

1. PURPOSE & SCOPE

This Crane & Rigging Safety Program establishes the minimum requirements for the safe operation of cranes, hoisting equipment, and rigging at [COMPANY NAME] construction and utility jobsites. This program is designed to prevent injuries, fatalities, and property damage associated with crane and rigging operations.

This program applies to all [COMPANY NAME] employees, contractors, and subcontractors involved in crane operations, rigging, signal communication, or who work in proximity to crane operations. This program covers:

- Mobile cranes (lattice boom, hydraulic, telescopic, crawler, truck-mounted)
- Tower cranes
- Overhead and gantry cranes
- Derricks
- Rigging hardware and below-the-hook lifting devices
- Personnel hoisting operations

All crane and rigging operations shall be conducted in compliance with this program, the crane manufacturer's specifications, and all applicable OSHA standards.

2. REGULATORY REFERENCES

- 29 CFR 1926 Subpart CC — Cranes and Derricks in Construction
- 29 CFR 1926.1400 through 1926.1442 — Specific crane requirements
- 29 CFR 1926.251 — Rigging Equipment for Material Handling
- 29 CFR 1910.179 — Overhead and Gantry Cranes (General Industry)
- 29 CFR 1926.1431 — Hoisting Personnel
- ASME B30.5 — Mobile and Locomotive Cranes
- ASME B30.9 — Slings
- ASME B30.26 — Rigging Hardware
- ANSI/ASSP A10.28 — Safety Requirements for Work Platforms Suspended from Cranes or Derricks

3. DEFINITIONS

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 (as defined in 29 CFR 1926.32(f)).

Qualified Person: A person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated the ability to solve problems relating to the subject matter, the work, or the project (as defined in 29 CFR 1926.32(m)).

Crane Operator: A person who operates the crane. Must meet the operator qualification/certification requirements of 29 CFR 1926.1427.

Signal Person: A person who directs crane operations through the use of standard hand signals or voice/radio communication. Must meet the qualification requirements of 29 CFR 1926.1428.

Rigger: A qualified person who attaches and detaches loads and is responsible for the selection and inspection of rigging hardware.

Lift Director: The individual designated to direct the overall lifting operation, including coordination between the operator, rigger, signal person, and other personnel.

Critical Lift: A lift that exceeds 75% of the crane's rated capacity at the operating radius, involves hoisting personnel, requires the use of more than one crane, involves hoisting over occupied areas, or is otherwise designated as critical by [COMPANY NAME] management.

Load Chart: The manufacturer's document that specifies the rated capacity of the crane at various radii, boom lengths, and configurations.

Rated Capacity: The maximum load that a crane is designed and built to handle at a specified radius and configuration, as established by the manufacturer.

Swing Radius: The area swept by any part of the crane's superstructure or counterweight during rotation of the crane.

4. ROLES & RESPONSIBILITIES

4.1 Management/Program Administrator

- Establish, implement, and maintain this Crane & Rigging Safety Program
- Ensure all crane operators meet OSHA operator qualification/certification requirements
- Ensure adequate resources for crane maintenance, inspection, and safe operation
- Designate competent and qualified persons for crane and rigging operations
- Review and approve all critical lift plans
- Investigate all crane-related incidents, near-misses, and equipment failures

4.2 Site Superintendent/Project Manager

- Ensure pre-lift planning is conducted for all crane operations on the project
- Verify ground conditions are adequate for crane setup

- Coordinate crane operations with other trades and activities on the project
- Ensure swing radius barricading and overhead power line safety measures are in place
- Stop any crane operation that appears unsafe

4.3 Crane Operator

- Operate the crane in accordance with manufacturer's specifications, load charts, and this program
- Perform required pre-shift inspections and document findings
- Refuse to make any lift the operator believes is unsafe, regardless of direction from others
- Maintain valid operator certification/qualification per 29 CFR 1926.1427
- Follow all signal person directions; stop operations when signals are unclear
- Never exceed the rated capacity of the crane at any configuration
- Maintain a current copy of the load chart in the crane cab at all times

4.4 Rigger

- Select, inspect, and properly use rigging hardware in accordance with manufacturer ratings
- Determine load weight and center of gravity before rigging
- Ensure proper sling angles (never less than 30° from horizontal, 60° preferred)
- Protect rigging from sharp edges using softeners/padding
- Signal the operator when the load is ready to be lifted
- Ensure all personnel are clear of the load and swing radius before signaling the lift

4.5 Signal Person

- Provide clear, standard signals to the crane operator per 29 CFR 1926.1419-1422
- Maintain visual contact with the operator at all times (or radio contact if approved)
- Immediately signal STOP for any unsafe condition
- Must be qualified per 29 CFR 1926.1428

4.6 All Employees in Crane Work Areas

- Stay clear of suspended loads at all times — never walk or work under a suspended load
- Remain outside the swing radius barricade during crane operations
- Report any unsafe crane or rigging conditions to supervision immediately
- Understand and obey warning signs, barricades, and signals

5. OPERATOR QUALIFICATIONS & CERTIFICATION

All crane operators shall meet the qualification requirements of 29 CFR 1926.1427. [COMPANY NAME] requires:

5.1 Certification Requirements

1. Operators of cranes with a rated capacity exceeding 2,000 lbs. must be certified by an accredited testing organization (e.g., NCCCO, CIC, NCCER, OECF).
2. Certification must be for the specific type and capacity of crane being operated.
3. Operators shall carry their certification card while operating a crane.
4. Certification shall be current and valid (not expired or suspended).

5.2 Evaluation

[COMPANY NAME] shall evaluate each operator to verify they have the skills, knowledge, and ability to operate the specific crane they are assigned. The evaluation shall include:

- Understanding of the crane's load chart(s)
- Knowledge of the crane's controls, operating characteristics, and limitations
- Ability to perform required inspections
- Understanding of crane setup requirements (ground conditions, outrigger use, level)
- Demonstrated ability to operate the crane safely under actual job conditions

5.3 Medical Fitness

Crane operators shall meet the applicable medical fitness requirements and shall not operate a crane if impaired by fatigue, illness, medication, drugs, or alcohol.

6. PRE-LIFT PLANNING

Before any crane operation, the following pre-lift planning shall be completed:

6.1 Hazard Assessment

5. Survey the work area for overhead power lines, structures, and obstructions
6. Identify underground utilities and voids that may affect ground stability
7. Assess weather conditions (wind speed, visibility, lightning, temperature)
8. Identify personnel working in the area and coordinate activities
9. Determine the need for traffic control or road closures

6.2 Ground Conditions

Ground conditions are critical to safe crane operations. The following shall be verified:

- The ground is firm, level, and capable of supporting the crane and load at maximum configuration
- Underground voids, utilities, and other subsurface conditions have been identified and addressed
- Proper cribbing, mats, or outrigger pads are used to distribute crane loads
- Slopes and grades are within the crane manufacturer's specifications
- Drainage conditions will not undermine the crane's foundation during the lift

NOTE: A competent person shall evaluate ground conditions before crane setup and shall monitor conditions throughout the operation.

6.3 Overhead Power Lines

Minimum clearance distances from overhead power lines per 29 CFR 1926.1408:

Voltage (kV)	Minimum Clearance Distance
Up to 50 kV	10 feet
Over 50 to 200 kV	15 feet
Over 200 to 350 kV	20 feet
Over 350 to 500 kV	25 feet
Over 500 to 750 kV	35 feet
Over 750 to 1,000 kV	45 feet
Over 1,000 kV	As established by utility owner

Additional power line safety requirements:

- An approach distance plan shall be developed for operations near overhead power lines
- A dedicated spotter shall be used when working within the trigger distance (Table A of 1926.1408)
- If the power line voltage is unknown, minimum clearance shall be 20 feet for lines up to 350 kV and 50 feet for lines over 350 kV
- Insulating links, proximity alarms, and range limiters should be used when feasible

7. LIFT PLAN REQUIREMENTS

A lift plan shall be developed for all crane operations. The complexity of the lift plan shall be commensurate with the complexity and risk of the lift.

7.1 Standard Lift Plan

All lifts shall address the following at minimum:

- Crane type, capacity, and configuration (boom length, jib, counterweight)
- Load weight, dimensions, and center of gravity
- Rigging hardware selection and configuration
- Lift radius (pick and set locations)
- Load chart verification — rated capacity at maximum radius must exceed the total rigged load weight
- Ground conditions and outrigger/crawler positions
- Swing path and clearances
- Personnel roles (operator, rigger, signal person, lift director)
- Communication methods
- Overhead obstructions, power lines, and other hazards

7.2 Critical Lift Plan

A critical lift plan is required when any of the following conditions exist:

- The load exceeds 75% of the crane's rated capacity at the operating radius
- The lift involves hoisting personnel
- Multiple cranes are used to make a single lift (tandem/dual crane lifts)
- The lift is over occupied buildings or active work areas
- The lift involves an unusual or complex rigging arrangement
- The lift is designated as critical by project management or the lift director

Critical lift plans shall be prepared by a qualified person and approved by [COMPANY NAME] management before the lift. The plan shall include all items from the standard lift plan plus:

- Detailed load weight calculation with rigging weight included
- Specific crane configuration and setup diagram
- Step-by-step lift sequence
- Contingency/emergency procedures
- Pre-lift meeting agenda and attendance documentation

8. SIGNAL PERSON REQUIREMENTS

A signal person is required when:

- The point of operation (load travel or near the landing zone) is not in full view of the operator
- The equipment is traveling on a road, and a signaler is needed to guide travel
- The operator or the person handling the load determines a signal person is needed

8.1 Qualification

Signal persons shall be qualified by either:

10. A third-party qualified evaluator, OR
11. [COMPANY NAME]'s qualified evaluator who has demonstrated the ability to evaluate signal persons

Qualification shall confirm:

- Knowledge of standard hand signals per 29 CFR 1926.1419
- Demonstrated competence in giving signals
- Understanding of the operations and limitations of the equipment
- Knowledge of hazard recognition and the required signaling method

8.2 Standard Hand Signals

Standard hand signals per 29 CFR 1926.1419 shall be used unless voice/radio communication is established. A chart of standard signals shall be posted at each crane work site.

9. RIGGING HARDWARE INSPECTION

9.1 General Rigging Requirements

- All rigging shall be inspected before each use by a competent person
- Rigging shall not be loaded in excess of its rated capacity
- Damaged or defective rigging shall be immediately removed from service and tagged/destroyed
- Rigging shall be stored properly to prevent damage — hung on racks, not piled on the ground
- Sling angles shall be considered in capacity calculations — never rig at angles less than 30° from horizontal

9.2 Wire Rope Slings — Removal Criteria

- Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay

- Wear or scraping of one-third the original diameter of outside individual wires
- Kinking, crushing, bird caging, or any other distortion of the rope structure
- Evidence of heat damage
- End attachments that are cracked, deformed, or worn
- Corrosion of the rope or end attachments

9.3 Synthetic Slings — Removal Criteria

- Acid or caustic burns
- Melting or charring of any part of the sling surface
- Snags, punctures, tears, or cuts
- Broken or worn stitching in load-bearing splices
- Distortion, excessive pitting, or corrosion of fittings
- Missing or illegible sling identification (tag)

9.4 Chain Slings — Removal Criteria

- Wear, nicks, cracks, or gouges
- Stretch — any individual link stretched more than 5% over original length
- Bent or twisted links
- Evidence of heat damage (discoloration)
- Missing or illegible identification tag

9.5 Shackles, Hooks & Hardware — Removal Criteria

- Deformation (bent, twisted, spread)
- Cracks visible to the naked eye
- Excessive wear (throat opening increased more than 15% of nominal)
- Missing safety latches on hooks (except where specifically permitted and documented)
- Corrosion that affects structural integrity
- Missing or illegible manufacturer markings/rated capacity

10. LOAD CHART USAGE

The crane load chart is the primary document for determining safe lifting capacity.

12. The load chart shall be available in the crane cab at all times.
13. The operator shall consult the load chart before every lift.

14. The correct load chart for the crane's specific configuration shall be used (boom length, jib, counterweight, outrigger position, on-rubber vs. on-outriggers).
15. The total load shall include: the weight of the object, rigging hardware, headache ball/block, and any other attachments below the boom tip.
16. The maximum radius during the lift (including load swing and boom deflection) shall be used to determine the rated capacity.
17. The crane shall never be loaded to more than 100% of the rated capacity at the working radius.
18. Deductions shall be made for freely suspended rigging, personnel platforms, and other below-the-hook devices.

CRITICAL: If the load weight is unknown or cannot be reliably determined, the lift shall not proceed until the weight is established.

11. SWING RADIUS & BARRICADING

The swing radius of the crane shall be barricaded to prevent personnel from entering the area where they could be struck by the rotating superstructure or counterweight.

19. Barricades shall be erected at a minimum distance that prevents contact with the rotating crane superstructure, counterweight, and load.
20. Barricades shall be clearly visible (high-visibility tape, cones, or rigid barriers).
21. Warning signs shall be posted at all barricade access points.
22. A dedicated safety watch may be required at access points to prevent unauthorized entry.
23. Employees must not be permitted between the rotating superstructure and any fixed object (pinch point hazard).
24. The operator shall not rotate the crane if any person is within the swing radius barricade (unless specifically authorized and controlled under the lift plan).

12. CRANE INSPECTIONS

12.1 Pre-Shift/Daily Inspection

Before each shift, the crane operator shall perform a visual inspection that includes:

- Control mechanisms for proper operation and excessive wear
- Safety devices and operational aids for proper function
- Wire rope reeving for compliance with manufacturer recommendations
- Hydraulic and pneumatic hoses for leaks, damage, or routing issues
- Ground conditions for stability

- Outriggers, tires, wheels for proper positioning and condition
- All hooks for deformation, cracks, and safety latch operation

12.2 Monthly Inspection

A thorough monthly inspection shall be performed by a competent person and documented, including:

- All items from the daily inspection
- Structural members for deformation, cracks, and corrosion
- Bolts, pins, and connections for tightness and wear
- Boom sections for straightness and structural integrity
- Wire rope for broken wires, corrosion, and proper reeving
- Electrical systems for proper function

12.3 Annual Inspection

A comprehensive annual inspection shall be performed by a qualified person. This inspection shall be documented and records maintained for the life of the crane.

13. CRITICAL LIFT PROCEDURES

In addition to the critical lift plan requirements in Section 7.2, the following procedures apply to all critical lifts:

13.1 Pre-Lift Meeting

A pre-lift meeting shall be conducted with all personnel involved in the lift. The meeting shall cover:

- Review of the critical lift plan
- Roles and responsibilities of each team member
- Communication protocols and signals
- Sequence of operations — step by step
- Emergency procedures and stop-work authority
- Weather limitations and go/no-go criteria
- Load path and landing zone requirements

13.2 Execution

25. Verify crane setup matches the approved critical lift plan.
26. Verify all rigging matches the approved plan.

27. Perform a trial lift — raise the load a few inches, hold, and verify stability, rigging balance, and crane function.
28. Proceed with the lift only after the lift director confirms all conditions are satisfactory.
29. Maintain continuous communication throughout the lift.
30. If any condition changes or concern arises, STOP the lift immediately and reassess.

13.3 Multi-Crane (Tandem) Lifts

Multi-crane lifts shall be planned by a qualified engineer and shall include:

- Load distribution calculations for each crane
- Each crane shall not exceed 75% of its rated capacity
- A single designated lift director shall coordinate both cranes
- Contingency procedures if one crane experiences a malfunction

14. TRAINING REQUIREMENTS

14.1 Crane Operator Training

- Crane-specific training on each type/model of crane to be operated
- Load chart interpretation and application
- Pre-shift inspection procedures
- Emergency procedures (loss of power, structural failure, tip-over prevention)
- Power line awareness and minimum clearance distances
- Operator certification/qualification requirements per 29 CFR 1926.1427

14.2 Rigger Training

- Rigging hardware identification, inspection, and selection
- Load weight determination and center of gravity
- Sling angle calculations and capacity derating
- Proper rigging techniques for various load types
- Tag line use and load control
- Rigging removal criteria

14.3 Signal Person Training

- Standard hand signals per 29 CFR 1926.1419
- Voice/radio communication protocols
- Positioning requirements for visibility and safety
- Emergency signals and procedures

14.4 General Employee Training

All employees who work in proximity to crane operations shall receive training on:

- Recognizing and avoiding crane operation hazards
- Staying clear of suspended loads
- Swing radius hazards and barricade compliance
- Overhead power line awareness
- Emergency procedures and reporting requirements

14.5 Retraining

Retraining shall be provided when:

- An employee is assigned to operate a new or different type of crane
- An employee is observed operating unsafely or not following procedures
- Changes to the program, equipment, or operations require updated knowledge
- An incident or near-miss indicates a need for additional training

15. RECORDKEEPING

[COMPANY NAME] shall maintain the following records:

- This written Crane & Rigging Safety Program (current and previous versions)
- Crane operator certification/qualification records
- Signal person qualification records
- Daily, monthly, and annual crane inspection records
- Rigging inspection records
- Lift plans (standard and critical)
- Training records for all crane-related personnel
- Incident and near-miss investigation reports
- Manufacturer's load charts and operating manuals for each crane

Daily inspection records shall be maintained for a minimum of three (3) months. Annual inspection records shall be maintained for the life of the crane. Training and certification records shall be maintained for the duration of employment.

16. PROGRAM REVIEW & REVISION HISTORY

This program shall be reviewed at least annually or whenever changes in operations, equipment, or regulatory requirements necessitate a revision.

Revision #	Date	Description of Change	Approved By

APPENDIX A: LIFT PLAN FORM

Complete this form for all crane lifts. Critical lifts require additional detail and management approval.

Project & Lift Information

Field	Information
Project Name:	
Project Location:	
Date of Lift:	
Lift Director:	
Crane Operator:	
Signal Person:	
Rigger(s):	
Lift Type: ☐ Standard ☐ Critical	

Crane Information

Field	Information
Crane Type/Make/Model:	
Crane Capacity (max):	
Boom Length:	
Jib Length (if used):	
Counterweight Configuration:	
Setup: ☐ On Outriggers ☐ On Rubber/Crawlers	
Outrigger Extension: ☐ Full ☐ Mid ☐ Partial	

Load Information

Item	Weight/Value
Load Description:	
Load Weight:	
Rigging Weight:	
Block/Headache Ball Weight:	
Total Rigged Weight:	
Pick Radius:	
Set Radius:	
Maximum Radius During Lift:	
Rated Capacity at Max Radius:	
% of Capacity:	

Rigging Plan

Rigging Component	Type/Size	Rated Capacity	Qty
Slings:			
Shackles:			
Spreader Bar/Beam:			
Other Hardware:			
Tag Lines:			

Hazard Assessment

Hazard	Yes	No	Mitigation Measures
Overhead power lines within 200 ft?	☐	☐	
Underground utilities?	☐	☐	
Occupied areas within load path?	☐	☐	
Wind speed concerns?	☐	☐	

Hazard	Yes	No	Mitigation Measures
Soft or unstable ground?	☐	☐	
Other crane operations nearby?	☐	☐	
Pedestrian/vehicle traffic?	☐	☐	
Other hazards:	☐	☐	

Communication Plan

☐ Standard Hand Signals ☐ Voice/Radio ☐ Other: _____

Approvals

Lift Director Signature: _____ Date: _____

Crane Operator Signature: _____ Date: _____

Management Approval (Critical Lifts): _____ Date: _____

APPENDIX B: RIGGING INSPECTION CHECKLIST

Use this checklist to inspect rigging hardware before each use. Remove from service and tag/destroy any defective rigging immediately.

Field	Information
Inspector Name:	
Date:	
Project/Location:	
Inspection Type: ☐ Pre-Use ☐ Monthly ☐ Annual	

Wire Rope Slings

Inspection Item	OK	Defect	N/A	Notes
Identification tag legible	☐	☐	☐	
No broken wires exceeding removal criteria	☐	☐	☐	
No kinking, crushing, or bird caging	☐	☐	☐	
No corrosion or pitting	☐	☐	☐	
End fittings (thimbles, ferrules) intact	☐	☐	☐	
No evidence of heat damage	☐	☐	☐	
Proper diameter (no excessive wear)	☐	☐	☐	

Synthetic Web Slings

Inspection Item	OK	Defect	N/A	Notes
Identification tag legible	☐	☐	☐	
No cuts, tears, or snags	☐	☐	☐	
No acid/caustic burns	☐	☐	☐	
No melting or charring	☐	☐	☐	

Inspection Item	OK	Defect	N/A	Notes
Stitching intact in load-bearing splices	☐	☐	☐	
Hardware (fittings, eyes) not distorted	☐	☐	☐	
No knots in sling body	☐	☐	☐	

Chain Slings

Inspection Item	OK	Defect	N/A	Notes
Identification tag legible	☐	☐	☐	
No excessive wear, nicks, or gouges	☐	☐	☐	
No stretch (links within 5% of original)	☐	☐	☐	
No bent or twisted links	☐	☐	☐	
No heat damage (discoloration)	☐	☐	☐	
Hooks not spread or cracked	☐	☐	☐	
Master links intact and not distorted	☐	☐	☐	

Hooks, Shackles & Hardware

Inspection Item	OK	Defect	N/A	Notes
Safety latches present and functional	☐	☐	☐	
No deformation or spread	☐	☐	☐	
No visible cracks	☐	☐	☐	
Rated capacity markings legible	☐	☐	☐	
Shackle pins straight and secured	☐	☐	☐	
No excessive wear or corrosion	☐	☐	☐	
Swivels operate freely	☐	☐	☐	
Turnbuckles and eye bolts not bent	☐	☐	☐	

Disposition

☐ All rigging approved for use ☐ Items removed from service (list below)

Items Removed:

Reason:

Inspector Signature:

 Date:

FORBES SAFETY SOLUTIONS

Drug and Alcohol Policy

Workplace Substance Abuse Prevention Program

Prepared for:

[COMPANY NAME]

Regulatory References:

OSHA General Duty Clause | Drug-Free Workplace Act | DOT 49 CFR Part 40

Date: [DATE] | Revision: [REV NUMBER]

Prepared by: [SAFETY MANAGER NAME / TITLE]

Table of Contents

1. Purpose and Scope

[COMPANY NAME] is committed to providing a safe, healthy, and productive workplace free from the effects of drug and alcohol abuse. This Drug and Alcohol Policy establishes the standards and procedures for maintaining a drug-free and alcohol-free work environment in accordance with applicable federal and state regulations.

This policy applies to all employees, subcontractors, and visitors at [COMPANY NAME] work sites, offices, and company-owned vehicles. Employees performing safety-sensitive functions subject to Department of Transportation (DOT) regulations are also governed by 49 CFR Part 40.

1.1 Regulatory References

- OSHA General Duty Clause – Section 5(a)(1) of the OSH Act
- Drug-Free Workplace Act of 1988
- DOT 49 CFR Part 40 – Procedures for Transportation Workplace Drug and Alcohol Testing Programs (where applicable)
- DOT 49 CFR Part 382 – Controlled Substances and Alcohol Use and Testing (CMV operators)
- Applicable state drug testing and privacy laws

1.2 Policy Statement

[COMPANY NAME] strictly prohibits the unauthorized manufacture, distribution, dispensing, possession, use, or being under the influence of any illegal drug, controlled substance, or alcohol while on company premises, at work sites, or while conducting company business. Violation of this policy will result in disciplinary action, up to and including immediate termination.

2. Prohibited Substances

2.1 Illegal Drugs and Controlled Substances

The use, possession, sale, transfer, or being under the influence of any illegal drug or controlled substance (as defined by federal and state law) is strictly prohibited. This includes, but is not limited to:

- Marijuana (regardless of state legalization for recreational or medical use)
- Cocaine
- Opiates/Opioids (heroin, non-prescribed oxycodone, fentanyl, etc.)
- Amphetamines / Methamphetamine
- Phencyclidine (PCP)
- MDMA (Ecstasy), synthetic cannabinoids, and other designer drugs

NOTE: Per federal law and DOT regulations, marijuana remains a prohibited substance regardless of state-level legalization. Employees in safety-sensitive positions are subject to federal drug testing requirements.

2.2 Alcohol

The unauthorized use, possession, distribution, or being under the influence of alcohol is prohibited while on company time, at company work sites, or while operating company vehicles or equipment. An employee shall not report to work or remain at work with a blood alcohol concentration (BAC) of 0.04% or greater.

2.3 Prescription and Over-the-Counter Medications

Employees taking prescription or over-the-counter medications that may impair their ability to safely perform their job duties are required to:

1. Consult with their healthcare provider regarding the medication's effects on job performance and safety.
2. Notify their supervisor (or Human Resources) that they are taking medication that may affect their ability to perform essential job functions safely.
3. Provide a fitness-for-duty statement from their prescribing healthcare provider if requested.

Employees are not required to disclose the specific medication or medical condition, only whether the medication may impair safe job performance.

3. Roles and Responsibilities

3.1 Management / Program Administrator

[DESIGNATED EMPLOYER REPRESENTATIVE (DER)] is responsible for:

- Administering and enforcing this Drug and Alcohol Policy
- Selecting and managing the third-party drug/alcohol testing provider (collection site, laboratory, MRO)
- Receiving and acting upon test results from the Medical Review Officer (MRO)
- Maintaining confidential records of all testing and related documentation
- Coordinating supervisor training for reasonable suspicion determinations
- Ensuring Employee Assistance Program (EAP) information is communicated to employees

3.2 Supervisors

- Receive training on recognizing signs and symptoms of drug and alcohol impairment (Reasonable Suspicion Training – minimum 2 hours)
- Document observable behavior and refer employees for reasonable suspicion testing when warranted
- Remove employees from safety-sensitive duties when impairment is suspected
- Ensure employees are aware of and have access to this policy
- Maintain confidentiality regarding testing and results

3.3 Employees

- Comply fully with this Drug and Alcohol Policy
- Report to work free from the effects of drugs and alcohol
- Submit to drug and/or alcohol testing as required by this policy
- Notify supervisor of any prescription medication that may affect safe job performance
- Report any known violations of this policy by co-workers to their supervisor

4. Types of Testing

[COMPANY NAME] conducts the following types of drug and alcohol testing:

Test Type	When Conducted	Details
Pre-Employment	After conditional offer of employment, before start date	All applicants must pass a drug test before beginning work. A refused or positive test result will disqualify the applicant.
Random	Unannounced, throughout the year	Employees are selected using a scientifically valid, computer-generated random selection method. Selection rates comply with DOT requirements (where applicable) or company policy.
Post-Accident	Following a workplace accident or near-miss	Testing is required when an employee is involved in a recordable injury, property damage above \$[AMOUNT], or a vehicle accident where the employee may have contributed to the incident.
Reasonable Suspicion	When supervisor observes signs of impairment	Two trained supervisors (when available) must document specific, contemporaneous observations of behavior, speech, appearance, or body odor indicative of drug or alcohol use.
Return-to-Duty	Before returning to safety-sensitive duties	Required after a policy violation, completion of required treatment or EAP program. Must test negative before returning to work.
Follow-Up	After return-to-duty, over a specified period	Unannounced testing for a minimum of six (6) directly observed tests within the first 12 months following return to duty. May continue for up to 60 months.

5. Testing Procedures

5.1 Drug Testing

Drug testing shall be conducted using urine specimen collection in accordance with 49 CFR Part 40 procedures (or equivalent non-DOT protocols):

1. Employee reports to a designated collection site with valid photo identification.
2. Collection is performed by a trained collector following chain-of-custody procedures.
3. The specimen is split into two bottles (primary and split) and sealed with tamper-evident tape.
4. The primary specimen is sent to a SAMHSA-certified laboratory for initial immunoassay screening.
5. If the initial screen is positive, the specimen undergoes confirmatory GC/MS or LC/MS/MS testing.
6. Confirmed positive results are reviewed by the Medical Review Officer (MRO).

5.2 Alcohol Testing

Alcohol testing is conducted using an Evidential Breath Testing (EBT) device by a trained Breath Alcohol Technician (BAT):

1. An initial screening test is conducted.
2. If the screening result is 0.02% BAC or greater, a confirmation test is conducted after a 15-minute waiting period.
3. A confirmed result of 0.04% BAC or greater constitutes a positive test and a violation of this policy.
4. A confirmed result of 0.02% to 0.039% BAC requires the employee to be removed from safety-sensitive duties for a minimum of 24 hours.

5.3 Refusal to Test

A refusal to submit to a required drug or alcohol test is treated as a positive test result. Refusal includes:

- Failure to appear for testing within a reasonable time
- Failure to remain at the testing site until the process is complete
- Failure to provide a sufficient specimen without a valid medical explanation
- Tampering with, adulterating, or substituting a specimen
- Failure to cooperate with any part of the testing process

6. Medical Review Officer (MRO) Process

All confirmed positive, adulterated, substituted, or invalid drug test results are reviewed by a licensed Medical Review Officer (MRO) before being reported to [COMPANY NAME].

6.1 MRO Responsibilities

- Review laboratory results and verify the chain of custody
- Contact the employee to discuss the results and determine if a legitimate medical explanation exists (e.g., valid prescription)
- Report verified results to the Designated Employer Representative (DER)
- Order a retest of the split specimen if requested by the employee within 72 hours of notification

6.2 Employee Rights

Employees have the right to:

- Speak with the MRO to discuss their results
- Request a reanalysis of the split specimen at a different SAMHSA-certified laboratory at the employee's expense (unless the split fails to confirm, in which case [COMPANY NAME] pays)
- Provide documentation of prescribed medications to the MRO

7. Consequences of Policy Violations

7.1 First Offense

A positive drug or alcohol test, or other violation of this policy, may result in one or more of the following:

- Immediate removal from the work site and all safety-sensitive duties
- Referral to the Employee Assistance Program (EAP) or Substance Abuse Professional (SAP)
- Mandatory completion of a recommended treatment or counseling program
- Negative return-to-duty test and follow-up testing program
- Suspension without pay during evaluation and/or treatment
- Termination of employment (at [COMPANY NAME]'s discretion)

7.2 Second Offense

A second policy violation shall result in immediate termination of employment.

7.3 Immediate Termination Offenses

The following violations shall result in immediate termination without the option of rehabilitation:

- Manufacture, sale, or distribution of drugs or alcohol on company property or work sites
- Use or possession of illegal drugs on company property or work sites
- Refusal to submit to a required drug or alcohol test

- Tampering with, adulterating, or substituting a test specimen

NOTE: [COMPANY NAME] reserves the right to modify disciplinary actions based on the severity of the violation, the employee's work history, and applicable federal, state, and local laws.

8. Employee Assistance Program (EAP)

[COMPANY NAME] provides access to an Employee Assistance Program (EAP) to support employees struggling with substance abuse or related personal issues.

8.1 Voluntary Self-Referral

Employees who voluntarily seek help for a substance abuse problem before a policy violation occurs will be provided with confidential assistance and will not be subject to disciplinary action solely for seeking help. To qualify for voluntary self-referral protection:

- The employee must come forward before being selected for testing, before an accident, or before a reasonable suspicion determination.
- The employee must agree to and complete the recommended treatment program.
- The employee must agree to follow-up testing upon return to duty.

8.2 Mandatory Referral

Employees who test positive or otherwise violate this policy may be required to complete a treatment program recommended by a Substance Abuse Professional (SAP) as a condition of continued employment (at [COMPANY NAME]'s discretion).

EAP Contact Information: [EAP PROVIDER NAME] – [PHONE NUMBER]

9. Supervisor Training for Reasonable Suspicion

All supervisors and managers shall complete a minimum of two (2) hours of Reasonable Suspicion Training covering the following topics:

9.1 Training Content

- Physical, behavioral, and performance indicators of probable drug and alcohol use
- The supervisor's role and responsibilities under this policy
- Documentation requirements for reasonable suspicion observations
- Procedures for confronting an employee and requesting testing
- How to safely remove an employee from the work site
- Legal considerations and employee rights

9.2 Observable Signs and Symptoms

Category	Signs / Symptoms to Document
Physical Appearance	Bloodshot or watery eyes, dilated or constricted pupils, flushed face, excessive sweating, unusual body odor, slurred speech, unsteady gait or coordination problems
Behavior	Erratic or aggressive behavior, confusion, mood swings, excessive drowsiness or hyperactivity, inability to focus, withdrawal from co-workers
Performance	Unexplained decline in work quality, increased errors, missed deadlines, frequent

Category	Signs / Symptoms to Document
	accidents/near-misses, unexplained absences or tardiness
Odor	Smell of alcohol on breath, smell of marijuana or other substances on clothing

Reasonable suspicion determinations must be based on specific, contemporaneous, articulable observations. Supervisors shall complete the Reasonable Suspicion Documentation Form (Appendix A) before or immediately after requesting testing.

10. Recordkeeping

All drug and alcohol testing records are confidential and shall be maintained in a secure location separate from personnel files. Records shall include:

- Consent to test forms
- Chain of custody documentation
- Laboratory and MRO results
- Reasonable suspicion documentation
- Post-accident testing records
- Return-to-duty and follow-up testing records
- EAP/SAP referral and completion documentation
- Training records (supervisor reasonable suspicion training and employee awareness training)

10.1 Record Retention

Record Type	Retention Period
Positive test results and refusals	5 years
Negative test results	1 year
Collection process records	2 years
Training records	Duration of employment + 2 years
EAP/SAP records	5 years

Appendix A: Reasonable Suspicion Documentation Form

[COMPANY NAME]

Reasonable Suspicion Documentation Form

CONFIDENTIAL - FOR MANAGEMENT USE ONLY

Date of Observation: _____

Time of Observation: _____

Location: _____

Employee Name: _____

Employee Job Title: _____

Observing Supervisor Name: _____

Second Observer Name (if available): _____

Observed Signs and Symptoms

Check all that apply and describe specific observations:

Physical Indicators:

- ☐ Bloodshot / watery / glassy eyes
- ☐ Dilated or constricted pupils
- ☐ Flushed face
- ☐ Slurred or incoherent speech
- ☐ Unsteady gait / poor coordination / swaying
- ☐ Unusual body odor
- ☐ Tremors / shaking hands

Behavioral Indicators:

- ☐ Erratic, aggressive, or hostile behavior
- ☐ Confusion or disorientation
- ☐ Mood swings or emotional instability
- ☐ Excessive drowsiness or falling asleep
- ☐ Hyperactivity or unusually animated behavior

☐ Paranoia or hallucinations

Performance Indicators:

- ☐ Unable to perform job duties safely
- ☐ Increased errors or accidents
- ☐ Inability to follow instructions
- ☐ Unexplained absence from work area

Odor:

- ☐ Alcohol on breath
- ☐ Marijuana odor on clothing or person
- ☐ Other substance odor: _____

Narrative Description

Provide a detailed description of specific observations that led to this determination:

Action Taken

- ☐ Employee removed from safety-sensitive duties
- ☐ Employee referred for drug and/or alcohol testing
- ☐ Employee provided transportation home / to testing facility
- ☐ Employee informed of EAP resources

Observing Supervisor Signature

Date

Second Observer Signature (if applicable)

Date

Management / HR Representative

Date

Appendix B: Consent to Test Form

[COMPANY NAME]

Drug and Alcohol Testing Consent Form

I, the undersigned, hereby acknowledge and consent to the following:

1. I have received, read, and understand [COMPANY NAME]'s Drug and Alcohol Policy.
2. I understand that as a condition of employment and/or continued employment, I am required to submit to drug and/or alcohol testing as outlined in the policy.
3. I consent to the collection and testing of my urine specimen, breath sample, and/or other specimen as required by the policy and applicable regulations.
4. I authorize the testing laboratory and Medical Review Officer (MRO) to release my test results to the Designated Employer Representative (DER) of [COMPANY NAME].
5. I understand that a positive test result, refusal to test, or adulteration/substitution of a specimen may result in disciplinary action up to and including termination of employment.
6. I understand that I have the right to request a retest of a split specimen within 72 hours of receiving a verified positive result.
7. I understand that my test results are confidential and will be maintained in a secure file separate from my personnel records.

Type of Test (check applicable):

- ☐ Pre-Employment
- ☐ Random
- ☐ Post-Accident
- ☐ Reasonable Suspicion
- ☐ Return-to-Duty
- ☐ Follow-Up

Employee Name (Print): _____

Social Security Number (last 4 digits): _____

Date of Birth: _____

Job Title: _____

Employee Signature

Date

Witness / Company Representative

Date

NOTE: A copy of this form shall be provided to the employee. The original shall be maintained in the confidential drug and alcohol testing file.

FORBES SAFETY SOLUTIONS

ELECTRICAL SAFETY PROGRAM

OSHA-Compliant Workplace Safety Program

[COMPANY NAME]

Effective Date: [DATE]

Revision Number: [REV #]

Prepared By: [NAME / TITLE]

Approved By: [NAME / TITLE]

Approval Date: [DATE]

TABLE OF CONTENTS

1. PURPOSE & SCOPE

The purpose of this Electrical Safety Program is to establish minimum requirements and procedures for protecting [COMPANY NAME] employees from electrical hazards encountered during work activities. This program applies to all employees, contractors, and visitors who may be exposed to electrical hazards at [COMPANY NAME] job sites and facilities.

This program addresses both general industry and construction electrical safety requirements, ensuring compliance with applicable OSHA standards and recognized industry best practices.

Scope of Application:

- All work performed on or near energized electrical equipment or conductors
- Installation, maintenance, and repair of electrical systems
- Use of portable electrical equipment and extension cords
- Work performed near overhead and underground power lines
- Arc flash hazard assessment and mitigation

2. REGULATORY REFERENCES

This program is designed to comply with the following regulatory standards:

- **29 CFR 1910.331–335** — OSHA General Industry: Electrical Safety-Related Work Practices
- **29 CFR 1910.301–308** — OSHA General Industry: Electrical Design Safety Standards
- **29 CFR 1926 Subpart K (§1926.400–449)** — OSHA Construction: Electrical
- **NFPA 70E** — Standard for Electrical Safety in the Workplace (current edition)
- **NFPA 70** — National Electrical Code (NEC)
- **ASTM F1506** — Standard Performance Specification for FR Textile Materials for Wearing Apparel
- **IEEE 1584** — Guide for Performing Arc Flash Hazard Calculations

3. DEFINITIONS

3.1 Qualified Person

An individual who has training and demonstrated skills and knowledge in the construction and operation of electrical equipment and installations, and has received safety training to identify and avoid the

hazards involved. A Qualified Person must be able to distinguish exposed live parts, determine nominal voltage, and know the clearance distances required per NFPA 70E.

3.2 Unqualified Person

An individual with little or no training regarding electrical hazards. Unqualified persons must be trained in and familiar with any electrically related safety practices necessary for their safety. Unqualified persons shall not approach energized parts closer than the Limited Approach Boundary without the guidance of a Qualified Person.

3.3 Approach Boundaries

NFPA 70E defines the following shock protection approach boundaries for AC systems:

- **Limited Approach Boundary** — The distance from an exposed energized conductor within which a shock hazard exists. Unqualified persons may not cross this boundary.
- **Restricted Approach Boundary** — The distance from an exposed energized conductor within which there is an increased likelihood of electric shock. Only Qualified Persons wearing appropriate PPE may cross this boundary.
- **Prohibited Approach Boundary** — The distance from an exposed energized conductor within which work is considered the same as making contact with the conductor. Crossing this boundary requires the same PPE and procedures as direct contact.
- **Arc Flash Boundary** — The distance from an arc source at which incident energy equals 1.2 cal/cm² (the threshold for a second-degree burn).

4. ROLES & RESPONSIBILITIES

4.1 Management / Employer

- Provide adequate resources for implementation and maintenance of this program
- Ensure an arc flash hazard analysis is performed and labels are applied to equipment
- Provide appropriate PPE and ensure it is maintained in safe, reliable condition
- Ensure only Qualified Persons perform work on energized electrical equipment
- Maintain and make available all required safety documentation and permits

4.2 Safety Manager

- Administer this Electrical Safety Program and ensure compliance

- Conduct periodic audits of electrical safety practices (at least annually)
- Review and approve all Energized Electrical Work Permits
- Investigate all electrical incidents and near-misses
- Coordinate training programs for Qualified and Unqualified Persons

4.3 Qualified Persons / Employees

- Follow all established electrical safety work practices and procedures
- Inspect tools, equipment, and PPE before each use
- Report unsafe conditions, damaged equipment, and near-misses immediately
- Maintain current training qualifications
- Participate in all required safety training

5. PROGRAM PROCEDURES

5.1 Energized Electrical Work Permit

All work on energized electrical conductors or circuit parts operating at 50 volts or more shall be de-energized before work begins, unless one of the following conditions applies:

- De-energization introduces additional or increased hazards (e.g., loss of ventilation in a hazardous location, deactivation of emergency systems)
- De-energization is infeasible due to equipment design or operational limitations

When energized work is justified, an **Energized Electrical Work Permit** (see Appendix A) must be completed and approved by the Safety Manager before work begins. The permit must document:

- Description and location of the circuit/equipment
- Justification for why the work must be performed energized
- Shock and arc flash hazard analysis results
- Safe work practices to be employed
- Required PPE for each task
- Means of restricting access to the work area
- Evidence of job briefing completion

5.2 De-Energization (Lockout/Tagout) Procedures

The following steps shall be followed for de-energizing electrical equipment:

1. Identify all sources of electrical energy and the means of disconnecting them.

2. Notify all affected personnel that equipment will be de-energized.
3. Load the equipment/circuit, if applicable, before disconnecting.
4. Open the disconnecting device(s) for each source of energy.
5. Apply lockout/tagout devices per [COMPANY NAME]'s LOTO program.
6. Verify the equipment is de-energized using an appropriately rated voltage testing device. Test the tester before and after use on a known live source.
7. Ground all phase conductors if there is a possibility of induced voltage or stored electrical energy.
8. Perform work only after all steps are complete and verified.

Re-Energization: Before circuits or equipment are re-energized, conduct visual inspection to ensure all tools, test equipment, and personnel are clear. Remove lockout/tagout devices. Notify affected personnel before energizing.

5.3 PPE Categories and Arc Flash PPE Table

The following table outlines the minimum PPE requirements for each arc flash PPE Category per NFPA 70E:

PPE Category	Cal/cm ² Rating	Required PPE
CAT 1	4 cal/cm ²	Arc-rated long-sleeve shirt and pants or coverall (min 4 cal/cm ²); arc-rated face shield or flash suit hood; hard hat; safety glasses; hearing protection; heavy-duty leather gloves; leather footwear
CAT 2	8 cal/cm ²	Arc-rated long-sleeve shirt and pants or coverall (min 8 cal/cm ²); arc-rated flash suit hood or face shield with balaclava; hard hat; safety glasses; hearing protection; arc-rated gloves; leather footwear
CAT 3	25 cal/cm ²	Arc flash suit (jacket, pants, and hood) rated min 25 cal/cm ² ; arc-rated gloves; hard hat; safety glasses; hearing protection; arc-rated jacket and pants worn underneath; leather footwear
CAT 4	40 cal/cm ²	Arc flash suit (jacket, pants, and hood) rated min 40 cal/cm ² ; arc-rated gloves; hard hat; safety glasses; hearing protection; arc-rated shirt and pants worn underneath; leather footwear

Note: All arc-rated clothing and equipment must be properly maintained and inspected before each use. Contaminated, damaged, or worn PPE must be replaced immediately.

5.4 GFCIs and Assured Equipment Grounding

Per 29 CFR 1926.404(b)(1), [COMPANY NAME] shall use one or both of the following methods on construction sites:

Ground-Fault Circuit Interrupters (GFCIs):

- All 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites that are not part of the permanent wiring shall have GFCI protection.

- GFCIs shall be tested before each day's use per manufacturer's instructions.
- Defective GFCIs shall be removed from service immediately.

Assured Equipment Grounding Conductor Program (AEGCP):

- As an alternative or supplement to GFCIs, [COMPANY NAME] may implement an AEGCP.
- All equipment grounding conductors shall be tested for continuity and correct attachment.
- Testing shall occur before first use, after any repair, at intervals not exceeding 3 months, and before use after any incident that could cause damage.
- A competent person shall be designated to implement the program.
- All tests shall be documented and records maintained at the jobsite.

5.5 Overhead Power Line Clearance Distances

Per 29 CFR 1926.1408 and OSHA requirements, the following minimum clearance distances must be maintained from overhead power lines:

Voltage Range (kV)	Minimum Clearance Distance
Up to 50 kV	10 feet (3.05 m)
Over 50 to 200 kV	15 feet (4.60 m)
Over 200 to 350 kV	20 feet (6.10 m)
Over 350 to 500 kV	25 feet (7.62 m)
Over 500 to 750 kV	35 feet (10.67 m)
Over 750 to 1,000 kV	45 feet (13.72 m)

Note: If voltage is unknown and the utility owner cannot provide the information, the minimum clearance distance is 20 feet for lines rated over 350 kV to 1,000 kV, or 10 feet for voltages below 50 kV.

5.6 Temporary Wiring Requirements

Temporary electrical wiring on construction sites must comply with the following:

- Temporary wiring shall be removed immediately upon completion of the project or purpose.
- All temporary branch circuits shall originate from an approved power outlet or panel board.
- Receptacles on temporary circuits shall be of the grounding type.
- All flexible cords shall be rated for hard or extra-hard usage (e.g., S, ST, SO, STO, SJ, SJT, SJO, SJTO types).
- Flexible cords shall not be fastened with staples, hung from nails, or suspended by wire.
- All cords passing through work areas shall be protected from damage (covered, elevated, or routed away from traffic).
- Extension cords used with portable tools and equipment shall be the three-wire type.
- Each temporary circuit shall be protected by an overcurrent device of appropriate rating.

6. TRAINING REQUIREMENTS

[COMPANY NAME] shall provide electrical safety training to all employees who face risk of electric shock or arc flash hazards. Training shall be appropriate to the employee's job duties and classification.

6.1 Qualified Person Training

- Skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment
- Skills and techniques necessary to determine nominal voltage of exposed live parts
- Knowledge of approach boundary distances for the voltage levels involved
- Decision-making process for determining degree and extent of the hazard, including arc flash hazard analysis
- Proper selection and use of arc-rated PPE
- Lockout/tagout procedures for de-energizing electrical equipment
- Emergency procedures, including CPR/AED and rescue from contact with energized conductors
- Retraining at intervals not exceeding three (3) years or when procedures change

6.2 Unqualified Person Training

- Recognition of electrical hazards and understanding of approach boundaries
- Procedures for safe interaction around electrical equipment
- Emergency response and reporting procedures
- Proper use of GFCIs and extension cords

7. RECORDKEEPING

[COMPANY NAME] shall maintain the following records:

- **Training records:** Names, dates, content, and trainer information for all electrical safety training. Retained for duration of employment plus three (3) years.
- **Energized Electrical Work Permits:** All completed permits retained for a minimum of three (3) years.
- **Arc flash hazard analysis records:** All arc flash study reports, labels, and updates retained for the life of the equipment.
- **Equipment inspection and testing records:** GFCI testing logs, AEGCP testing records, and PPE inspection logs.

- **Incident investigation reports:** All electrical incidents and near-misses retained for a minimum of five (5) years.

APPENDIX A: ENERGIZED ELECTRICAL WORK PERMIT

ENERGIZED ELECTRICAL WORK PERMIT

Permit Number: _____ Date: _____

Job Location / Description: _____

Equipment / Circuit Identification: _____

Voltage Level: _____

Justification for Energized Work (check one):

- ☐ De-energization would create additional or increased hazards
- ☐ De-energization is infeasible due to equipment design or operational limitations

Explain justification: _____

: _____

Hazard Analysis Results:

Shock Hazard Analysis: _____ Available Fault Current: _____

Arc Flash Boundary: _____ Incident Energy (cal/cm²): _____

PPE Category Required: _____ Working Distance: _____

Required PPE for This Task:

- ☐ Arc-rated clothing (min _____ cal/cm²)
- ☐ Arc-rated face shield / flash suit hood
- ☐ Arc-rated gloves (Class _____)
- ☐ Hard hat (non-conductive)
- ☐ Safety glasses / goggles
- ☐ Hearing protection
- ☐ Insulated tools
- ☐ Voltage-rated rubber gloves with leather protectors

☐ Rubber insulating matting

☐ Other: _____

Safe Work Practices:

Barriers / barricades used: _____

Means of restricting access: _____

Shock protection approach boundaries identified? (Y/N):

Job Briefing Conducted:

Briefing Conducted By: _____ **Date / Time:** _____

Attendees:

1: _____

2: _____

3: _____

Approvals:

Requested By (Qualified Person): _____ **Date:** _____

Approved By (Safety Manager): _____ **Date:** _____

APPENDIX B: ELECTRICAL SAFETY INSPECTION CHECKLIST**ELECTRICAL SAFETY INSPECTION CHECKLIST**

Project / Location: _____

Date: _____

Inspector Name: _____

Title: _____

General Electrical Safety:

- ☐ All electrical panels are accessible (36-inch clearance maintained)
- ☐ Panel covers and doors are in place and closed
- ☐ Circuit breakers and disconnects are properly labeled
- ☐ No evidence of overheating, burning, or smoke damage
- ☐ Arc flash labels are present on all applicable equipment
- ☐ Approach boundary signage is posted where required

Portable Equipment & Extension Cords:

- ☐ Extension cords are rated for hard or extra-hard usage
- ☐ No visible damage to cords (cuts, fraying, exposed conductors)
- ☐ All cords have grounding prongs intact
- ☐ GFCIs are in use on all temporary circuits
- ☐ GFCIs have been tested today
- ☐ Cords are protected from damage in traffic areas
- ☐ No cords run through doors, windows, or holes in walls/ceilings

Overhead Power Lines:

- ☐ Minimum clearance distances are maintained
- ☐ Warning signs/barriers in place where applicable
- ☐ Spotters assigned for crane/equipment operations near power lines

PPE & Tools:

- ☐ Insulated tools are in good condition (no cracks or damage)

- ☐ Voltage-rated gloves are within test date
- ☐ Arc-rated clothing is clean and undamaged
- ☐ Voltage detectors are functioning and calibrated

Corrective Actions Required:

Item 1: _____

Item 2: _____

Item 3: _____

Inspector Signature: _____

Date: _____

Supervisor Signature: _____

Date: _____

FORBES SAFETY SOLUTIONS

EMERGENCY ACTION PLAN

[COMPANY NAME]

[PROJECT NAME / SITE ADDRESS]

Per 29 CFR 1910.38 & 29 CFR 1926.35
Effective Date: [DATE] | Revision: [REV #]

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1. PURPOSE & SCOPE

This Emergency Action Plan (EAP) establishes procedures and responsibilities for responding to emergencies at [COMPANY NAME] project sites. This plan complies with OSHA requirements under 29 CFR 1910.38 (Emergency Action Plans) and 29 CFR 1926.35 (Employee Emergency Action Plans) for construction operations.

This plan applies to:

- All employees, subcontractors, and visitors at [PROJECT NAME] site
- All work shifts and operations
- Emergency situations including fire, severe weather, medical emergencies, hazardous material spills, and utility emergencies

Responsible parties:

- Site Superintendent / Project Manager: Overall EAP implementation and coordination
- Safety Manager: Plan development, training, and compliance monitoring
- All Employees: Familiarity with plan and participation in drills

Plan Administrator: [Name / Title]

Site Location: [Full Address]

Nearest Cross Streets: []

2. EMERGENCY CONTACT NUMBERS

Post this information at all site entrances, break areas, and in the site office. All personnel must be aware of these numbers.

Contact	Phone Number	Notes / Address
Emergency Services (Police/Fire/EMS)	911	All emergencies
Nearest Hospital: [HOSPITAL NAME]	[PHONE]	[ADDRESS / DISTANCE]
Nearest Urgent Care	[PHONE]	[ADDRESS]
Poison Control Center	1-800-222-1222	24/7 national hotline
National Weather Service	[LOCAL #]	Severe weather alerts
Local Fire Department (Non-Emergency)	[PHONE]	[ADDRESS]
Utility Company — Electric	[PHONE]	Power line emergencies
Utility Company — Gas	[PHONE]	Gas leak emergencies
Utility Company — Water	[PHONE]	Water main issues
811 — Call Before You Dig	811	Underground utility locates

Company Emergency Contacts

Role	Name	Phone	Email / Info
Project Manager	[NAME]	[PHONE]	[EMAIL]
Site Superintendent	[NAME]	[PHONE]	[EMAIL]
Safety Manager / Officer	[NAME]	[PHONE]	[EMAIL]
Company Owner / Principal	[NAME]	[PHONE]	[EMAIL]
Insurance Carrier	[COMPANY]	[PHONE]	[POLICY #]
After-Hours Emergency	[NAME]	[PHONE]	

3. EVACUATION PROCEDURES

3.1 Evacuation Signal

The emergency evacuation signal is:

- [DESCRIBE SIGNAL — e.g., continuous air horn blast for 30 seconds, PA system announcement, etc.]

When you hear the evacuation signal:

1. Stop all work immediately and secure any hazardous operations (shut down equipment, close valves)
2. Alert others in your immediate area who may not have heard the signal
3. Proceed to the nearest designated evacuation route — DO NOT RUN
4. Assist any injured or disabled personnel if safe to do so
5. Report to the designated assembly point for your work area
6. Report to your foreman/supervisor for headcount
7. DO NOT re-enter the site until 'All Clear' is given by the Site Superintendent

3.2 Evacuation Routes

Primary and secondary evacuation routes are posted at:

- Site office / job trailer entrance
- Each floor/level of structures under construction
- Break areas and toolboxes

[Attach or describe site-specific evacuation map showing routes, exits, and assembly points]

3.3 Assembly Points

Area / Zone	Assembly Point Location	Headcount Coordinator
Zone A — [Description]	[LOCATION]	[NAME / TITLE]
Zone B — [Description]	[LOCATION]	[NAME / TITLE]
Zone C — [Description]	[LOCATION]	[NAME / TITLE]
Visitors / Office	[LOCATION]	[NAME / TITLE]

3.4 Headcount Procedures

8. Each foreman/supervisor maintains a daily sign-in sheet for their crew
9. Upon arriving at assembly point, foreman conducts headcount against sign-in sheet
10. Report headcount results to Site Superintendent within 5 minutes
11. If any person is unaccounted for, report immediately — DO NOT re-enter to search
12. Emergency responders will conduct search and rescue for missing persons

4. FIRE EMERGENCY PROCEDURES

4.1 If You Discover a Fire

13. Alert others in the immediate area — shout 'FIRE!'
14. Activate the nearest alarm or notify the Site Superintendent
15. Call 911 (or have someone call while you respond)
16. If the fire is small and you are trained, attempt to extinguish using the nearest appropriate fire extinguisher (PASS method: Pull, Aim, Squeeze, Sweep)
17. If the fire cannot be controlled quickly, evacuate immediately
18. Close doors behind you to slow fire spread if possible
19. Proceed to assembly point and report to your supervisor

4.2 Fire Extinguisher Locations

Fire extinguishers are located at:

- [LIST SPECIFIC LOCATIONS — e.g., site office, each floor, near hot work areas, fuel storage, etc.]

Fire extinguisher inspections are conducted monthly. Annual servicing records are maintained in the site safety file.

4.3 Hot Work

All hot work (welding, cutting, grinding) requires a Hot Work Permit. A fire watch must be maintained during and for 30 minutes after hot work operations. Fire watch personnel must have appropriate extinguishing equipment immediately available.

5. SEVERE WEATHER PROCEDURES

5.1 Tornado / High Wind

When a Tornado Watch is issued:

- Monitor weather conditions and NOAA Weather Radio
- Identify shelter locations and review with all personnel
- Secure loose materials and equipment

When a Tornado Warning is issued or a tornado is sighted:

20. Sound the alarm — [DESCRIBE TORNADO-SPECIFIC SIGNAL]
21. All personnel immediately move to designated shelter areas
22. Shelter in the lowest level of a permanent structure, interior rooms away from windows
23. If no permanent structure is available, lie flat in a low-lying area away from structures, trees, and vehicles
24. DO NOT shelter under bridges, overpasses, or in vehicles
25. Remain in shelter until 'All Clear' is given

5.2 Lightning

When thunder is heard or lightning is observed within 10 miles (30/30 rule):

26. Suspend all outdoor work, especially elevated work (cranes, scaffolding, roofing)
27. Lower crane booms if time permits
28. Move all personnel to enclosed buildings or hard-topped vehicles
29. Wait 30 minutes after last thunder/lightning before resuming work

5.3 Extreme Heat

When the heat index exceeds 90°F, implement the following:

- Provide water, rest, and shade per OSHA's heat illness prevention guidelines
- Schedule heavy work for early morning or late afternoon
- Implement mandatory rest breaks (per OSHA heat index action levels)
- Monitor workers for signs of heat illness (confusion, dizziness, heavy sweating that stops)
- Use buddy system — never allow workers to work alone in extreme heat

6. MEDICAL EMERGENCY PROCEDURES

6.1 Immediate Response

30. Assess the scene — ensure the area is safe for responders
31. Call 911 immediately for serious injuries (provide exact location, nature of injury, number of victims)
32. Do NOT move the injured person unless there is an immediate danger to life
33. Send someone to meet and guide EMS to the exact location on site
34. Apply first aid if trained — control bleeding, maintain airway, treat for shock
35. If cardiac arrest suspected, begin CPR and use AED immediately

6.2 First Aid Kits & AED Locations

First Aid Kit Locations	AED Locations
[Site office / job trailer]	[Site office / job trailer]
[Each floor / work level]	[Nearest permanent structure]
[Break area / tool trailer]	[Additional location]

6.3 Certified First Aid / CPR Personnel

[List names, certification types, and expiration dates of all certified personnel on site]

At least one person with valid First Aid/CPR/AED certification must be present during all work operations.

7. HAZARDOUS MATERIAL SPILL RESPONSE

7.1 Immediate Actions

36. Alert personnel in the immediate area and evacuate upwind/uphill
37. Identify the material if possible (SDS, container labels, placards) — DO NOT taste or smell unknown substances
38. Notify the Site Superintendent and Safety Manager immediately
39. Call 911 if the spill is large, involves unknown chemicals, or threatens public safety
40. If trained and safe to do so, contain the spill using available spill kits (absorbents, berms, etc.)
41. Do NOT attempt to clean up spills you are not trained to handle

7.2 Spill Kit Locations

- [LIST LOCATIONS — e.g., near fuel storage, chemical storage area, each work area with hazardous materials]

7.3 Reporting

All spills must be reported to the Site Superintendent regardless of size. Reportable spills (per EPA/state regulations) must be reported to:

- National Response Center: 1-800-424-8802
- State Environmental Agency: [PHONE]
- [LOCAL REQUIREMENTS]

8. UTILITY EMERGENCY PROCEDURES

8.1 Gas Leak

42. Evacuate the area immediately — move upwind at least 500 feet
43. DO NOT operate any electrical switches, phones, or equipment in the affected area
44. DO NOT start vehicles near the leak
45. Call 911 and the gas utility company from a safe distance
46. Do NOT re-enter the area until cleared by the gas company and fire department

8.2 Electrical Emergency

47. If a power line is contacted or downed, keep everyone at least 35 feet away
48. Call 911 and the electric utility company
49. If someone is in contact with an energized source, DO NOT touch them
50. If a vehicle contacts a power line, occupants should stay inside until the utility company de-energizes
51. Shut off power at the source/breaker if it can be done safely

8.3 Water Main Break

52. Move personnel away from the area to prevent slips/falls or undermining
53. Notify the water utility company
54. Shut off water at the nearest valve if accessible and safe
55. Protect electrical equipment and panels from water contact

9. COMMUNICATION PROCEDURES

9.1 Alarm Systems

Alarm Type	Signal Description	Meaning / Action
Evacuation	[Continuous air horn — 30 sec]	Evacuate to assembly point
Tornado / Severe Weather	[Three short blasts repeated]	Move to shelter immediately
All Clear	[Single long blast]	Emergency over — resume work
Medical Emergency	[PA announcement / radio]	First aid team respond

9.2 Chain of Command

In an emergency, the chain of command is:

56. Site Superintendent (Incident Commander until emergency services arrive)
57. Safety Manager / Competent Person
58. Project Manager
59. Company Owner / Principal

The Incident Commander is responsible for:

- Directing evacuation and headcount procedures
- Communicating with emergency services
- Authorizing re-entry after 'All Clear'
- Notifying company management and regulatory agencies as required

10. TRAINING REQUIREMENTS

Per 29 CFR 1910.38(e) and 29 CFR 1926.35, training must be provided:

Initial Training (before beginning work on site):

- Review of this Emergency Action Plan
- Location of evacuation routes, exits, and assembly points
- Alarm signals and what they mean
- Location of fire extinguishers, first aid kits, and AEDs
- Emergency contact numbers and reporting procedures
- Individual roles and responsibilities during emergencies

Refresher Training (required when):

- The plan is changed or updated
- Employee responsibilities change
- New hazards are introduced to the site
- Evacuation drills reveal deficiencies

Emergency Drills:

- Evacuation drills conducted at least [QUARTERLY / SEMI-ANNUALLY]
- Drill results documented including response time, headcount accuracy, and corrective actions
- Drill records maintained in site safety file

Training Documentation

Employee Name	Date	Trainer	Signature

11. PLAN REVIEW & MAINTENANCE

This Emergency Action Plan shall be reviewed and updated:

- At least annually by the Safety Manager
- Whenever the workplace layout or design changes
- When new equipment, materials, or processes introduce new hazards
- After any emergency incident or drill that reveals deficiencies
- When employee responsibilities or emergency personnel change
- When regulatory requirements change

Plan Revision History

Rev #	Date	Description of Changes	Approved By
1			
2			
3			
4			
5			

Plan Approval

Prepared By: [Safety Manager Name]

Signature: _____ **Date:** _____

Approved By: [Project Manager / Company Principal]

Signature: _____ **Date:** _____

*Forbes Safety Solutions | Emergency Action Plan Template | Per 29 CFR 1910.38 & 29 CFR 1926.35
This template must be customized with site-specific information before use. Consult your safety professional.*

EXCAVATION & TRENCHING SAFETY PROGRAM

Written Safety Program

[COMPANY NAME]

[Company Address]

[City, State ZIP]

[Phone Number]

Revision Date: [MM/DD/YYYY]

Revision Number: [1.0]

Prepared by Forbes Safety Solutions

Document Control

This document is the property of [COMPANY NAME]. It must be reviewed and updated at least annually or when conditions change.

Revision #	Date	Description of Change	Approved By
1.0	[Date]	Initial Release	[Name/Title]

Table of Contents

Note: Right-click and select "Update Field" to refresh the Table of Contents after editing.

1. Purpose and Scope

1.1 Purpose

The purpose of this Excavation and Trenching Safety Program is to establish the procedures, practices, and responsibilities necessary to protect employees from the hazards associated with excavation and trenching operations. Excavation cave-ins are among the most deadly construction hazards — the weight of soil that collapses can easily exceed thousands of pounds and can bury a worker in seconds.

This written program establishes minimum requirements for excavation and trenching activities performed by or on behalf of [COMPANY NAME] and complies with the requirements of 29 CFR 1926, Subpart P — Excavations.

1.2 Scope

This program applies to all [COMPANY NAME] employees, subcontractors, and temporary workers involved in excavation and trenching operations, including but not limited to:

- Foundation excavations
- Utility trenching (water, sewer, gas, electric, communications)
- Pipe installation and repair
- Basement excavations
- Roadway and infrastructure construction
- Grading operations where workers enter the excavation
- Any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal

This program does NOT apply to excavations made entirely in stable rock or excavations less than 5 feet in depth where examination of the ground by the competent person provides no indication of a potential cave-in (per 29 CFR 1926.652(a)(1)).

1.3 Regulatory References

- 29 CFR 1926.650 – Scope, Application, and Definitions
- 29 CFR 1926.651 – Specific Excavation Requirements
- 29 CFR 1926.652 – Requirements for Protective Systems
- 29 CFR 1926 Subpart P, Appendix A – Soil Classification
- 29 CFR 1926 Subpart P, Appendix B – Sloping and Benching
- 29 CFR 1926 Subpart P, Appendix C – Timber Shoring for Trenches
- 29 CFR 1926 Subpart P, Appendix D – Aluminum Hydraulic Shoring for Trenches
- 29 CFR 1926 Subpart P, Appendix E – Alternatives to Timber Shoring
- 29 CFR 1926 Subpart P, Appendix F – Selection of Protective Systems
- OSHA Publication 2226 – Excavation: Hazard Recognition in Trenching and Shoring

2. Definitions

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 otherwise injure and immobilize a person.

Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. For excavation, the competent person must be trained in soil analysis and protective system selection.

Excavation: Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Hazardous Atmosphere: An atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

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, shield systems, and other systems that provide the necessary protection.

Registered Professional Engineer: A person who is registered as a professional engineer in the state where the work is to be performed.

Shield (Shield System): A structure that is able to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Also known as a trench box or trench shield.

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.

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 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.

Trench: A narrow excavation (in relation to its length) made below the surface of the ground, generally with a depth greater than its width, but with a width not exceeding 15 feet.

Type A Soil: Cohesive soils with an unconfined compressive strength of 1.5 tsf (tons per square foot) or greater. Examples: clay, silty clay, sandy clay, clay loam. Excludes fissured soil, soil subject to vibration, previously disturbed soil, and soil part of a layered system.

Type B Soil: Cohesive soil with an unconfined compressive strength greater than 0.5 tsf but less than 1.5 tsf. Examples: angular gravel, silt, silt loam, sandy loam, previously disturbed soils except those classified as Type C, fissured cohesive soils, dry rock that is not stable.

Type C Soil: Cohesive soil with an unconfined compressive strength of 0.5 tsf or less. Examples: granular soils (gravel, sand, loamy sand), submerged soil, soil from which water is freely seeping, submerged rock that is not stable.

3. Roles and Responsibilities

3.1 Employer / Management

- Establish, implement, and maintain this Excavation and Trenching Safety Program
- Designate a competent person for each excavation project who has training and experience in soil classification and protective system selection
- Provide all necessary excavation safety equipment (protective systems, monitoring instruments, access/egress equipment) at no cost to employees
- Ensure utility locating services (811) are contacted before any excavation begins
- Ensure all employees involved in excavation operations receive appropriate training
- Investigate all excavation-related incidents and near misses
- Maintain documentation of inspections, soil classifications, and training records
- Conduct annual program reviews and update as necessary

3.2 Competent Person

- Conduct daily inspections of excavations, adjacent areas, and protective systems before each shift, after every rainstorm, and after any event that could increase the hazard (e.g., vibration from nearby construction, heavy equipment movement)
- Classify soils at each excavation site using at least one visual test and one manual test
- Select and design protective systems appropriate for the soil type, depth, and site conditions
- Monitor excavation operations for changing conditions that could affect employee safety
- Determine the need for atmospheric testing in excavations deeper than 4 feet or where hazardous atmospheres may exist
- Authority to immediately remove employees from the excavation when a hazardous condition is detected
- Ensure that means of egress (ladders, ramps, stairs) are provided within 25 feet of lateral travel for all employees in trenches 4 feet or more in depth
- Evaluate adjacent structures, utility locations, and surface conditions before excavation begins
- Document all inspections, soil classifications, and corrective actions

3.3 Supervisors

- Ensure the competent person has inspected the excavation before allowing employees to enter
- Verify that protective systems are installed and functioning properly
- Enforce compliance with this program and all excavation safety requirements
- Ensure employees use proper access/egress routes
- Conduct daily pre-work briefings covering excavation hazards

- Report all incidents, near misses, and changed conditions to the competent person and management
- Ensure spoil piles are placed at least 2 feet from the edge of the excavation
- Keep heavy equipment and surcharge loads away from the excavation edge

3.4 Employees

- Comply with all excavation safety requirements in this program
- Never enter an excavation that has not been inspected by the competent person
- Use only designated access/egress routes (ladders, ramps, stairs)
- Report any signs of cave-in potential, water accumulation, or changing conditions to the competent person or supervisor immediately
- Wear required personal protective equipment at all times in and around excavations
- Keep materials, equipment, and spoil piles at least 2 feet from the edge of the excavation
- Never work under raised loads or operate heavy equipment near the excavation edge without authorization
- Attend and participate in all required excavation safety training
- Immediately evacuate the excavation when ordered to do so

4. Excavation and Trenching Procedures

4.1 Pre-Excavation Planning

Before any excavation begins, the following pre-excavation planning steps shall be completed:

4.1.1 Utility Location

- Contact 811 (the national "Call Before You Dig" service) at least 48 to 72 hours (per state requirements) before any excavation begins
- All known utilities shall be marked by the utility owners before excavation starts
- The exact location of underground installations shall be determined by safe and acceptable means (hand digging, vacuum excavation, or other non-destructive methods) when working within the tolerance zone of marked utilities
- Utility owners/operators shall be contacted for specific guidance when working near high-pressure gas lines, electrical cables, or other critical infrastructure
- If utilities cannot be located with certainty, hand dig or use vacuum excavation methods
- Maintain at least 18 inches clearance from any confirmed underground utility during mechanical excavation
- Document all utility locate requests, locate ticket numbers, and utility markings on the Daily Trench Inspection Form (Appendix A)

4.1.2 Adjacent Structure Assessment

The competent person shall evaluate the stability of adjacent structures (buildings, walls, sidewalks, roadways, and other structures) that may be affected by excavation operations:

- Determine if shoring, bracing, or underpinning is necessary to ensure the stability of adjacent structures
- Monitor adjacent structures for signs of movement, settlement, or cracking throughout excavation operations
- Maintain a safe distance from structures that could be undermined by excavation activities
- Install support systems as necessary to protect adjacent structures from damage or collapse
- Contact a registered professional engineer if there is any doubt about the structural integrity of adjacent features

4.1.3 Surface Water and Drainage

Adequate measures shall be taken to prevent surface water from entering the excavation:

- Divert surface water drainage away from the excavation using berms, ditches, or other effective means
- Install dewatering pumps if water accumulation occurs within the excavation

- Employees shall not work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken
- If water removal equipment is used, it shall be monitored by the competent person to ensure proper operation
- Inspect for evidence of a situation that could result in a boiling condition, surface water runoff, or water buildup in the excavation

4.2 Soil Classification

The competent person shall classify the soil at each excavation site to determine the appropriate protective system. Soil classification shall be performed using at least one visual test and one manual test.

4.2.1 Soil Types

Soil Type	Unconfined Compressive Strength	Examples	Maximum Slope Angle
Type A	1.5 tsf or greater	Clay, silty clay, sandy clay, clay loam, and hardpan (cemented soils)	¾:1 (53°)
Type B	0.5 to 1.5 tsf	Angular gravel, silt, silt loam, sandy loam, previously disturbed Type A soils, fissured cohesive soils, dry unstable rock	1:1 (45°)
Type C	0.5 tsf or less	Gravel, sand, loamy sand, submerged soil, soil from which water is freely seeping, submerged unstable rock	1½:1 (34°)
Stable Rock	N/A	Natural solid mineral material that can be excavated with vertical sides and remain intact	Vertical (90°)

4.2.2 Visual Tests

The competent person shall perform the following visual tests:

- Observe the excavated soil for grain size, particle type (granular vs. cohesive), and signs of moisture
- Examine the excavation walls for cracks, spalling, raveling, or other signs of instability
- Look for layered soil systems where one soil type overlies another
- Check for previously disturbed soil (e.g., previous excavation backfill, utility trenches)
- Observe whether the soil clumps when dug or easily breaks apart
- Assess the presence of water seepage, a high water table, or standing water in the excavation
- Look for evidence of vibration from traffic, construction equipment, or other sources
- Observe the type of soil in the spoil pile (does it hold together or crumble?)

4.2.3 Manual Tests

At least one of the following manual tests shall be performed:

- Pocket Penetrometer Test — A direct-reading instrument that measures the unconfined compressive strength of the soil. Type A: ≥ 1.5 tsf; Type B: 0.5–1.5 tsf; Type C: < 0.5 tsf.
- Thumb Penetration Test — Press your thumb into the soil sample. If the thumb penetrates no further than the thumbnail, the soil may be Type A. If the thumb penetrates the full length with moderate effort, the soil may be Type B. If the thumb penetrates easily, the soil is Type C.
- Dry Strength Test — Dry a sample until completely dry. If it crumbles on its own or with moderate pressure, it is granular (Type C). If it breaks into clumps that can only be broken with difficulty, it may be clay combined with other soils (Type A or B).
- Plasticity (Ribbon) Test — Mold a moist sample into a ball and roll it into a thread. If a 2-inch thread can be held on one end without tearing, the soil is cohesive (Type A or B). If it fails, it is granular (Type C).
- Shear Vane Test — A direct-reading device that measures the shear strength of soil, which can be correlated to unconfined compressive strength.

Document all soil classification results on the Soil Classification Worksheet (Appendix B). When in doubt, classify the soil as the weaker type.

4.3 Protective Systems

Employees shall NOT enter excavations 5 feet or more in depth unless a protective system is in place (unless the excavation is made entirely in stable rock). For excavations less than 5 feet, a protective system is required if the competent person identifies a potential for cave-in.

4.3.1 Sloping

Sloping involves cutting the sides of the excavation at an angle away from the excavation to prevent cave-ins. Maximum allowable slopes:

- Type A Soil: $\frac{3}{4}$:1 (horizontal to vertical) — 53 degrees from horizontal
- Type B Soil: 1:1 — 45 degrees from horizontal
- Type C Soil: $1\frac{1}{2}$:1 — 34 degrees from horizontal
- Stable Rock: Vertical (90 degrees)
- For excavations 20 feet or deeper, sloping and benching designs must be approved by a registered professional engineer
- Short-term exposure (24 hours or less) in Type A soil: Maximum slope of $\frac{1}{2}$:1 (63 degrees) is permitted for excavations 12 feet or less in depth

4.3.2 Benching

Benching creates a series of horizontal steps in the excavation wall. Benching is NOT permitted in Type C soil.

- Type A Soil: Maximum bench height of 4 feet. Simple or multiple bench configuration permitted.
- Type B Soil: Maximum bench height of 4 feet. Steps must be below the maximum slope angle (1:1).
- Type C Soil: Benching is NOT allowed due to soil instability.
- The first bench must begin at the excavation floor level.
- Benching designs for excavations over 20 feet must be prepared by a registered professional engineer.

4.3.3 Shoring

Shoring systems support the excavation walls and prevent cave-in. Common shoring systems include:

- Timber Shoring — Installed per OSHA Subpart P, Appendix C. Includes wales, cross braces, and uprights.
- Aluminum Hydraulic Shoring — Lightweight, adjustable systems installed per OSHA Subpart P, Appendix D. Must be installed per manufacturer's tabulated data.
- Screw Jack Shoring — Adjustable metal systems that can be used with timber or metal sheeting.
- All shoring must be installed from the top down and removed from the bottom up.
- Shoring must be designed for the specific soil conditions and depth of excavation.
- Employees shall not be permitted in the excavation while shoring is being installed or removed unless protected by another system.
- Manufacturer's tabulated data must be on-site for all manufactured shoring systems.

4.3.4 Shielding (Trench Boxes)

Trench shields (trench boxes) are portable structures placed inside the excavation to protect workers from cave-ins:

- Trench shields shall be certified by the manufacturer for the specific depth and soil type
- Manufacturer's tabulated data (maximum depth, soil type, dimensions) must be available on-site
- Shields shall extend at least 18 inches above the surrounding surface or the excavation shall be sloped back from the top of the shield at an angle not steeper than 1½:1
- Workers shall not remain in the shield during installation, removal, or vertical movement of the shield
- Backfill shall be placed evenly on both sides to prevent the shield from tipping
- Shields shall be inspected before each use for damage, deformation, and proper operation of spreader bars or hydraulic cylinders
- Multiple shields may be stacked for deeper excavations if designed for that purpose by the manufacturer
- Lateral movement of shields is permitted if the support provided is continuous

4.4 Access and Egress

Safe means of access and egress shall be provided for all excavations 4 feet or more in depth:

- Structural ramps used as access/egress must be designed by a competent person qualified in structural design, or by a registered professional engineer if used by vehicles
- Ladders, stairways, or ramps shall be located within 25 feet of lateral travel for all employees in the excavation
- Ladders shall extend at least 3 feet above the edge of the excavation and be secured to prevent displacement
- Ramps and runways shall be constructed of non-slip materials or treated surfaces
- Employees shall not use heavy equipment (bucket, boom, etc.) as a means of access or egress
- Access/egress points shall be kept clear of materials, equipment, and debris at all times
- The competent person shall evaluate and approve all access/egress routes before employees enter the excavation

4.5 Atmospheric Testing

Atmospheric testing shall be performed in excavations where hazardous atmospheres may exist or may reasonably be expected to develop:

- Excavations deeper than 4 feet where the possibility of an oxygen deficiency or a hazardous atmosphere exists shall be tested before employees enter
- Excavations in areas where hazardous substances have been stored, where landfill operations have occurred, or near petroleum facilities, gas lines, or chemical plants require atmospheric testing regardless of depth
- Testing shall include oxygen content (19.5%–23.5%), combustible gases (<10% LEL), and toxic gases (H_2S <10 ppm, CO <25 ppm) as appropriate
- If a hazardous atmosphere is detected, emergency rescue equipment (SCBA) shall be readily available
- Ventilation shall be provided as necessary to maintain safe atmospheric conditions
- Continuous monitoring is required when atmospheric conditions may change due to work activities or environmental factors
- Employees shall be removed from the excavation immediately if atmospheric testing reveals hazardous conditions

4.6 Hazard Prevention

4.6.1 Spoil Pile Management

- All excavated material (spoil) shall be placed at least 2 feet from the edge of the excavation, measured from the nearest edge of the spoil pile to the edge of the excavation

- Spoil piles shall be contained or retained as necessary to prevent materials from falling into the excavation
- Spoil shall not be stored on the downhill side of the excavation where it could wash into the trench
- Rock, soil, or other materials shall be effectively retained or restrained to prevent them from falling or rolling into the excavation

4.6.2 Mobile Equipment

- When mobile equipment is operated adjacent to an excavation, a warning system shall be utilized (barricades, hand/mechanical signals, stop logs, or grade-level berms)
- Equipment shall not be permitted to operate closer to the edge of an excavation than the depth of the excavation, unless the excavation is supported or shored
- Employees shall not work under loads being handled by lifting or digging equipment
- Employees shall stand away from vehicles being loaded or unloaded to avoid being struck by any spillage or falling materials

4.6.3 Water Accumulation Hazards

- Employees shall not work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken to protect employees (water removal, safety harnesses and lifelines, or other means)
- The competent person shall monitor water removal equipment and the operations throughout the work shift
- If water is controlled or prevented from accumulating by the use of water removal equipment, the operation shall be monitored by the competent person
- Diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation

4.6.4 Falling Load Protection

- No employee shall be permitted underneath loads handled by lifting or digging equipment
- Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by spillage or falling materials
- When overhead operations or falling hazards exist, employees working in the excavation shall wear hard hats
- Barricades, barriers, or physical separation shall be used to protect workers in excavations from vehicular traffic

5. Inspection Requirements

5.1 Daily Inspections

The competent person shall inspect the excavation, adjacent areas, and protective systems at the following intervals:

- Before the start of each work shift
- After every rainstorm or other hazard-increasing occurrence (flooding, vibration from nearby blasting or heavy equipment, etc.)
- As conditions change throughout the work shift
- When fissures, seepage, undermining, bulging at the bottom, or other signs of instability occur

If the competent person identifies evidence of a situation that could result in a cave-in, exposure to a hazardous atmosphere, or other hazardous condition, all exposed employees shall be removed from the hazardous area until the necessary precautions have been taken.

5.2 Inspection Checklist Items

The following items shall be evaluated during each inspection (use the Daily Trench Inspection Form — Appendix A):

- Condition of excavation walls (cracks, spalling, bulging, sloughing, raveling)
- Condition and adequacy of protective systems (shoring tight, shields level, slopes correct)
- Water accumulation or seepage
- Condition of spoil piles (placement, retention, distance from edge)
- Access/egress availability and condition (ladder within 25 feet, extending 3 feet above edge)
- Underground utility exposure or proximity
- Adjacent structure stability
- Surface conditions and drainage adequacy
- Equipment placement relative to the excavation edge
- Employee compliance with safety requirements
- Atmospheric conditions (if applicable)
- Barricades and warning systems for pedestrian and vehicular traffic

6. Training Requirements

6.1 Competent Person Training

Competent persons shall receive comprehensive training in:

- OSHA Subpart P — Excavations (29 CFR 1926.650–652) and all Appendices
- Soil classification methods (visual and manual testing)
- Protective system selection and design (sloping, benching, shoring, shielding)
- Excavation hazard recognition and abatement
- Atmospheric testing procedures and equipment operation
- Emergency response and rescue procedures
- Utility damage prevention and 811 procedures
- Inspection documentation requirements

6.2 Employee Training

All employees who work in or around excavations shall receive training in:

- Recognition and avoidance of excavation hazards (cave-in, falling materials, hazardous atmospheres, water accumulation, utilities)
- Understanding of protective systems and their limitations
- Proper use of access/egress equipment (ladders, ramps, stairs)
- Safe work practices in and around excavations
- Spoil pile placement and material handling near excavations
- Emergency procedures and evacuation routes
- Personal protective equipment requirements (hard hats, high-visibility vests, etc.)
- Authority and duty to refuse to enter an unsafe excavation
- Incident and near-miss reporting procedures

6.3 Retraining

Retraining shall be provided when:

- Changes in site conditions or excavation methods require new knowledge or skills
- An employee demonstrates inadequate knowledge of excavation safety procedures
- After any excavation-related incident or near miss
- When new equipment or protective systems are introduced
- At minimum, annual refresher training shall be provided

6.4 Training Documentation

Training records shall include: employee name and signature, date(s) of training, trainer name and qualifications, topics covered, and duration. Records shall be maintained for the duration of employment plus three years. Use the Training Sign-Off Sheet (Appendix D) to document each session.

7. Documentation and Recordkeeping

[COMPANY NAME] shall maintain the following records:

Record Type	Retention Period	Responsible Party
Daily Trench Inspection Forms	Duration of project + 3 years	Competent Person
Soil Classification Worksheets	Duration of project + 3 years	Competent Person
Utility Locate Tickets/Records	Duration of project + 1 year	Project Manager
Competent Person Designation Records	Duration of assignment + 1 year	Management
Training Records	Duration of employment + 3 years	Safety Manager
Incident/Near Miss Reports	5 years minimum	Safety Manager
Program Audit Reports	5 years minimum	Management
Manufacturer's Tabulated Data (Shoring/Shields)	Duration of equipment use	Competent Person
PE-Designed Protective Systems (if applicable)	Duration of project + 3 years	Project Manager

All records shall be readily accessible for review by OSHA compliance officers, employees, and their designated representatives.

Appendix A: Daily Trench Inspection Form

Field	Information
Project Name/Number:	[]
Location/Address:	[]
Date:	[] Weather Conditions: []
Competent Person:	[]
Excavation Depth:	[] ft Length: [] ft Width: [] ft
Soil Classification:	☐ Type A ☐ Type B ☐ Type C ☐ Stable Rock ☐ Layered
Protective System:	☐ Sloping ☐ Benching ☐ Shoring ☐ Shielding ☐ Other: _____

Inspection Checklist

#	Inspection Item	Yes	No	N/A	Comments
1	811 utility locates completed and documented?				
2	All utilities identified, marked, and protected?				
3	Excavation walls stable — no cracks, bulging, or sloughing?				
4	Protective system installed and in good condition?				
5	Spoil pile at least 2 feet from excavation edge?				
6	Ladder/ramp within 25 feet of lateral travel?				
7	Ladder extends 3 feet above the excavation edge?				
8	No water accumulation in excavation?				
9	Surface water diverted from excavation?				
10	Adjacent structures stable and not undermined?				
11	Equipment positioned at safe distance from edge?				
12	Barricades/warning systems in place for traffic?				
13	Atmospheric testing performed (if required)?				
14	Atmospheric readings within acceptable limits?				
15	Hard hats and PPE being worn by all workers?				
16	Workers using designated access/egress routes?				
17	No loads being raised/lowered over workers?				
18	Manufacturer's tabulated data on-site (if applicable)?				

Deficiencies Noted / Corrective Actions Taken

Description of Deficiency	Corrective Action Taken	Completed By	Time

Atmospheric Test Results (if applicable)

Time	O ₂ (%)	LEL (%)	H ₂ S (ppm)	CO (ppm)	Tester Initials

Competent Person Signature: _____ Date: _____

Reviewed By (Supervisor): _____ Date: _____

Appendix B: Soil Classification Worksheet

Field	Information
Project Name/Number:	[]
Location:	[]
Date:	[]
Competent Person:	[]
Excavation Depth:	[]
Sample Location/Depth:	[]

Visual Tests Performed

Visual Test	Observations	Result
Soil particle size and type (granular vs. cohesive)		
Presence of fissures or cracks in walls		
Layered soil systems		
Previously disturbed soil		
Water seepage or standing water		
Evidence of vibration effects		
Soil clumping behavior in spoil pile		
Spalling, raveling, or sloughing of walls		

Manual Tests Performed

Manual Test	Method/Reading	Result
Pocket Penetrometer	Reading: _____ tsf	Type: _____
Thumb Penetration Test	Depth of penetration: _____	Type: _____
Dry Strength Test	Crumbles / Breaks with difficulty	Type: _____
Plasticity (Ribbon) Test	Thread length before breaking: _____	Type: _____
Shear Vane Test	Reading: _____ tsf	Type: _____

Classification Determination

Field	Information
Final Soil Classification:	☐ Type A ☐ Type B ☐ Type C ☐ Stable Rock
Layered System:	☐ Yes ☐ No If yes, describe: []
Classification Basis:	[]
Factors Downgrading Classification:	☐ Fissured ☐ Vibration ☐ Previously Disturbed ☐ Submerged ☐ Seepage ☐ Layered

Protective System Selected

Field	Information
Selected System:	☐ Sloping (Angle: _____) ☐ Benching ☐ Shoring ☐ Shield/Trench Box
System Details:	[]
PE Design Required:	☐ Yes ☐ No PE Name: []

Competent Person Signature: _____ Date: _____

Appendix C: Competent Person Designation Form

[COMPANY NAME] hereby designates the following individual as a Competent Person for excavation and trenching operations in accordance with 29 CFR 1926.650–652:

Field	Information
Employee Name:	[]
Employee Title:	[]
Employee ID/SSN Last 4:	[]
Date of Designation:	[]
Designation Valid Through:	[]

Qualifications and Training

Training/Qualification	Provider	Date Completed	Certification #
OSHA Excavation Safety (Subpart P)			
Soil Classification Training			
OSHA 30-Hour Construction			
Competent Person Course — Excavation			
First Aid / CPR			

Experience

Description of Relevant Experience	Duration	Employer/Project

Authorization

As a designated Competent Person, the individual named above has the training, knowledge, and authority to:

- Classify soil types using visual and manual testing methods
- Select, design, and inspect protective systems for excavations
- Conduct daily inspections of excavations, protective systems, and adjacent areas
- Identify existing and predictable excavation hazards
- Authorize employees to enter excavations
- Order immediate evacuation of excavations when hazardous conditions exist
- Take prompt corrective measures to eliminate identified hazards

Designated By (Management): _____ Title: _____

Signature: _____ Date: _____

Employee Acknowledgment: _____ Date: _____

Appendix D: Training Sign-Off Sheet

Field	Information
Training Topic:	Excavation & Trenching Safety Program
Training Date:	[]
Training Location:	[]
Trainer Name:	[]
Trainer Qualifications:	[]
Training Duration:	[]

Topics Covered

- ☐ Excavation hazard recognition (cave-in, utilities, water, atmosphere)
- ☐ Soil classification methods and types (A, B, C, Stable Rock)
- ☐ Protective systems (sloping, benching, shoring, shielding)
- ☐ Access and egress requirements (ladders within 25 feet)
- ☐ Utility locating procedures and 811 requirements
- ☐ Spoil pile placement (minimum 2 feet from edge)
- ☐ Water accumulation hazards and controls
- ☐ Atmospheric testing requirements (excavations >4 feet depth)
- ☐ Daily inspection requirements and competent person duties
- ☐ Emergency procedures and evacuation
- ☐ Applicable OSHA standards (29 CFR 1926.650–652)

Employee Acknowledgment

By signing below, I acknowledge that I have received training in the above topics, understand the material presented, had the opportunity to ask questions, and agree to comply with the excavation and trenching safety requirements of [COMPANY NAME].

#	Employee Name (Print)	Employee Signature	Date	Company/Trade

Trainer Signature: _____ Date: _____

FALL PROTECTION PROGRAM

Written Safety Program

[COMPANY NAME]

[Company Address]

[City, State ZIP]

[Phone Number]

Revision Date: [MM/DD/YYYY]

Revision Number: [1.0]

Prepared by Forbes Safety Solutions

Document Control

This document is the property of [COMPANY NAME]. It must be reviewed and updated at least annually or when conditions change.

Revision #	Date	Description of Change	Approved By
1.0	[Date]	Initial Release	[Name/Title]

Table of Contents

Note: Right-click and select "Update Field" to refresh the Table of Contents after editing this document.

1. Purpose and Scope

1.1 Purpose

The purpose of this Fall Protection Program is to establish the policies, procedures, and practices that [COMPANY NAME] will implement to protect employees from fall hazards. This program provides a systematic approach to identifying fall hazards, selecting appropriate fall protection methods, and ensuring all employees are properly trained and equipped to work safely at heights.

This written program fulfills the requirements of OSHA standards for employers to develop and implement a fall protection plan when employees are exposed to fall hazards of 6 feet or more in construction (29 CFR 1926.502) or 4 feet or more in general industry (29 CFR 1910.28).

1.2 Scope

This program applies to all [COMPANY NAME] employees, subcontractors, and temporary workers who are exposed to fall hazards during the course of their work. This includes, but is not limited to, work performed on:

- Unprotected sides and edges 6 feet (construction) or 4 feet (general industry) or more above a lower level
- Leading edges
- Hoist areas
- Holes (including skylights)
- Formwork and reinforcing steel
- Ramps, runways, and other walkways
- Excavations
- Dangerous equipment
- Overhand bricklaying and related work
- Roofing work (both low-slope and steep-slope)
- Precast concrete erection
- Wall openings
- Residential construction activities

1.3 Regulatory References

- 29 CFR 1926.500 – Scope, Application, and Definitions (Construction)
- 29 CFR 1926.501 – Duty to Have Fall Protection (Construction)
- 29 CFR 1926.502 – Fall Protection Systems Criteria and Practices (Construction)
- 29 CFR 1926.503 – Training Requirements (Construction)
- 29 CFR 1910.28 – Duty to Have Fall Protection (General Industry)

- 29 CFR 1910.29 – Fall Protection Systems and Falling Object Protection Criteria (General Industry)
- 29 CFR 1910.30 – Training Requirements (General Industry)
- ANSI Z359.1 – Safety Requirements for Personal Fall Arrest Systems
- ANSI Z359.2 – Minimum Requirements for a Comprehensive Managed Fall Protection Program
- ANSI Z359.6 – Specifications and Design Requirements for Active Fall Protection Systems

2. Definitions

Anchorage: A secure point of attachment for lifelines, lanyards, or deceleration devices. Must be capable of supporting at least 5,000 pounds per employee attached, or designed, installed, and used as part of a complete PFAS maintaining a safety factor of at least two, under the supervision of a qualified person.

Competent Person: One who is capable of identifying existing and predictable fall hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Controlled Access Zone (CAZ): An area in which certain work may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems, and access to the zone is controlled.

Deceleration Device: Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic self-retracting lifeline/lanyard, that serves to dissipate energy during a fall arrest.

Guardrail System: A barrier erected to prevent employees from falling to lower levels. Consists of top rail (42 inches $\pm$ 3 inches), mid rail, and toeboards where required.

Hole: A gap or void 2 inches or more in its least dimension, in a floor, roof, or other walking/working surface.

Lanyard: A flexible line of rope, wire rope, or strap that generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage.

Leading Edge: The edge of a floor, roof, or formwork for a floor or other walking/working surface that changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed.

Personal Fall Arrest System (PFAS): A system used to arrest an employee in a fall from a working level. Consists of an anchorage, connectors, body harness, and may include a lanyard, deceleration device, lifeline, or suitable combinations of these.

Qualified Person: A person with a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience has successfully demonstrated the ability to solve or resolve problems relating to the subject matter.

Safety Net System: A system of nets and hardware installed below a walking/working surface to catch employees who fall.

Self-Retracting Lifeline/Lanyard (SRL): A deceleration device that contains a drum-wound line that 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.

Warning Line System: A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems.

3. Roles and Responsibilities

3.1 Employer / Management

- Establish, implement, and maintain this Fall Protection Program
- Provide all necessary fall protection equipment at no cost to employees
- Designate a competent person for each work site where fall hazards exist
- Ensure all employees receive initial and refresher training on fall protection
- Conduct periodic program audits to evaluate effectiveness
- Investigate all fall-related incidents and near misses
- Ensure subcontractors comply with this program when working on company-controlled sites
- Allocate adequate resources for fall protection equipment, training, and rescue capabilities
- Maintain documentation of training records, inspections, and incident reports

3.2 Competent Person

- Conduct fall hazard assessments and surveys before work begins at each job site
- Select appropriate fall protection methods for each task and location
- Identify and evaluate anchorage points to ensure they meet the 5,000 lb. requirement
- Inspect all fall protection equipment prior to each use and remove defective equipment from service
- Monitor work operations to ensure compliance with this program
- Authorize employees to enter controlled access zones
- Stop work immediately when imminent fall hazards are identified
- Ensure that a site-specific rescue plan is in place before any work at heights begins
- Document hazard surveys, inspections, and corrective actions

3.3 Supervisors

- Enforce compliance with this Fall Protection Program at all times
- Ensure employees under their supervision are trained before performing work at heights
- Verify that appropriate fall protection equipment is available and being used correctly
- Conduct daily pre-work safety briefings that include fall hazard awareness
- Report all fall-related incidents, near misses, and equipment deficiencies immediately
- Coordinate with the competent person on fall protection requirements for each task
- Ensure rescue equipment and trained rescuers are available before elevated work begins

3.4 Employees

- Comply with all fall protection requirements established by this program
- Properly use and care for all fall protection equipment as trained
- Inspect personal fall protection equipment before each use and report any defects
- Report fall hazards, unsafe conditions, and equipment damage to their supervisor immediately
- Attend and actively participate in all required fall protection training
- Never alter, misuse, or remove fall protection equipment or systems
- Understand and follow the site-specific rescue plan
- Refuse to perform work at heights if proper fall protection is not in place

4. Fall Protection Procedures

4.1 Fall Hazard Survey

Before work begins at any job site, the competent person shall conduct a comprehensive fall hazard survey to identify all areas where employees may be exposed to fall hazards. The survey shall:

- Identify all locations where employees will be working at heights of 6 feet or more above a lower level (construction) or 4 feet or more (general industry)
- Document the specific fall hazards present at each location (unprotected edges, holes, skylights, leading edges, etc.)
- Determine the appropriate fall protection method for each identified hazard
- Identify suitable anchorage points and evaluate their load-bearing capacity
- Assess environmental factors that may affect fall protection (wind, weather, temperature, lighting)
- Evaluate access and egress routes to elevated work areas
- Identify potential falling object hazards to workers below
- Document the survey results on the Fall Hazard Survey Form (Appendix A)

The fall hazard survey shall be updated whenever site conditions change, new work activities begin, or the competent person identifies previously unrecognized hazards.

4.2 Fall Protection Methods

4.2.1 Guardrail Systems

Guardrail systems are the preferred method of fall protection and shall be used wherever feasible.

Guardrail systems shall meet the following requirements:

- Top rail height shall be 42 inches (± 3 inches) above the walking/working level
- Mid rails shall be installed midway between the top rail and the walking/working surface
- Guardrails shall be capable of withstanding a force of at least 200 pounds applied within 2 inches of the top edge in any outward or downward direction
- Mid rails shall withstand a force of at least 150 pounds in any outward or downward direction
- The surface of the top rail shall be smooth to prevent punctures, lacerations, or snagging of clothing
- Toeboards shall be installed when materials or tools could fall on workers below (minimum 3.5 inches tall)
- Openings in guardrail systems shall not allow passage of a sphere larger than 19 inches in diameter
- Wire rope used as a top rail shall be flagged with high-visibility material at intervals not exceeding 6 feet

4.2.2 Personal Fall Arrest Systems (PFAS)

When guardrail systems are not feasible, personal fall arrest systems shall be used. All PFAS components shall meet ANSI Z359 standards and shall include:

- Full-body harness (body belts are NOT permitted for fall arrest)
- Connecting device: shock-absorbing lanyard, self-retracting lifeline (SRL), or rope grab with lifeline
- Anchorage point capable of supporting at least 5,000 pounds per attached employee
- Total fall distance must be calculated and documented to ensure adequate clearance below the worker (free fall distance shall not exceed 6 feet)
- The system must bring the employee to a complete stop and limit the maximum deceleration distance to 3.5 feet
- The maximum arresting force on an employee shall not exceed 1,800 pounds when using a body harness
- Employees must be able to be rescued or rescue themselves within 6 minutes of a fall arrest to prevent suspension trauma

4.2.3 Safety Net Systems

Safety net systems may be used where other methods are not practical. Safety nets shall:

- Be installed as close as practical beneath the walking/working surface, but no more than 30 feet below
- Extend outward from the outermost projection of the work surface (8 feet for up to 5 feet of fall, 10 feet for 5-10 feet, 13 feet for more than 10 feet)
- Be drop-tested or certified by a qualified person after installation and before use
- Have mesh openings no larger than 6 inches by 6 inches
- Be inspected at least weekly for wear, damage, and other deterioration
- Have all objects that have fallen into the net removed as soon as possible

4.2.4 Hole Covers

All holes on walking/working surfaces shall be covered or protected by guardrails. Hole covers shall:

- Be capable of supporting at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time
- Be secured to prevent accidental displacement by wind, equipment, or workers
- Be clearly marked with the word "HOLE" or "COVER" to provide warning of the hazard
- Be color coded or otherwise identified as hole covers where marking is not practical

4.2.5 Controlled Access Zones

Controlled access zones may be established for certain operations (leading edge work, overhand bricklaying, precast concrete erection) as an alternative fall protection method. Controlled access zones shall:

- Be defined by a control line erected not less than 6 feet and not more than 25 feet from the unprotected edge
- Be marked with control lines consisting of ropes, wires, or tapes, flagged at 6-foot intervals, supported at a height of 39 to 45 inches
- Restrict access to only those employees actively engaged in the specific work operation
- Be supervised by the competent person at all times when in use
- Never be used as a substitute for conventional fall protection where such protection is feasible

4.2.6 Warning Line Systems

Warning line systems may be used on low-slope roofs (4:12 or less) and shall meet the following criteria:

- Erected around all sides of the roof work area not less than 6 feet from the roof edge
- Made of rope, wire, or chain flagged with high-visibility material at intervals not exceeding 6 feet
- Rigged so that the lowest point (including sag) is at least 34 inches and the highest point is no more than 39 inches from the roof surface
- Stanchions capable of resisting a force of at least 16 pounds without tipping over
- Must be used in conjunction with a safety monitor or other fall protection for work within the warning line area

4.3 Anchorage Requirements

Anchorage points are critical to the effectiveness of personal fall arrest systems. The following requirements apply:

- Anchorages for PFAS shall be capable of supporting at least 5,000 pounds per employee attached, or be designed, installed, and used under the supervision of a qualified person as part of a complete system maintaining a safety factor of at least two
- Anchorages for positioning device systems shall be capable of supporting at least twice the potential impact load or 3,000 pounds, whichever is greater
- Anchorages shall be independent of any anchorage used to support or suspend platforms
- The competent person shall evaluate and approve all anchorage points before use
- Manufactured anchorage devices shall be installed according to the manufacturer's instructions
- Structural steel members, concrete inserts, and other structural elements may serve as anchorage points when evaluated by a qualified person

- Cross-arm straps, beam clamps, and other temporary anchorage connectors shall be inspected before each use
- Anchorage points shall be located above the D-ring attachment point on the harness whenever possible to minimize free fall distance

4.4 Equipment Inspection

All fall protection equipment shall be inspected in accordance with the following schedule:

4.4.1 Pre-Use Inspection (Before Each Use)

Every employee shall inspect their personal fall protection equipment before each use. At a minimum, the following checks shall be performed:

Equipment	Inspection Points
Full-Body Harness	Check webbing for cuts, burns, fraying, abrasion, chemical damage, or excessive wear. Inspect all buckles, D-rings, and grommets for cracks, distortion, or corrosion. Verify all labels and markings are legible. Ensure proper fit and adjustment.
Shock-Absorbing Lanyard	Inspect webbing/rope for cuts, burns, fraying, or damage. Check snap hooks for gate closure, locking mechanism, and distortion. Verify shock absorber has not been deployed (pack should be intact). Check stitching for pulled or cut threads.
Self-Retracting Lifeline (SRL)	Test retraction and locking mechanism. Inspect housing for cracks or damage. Check cable/webbing for cuts, kinks, or corrosion. Verify snap hook operates properly. Ensure inspection tag/label is current.
Rope Grab / Vertical Lifeline	Inspect rope for fraying, cuts, or abrasion. Check rope grab for proper operation and locking. Verify compatibility between rope grab and lifeline diameter. Inspect termination hardware.
Anchorage Connectors	Inspect cross-arm straps, beam clamps, or other connectors for deformation, cracks, or wear. Verify proper engagement and load rating.

4.4.2 Periodic Formal Inspection

The competent person shall conduct formal documented inspections of all fall protection equipment at least every six (6) months, or more frequently as specified by the manufacturer. Use the Harness Inspection Checklist (Appendix B) for documentation.

4.4.3 Equipment Removal from Service

Fall protection equipment shall be immediately removed from service and destroyed or tagged "Out of Service" when:

- The equipment has been subjected to impact forces during a fall arrest event
- The equipment shows signs of damage, excessive wear, or deterioration during inspection
- The equipment has been exposed to chemicals, extreme heat, or other conditions that may compromise its integrity
- The equipment has reached its manufacturer's recommended service life

- Any component fails to operate as designed during inspection or testing
- Labels or markings are missing or illegible, preventing identification of the manufacturer, model, or date of manufacture

4.5 Rescue Planning

A rescue plan shall be developed and in place before any work at heights begins. Prompt rescue is essential to prevent suspension trauma (harness hang syndrome), which can become life-threatening within minutes of a fall arrest event.

4.5.1 Rescue Requirements

- Rescue of a fallen worker must be accomplished within six (6) minutes of the fall arrest
- Self-rescue methods shall be provided where feasible (trauma relief straps, self-rescue devices)
- Non-entry rescue methods are preferred over entry rescue methods where possible
- The rescue plan shall identify the rescue method(s), equipment, and trained personnel for each work location
- Rescue equipment shall be readily available at the work site (rescue retrieval systems, ladders, aerial lifts, etc.)
- At least two employees at each work site shall be trained in fall rescue procedures
- Emergency services (911) shall be identified as a backup rescue resource, but shall not be the primary rescue plan
- Rescue drills shall be conducted at least annually to verify the effectiveness of the plan

4.5.2 Suspension Trauma Prevention

All employees who use personal fall arrest systems shall be trained to recognize the symptoms of suspension trauma and the following preventive measures:

- Trauma suspension straps shall be attached to all full-body harnesses
- Employees shall be trained to use leg straps to maintain blood circulation if suspended
- Employees shall try to maintain leg movement and push against any available surface
- Rescued employees who have been suspended shall be placed in a seated or reclined position — never lay flat immediately, as sudden blood redistribution can cause cardiac arrest
- Medical evaluation shall be obtained for any employee who has been suspended in a harness for any period of time

5. Training Requirements

5.1 Initial Training

[COMPANY NAME] shall provide training for each employee who might be exposed to fall hazards. Training shall be provided by a competent person qualified in the following areas and shall enable each employee to recognize the hazards of falling and the procedures to follow to minimize those hazards.

Training shall cover, at a minimum:

- The nature of fall hazards in the work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection
- The role of employees in the fall protection plan and this program
- OSHA standards applicable to fall protection (29 CFR 1926.500-503, 29 CFR 1910.28-30)
- The limitations of each fall protection system
- Proper fitting and use of full-body harnesses
- Equipment inspection procedures (pre-use and formal)
- Fall distance calculations and swing-fall hazards
- Anchorage point selection and evaluation
- Rescue procedures and suspension trauma awareness
- Incident and near-miss reporting procedures

5.2 Retraining

Retraining shall be provided when:

- Changes in the workplace render previous training obsolete
- Changes in the types of fall protection systems or equipment being used
- Inadequacies in an affected employee's knowledge or use of fall protection systems indicate that the employee has not retained the requisite understanding or skill
- An employee is observed failing to comply with fall protection requirements
- After any fall-related incident or near miss involving the employee
- At minimum, annual refresher training shall be provided to all employees exposed to fall hazards

5.3 Training Documentation

Training records shall be maintained and include:

- Name and signature of each employee trained
- Date(s) of training
- Name and qualifications of the trainer(s)
- Subject matter and duration of training
- Type of fall protection systems covered
- Verification that employees demonstrated competency in equipment use and inspection

Training records shall be maintained for the duration of employment and shall be made available upon request. Use the Training Sign-Off Sheet (Appendix D) to document training sessions.

6. Inspection and Audit Procedures

6.1 Ongoing Site Inspections

The competent person shall conduct daily inspections of all fall protection systems in use, including:

- Visual inspection of guardrail systems for damage, missing components, or displacement
- Verification that hole covers are in place, secured, and properly marked
- Inspection of PFAS anchorage points for integrity
- Review of controlled access zone and warning line system configurations
- Observation of employee compliance with fall protection requirements
- Assessment of changing site conditions that may introduce new fall hazards

6.2 Program Audit

[COMPANY NAME] shall conduct a formal audit of this Fall Protection Program at least annually. The audit shall evaluate:

- Effectiveness of fall protection measures in preventing falls and fall-related injuries
- Compliance with OSHA standards and this written program
- Adequacy of training programs and employee competency
- Condition and availability of fall protection equipment
- Completeness and accuracy of documentation and recordkeeping
- Effectiveness of rescue plans and rescue drill results
- Investigation and corrective action follow-up for fall-related incidents
- Employee feedback and suggestions for program improvement

Audit findings shall be documented and corrective actions shall be tracked to completion. Management shall review audit results and authorize necessary changes to this program.

7. Documentation and Recordkeeping

[COMPANY NAME] shall maintain the following records related to this Fall Protection Program:

Record Type	Retention Period	Responsible Party
Fall Hazard Survey Forms	Duration of project + 3 years	Competent Person
Equipment Inspection Records	Duration of equipment service life + 1 year	Competent Person
Training Records	Duration of employment + 3 years	Safety Manager
Incident/Near Miss Reports	5 years minimum	Safety Manager
Rescue Plan Documentation	Duration of project	Competent Person
Program Audit Reports	5 years minimum	Management
Equipment Manufacturer Documentation	Duration of equipment service life	Safety Manager
Competent Person Designation Records	Duration of assignment	Management

All records shall be readily accessible for review by OSHA compliance officers, employees, and their designated representatives. Records shall be stored in a secure location and backed up periodically.

Appendix A: Fall Hazard Survey Form

Field	Information
Project Name:	[]
Project Location:	[]
Survey Date:	[]
Competent Person:	[]
Survey Revision #:	[]

Hazard Identification

Location / Area	Fall Hazard Description	Height (ft)	Protection Method Selected	Anchorage Point(s)	Action Required

Additional Notes / Observations

Notes

Competent Person Signature: _____ Date: _____

Reviewed By: _____ Date: _____

Appendix B: Harness Inspection Checklist

Field	Information
Inspector Name:	[]
Inspection Date:	[]
Harness Manufacturer:	[]
Harness Model/Serial #:	[]
Date of Manufacture:	[]
Assigned To:	[]

Inspection Checklist

Inspection Item	Pass	Fail	N/A	Comments
Webbing: No cuts, burns, fraying, or abrasion				
Webbing: No chemical damage or discoloration				
Webbing: No excessive stretching or distortion				
Stitching: No pulled, cut, or broken threads				
D-Rings: No cracks, distortion, or corrosion				
D-Rings: Properly positioned and move freely				
Buckles: Operate and engage properly				
Buckles: No cracks, distortion, or corrosion				
Grommets: No damage, distortion, or missing rivets				
Labels: Manufacturer, model, date, size legible				
Tongue/Pass-through buckles: Engage securely				
Quick-connect buckles: Lock and release properly				
Padding/Comfort features: Intact and functional				
Trauma straps: Present and functional				
Previous fall arrest event: NO (if YES, remove from service)				

Overall Condition: ☐ PASS — Return to Service ☐ FAIL — Remove from Service

If FAIL, describe deficiency: _____

Inspector Signature: _____ Date: _____

Next Scheduled Inspection Date: _____

Appendix C: Rescue Plan Template

Field	Information
Project Name:	[]
Project Location:	[]
Date Prepared:	[]
Prepared By:	[]
Emergency Phone #:	[]
Nearest Hospital:	[]
Hospital Address:	[]

Rescue Methods by Work Location

Work Location	Rescue Method (Self-Rescue / Assisted / Mechanical)	Equipment Required	Trained Rescue Personnel	Estimated Rescue Time

Rescue Equipment Inventory

Equipment Description	Quantity	Location Stored	Last Inspection Date	Condition

Rescue Procedures

1. Upon observation of a fall arrest event, immediately call for help and activate the rescue plan.
2. Call 911 as backup while initiating on-site rescue procedures.
3. Communicate with the fallen worker — assess consciousness and injuries.
4. Instruct the worker to use trauma relief straps and maintain leg movement if conscious.
5. Deploy rescue equipment and execute the designated rescue method.
6. Complete rescue within 6 minutes of the fall arrest.
7. Once rescued, position the worker in a seated/reclined position — do NOT lay flat.
8. Provide first aid and await EMS arrival.
9. Preserve the scene and all equipment for incident investigation.
10. Complete the incident report within 24 hours.

Rescue Drill Log

Drill Date	Location	Scenario	Rescue Time Achieved	Participants	Corrective Actions Needed

Plan Prepared By: _____ Date: _____

Approved By: _____ Date: _____

Appendix D: Training Sign-Off Sheet

Field	Information
Training Topic:	Fall Protection Program
Training Date:	[]
Training Location:	[]
Trainer Name:	[]
Trainer Qualifications:	[]
Training Duration:	[]

Topics Covered

- ☐ Fall hazard identification and avoidance
- ☐ Fall protection systems (guardrails, PFAS, nets, warning lines, CAZ)
- ☐ Personal fall arrest system use and limitations
- ☐ Harness fitting, adjustment, and donning
- ☐ Equipment inspection procedures (pre-use and formal)
- ☐ Anchorage point selection and evaluation
- ☐ Fall distance calculations
- ☐ Rescue procedures and suspension trauma prevention
- ☐ Incident and near-miss reporting
- ☐ Applicable OSHA standards

Employee Acknowledgment

By signing below, I acknowledge that I have received training in the above topics, understand the material presented, had the opportunity to ask questions, and agree to comply with the fall protection requirements of [COMPANY NAME].

#	Employee Name (Print)	Employee Signature	Date	Company/Trade

Trainer Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

Fall Rescue Plan

Prompt Rescue Procedures for Suspended Workers

Prepared for:

[COMPANY NAME]

Reference Standards:

29 CFR 1926.502(d)(20) | ANSI Z359.2 | ANSI Z359.4

Date: [DATE] | Revision: [REV NUMBER]

Table of Contents

1. Purpose

This Fall Rescue Plan establishes the procedures, equipment, and training requirements for the prompt rescue of employees who have fallen and are suspended in a personal fall arrest system. This plan ensures compliance with 29 CFR 1926.502(d)(20), which requires that the employer provide for prompt rescue of employees in the event of a fall, or assure that employees are able to rescue themselves.

Suspension in a fall arrest system is a life-threatening emergency. Without prompt rescue, a suspended worker can develop suspension trauma (orthostatic intolerance) which can cause serious injury or death. This plan ensures [COMPANY NAME] is prepared to rescue fallen workers within the critical time window.

2. Scope

This Fall Rescue Plan applies to all [COMPANY NAME] work activities where employees use personal fall arrest systems (PFAS), including but not limited to:

- Steel erection and structural work
- Roofing and rooftop work
- Scaffold work at heights
- Crane operations and maintenance
- Tower climbing (communication, utility)
- Elevated platform work
- Bridge and overpass work
- Excavation and confined space egress
- Any work at heights requiring fall arrest equipment

3. Responsibilities

3.1 Management

- Ensure a site-specific rescue plan is developed before any work at heights begins
- Provide rescue equipment and maintain it in ready condition
- Fund rescue training and drill programs

3.2 Safety Manager / Competent Person

- Develop site-specific rescue plans for each project
- Ensure rescue equipment is available, inspected, and operational
- Coordinate rescue team training and drills
- Review and update rescue plans when site conditions change
- Conduct post-rescue debriefs and documentation

3.3 Rescue Team Members

- Maintain current rescue training and certifications
- Participate in rescue drills at least quarterly
- Inspect rescue equipment before each shift
- Be available and capable of responding within the target rescue time

3.4 Supervisors

- Brief workers on the rescue plan before work at heights begins
- Ensure rescue equipment is on-site and accessible
- Initiate rescue procedures immediately upon a fall event
- Account for all workers and maintain communication

3.5 Employees

- Know the site-specific rescue plan and their role in it
- Carry suspension relief straps when using a fall arrest harness
- Immediately alert others if a fall occurs
- Attempt self-rescue if trained and able

4. Suspension Trauma / Orthostatic Intolerance

Suspension trauma (also called orthostatic intolerance or harness-induced pathology) is a life-threatening condition that occurs when a person is held motionless in an upright position in a harness.

4.1 How Suspension Trauma Occurs

- When suspended motionless in a harness, the leg straps compress veins and restrict blood flow
- Blood pools in the legs due to gravity and cannot return to the heart

- Reduced blood return decreases cardiac output and blood pressure
- Vital organs (brain, kidneys, heart) become deprived of oxygenated blood
- The condition can begin within minutes of suspension

4.2 Time Critical Nature

CRITICAL: Suspension trauma can become fatal within 30 minutes of motionless suspension. Some studies indicate serious effects can begin in as little as 3 to 5 minutes. Rescue must be treated as immediately dangerous to life and health (IDLH).

Time Suspended	Potential Effects	Urgency Level
0–5 minutes	Discomfort, numbness in legs, tingling	High — initiate rescue immediately
5–15 minutes	Pain, dizziness, nausea, elevated heart rate, anxiety	Critical — rescue must be underway
15–30 minutes	Loss of consciousness, organ damage, cardiac arrhythmia	Life-threatening — minutes matter
30+ minutes	Cardiac arrest, renal failure, death	Fatal if not rescued

4.3 Contributing Factors

- Immobility — conscious workers should be instructed to pump their legs to promote circulation
- Injury from the fall — pain or injury may prevent movement
- Unconsciousness — eliminates all muscle activity
- Cold temperatures — accelerate the onset of symptoms
- Dehydration and fatigue — reduce tolerance
- Tight harness straps — increase venous pooling

4.4 Suspension Relief Straps

All employees using personal fall arrest systems shall carry suspension relief straps (trauma straps) attached to their harness. These straps allow a conscious suspended worker to stand in the straps, relieving pressure on the legs and promoting blood circulation while awaiting rescue.

5. Rescue Methods

[COMPANY NAME] shall evaluate and implement one or more of the following rescue methods for each work situation:

5.1 Self-Rescue

Self-rescue is the preferred first response when the worker is conscious, uninjured, and trained:

- Worker deploys suspension relief straps and stands to relieve leg pressure
- Worker uses a self-rescue device (retractable descent device) to lower themselves to a safe level
- Worker climbs back to the work surface if possible

Self-rescue training is provided as part of the fall protection training program. Not all situations allow self-rescue — workers must also know when to wait for assisted rescue.

5.2 Assisted Rescue (Non-Entry)

Assisted rescue is performed from an adjacent safe location without the rescuer entering the fall zone:

- Rescue pole systems — a pole with a hook mechanism to reach the fallen worker and connect a lowering line
- Retrieval systems — pre-rigged mechanical retrieval winches that can raise or lower a worker
- Reach and pull — from an adjacent elevated surface, rescuers reach the worker with a hook or strap
- Ladder access — position an extension ladder to the suspended worker's location

5.3 Mechanical Rescue

Mechanical rescue uses equipment to reach and lower the suspended worker:

- Aerial lifts (boom lifts, scissor lifts) positioned beneath the worker
- Crane with personnel basket (last resort, follow OSHA crane-suspended personnel platform requirements)
- Self-retracting lifeline (SRL) with rescue/retrieval capability — some SRL models include built-in rescue winches
- Davit arm or tripod with rescue winch

5.4 Rescue Method Selection

The rescue method shall be selected based on the specific site conditions. Factors include:

- Height of the fall arrest point
- Location accessibility (can a lift or ladder reach the worker?)
- Number of workers at height simultaneously
- Availability and proximity of rescue equipment
- Environmental conditions (wind, weather, confined areas)

- Worker condition (conscious, injured, unconscious)

6. Rescue Equipment Inventory

[COMPANY NAME] shall maintain the following rescue equipment, as applicable to site conditions:

Equipment	Quantity Required	Location	Inspection Frequency
Rescue/retrieval SRL with winch	Per site-specific plan	[SPECIFY]	Before each use, annually by manufacturer
Suspension relief straps	One per worker in PFAS	Attached to each harness	Before each use
Rescue pole/hook system	1 per work area	[SPECIFY]	Monthly and before each use
Portable rescue kit (rope, pulleys, carabiners)	1 per work area	[SPECIFY]	Monthly and before each use
Aerial lift (for rescue access)	Per site-specific plan	[SPECIFY]	Per manufacturer schedule
Extension ladder(s)	Per site-specific plan	[SPECIFY]	Before each use
First aid kit (with trauma supplies)	1 per work area	[SPECIFY]	Monthly
Communication devices (radios)	1 per worker and rescue team	[SPECIFY]	Daily function check

7. Rescue Team Training and Drills

7.1 Training Requirements

Designated rescue team members shall receive training in:

1. Suspension trauma — recognition, time urgency, contributing factors
2. Rescue equipment setup, operation, and inspection
3. Rescue techniques (self-rescue, assisted, mechanical)
4. Communication procedures during rescue
5. First aid / CPR (current certifications required)

6. Post-rescue medical considerations
7. Site-specific rescue plan review

7.2 Drill Requirements

- Rescue drills shall be conducted at least quarterly
- Drills shall simulate realistic rescue scenarios at actual or similar work locations
- Each drill shall be timed — target rescue time shall be established for each scenario
- Drill results shall be documented using the Rescue Drill Documentation Form (Appendix B)
- Deficiencies identified during drills shall be corrected and the drill repeated
- All rescue team members shall participate in at least two drills per year

8. Site-Specific Rescue Planning

Before any work at heights begins, a site-specific rescue plan shall be developed addressing the following:

8.1 Key Planning Questions

8. How will the rescuer reach the suspended worker? (Lift, ladder, rope access, adjacent structure)
9. What rescue equipment is needed? (Retrieval SRL, rescue pole, aerial lift, lowering system)
10. Where is the rescue equipment located? (On-site, staged at work area, in rescue cache)
11. What is the estimated rescue time? (Must be achievable in under 15 minutes)
12. Who are the designated rescue team members for this shift?
13. How will the rescue be communicated? (Radio, verbal, phone)
14. Where will emergency medical services stage? (Access route, staging area)
15. Are there any environmental hazards that affect rescue? (Electrical, chemical, confined space)

8.2 Estimated Rescue Time

The site-specific rescue plan must demonstrate that rescue can be accomplished within a time frame that prevents suspension trauma. The target rescue time shall account for:

- Notification time — time from fall event to rescue team alert
- Response time — time for rescue team to reach the rescue equipment
- Setup time — time to position equipment and access the worker

- Rescue time — time to reach the worker and lower them to a safe surface

Total target rescue time: Not to exceed 15 minutes from fall event to worker on safe surface.

9. Communication During Rescue

Clear communication is essential during a rescue operation:

16. The person discovering the fall event shall immediately alert the designated rescue team and supervisor
17. Call 911 or local emergency services immediately — do not wait to see if rescue is successful
18. One person shall serve as the rescue coordinator to direct the operation
19. Maintain voice or radio contact with the suspended worker (if conscious) to assess condition and provide instructions
20. Keep non-essential personnel clear of the rescue area
21. Designate a person to guide emergency medical services to the scene

10. Post-Rescue Medical Treatment

Post-rescue medical treatment is critical and must follow specific protocols:

10.1 DO NOT Lay the Victim Flat Immediately

CRITICAL WARNING: Do NOT lay a rescued suspension trauma victim flat on their back immediately after rescue.

When a person has been suspended for any length of time, blood has pooled in the lower extremities. Laying them flat causes a sudden rush of pooled, deoxygenated, toxin-laden blood back to the heart, which can cause cardiac arrest ("rescue death" or "reflow syndrome").

- Place the rescued worker in a seated or semi-reclined position (W-position or legs bent at the knees)
- Gradually transition to a flat position over 30–40 minutes as medical personnel direct
- Monitor for signs of shock, cardiac distress, and renal failure
- Provide supplemental oxygen if available and trained

10.2 Medical Monitoring

- All rescued workers shall receive medical evaluation regardless of apparent condition

- Monitor vital signs continuously until EMS arrives
- Watch for delayed onset symptoms — renal failure can occur hours after rescue
- Inform EMS of the duration of suspension and any symptoms observed
- Do not allow the worker to return to work without medical clearance

11. Rescue from Specific Situations

11.1 Cranes

- Pre-plan rescue before climbing — identify how to reach the worker on the crane structure
- Consider SRL with rescue/retrieval capability at the crane cab and boom
- Aerial lifts may be positioned to reach workers on crane structures
- Ensure crane operator can be contacted to stop crane operations during rescue

11.2 Towers (Communication, Utility)

- Tower rescue requires specialized rope rescue training and equipment
- Pre-rig rescue systems at work locations before climbing begins
- Use tower-specific rescue kits (descender devices, pick-off rescue systems)
- Establish ground-based rescue capability (rigging for lowering systems)
- Consider weather conditions — wind and lightning increase rescue complexity

11.3 Scaffolds

- Ensure scaffold access points allow rescue equipment (ladders, lifts) to reach all levels
- Pre-position rescue equipment at scaffold access points
- Plan for rescue from inside the scaffold (through access hatches) or outside (via aerial lift)
- Ensure scaffold design does not create obstructions to rescue

11.4 Excavations

- Workers in excavations may become suspended in harness systems at edge transitions
- Pre-position retrieval systems at excavation entry points
- Ensure rescue plan addresses both fall rescue and excavation cave-in protocols

- Coordinate with confined space rescue procedures if the excavation is classified as a permit-required confined space

12. Program Review

- Review this plan at least annually
- Update the site-specific plan whenever conditions change (new work areas, equipment changes, personnel changes)
- Review after every actual rescue event
- Review after every drill that identifies deficiencies
- Incorporate lessons learned from industry incidents

13. Recordkeeping

- Site-specific rescue plans for each project
- Rescue team training records and certifications
- Rescue drill documentation (date, participants, scenario, time, results)
- Rescue equipment inspection records
- Actual rescue event reports
- Post-rescue medical evaluation records

Appendix A: Site-Specific Rescue Plan Form

SITE-SPECIFIC FALL RESCUE PLAN

Project Name / Job Site: _____

Date Prepared: _____

Prepared By: _____

Work Description: _____

Height of Work (feet): _____

Fall Arrest System Used: _____

Rescue Method(s) — Check all that apply:

- ☐ Self-Rescue (retractable descent device, climb back)
- ☐ Assisted Rescue — Rescue pole/hook system
- ☐ Assisted Rescue — Retrieval winch (pre-rigged)
- ☐ Mechanical Rescue — Aerial lift (boom/scissor)
- ☐ Mechanical Rescue — SRL with rescue capability
- ☐ Mechanical Rescue — Davit/tripod with rescue winch
- ☐ Other: _____

How will the rescuer reach the suspended worker?

What rescue equipment is needed and where is it located?

Estimated Rescue Time:

Notification time: _____

Response time: _____

Setup time: _____

Rescue/lowering time: _____

TOTAL estimated rescue time: _____

Designated Rescue Team Members (this shift):

Name	Role	Training Current?	Contact Method

Emergency Services Phone Number: _____

EMS Access Route / Staging Area: _____

Environmental Hazards Affecting Rescue:

Prepared By (Signature): _____

Date: _____

Reviewed By (Supervisor): _____

Date: _____

Appendix B: Rescue Drill Documentation Form

FALL RESCUE DRILL RECORD

Date of Drill: _____

Job Site / Location: _____

Drill Coordinator: _____

Scenario Description: _____

Drill Participants:

Name	Role in Drill	Training Date	Certification Current?

Drill Timeline:

Fall event simulated (start time): _____

Rescue team alerted (time): _____

Rescue team arrived at rescue equipment (time): _____

Equipment deployed / rescue initiated (time): _____

Worker reached by rescuer (time): _____

Worker lowered to safe surface (time): _____

TOTAL RESCUE TIME: _____

Was the target rescue time (<15 minutes) achieved? ☐ Yes ☐ No

Rescue Equipment Used:

Problems Encountered:

Corrective Actions Required:

Follow-Up Drill Required? ☐ Yes ☐ No If yes, date: _____

Drill Coordinator Signature: _____

Date: _____

Safety Manager Review: _____

Date: _____

FORBES SAFETY SOLUTIONS

Fatigue Management Program

Fatigue Risk Identification, Prevention & Countermeasures

Company:	[COMPANY NAME]
Prepared By:	[NAME / TITLE]
Effective Date:	[DATE]
Revision:	[REV NUMBER]
Regulatory Ref:	OSHA General Duty Clause / NIOSH / API RP 755

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Table of Contents

1. Purpose & Scope

[COMPANY NAME] recognizes that fatigue is a significant occupational safety hazard that impairs judgment, reduces reaction time, and increases the risk of errors and incidents. This program establishes policies and procedures to manage fatigue-related risks across all operations.

This program applies to all employees, contractors, and temporary workers at [COMPANY NAME] facilities and worksites, with particular emphasis on personnel performing safety-sensitive tasks, shift work, or extended hours.

2. Regulatory References

- OSHA General Duty Clause — Section 5(a)(1)
- NIOSH — Plain Language About Shiftwork (Publication 97-145)
- NIOSH — Overtime and Extended Work Shifts (Publication 2004-143)
- API Recommended Practice 755 — Fatigue Risk Management Systems for Personnel in the Refining and Petrochemical Industries
- ANSI/API RP 755 — Hours of Service Guidelines

3. Definitions

- **Fatigue:** A state of physical and/or mental exhaustion that reduces a person's ability to perform work safely and effectively.
- **Sleep Debt:** The cumulative effect of not getting enough sleep, which impairs cognitive function and reaction time.
- **Circadian Rhythm:** The body's internal 24-hour clock that regulates sleep-wake cycles, alertness, and performance.
- **Safety-Sensitive Position:** Any role where impaired performance could result in injury, environmental release, or property damage.
- **Fitness for Duty:** An employee's physical and mental readiness to safely perform assigned tasks.

4. Roles & Responsibilities

4.1 Management

- Provide adequate staffing to avoid excessive overtime and extended shifts
- Establish and enforce hours of service limits
- Promote a workplace culture that supports fatigue reporting without retaliation
- Allocate resources for fatigue management training and countermeasures

4.2 Supervisors

- Monitor employee hours worked and enforce hours of service limits
- Observe employees for signs of fatigue and take appropriate action
- Adjust workloads, schedules, and task assignments to manage fatigue risk
- Encourage employees to report fatigue without fear of retaliation

- Conduct fitness for duty assessments when fatigue is suspected

4.3 Employees

- Report to work adequately rested and fit for duty
- Report fatigue or fitness for duty concerns to supervisor
- Practice good sleep hygiene and fatigue countermeasures
- Do not perform safety-sensitive tasks when impaired by fatigue
- Accurately report hours worked including overtime and call-outs

4.4 Safety Department

- Administer and coordinate the Fatigue Management Program
- Analyze incident data for fatigue-related trends
- Provide fatigue management training resources

5. Fatigue Risk Factors

[COMPANY NAME] recognizes the following key fatigue risk factors:

Risk Factor	Description
Shift Length	Shifts exceeding 10 hours significantly increase fatigue risk; risk doubles after 12 hours
Time of Day	Work between 12:00 AM and 6:00 AM (circadian low) poses highest fatigue risk
Sleep Debt	Chronic sleep restriction (<7 hours/night) accumulates cognitive impairment over days
Consecutive Work Days	Fatigue increases progressively with consecutive days worked, especially night shifts
Workload Intensity	Physically or mentally demanding tasks accelerate fatigue onset
Monotonous Tasks	Repetitive, low-stimulation tasks reduce alertness and increase microsleep risk
Environmental Factors	Heat, noise, vibration, and poor lighting contribute to fatigue
Health & Medications	Sleep disorders, illness, and sedating medications increase fatigue susceptibility
Travel Fatigue	Long commutes or travel before/after shifts reduce available rest time

6. Hours of Service Limits

[COMPANY NAME] establishes the following hours of service guidelines to manage fatigue risk. These limits are based on API RP 755 recommendations:

6.1 Daily Limits

- Maximum shift length: 12 hours (excluding meal breaks)
- Minimum rest period between shifts: 10 hours (12 hours recommended)
- Maximum 16 hours from start of shift to end of shift (including overtime)

6.2 Weekly Limits

- Maximum 60 hours in any 7-day period
- Maximum 7 consecutive work days before a rest period of at least 24 hours
- Night shift workers: maximum 5–6 consecutive night shifts before extended rest

6.3 Monthly/Annual Limits

- Overtime should not regularly exceed 20% of standard scheduled hours
- Mandatory rest period of at least 48 consecutive hours after 14 consecutive days of work

6.4 Emergency Exceptions

Hours of service limits may be exceeded only during declared emergencies with written approval from the Site Manager. The following conditions apply:

- Extension shall not exceed 4 additional hours beyond the daily limit
- Additional rest period provided after emergency work

- Emergency hours logged and reviewed by the Safety Department

NOTE: All exceptions to hours of service limits must be documented and reviewed. Patterns of routine exceptions indicate inadequate staffing and must be addressed.

7. Night Shift Considerations

Night shift work presents unique fatigue challenges due to disruption of the circadian rhythm:

- Schedule permanent night shifts when possible (rotating schedules increase fatigue risk)
- If rotating shifts are used, rotate forward (day → evening → night) not backward
- Limit consecutive night shifts to 5–6 before a rest period of at least 48 hours
- Schedule the most demanding tasks during peak alertness hours (early in the shift)
- Provide bright lighting in work areas during night shifts
- Allow strategic napping during breaks (see Section 10)
- Educate night shift workers on daytime sleep strategies (blackout curtains, noise reduction)

8. Symptoms of Fatigue

Supervisors and coworkers should watch for the following signs of fatigue:

Physical Symptoms	Cognitive/Behavioral Symptoms
Yawning repeatedly	Difficulty concentrating
Heavy eyelids, drooping head	Slowed reaction time
Rubbing eyes frequently	Increased errors or near-misses
Sluggish movement	Lapses in memory or attention
Microsleeps (brief uncontrolled sleep)	Poor decision-making
Headaches, body aches	Irritability or mood changes
Reduced coordination	Withdrawal or lack of communication

9. Fitness for Duty Assessment

When a supervisor observes signs of fatigue or an employee reports being fatigued:

- The supervisor shall conduct a brief fitness for duty assessment (see Appendix B)
- Ask the employee about hours of sleep, hours worked, and how they are feeling
- Evaluate the employee's alertness, coordination, and task performance
- If the employee is determined unfit for duty due to fatigue, they shall be removed from safety-sensitive tasks
- Options include: reassignment to non-safety-sensitive tasks, extended rest break, or being sent home to rest
- Transportation shall be arranged if the employee is too fatigued to drive safely

NOTE: No employee shall be disciplined for reporting fatigue or being found unfit for duty due to fatigue. Retaliation is strictly prohibited.

10. Individual Countermeasures

10.1 Sleep Hygiene

- Aim for 7–9 hours of sleep per 24-hour period
- Maintain a consistent sleep schedule, even on days off
- Create a dark, cool, quiet sleep environment (blackout curtains, earplugs, white noise)
- Avoid screens (phone, TV, computer) for 30 minutes before bed
- Avoid caffeine within 6 hours of planned sleep time
- Avoid alcohol before sleep (disrupts sleep quality)

10.2 Nutrition & Hydration

- Eat regular, balanced meals — avoid heavy meals before sleep
- Stay hydrated throughout the shift
- Use caffeine strategically — early in the shift for alertness, avoid late in shift
- Avoid high-sugar snacks (causes energy crashes)

10.3 Strategic Napping

[COMPANY NAME] permits strategic napping during designated rest breaks under the following conditions:

- Naps limited to 15–20 minutes to avoid sleep inertia
- Napping only during authorized break periods in designated rest areas
- Allow at least 15 minutes after waking before returning to safety-sensitive tasks
- Napping does not replace adequate off-duty sleep

11. Travel Fatigue

Employees required to travel long distances before or after work assignments:

- Travel time exceeding 2 hours should be considered when planning shift assignments
- Overnight rest required if total travel + work exceeds 16 hours in a 24-hour period
- Company-arranged accommodations for travel assignments that would create fatigue risk
- No safety-sensitive work within 10 hours after travel exceeding 6 hours

12. Training Requirements

12.1 Initial Training

All employees shall receive fatigue management training during orientation covering:

- Causes and consequences of fatigue
- Fatigue risk factors and recognition
- Individual countermeasures and sleep hygiene
- [COMPANY NAME] hours of service policies

- Reporting procedures and non-retaliation policy

12.2 Supervisor Training

Supervisors shall receive additional training on:

- Recognizing signs of fatigue in workers
- Conducting fitness for duty assessments
- Schedule management to reduce fatigue risk
- Responding to fatigue reports

12.3 Refresher Training

Annual refresher training for all employees and supervisors.

13. Recordkeeping

- Hours worked records — retained per applicable regulations (minimum 3 years)
- Hours of service exception records — retained for 3 years
- Fitness for duty assessments — retained for 3 years
- Training records — retained for duration of employment plus 3 years
- Incident reports with fatigue as a contributing factor — retained for 5 years

14. Program Review

This program shall be reviewed annually or after any fatigue-related incident. Reviews shall assess the effectiveness of hours of service limits, training, and fatigue countermeasures.

Appendix A: Fatigue Risk Assessment Form

Complete this form to assess fatigue risk for shift schedules or individual employees.

Date: _____ Assessed By: _____

Employee / Crew: _____ Location: _____

FATIGUE RISK FACTORS — Rate each 1 (Low) to 5 (High):

Risk Factor	Rating (1-5)	Notes
Hours worked in last 24 hours		
Hours of sleep in last 24 hours		
Hours of sleep in last 48 hours		
Consecutive days/nights worked		
Time of day (night = higher risk)		
Physical workload demands		
Environmental conditions		
Travel time before/after shift		
Health factors or medications		

Total Risk Score: _____ (9–18: Low | 19–30: Moderate | 31–45: High)

Recommended Action:

- ☐ No action required — monitor ☐ Modified duties or reduced shift
☐ Extended rest break ☐ Removed from safety-sensitive work ☐ Sent home to rest

Comments: _____

Supervisor Signature: _____ Date: _____

Appendix B: Fitness for Duty Checklist

Use when fatigue is suspected. Complete with the employee present.

Date: _____ Time: _____

Employee Name: _____ Job Title: _____

Supervisor: _____

EMPLOYEE SELF-REPORT:

How many hours did you sleep in the last 24 hours? _____

When did you last sleep? _____

How many hours have you worked today? _____

How many consecutive days have you worked? _____

How do you rate your alertness? (1 = very tired, 10 = fully alert): _____

SUPERVISOR OBSERVATIONS:

Observation	Normal	Concern
Alertness and responsiveness	☐	☐
Eyes (droopy, heavy, red)	☐	☐
Speech (slurred, slow)	☐	☐
Balance and coordination	☐	☐
Mood (irritable, withdrawn)	☐	☐
Task performance (errors, slow)	☐	☐
Yawning / microsleeps	☐	☐

DETERMINATION:

☐ Fit for duty ☐ Fit with restrictions (describe): _____

☐ Not fit for duty — removed from safety-sensitive work

☐ Sent home — transportation arranged? ☐ Yes ☐ No

Employee Signature: _____ Date: _____

Supervisor Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

Portable Fire Extinguisher Program

Fire Prevention, Extinguisher Maintenance & Employee Training

Prepared for:

[COMPANY NAME]

Reference Standards:

29 CFR 1910.157 | NFPA 10

Date: [DATE] | Revision: [REV NUMBER]

Table of Contents

1. Purpose

This Portable Fire Extinguisher Program establishes the requirements for the selection, placement, inspection, maintenance, and employee training associated with portable fire extinguishers at [COMPANY NAME] in compliance with OSHA 29 CFR 1910.157 and NFPA 10: Standard for Portable Fire Extinguishers.

The program ensures that fire extinguishers are properly maintained, accessible, and that employees are trained to respond appropriately to incipient-stage fires.

2. Scope

This program applies to all [COMPANY NAME] facilities, job sites, and operations where portable fire extinguishers are provided. It covers:

- All permanent and temporary structures
- Construction job sites
- Maintenance shops and storage facilities
- Company vehicles equipped with fire extinguishers
- Hot work operations

3. Responsibilities

3.1 Management

- Provide an adequate number and type of fire extinguishers
- Fund inspection, maintenance, and training programs
- Ensure compliance with this program

3.2 Safety Manager

- Develop and maintain this program
- Conduct or coordinate annual employee training
- Oversee monthly inspections and annual maintenance
- Contract with certified fire protection service providers
- Maintain all inspection and maintenance records

3.3 Supervisors

- Ensure fire extinguishers in their areas are accessible and unobstructed
- Perform or assign monthly visual inspections
- Report any missing, damaged, or discharged extinguishers immediately

3.4 Employees

- Know the locations of fire extinguishers in their work areas
- Do not obstruct access to fire extinguishers
- Report missing, damaged, or used fire extinguishers to their supervisor
- Complete required fire extinguisher training

4. Fire Classes and Extinguisher Types

4.1 Fire Classifications

Fire Class	Fuel Type	Examples	Extinguisher Type
Class A	Ordinary combustibles	Wood, paper, cloth, rubber, many plastics	Water, foam, dry chemical, wet chemical
Class B	Flammable liquids/gases	Gasoline, oil, grease, paint, propane	CO2, dry chemical, foam, clean agent
Class C	Energized electrical	Motors, switchgear, wiring, panels	CO2, dry chemical, clean agent (de-energize first if possible)
Class D	Combustible metals	Magnesium, titanium, sodium, lithium	Dry powder (specific to metal type)
Class K	Cooking oils/fats	Deep fryers, commercial cooking	Wet chemical (potassium acetate)

4.2 Common Extinguisher Types and Ratings

Extinguisher Type	Fire Classes	Typical Rating	Effective Range	Discharge Time
ABC Dry Chemical	A, B, C	4-A:80-B:C (10 lb)	10–20 ft	15–25 sec
CO2 (Carbon Dioxide)	B, C	10-B:C (10 lb)	3–8 ft	8–30 sec

Water (stored pressure)	A only	2-A (2.5 gal)	30–40 ft	60 sec
Class K Wet Chemical	K	Per NFPA 10	10–12 ft	30–85 sec
Dry Powder (Class D)	D (specific metals)	Per metal type	3–8 ft	Varies
Clean Agent (Halotron)	A, B, C	1-A:10-B:C	6–10 ft	8–15 sec

5. Placement Requirements

5.1 Travel Distance Requirements

Fire extinguishers shall be distributed so that the travel distance for employees to any extinguisher does not exceed the following maximums per 29 CFR 1910.157(d) and NFPA 10:

Fire Class	Maximum Travel Distance	Maximum Spacing (Approx.)	Minimum Rating
Class A	75 feet (22.9 m)	One per 3,000 sq ft (typical)	2-A minimum
Class B	50 feet (15.2 m)	Based on hazard level	Varies by hazard
Class C	Based on Class A or B hazard present	N/A	N/A (rated for A or B)
Class D	75 feet (22.9 m)	Based on work area	Per metal type
Class K	30 feet (9.1 m)	Within kitchen area	Per NFPA 10

5.2 Mounting Requirements

Per 29 CFR 1910.157(c) and NFPA 10:

- Extinguishers weighing 40 lbs or less: top of extinguisher not more than 5 feet above the floor
- Extinguishers weighing more than 40 lbs: top of extinguisher not more than 3.5 feet above the floor
- Bottom of extinguisher shall be at least 4 inches above the floor
- Extinguishers shall be mounted in conspicuous locations along normal paths of travel
- Locations shall be marked with signage visible from a distance

- Extinguishers shall not be obstructed or obscured from view

5.3 Environmental Considerations

- Protect from freezing where temperatures may drop below 40°F (use freeze-rated or antifreeze types)
- Protect from physical damage in high-traffic areas (use cabinets or recessed mounts)
- Corrosive environments may require special coatings or stainless steel units

6. Inspection and Maintenance Schedule

6.1 Monthly Visual Inspection

A designated person shall visually inspect all fire extinguishers monthly per NFPA 10, Section 7.2. The monthly inspection shall verify:

- Extinguisher is in its designated location
- Access and visibility are not obstructed
- Operating instructions are legible and facing outward
- Tamper seal is intact
- Pressure gauge is in operable range (green zone)
- No visible physical damage, corrosion, or leakage
- Fullness verified by hefting or weighing (CO2 and halogenated types)

Document inspections using the Monthly Inspection Log (Appendix A). Attach the inspection tag to each extinguisher.

6.2 Annual Maintenance

All fire extinguishers shall receive a thorough annual maintenance examination by a certified fire protection technician per NFPA 10, Section 7.3. This includes:

- Complete external and internal examination
- Verification of correct agent type and charge
- Mechanical parts examination and lubrication
- Replacement of worn or damaged components
- Recharging if necessary
- New annual maintenance tag applied

6.3 Extended Service Intervals

Service Type	Frequency	Extinguisher Types	Requirements
6-Year Maintenance (Internal Exam)	Every 6 years	Stored-pressure types with dry chemical, dry powder, or halogenated agents	Empty, internally examine, recharge
12-Year Hydrostatic Test	Every 12 years	All types requiring hydrostatic testing per NFPA 10	DOT/TC hydrostatic test of cylinder, recharge
5-Year Hydrostatic Test	Every 5 years	CO2 and stored-pressure water types	Hydrostatic test per DOT requirements

Extinguishers that fail inspection, maintenance, or hydrostatic testing shall be removed from service, condemned, and replaced.

7. Employee Training

7.1 General Training Requirements

Per 29 CFR 1910.157(g), where the employer has provided portable fire extinguishers for employee use, the employer shall provide an educational program to familiarize employees with:

1. The general principles of fire extinguisher use
2. The hazards involved in incipient-stage fire fighting
3. Locations of fire extinguishers in their work area
4. How to activate the fire alarm and call emergency services
5. The PASS technique (Pull, Aim, Squeeze, Sweep)
6. When to fight a fire and when to evacuate

7.2 Training Frequency

- Initial training: upon hire and upon assignment to a new work area
- Annual refresher: provided at least annually per 29 CFR 1910.157(g)(2)
- Hands-on training: recommended annually, required where employer policy dictates employees may use extinguishers

7.3 Hands-On Training Components

- Live fire training with actual extinguisher discharge (or approved simulator)

- Practice with the PASS technique
- Recognition of different extinguisher types and their uses
- Understanding of extinguisher limitations (range, duration, appropriate fire class)

7.4 Exemptions from Training

Per 29 CFR 1910.157(g)(4), where the employer has established an emergency action plan and a fire prevention plan that designate certain employees to use fire extinguishers, only those designated employees require training.

If the employer's emergency action plan requires total evacuation and does not permit any employees to use extinguishers, the employer is exempt from the training requirements. However, extinguishers must still be provided and maintained per the standard.

8. Fire Prevention Integration

This program integrates with [COMPANY NAME]'s overall fire prevention efforts:

- Hot work operations require a fire watch with a minimum 20-lb ABC extinguisher within 25 feet
- Flammable storage areas shall have appropriate Class B extinguishers within 10 feet of the storage area
- Emergency exit routes shall not be blocked by extinguisher placement
- Fire extinguisher locations shall be incorporated into the site emergency action plan

9. Recordkeeping

The following records shall be maintained:

- Monthly inspection logs (retain for minimum 1 year)
- Annual maintenance records (retain for life of extinguisher)
- 6-year and 12-year service records (retain for life of extinguisher)
- Employee training records (retain for duration of employment plus 3 years)
- Extinguisher inventory list (type, location, serial number, manufacture date)

10. Program Review

This program shall be reviewed at least annually and updated as needed based on:

- Changes to facilities, processes, or hazard types
- Results of fire incidents or near-misses
- Regulatory changes to OSHA or NFPA standards
- Findings from insurance inspections or fire marshal visits

Appendix A: Monthly Fire Extinguisher Inspection Log

Building / Job Site: _____

Inspector Name: _____

Month / Year: _____

Ext. #	Location	Type/Size	Date	Accessible?	Seal Intact?	Gauge OK?	Condition	Initials

Action Required:

Inspector Signature: _____

Date: _____

Appendix B: Annual Maintenance Record

Company: _____

Service Provider: _____

Technician Name / Certification #: _____

Date of Service: _____

Ext. #	Serial #	Type/Size	Mfg Date	Agent Condition	Parts Replaced	Recharged?	Next Service Due	Tech Initials

Certification:

I certify that the above fire extinguishers have been inspected, maintained, and serviced in accordance with NFPA 10 requirements.

Service Technician Signature: _____

Certification Number: _____

Date: _____

Received By (Company Representative): _____

Date: _____

FORBES SAFETY SOLUTIONS

Fire Prevention Plan

OSHA Compliance Program

Prepared for:

[COMPANY NAME]

Regulatory References:

29 CFR 1910.39 | 29 CFR 1926.150-155 | NFPA 10 | NFPA 51B

Date: [DATE] | Revision: [REV NUMBER]

Prepared by: [SAFETY MANAGER NAME / TITLE]

Table of Contents

1. Purpose and Scope

This Fire Prevention Plan (FPP) has been developed to comply with OSHA requirements under 29 CFR 1910.39 (General Industry) and 29 CFR 1926.150-155 (Construction). The purpose of this plan is to prevent fires from occurring at [COMPANY NAME] work sites and facilities, and to provide procedures for fire safety in the event of a fire emergency.

This plan applies to all employees, subcontractors, and visitors at [COMPANY NAME] facilities, offices, work sites, and storage areas. It is intended to be used in conjunction with the company's Emergency Action Plan.

1.1 Regulatory References

- 29 CFR 1910.39 – Fire Prevention Plans (General Industry)
- 29 CFR 1910.157 – Portable Fire Extinguishers
- 29 CFR 1926.150 – Fire Protection (Construction)
- 29 CFR 1926.151 – Fire Prevention
- 29 CFR 1926.152 – Flammable Liquids
- 29 CFR 1926.153 – Liquefied Petroleum Gas (LPG)
- 29 CFR 1926.154 – Temporary Heating Devices
- 29 CFR 1926.155 – Definitions Applicable to Fire Protection
- NFPA 10 – Standard for Portable Fire Extinguishers
- NFPA 51B – Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

2. Fire Hazard Identification

[COMPANY NAME] shall conduct a fire hazard assessment for each work site, facility, and storage area. The assessment shall identify potential fire hazards and the controls necessary to mitigate them.

2.1 Common Fire Hazards

Hazard Category	Examples	Control Measures
Flammable/Combustible Liquids	Gasoline, diesel, solvents, paints, adhesives	Approved storage cabinets, proper labeling, grounding/bonding, limited quantities
Compressed Gases	Acetylene, propane, oxygen	Upright storage, separation of fuel/oxidizer, valve protection caps, ventilated storage
Electrical Hazards	Overloaded circuits, damaged cords, temporary wiring	GFCI protection, regular inspections, proper amperage, no daisy-chaining
Hot Work Activities	Welding, cutting, brazing, grinding	Hot work permits, fire watch, 35-ft clearance, fire extinguisher at point of operation
Combustible Materials	Wood, paper, cardboard, rags, insulation	Proper housekeeping, designated storage, separation from ignition sources
Temporary Heating	Salamanders, propane heaters, portable heaters	Clearance from combustibles, ventilation, fuel storage separation, tip-over protection
Smoking	Cigarettes, lighters, matches	Designated smoking areas only, minimum 25 ft from flammables/combustibles

2.2 Fire Hazard Assessment Frequency

- Initial assessment before work begins at each new site or facility
- Updated whenever conditions change (new materials, new tasks, weather changes)
- Annual review of all standing facilities
- Documented using the Fire Hazard Assessment Form (Appendix A)

3. Roles and Responsibilities

3.1 Program Administrator

[SAFETY MANAGER NAME / TITLE] is responsible for:

- Developing, implementing, and maintaining this Fire Prevention Plan
- Conducting or overseeing fire hazard assessments
- Ensuring fire extinguishers are properly placed, inspected, and maintained
- Coordinating employee fire safety training
- Investigating fire incidents and near-misses
- Issuing and managing hot work permits

3.2 Supervisors

- Enforce fire prevention procedures at the work site
- Ensure housekeeping standards are maintained to prevent fire hazards
- Verify fire extinguishers are accessible and current inspections are documented
- Ensure employees are trained on emergency procedures and extinguisher use
- Assign fire watch personnel during and after hot work operations

3.3 Employees

- Follow all fire prevention procedures and housekeeping requirements
- Report fire hazards and unsafe conditions immediately
- Know the location of fire extinguishers and how to use them (if trained)
- Know the emergency evacuation routes and assembly areas
- Perform fire watch duties when assigned

4. Housekeeping for Fire Prevention

Proper housekeeping is one of the most effective methods of fire prevention. [COMPANY NAME] requires the following housekeeping practices:

1. Maintain work areas free of unnecessary accumulations of combustible materials (scrap wood, paper, oily rags, cardboard, packaging).
2. Dispose of oily or solvent-soaked rags in approved, self-closing metal containers. Empty containers daily or at the end of each shift.
3. Keep exits, stairways, aisles, and access to fire extinguishers clear and unobstructed at all times.
4. Store combustible materials at least 10 feet away from any building under construction (per 29 CFR 1926.151).
5. Remove combustible waste from enclosed areas at regular intervals during construction operations.
6. Clean up spills of flammable or combustible liquids immediately.
7. Ensure trash and debris dumpsters are located a safe distance from structures.

5. Hot Work Controls

Hot work (welding, cutting, brazing, soldering, grinding, and other spark-producing operations) is a leading cause of workplace fires. [COMPANY NAME] implements the following controls:

5.1 Hot Work Permit System

A Hot Work Permit is required before any hot work is performed outside of designated welding/cutting areas. The permit system ensures:

- The area has been inspected and combustibles removed or protected within a 35-foot radius
- A fire extinguisher (minimum 20-lb ABC) is immediately available at the point of operation
- A trained fire watch person is assigned
- Fire detection/suppression systems in the area are operational
- Flammable vapors, dusts, or gases have been tested for and eliminated

5.2 Fire Watch Requirements

A fire watch is required during all hot work operations and for a minimum of 30 minutes (60 minutes recommended) after hot work is completed. Fire watch personnel shall:

- Have fire-extinguishing equipment readily available and be trained in its use
- Be familiar with the facility/site and the procedures for sounding a fire alarm
- Watch for fires in all exposed areas and attempt to extinguish only fires clearly within the capability of the available equipment
- Have no other duties that would conflict with fire watch responsibilities
- Maintain a Fire Watch Log (Appendix B) for each hot work operation

NOTE: Where hot work is performed on walls, ceilings, or floors, a fire watch shall be maintained on the opposite side if combustible materials are present.

6. Flammable and Combustible Liquid Storage

6.1 General Requirements

- Store flammable and combustible liquids in approved, properly labeled containers only.
- Do not store more than 25 gallons of flammable liquids outside of an approved storage cabinet or storage room.
- Approved flammable storage cabinets shall hold no more than 60 gallons of Class I or II liquids, or 120 gallons of Class III liquids.
- Storage areas shall be well-ventilated and located away from ignition sources, exits, and stairways.
- Grounding and bonding shall be used when transferring flammable liquids between containers to prevent static discharge.

6.2 Quantity Limits in Work Areas

Container Type	Maximum Capacity	Maximum Quantity in Work Area
Safety cans (approved)	5 gallons	25 gallons total of flammable liquids
Original manufacturer containers	As received	One day's supply or 25 gallons (whichever is less)
Flammable storage cabinet	60 gallons Class I/II	Per approved cabinet rating

7. Fire Suppression Equipment

7.1 Portable Fire Extinguishers

[COMPANY NAME] shall provide and maintain portable fire extinguishers in accordance with 29 CFR 1910.157, 29 CFR 1926.150, and NFPA 10.

7.1.1 Extinguisher Placement – Travel Distance Requirements

Hazard Class	Extinguisher Type	Maximum Travel Distance
Class A (ordinary combustibles)	2-A rated minimum	75 feet (23 m)
Class B (flammable liquids)	10-B rated minimum	50 feet (15 m)
Class C (electrical equipment)	Rated for electrical use	Based on Class A or B hazard present
Class D (combustible metals)	Specific to metal type	75 feet (23 m)
Class K (cooking oils/fats)	Wet chemical type	30 feet (9 m)
Multi-purpose (ABC)	Per rating	50-75 feet depending on hazard

7.1.2 Construction Site Requirements

Per 29 CFR 1926.150, the following fire protection requirements apply to construction operations:

- A fire extinguisher rated not less than 2A shall be provided for each 3,000 square feet of building area.
- A fire extinguisher rated not less than 10B shall be provided within 50 feet of wherever more than 5 gallons of flammable liquids or 5 pounds of flammable gas are being used.
- Fire extinguishers shall be conspicuously located and readily accessible at all times.
- Fire extinguishers shall be inspected monthly and maintained annually per NFPA 10.

7.2 Inspection and Maintenance

Inspection Type	Frequency	Performed By	Requirements
Visual Inspection	Monthly	Designated employee	Verify location, access, pressure gauge, physical condition, pin/tamper seal
Annual Maintenance	Annually	Certified fire extinguisher technician	Full inspection per NFPA 10, tag and record
Hydrostatic Testing	Per NFPA 10 schedule (5-12 years)	Certified technician	Pressure test per extinguisher type
6-Year Internal Exam	Every 6 years (stored pressure)	Certified technician	Internal examination of stored-pressure extinguishers

8. Electrical Fire Prevention

Electrical hazards are a significant source of workplace fires. [COMPANY NAME] implements the following controls:

- All temporary wiring shall comply with OSHA requirements and the National Electrical Code (NEC).
- Extension cords shall be used only as temporary wiring and shall be of adequate gauge for the load.
- Do not daisy-chain extension cords, power strips, or surge protectors.
- Damaged or frayed electrical cords, plugs, and equipment shall be removed from service immediately.
- Ground Fault Circuit Interrupters (GFCIs) shall be used on all temporary power circuits.
- Electrical panels and disconnect switches shall have minimum 36-inch clearance at all times.
- All electrical work shall be performed by qualified personnel only.
- Space heaters, if permitted, shall be UL-listed, have tip-over protection, and maintain 3-foot clearance from combustibles.

9. Smoking Policy

[COMPANY NAME] restricts smoking (including e-cigarettes and vaping) to designated smoking areas only.

- Designated smoking areas shall be clearly marked and located a minimum of 25 feet from buildings, flammable/combustible storage, trash containers, and vegetation.
- Appropriate receptacles for disposal of smoking materials shall be provided at all designated areas.
- Smoking is strictly prohibited near flammable liquid storage areas, fueling operations, compressed gas cylinders, and areas posted with "No Smoking" signs.
- Smoking is prohibited inside all company buildings, vehicles, and enclosed structures.

10. Emergency Procedures

10.1 In the Event of a Fire

1. Activate the fire alarm or alert all personnel in the area by voice if no alarm system is available.
2. Call 911 (or the local emergency number) immediately.
3. If the fire is small and you are trained, attempt to extinguish it using the nearest appropriate fire extinguisher. Use the P.A.S.S. technique: Pull the pin, Aim at the base of the fire, Squeeze the handle, Sweep side to side.
4. If the fire cannot be controlled quickly, evacuate the area immediately using the nearest safe exit.
5. Close doors behind you as you evacuate to slow the spread of fire and smoke.
6. Proceed to the designated assembly area and report to the supervisor or site safety representative.
7. Do not re-enter the building or area until the fire department has declared it safe.

10.2 Assembly Areas

[COMPANY NAME] shall designate assembly areas at each work site and facility. Assembly areas shall be:

- Located a safe distance from the building/work area (minimum 100 feet recommended)
- Upwind of the fire location when possible
- Clear of emergency vehicle access routes
- Communicated to all employees during orientation and toolbox talks

10.3 Accountability

Supervisors shall account for all employees at the assembly area. A headcount shall be conducted and reported to the site safety representative and/or the fire department incident commander.

11. Training

[COMPANY NAME] shall provide fire prevention and fire safety training to all employees as follows:

11.1 Initial Training

All new employees shall receive fire prevention training during orientation, covering:

- This Fire Prevention Plan and how to access it
- Fire hazards associated with their specific job duties
- Proper handling and storage of flammable/combustible materials
- Location and proper use of fire extinguishers
- Emergency procedures and evacuation routes
- Reporting fire hazards and incidents

11.2 Annual Refresher Training

All employees shall receive annual refresher training on fire prevention topics. Additional training shall be provided when:

- An employee's job duties change and introduce new fire hazards
- New materials, equipment, or processes are introduced
- This plan is revised or updated

11.3 Specialized Training

- Hot Work Permit Holders: Training on hot work procedures, fire watch duties, and permit requirements
- Fire Watch Personnel: Training on fire watch responsibilities, extinguisher use, and alarm activation
- Fire Extinguisher Use: Hands-on training for employees expected to use portable fire extinguishers (per 29 CFR 1910.157(g))

12. Recordkeeping

[COMPANY NAME] shall maintain the following fire prevention records:

- Fire Hazard Assessment Forms (Appendix A)
- Hot Work Permits
- Fire Watch Logs (Appendix B)
- Fire extinguisher monthly inspection tags and annual maintenance records
- Employee fire prevention training records (date, topics, attendees, trainer)
- Fire incident investigation reports

Records shall be maintained for a minimum of three (3) years, or longer if required by applicable regulations.

Appendix A: Fire Hazard Assessment Form

[COMPANY NAME]

Fire Hazard Assessment Form

Site / Facility Name: _____

Address / Location: _____

Assessment Date: _____

Assessed By: _____

Job / Project Number: _____

Fire Hazard Identification

Identify all fire hazards present at this location:

- ☐ Flammable liquids (gasoline, diesel, solvents, paints)
- ☐ Combustible materials (wood, paper, cardboard, insulation, vegetation)
- ☐ Compressed gases (acetylene, propane, oxygen)
- ☐ Electrical hazards (temporary wiring, overloaded circuits, damaged cords)
- ☐ Hot work operations (welding, cutting, brazing, grinding)
- ☐ Temporary heating devices
- ☐ Cooking equipment
- ☐ Smoking areas near combustibles
- ☐ Other: _____

Fire Prevention Controls in Place

- ☐ Fire extinguishers provided and accessible (type/location): _____
- ☐ Flammable storage cabinet(s) in use
- ☐ Housekeeping procedures established
- ☐ Hot work permit system in effect
- ☐ No Smoking signs posted
- ☐ Designated smoking area established (location): _____
- ☐ Emergency evacuation routes identified
- ☐ Assembly area designated (location): _____
- ☐ Employees trained on fire prevention and emergency procedures

☐ Fire alarm / notification system available

Additional Controls Needed

Fire Extinguisher Inventory

Location	Type / Rating	Size	Last Inspection Date	Condition

Assessor Signature

Date

Site Supervisor Signature

Date

Appendix B: Fire Watch Log

[COMPANY NAME]

Fire Watch Log

Date: _____

Project / Site Name: _____

Location of Hot Work: _____

Hot Work Permit Number: _____

Hot Work Operator Name: _____

Fire Watch Person Name: _____

Pre-Hot Work Checklist

- ☐ Combustible materials moved or protected within 35-foot radius
- ☐ Floor / ground swept clean of combustible debris
- ☐ Flammable vapor / dust test conducted (if applicable) – Result: _____
- ☐ Fire extinguisher (minimum 20-lb ABC) at point of operation
- ☐ Fire alarm / notification method established
- ☐ Wall / floor / ceiling openings covered or protected
- ☐ Opposite side of wall / ceiling checked for combustibles (if applicable)
- ☐ Sprinkler / fire suppression system operational (if applicable)

Fire Watch Time Log

Time	Activity / Observation	Initials
	Hot work started	
	Hot work completed	
	Post-hot work monitoring started	

Time	Activity / Observation	Initials
	Fire watch completed (minimum 30 min after hot work)	

Post-Hot Work Inspection

- ☐ Area inspected – No evidence of fire, hot spots, or smoldering materials
- ☐ Area re-inspected 30 minutes after hot work completion
- ☐ Area re-inspected 60 minutes after hot work completion (recommended)

Comments / Observations:

Fire Watch Person Signature

Date

Hot Work Operator Signature

Date

Supervisor Signature

Date

FORBES SAFETY SOLUTIONS

Fleet / Motor Vehicle Safety Program

Driver Safety, Vehicle Operations & Accident Prevention

Company:	<u>[COMPANY NAME]</u>
Prepared By:	<u>[NAME / TITLE]</u>
Effective Date:	<u>[DATE]</u>
Revision:	<u>[REV NUMBER]</u>
Regulatory Ref:	<u>OSHA General Duty Clause / DOT / ANSI Z15.1</u>

This document is the property of [COMPANY NAME]. Unauthorized reproduction or distribution is prohibited.

Table of Contents

1. Purpose & Scope

[COMPANY NAME] is committed to ensuring the safety of all employees who drive on company business. This program establishes policies and procedures for the safe operation of company-owned, leased, and personal vehicles used for work purposes.

This program applies to all employees, contractors, and authorized drivers who operate motor vehicles in connection with [COMPANY NAME] business operations.

2. Regulatory References

- OSHA General Duty Clause — Section 5(a)(1)
- ANSI/ASSE Z15.1 — Safe Practices for Motor Vehicle Operations
- Department of Transportation (DOT) Regulations (where applicable)
- Federal Motor Carrier Safety Regulations (FMCSR) — 49 CFR Parts 390–399
- State and local traffic laws and regulations

3. Definitions

- **Company Vehicle:** Any vehicle owned, leased, or rented by [COMPANY NAME] for business use.
- **Authorized Driver:** An employee who has met all driver qualification requirements and is approved to operate company vehicles.
- **MVR (Motor Vehicle Record):** Official state driving history used to evaluate driver eligibility.
- **Preventable Accident:** An accident in which the driver failed to do everything reasonably possible to avoid it.

4. Roles & Responsibilities

4.1 Management

- Establish and enforce fleet safety policies
- Provide resources for vehicle maintenance, driver training, and safety equipment
- Review accident trends and implement corrective actions

4.2 Fleet Safety Coordinator

- Manage the authorized driver program including MVR checks
- Coordinate driver training (initial and refresher)
- Investigate all vehicle accidents and near-miss incidents
- Track vehicle maintenance schedules and inspection compliance

4.3 Supervisors

- Verify that employees are authorized to drive before assigning driving duties
- Ensure pre-trip inspections are completed and documented
- Report all vehicle accidents and safety concerns immediately

4.4 Drivers

- Maintain a valid driver's license for the class of vehicle operated
- Report any license suspensions, revocations, or moving violations within 24 hours
- Perform pre-trip inspections and report deficiencies
- Operate vehicles in a safe, defensive manner at all times
- Comply with all [COMPANY NAME] driving policies and traffic laws

5. Driver Qualifications

5.1 Minimum Requirements

- Valid driver's license appropriate for the class of vehicle
- Minimum age of 18 (21 for interstate commercial vehicle operation)
- Satisfactory Motor Vehicle Record (MVR) check
- Completion of [COMPANY NAME] driver orientation and defensive driving course
- Medical fitness for duty (DOT physical if applicable)

5.2 MVR Review Criteria

[COMPANY NAME] shall obtain MVR reports for all authorized drivers at hire and annually thereafter. The following criteria apply:

Violation History (3 Years)	Status
0–1 minor violations, no at-fault accidents	Approved
2–3 minor violations OR 1 at-fault accident	Conditional — management review required
DUI/DWI, reckless driving, or license suspension	Denied — not eligible to drive
3+ at-fault accidents	Denied — not eligible to drive
Hit and run or vehicular assault	Denied — not eligible to drive

5.3 Authorized Driver Policy

Only employees who have been formally authorized may operate company vehicles. The Driver Authorization Form (Appendix A) must be completed, signed, and on file before any driving duties are assigned.

- Authorization is reviewed annually and may be revoked at any time
- Unauthorized use of company vehicles is grounds for disciplinary action

6. Pre-Trip Vehicle Inspection

Drivers shall conduct a pre-trip inspection before each use. The inspection shall include:

- Tires — condition, pressure, tread depth, spare tire
- Fluid levels — oil, coolant, windshield washer, brake fluid
- Lights — headlights, taillights, brake lights, turn signals, hazard flashers
- Mirrors — clean, properly adjusted, intact
- Windshield and windows — clean, free of cracks or obstructions
- Wipers — functional and in good condition
- Brakes — firm pedal, no unusual sounds or pulling
- Horn — functional
- Seatbelts — functional for all seating positions
- Emergency equipment — first aid kit, fire extinguisher, warning triangles

- Cargo — properly secured (no loose items in passenger compartment)

NOTE: Any deficiency that affects safe operation shall be corrected before the vehicle is driven. Report all deficiencies to your supervisor and the Fleet Safety Coordinator.

7. Safe Driving Policies

7.1 Defensive Driving

All drivers shall practice defensive driving techniques at all times:

- Maintain a minimum following distance of 4 seconds (increase in adverse conditions)
- Scan intersections before proceeding — look left, right, left again
- Anticipate hazards and maintain an "out" or escape route
- Adjust speed for road, weather, and traffic conditions
- Use headlights whenever visibility is reduced

7.2 Distracted Driving Policy

[COMPANY NAME] strictly prohibits distracted driving. The following rules apply to all drivers on company business:

- NO use of handheld cell phones for calls, texting, or emailing while driving
- NO hands-free calls while driving in hazardous conditions (rain, snow, heavy traffic)
- Pull over to a safe location before making or receiving calls
- No programming GPS or navigation devices while vehicle is in motion
- No reading, writing, eating, or grooming while driving

NOTE: Violation of the distracted driving policy may result in disciplinary action up to and including termination.

7.3 Seatbelt Policy

Seatbelts must be worn by the driver and all passengers at all times when the vehicle is in motion. No exceptions.

7.4 Severe Weather Driving

- Reduce speed and increase following distance in rain, snow, ice, or fog
- Use headlights and reduce speed in all low-visibility conditions
- If conditions become too severe, pull off the road to a safe location and wait
- Avoid driving through standing water or flooded areas
- Supervisor approval required to continue driving in severe weather warnings

7.5 Backing & Parking

- Avoid backing whenever possible — pull through parking spaces
- When backing is necessary, use a spotter if available
- Walk around the vehicle (360° check) before backing
- Back slowly and use mirrors continuously
- Park in well-lit areas; use wheel chocks for larger vehicles on grades

8. Accident Reporting Procedures

In the event of any vehicle accident, the driver shall:

- Stop immediately and check for injuries — call 911 if needed
- Move to a safe location if possible without leaving the scene
- Activate hazard flashers and set up warning triangles/flares
- Do NOT admit fault or make statements about liability
- Exchange information with other parties (license, insurance, contact info)
- Document the scene — take photos, note road conditions, witnesses
- Report to supervisor and Fleet Safety Coordinator immediately
- Complete the Motor Vehicle Accident Report Form (Appendix B) within 24 hours
- Submit to post-accident drug/alcohol testing if required by company policy

9. Vehicle Maintenance

[COMPANY NAME] shall maintain all company vehicles in safe operating condition:

- Follow manufacturer-recommended maintenance schedules
- Document all maintenance, repairs, and inspections
- Address safety-related repairs immediately — vehicle taken out of service until repaired
- Annual safety inspection by qualified mechanic
- Maintain vehicle maintenance logs in the vehicle or central fleet file

10. Personal Vehicle Use

Employees who use personal vehicles for company business must:

- Maintain valid driver's license and current auto insurance (minimum state-required coverage)
- Provide proof of insurance annually to the Fleet Safety Coordinator
- Maintain the vehicle in safe operating condition
- Comply with all [COMPANY NAME] driving policies
- Report any accidents occurring during company business

11. Training Requirements

11.1 Initial Training

- New employee driver orientation (company policies, this program)
- Defensive driving course (minimum 4 hours)
- Vehicle-specific training for specialized equipment (if applicable)

11.2 Refresher Training

- Annual refresher on defensive driving and company policies
- Remedial training after any at-fault accident or moving violation

- Additional training when new vehicles or equipment are introduced

12. Recordkeeping

- Driver Authorization Forms — retained for duration of employment
- MVR checks — retained for 3 years
- Vehicle inspection records — retained for 1 year
- Accident reports — retained for 5 years
- Training records — retained for duration of employment plus 3 years
- Vehicle maintenance logs — retained for life of vehicle

13. Program Review

This program shall be reviewed annually or after any serious vehicle accident. Reviews shall assess accident trends, policy effectiveness, training adequacy, and regulatory changes.

Appendix A: Driver Authorization Form

Complete this form for each employee authorized to drive on company business.

Employee Name: _____ Employee ID: _____
 Job Title: _____ Department: _____
 Driver's License #: _____ State: _____ Exp: _____
 License Class: _____ Endorsements: _____

Vehicle(s) Authorized to Operate:

Requirement	Completed	Date
Valid driver's license verified	☐ Yes ☐ No	
MVR obtained and reviewed	☐ Yes ☐ No	
MVR result: ☐ Approved ☐ Conditional ☐ Denied		
Defensive driving course completed	☐ Yes ☐ No	
Company driving policy reviewed	☐ Yes ☐ No	
Vehicle-specific training (if required)	☐ Yes ☐ No ☐ N/A	
Insurance verified (personal vehicle use)	☐ Yes ☐ No ☐ N/A	

Employee Signature: _____ Date: _____
 Supervisor Signature: _____ Date: _____
 Fleet Safety Coordinator: _____ Date: _____

Appendix B: Motor Vehicle Accident Report Form

Complete within 24 hours of any vehicle accident involving a company or personal vehicle on company business.

SECTION 1 — DRIVER INFORMATION

Driver Name: _____ Date of Accident: _____
Time: _____ Location: _____
Vehicle (Year/Make/Model): _____ License Plate: _____

SECTION 2 — ACCIDENT DETAILS

Weather Conditions: ☐ Clear ☐ Rain ☐ Snow ☐ Fog ☐ Other: _____

Road Conditions: ☐ Dry ☐ Wet ☐ Icy ☐ Other: _____

Description of Accident:

SECTION 3 — INJURIES & DAMAGE

Were there injuries? ☐ Yes ☐ No If yes, describe: _____

Vehicle damage description: _____

Other property damage: _____

Police report filed? ☐ Yes ☐ No Report #: _____

SECTION 4 — OTHER PARTY INFORMATION

Name: _____ Phone: _____

Vehicle: _____ License Plate: _____

Insurance Company: _____ Policy #: _____

SECTION 5 — WITNESSES

Witness 1: _____ Phone: _____

Witness 2: _____ Phone: _____

Driver Signature: _____ Date: _____

Supervisor Signature: _____ Date: _____

POWERED INDUSTRIAL TRUCKS (FORKLIFT) SAFETY PROGRAM

Operator Training, Inspection, and Safe Operating Procedures

Company:	[COMPANY NAME]
Effective Date:	[DATE]
Revision Number:	[REV #]
Prepared By:	[NAME / TITLE]
Approved By:	[NAME / TITLE]
Approval Date:	[DATE]

FORBES SAFETY SOLUTIONS

Professional Safety Program Template

Table of Contents

1. Purpose and Scope

[COMPANY NAME] has established this Powered Industrial Trucks (Forklift) Safety Program to ensure the safe operation, maintenance, and management of all powered industrial trucks at [COMPANY NAME] facilities and project sites. This program applies to all employees, subcontractors, and temporary workers who operate, work near, or are affected by powered industrial truck operations.

The objectives of this program are to:

- Comply with OSHA standards for powered industrial trucks
- Ensure only trained and evaluated operators are authorized to operate forklifts
- Reduce the risk of injuries, fatalities, and property damage associated with forklift operations
- Establish consistent inspection, maintenance, and operating procedures

2. Regulatory References

- 29 CFR 1910.178 — Powered Industrial Trucks (General Industry)
- 29 CFR 1926.602 — Material Handling Equipment (Construction)
- OSHA Directive CPL 02-01-058 — Inspection Procedures for Powered Industrial Trucks
- ANSI/ITSDF B56.1 — Safety Standard for Low Lift and High Lift Trucks
- Manufacturer's operating and maintenance manuals for each specific truck

3. Definitions

3.1 Types of Powered Industrial Trucks

Class	Type	Power Source	Common Examples
Class 1	Electric Motor Rider Trucks	Electric	Counterbalanced sit-down riders
Class 2	Electric Motor Narrow Aisle Trucks	Electric	Reach trucks, order pickers
Class 3	Electric Motor Hand Trucks	Electric	Pallet jacks, walkie stackers
Class 4	Internal Combustion Engine — Cushion Tires	Gas/LP/Diesel	Indoor warehouse forklifts
Class 5	Internal Combustion Engine — Pneumatic Tires	Gas/LP/Diesel	Outdoor rough terrain forklifts

Class	Type	Power Source	Common Examples
Class 6	Electric and IC Engine Tractors	Electric/IC	Tow tractors, aircraft tugs
Class 7	Rough Terrain Forklift Trucks	IC	Construction site telehandlers

4. Roles and Responsibilities

4.1 Management / Program Administrator

- Implement and enforce this Forklift Safety Program
- Designate qualified trainers to conduct operator training and evaluation
- Provide and maintain forklifts in safe operating condition
- Ensure training records and certifications are up to date
- Investigate all forklift-related incidents and near-misses

4.2 Supervisors

- Verify that only authorized, trained operators use powered industrial trucks
- Ensure pre-shift inspections are completed and documented
- Monitor operator compliance with safe operating procedures
- Remove unsafe equipment from service immediately
- Report safety concerns, violations, and incidents

4.3 Forklift Operators

- Complete all required training before operating any powered industrial truck
- Perform pre-shift inspections and document results
- Operate equipment in accordance with this program and manufacturer's guidelines
- Report any equipment defects, unsafe conditions, or incidents immediately
- Wear seatbelt at all times when operating a sit-down forklift
- Never operate equipment while under the influence of drugs or alcohol

5. Operator Training Requirements

Per 29 CFR 1910.178(l), all operators shall receive training consisting of three components before being authorized to operate a powered industrial truck:

5.1 Formal Instruction (Classroom)

Classroom or computer-based training covering:

- Operating instructions, warnings, and precautions for the specific truck type
- Differences between the truck and an automobile
- Truck controls and instrumentation
- Engine or motor operation
- Steering and maneuvering
- Visibility restrictions and use of mirrors/cameras
- Fork and attachment adaptation, operation, and limitations
- Vehicle capacity and stability (stability triangle concept)
- Vehicle inspection and maintenance
- Refueling and/or recharging procedures
- Operating limitations
- Workplace hazards (surface conditions, slopes, pedestrians, obstructions)
- Load manipulation, stacking, and unstacking
- Pedestrian safety in shared workspaces

5.2 Practical Training (Hands-On)

Supervised hands-on training in a controlled environment where the operator demonstrates competency in:

- Pre-operation inspection procedures
- Starting, stopping, and traveling with and without loads
- Turning and maneuvering in confined spaces
- Loading, unloading, and stacking at various heights
- Traveling on ramps and grades
- Operating in pedestrian areas
- Proper parking and shutdown procedures

5.3 Operator Evaluation

Each operator must pass a performance evaluation conducted by a qualified trainer demonstrating competence to operate the specific type(s) of truck. Evaluation criteria are documented in Appendix A: Forklift Operator Evaluation Form.

5.4 Refresher Training

Refresher training and re-evaluation shall be conducted when:

- The operator has been observed operating in an unsafe manner
- The operator has been involved in an accident or near-miss
- The operator receives an evaluation revealing unsafe operation
- The operator is assigned to a different type of truck
- Workplace conditions change that could affect safe operation

At a minimum, each operator shall be evaluated at least once every three (3) years.

6. Pre-Shift Inspection Requirements

Operators shall perform a thorough pre-shift inspection before operating any powered industrial truck. If any defect is found that affects safe operation, the truck shall be removed from service immediately and tagged "Out of Service" until repaired.

6.1 Visual Inspection (Walk-Around)

- Check for fluid leaks (hydraulic oil, engine oil, coolant, fuel)
- Inspect tires for wear, damage, and proper inflation
- Check forks for cracks, bends, wear, and proper positioning
- Inspect mast chains, rollers, and hydraulic hoses
- Verify overhead guard and load backrest are secure and undamaged
- Check for loose or missing parts, bolts, and guards
- Verify data plate is legible and attached

6.2 Operational Check (Engine Running)

- Test horn, lights (headlights, tail lights, warning lights)
- Test backup alarm
- Check brakes (service brake and parking brake)
- Test steering (full left and right)

- Operate mast — tilt forward, tilt back, raise, lower
- Check hydraulic controls for smooth operation
- Verify gauges and instruments are functioning
- Check seatbelt operation

7. Safe Operating Procedures

7.1 General Operating Rules

- Only authorized, trained operators may operate powered industrial trucks
- Wear seatbelt at all times on sit-down forklifts
- Obey posted speed limits — typically 5 mph indoors and 10 mph outdoors (or as site-specific conditions require)
- Sound horn at blind corners, intersections, doorways, and when pedestrians are present
- Travel with forks lowered 4–6 inches above floor/ground level
- Keep all body parts inside the operator compartment
- Look in the direction of travel at all times
- Maintain a safe following distance — at least three truck lengths
- Never allow riders on the forks or any part of the truck not designed for passengers

7.2 Load Handling

- Know the truck's rated capacity — never exceed it
- Check the data plate before lifting unfamiliar loads
- Center the load on the forks; ensure load is balanced and stable
- Tilt the mast slightly back before traveling with a load
- Stack and unstack loads carefully, ensuring stability at all levels
- Never lift a load with only one fork

7.3 Stability Triangle

All counterbalanced forklifts have a stability triangle formed by the two front wheels and the rear axle pivot point. The combined center of gravity of the truck and load must remain within this triangle to prevent tip-over. Operators must understand:

- How load weight, height, and forward distance affect stability
- Why turning at speed is dangerous (lateral forces shift the center of gravity)

- That elevated loads raise the center of gravity and reduce stability

7.4 Ramps and Grades

- Travel with the load uphill (load facing upgrade) when going up a ramp
- Travel with the load downhill (load facing downgrade) when going down a ramp, using slow speed
- Never turn on a ramp or grade
- Maximum grade for most forklifts is 10% — verify with manufacturer specifications

7.5 Pedestrian Safety

- Pedestrians always have the right of way
- Reduce speed in pedestrian areas
- Sound horn before entering aisles, doorways, or blind spots
- Maintain safe distance; never drive toward anyone standing in front of an object
- Ensure pedestrian walkways are clearly marked and separated from forklift travel lanes where possible

8. Refueling and Recharging Procedures

8.1 Propane (LP Gas) Refueling

- Refuel only in designated, well-ventilated areas — never indoors without proper ventilation
- Shut off the engine before disconnecting or connecting propane cylinders
- Inspect cylinders for damage, corrosion, or leaks before installation
- Secure cylinders properly; verify connections are tight
- No smoking, open flames, or sparks within 25 feet of refueling area

8.2 Battery Charging (Electric Trucks)

- Charge batteries only in designated charging areas with proper ventilation
- Keep charging areas free from open flames and sparks — hydrogen gas is produced during charging
- Wear PPE: safety glasses, face shield, acid-resistant gloves, and apron when handling batteries
- Use battery handling equipment (hoists, conveyors) for heavy batteries
- Ensure eyewash station is available within 25 feet of charging area

- Do not overcharge batteries; follow manufacturer's charging guidelines

9. Maintenance Requirements

- All maintenance and repairs shall be performed by qualified maintenance personnel only
- Follow manufacturer's recommended maintenance schedule
- Remove defective trucks from service immediately — tag "Out of Service"
- After repairs, truck must be inspected and approved before return to service
- Maintain a maintenance log for each powered industrial truck
- Do not alter or modify a truck without manufacturer approval
- Replacement parts must meet or exceed original manufacturer specifications

10. Attachments

When attachments (clamps, rotators, side-shifters, etc.) are used:

- The truck's data plate must be updated to reflect the reduced capacity with the attachment
- Operators must be trained on the specific attachment
- Only manufacturer-approved attachments shall be used
- The attachment must be inspected as part of the pre-shift inspection

11. Training Requirements Summary

Training Element	Frequency	Audience	Documentation
Initial operator training (classroom + hands-on + evaluation)	Before first operation	All operators	Training record + evaluation form
Refresher training	As needed (unsafe behavior, accident, new truck type)	Affected operators	Training record + evaluation form
Operator performance evaluation	At least every 3 years	All operators	Evaluation form (Appendix A)
Pre-shift inspection procedures	Initial training	All operators	Training record
Pedestrian awareness training	Annually	All employees in forklift areas	Training record

12. Recordkeeping

[COMPANY NAME] shall maintain the following records:

- Operator training records (date, topics, trainer, evaluation results) — retained for duration of employment
- Forklift Operator Evaluation Forms (Appendix A) — retained for duration of employment
- Pre-shift inspection records — retained for a minimum of 1 year
- Maintenance and repair logs — retained for the life of the equipment
- Incident and near-miss investigation reports — retained for a minimum of 5 years
- Training Attendance Records (Appendix B) — retained for duration of employment

13. Program Review

This Forklift Safety Program shall be reviewed and updated at least annually, or when:

- A forklift-related incident, injury, or near-miss occurs
- New equipment types are introduced
- Workplace layout or conditions change
- Regulatory requirements are updated
- Deficiencies are identified through audits or inspections

Appendix A: Forklift Operator Evaluation Form

Operator Name: _____ Date: _____

Evaluator Name: _____ Truck Type/Class: _____

Truck Make/Model: _____ Serial #: _____

Instructions: Evaluate the operator on each maneuver below. Mark Pass (P) or Fail (F). The operator must pass ALL items to be authorized. Any failed item requires additional training and re-evaluation.

#	Evaluation Criteria	P / F	Comments
1	Performs complete pre-operation inspection		
2	Demonstrates proper start-up and shut-down procedures		
3	Properly uses seatbelt before operating		
4	Operates horn and safety devices correctly		
5	Travels at safe speed with forks lowered (4-6 in.)		
6	Looks in the direction of travel at all times		
7	Stops at intersections and sounds horn at blind spots		
8	Properly picks up, carries, and places loads		
9	Centers and balances load correctly on forks		
10	Tilts mast back before traveling with load		
11	Stacks and unstacks loads safely at various heights		
12	Demonstrates proper ramp/grade travel (load upgrade)		
13	Turns corners safely at reduced speed		
14	Maintains safe distance from pedestrians and other trucks		
15	Properly parks truck (forks flat, parking brake, key removed)		
16	Demonstrates proper refueling/recharging procedures		
17	Demonstrates understanding of load capacity / data plate		

#	Evaluation Criteria	P / F	Comments
18	Responds correctly to simulated emergency scenarios		

Overall Result: ☐ PASS — Operator is authorized to operate the above truck type(s)

☐ FAIL — Operator requires additional training before re-evaluation

Operator Signature: _____ Date: _____

Evaluator Signature: _____ Date: _____

Authorization Expiration Date: _____

Appendix B: Forklift Training Attendance Record

Training Date:	[]	Training Location:	[]
Trainer Name:	[]	Trainer Qualifications:	[]
Course Title:	[]		

Topics Covered:

- ☐ Pre-operation inspection procedures
- ☐ Safe operating procedures
- ☐ Load handling and stability
- ☐ Pedestrian safety
- ☐ Refueling / recharging procedures
- ☐ Emergency procedures
- ☐ Site-specific hazards and rules
- ☐ Other: _____

#	Attendee Name (Print)	Job Title / Company	Signature	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

#	Attendee Name (Print)	Job Title / Company	Signature	Date
11				
12				
13				
14				
15				

Trainer Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

Electrical Grounding & Bonding Program

GFCI Protection, AEGCP & Equipment Grounding Requirements

Prepared for:

[COMPANY NAME]

Reference Standards:

29 CFR 1926.404-405 | NFPA 70 (NEC) | NFPA 70E

Date: [DATE] | Revision: [REV NUMBER]

Table of Contents

1. Purpose

This Electrical Grounding and Bonding Program establishes requirements for the proper grounding and bonding of electrical equipment and systems at [COMPANY NAME] construction sites and facilities. This program ensures compliance with 29 CFR 1926.404-405, NFPA 70 (National Electrical Code), and NFPA 70E (Standard for Electrical Safety in the Workplace).

Proper grounding and bonding protects employees from electrical shock, electrocution, and fire hazards by providing a low-impedance path for fault currents to safely return to the source and trip protective devices.

2. Scope

This program applies to all [COMPANY NAME] construction sites, temporary wiring installations, and operations where portable electric tools, equipment, and extension cords are used. It covers:

- Ground-fault circuit interrupter (GFCI) protection
- Assured Equipment Grounding Conductor Program (AEGCP) as an alternative
- Equipment grounding requirements
- Temporary wiring installations
- Extension cord use and inspection
- Double-insulated tool identification

3. Responsibilities

3.1 Management

- Provide GFCI-protected outlets or fund the AEGCP
- Ensure adequate electrical testing equipment is available
- Support program enforcement and employee training

3.2 Safety Manager / Competent Person

- Develop and maintain this program
- Designate a competent person to implement the AEGCP (if used)
- Conduct or oversee required electrical testing

- Maintain all test logs and inspection records
- Conduct employee training on electrical safety

3.3 Designated Competent Person (AEGCP)

Per 29 CFR 1926.404(b)(1)(iii), when the AEGCP is implemented in lieu of GFCIs, a designated competent person shall:

- Implement and oversee the daily testing and inspection program
- Conduct or supervise all required equipment grounding conductor tests
- Maintain written test records and inspection logs
- Remove defective equipment from service immediately

3.4 Supervisors

- Ensure GFCI protection is used or AEGCP is in effect before work begins
- Monitor employees for proper cord and equipment use
- Report defective equipment and remove from service

3.5 Employees

- Use GFCI-protected outlets for all 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites
- Visually inspect cords and equipment daily before use
- Report defective equipment immediately; do not use
- Never remove or bypass the ground prong on a plug

4. Equipment Grounding Requirements

4.1 General Requirements

Per 29 CFR 1926.404(f), the following equipment must be grounded:

- All 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites that are not part of the permanent wiring
- All frames of non-current-carrying metal parts of portable and plug-connected equipment
- All cord sets (extension cords) must have an equipment grounding conductor

- Generator frames must be grounded to the system ground unless meeting specific isolation exceptions

4.2 Ground-Fault Protection Methods

[COMPANY NAME] shall use one of the following two methods for ground-fault protection on construction sites per 29 CFR 1926.404(b)(1):

Option 1: Ground-Fault Circuit Interrupters (GFCIs)

- All 120-volt, single-phase, 15- and 20-ampere receptacle outlets that are not part of the permanent wiring must be protected by GFCIs
- GFCIs detect imbalances as low as 4–6 milliamps and disconnect power in 1/40th of a second
- GFCI protection may be provided by GFCI-protected receptacles, portable GFCI devices, or GFCI breakers

Option 2: Assured Equipment Grounding Conductor Program (AEGCP)

- An alternative to GFCIs that relies on a rigorous testing and inspection program
- Requires a designated competent person to administer
- See Section 5 for detailed AEGCP requirements

5. Assured Equipment Grounding Conductor Program (AEGCP)

When [COMPANY NAME] elects to use the AEGCP as an alternative to GFCI protection per 29 CFR 1926.404(b)(1)(iii), the following requirements apply:

5.1 Written Program Requirements

- The AEGCP must be in writing
- The written program must be available on the job site
- A designated competent person must be responsible for the program
- The program must cover all cord sets, receptacles not part of permanent wiring, and equipment connected by cord and plug that are available for use or used by employees

5.2 Testing Requirements

The following tests must be performed on all covered equipment and cord sets:

Test Type	Requirement	Frequency
-----------	-------------	-----------

Continuity Test	Verify the equipment grounding conductor is electrically continuous from the tool/equipment through the cord to the plug ground prong	Before first use, after repair, and every 3 months
Ground Prong Test	Verify the ground prong is present, not bent or broken, and makes proper contact	Before first use, after repair, and every 3 months
Terminal Connection Test	Verify proper connections of the equipment grounding conductor at the tool and at all plug/receptacle connections	Before first use, after repair, and every 3 months

5.3 Testing Frequency Summary

- Before first use on a job site
- Before return to use after any repairs
- Before use after any incident that could have caused damage
- At intervals not exceeding 3 months (quarterly)

Note: More frequent testing may be warranted in harsh environments or where damage is likely.

5.4 Testing Procedures

1. Use a circuit tester or continuity tester approved for the purpose
2. Test from the ground pin of the plug to the exposed metal frame of the tool
3. Resistance should read near zero ohms (typically <1 ohm for continuity)
4. For receptacles: test from the ground slot to the ground bus in the distribution panel
5. Record all test results on the AEGCP Test Log (Appendix A)

5.5 Color Coding / Identification

Equipment and cord sets that pass testing must be identified by a color-coded marking system:

Quarter	Period	Color Code
Q1	January – March	[COMPANY DESIGNATED COLOR]
Q2	April – June	[COMPANY DESIGNATED COLOR]
Q3	July – September	[COMPANY DESIGNATED COLOR]
Q4	October – December	[COMPANY DESIGNATED COLOR]

Equipment that has not been tested or has failed testing shall NOT have the current quarter color code applied and shall be removed from service.

6. Visual Inspections

In addition to the AEGCP testing, all employees shall perform visual inspections of electrical equipment and cords before each use:

- Check for external defects — fraying, exposed conductors, cut or damaged outer jacket
- Verify ground prong is intact and not bent or missing
- Check plug and connector housing for cracks or damage
- Verify strain relief is intact at both ends
- Check for signs of overheating (discoloration, melting, burning smell)
- Inspect tool housing for cracks that expose internal components

Any cord or equipment failing visual inspection shall be immediately removed from service, tagged "DEFECTIVE — DO NOT USE," and reported to the supervisor.

7. Ground Fault Interrupters

When GFCIs are used as the primary protection method:

- Test GFCI devices before each day's use by pressing the "TEST" button to verify the device trips, then pressing "RESET"
- GFCI devices that do not trip during the test shall be removed from service
- Use GFCI protection on all generators used on construction sites for 15- and 20-amp, 120-volt circuits
- Portable GFCI devices must be connected directly to the outlet — not on extension cords downstream
- Replace GFCI devices that show signs of damage or malfunction

8. Temporary Wiring

Temporary wiring installations on construction sites shall comply with 29 CFR 1926.405(a):

- Temporary wiring is permitted during construction, remodeling, maintenance, or demolition
- All temporary wiring shall be removed immediately upon completion of the project
- Receptacles shall be of the grounding type and connected to a ground
- Branch circuits must have an equipment grounding conductor

- Temporary lights must be protected by guards unless bulbs are deeply recessed
- Temporary lights must not be suspended by their cords unless designed for that purpose
- Splices in temporary wiring must have insulation equivalent to the cord
- Lamps for general illumination must be protected from contact and breakage

9. Extension Cord Requirements

Extension cords (cord sets) used on [COMPANY NAME] job sites must meet the following requirements:

- Three-wire type (hot, neutral, ground) with an equipment grounding conductor
- Listed or labeled by a nationally recognized testing laboratory (UL, CSA, ETL)
- Rated for hard or extra-hard usage (SO, SOW, ST, STW, or equivalent designations)
- Proper wire gauge for the load and length (e.g., 12 AWG minimum for 100-foot runs at 15 amps)
- Must be protected from damage — not run through doorways, windows, or holes unless protected
- Must not be fastened with staples, hung from nails, or suspended by the cord unless designed for it
- Must be used within rated capacity — never daisy-chain multiple extension cords
- Ground prong must NEVER be removed, bent back, or bypassed

10. Double-Insulated Tool Identification

Double-insulated tools are an acceptable alternative to equipment grounding per 29 CFR 1926.404(f)(3) (i):

- Double-insulated tools are identified by the "double square" symbol (◻ within ◻) on the tool nameplate
- These tools have two-prong plugs (no ground prong) and do not require grounding
- The outer housing provides a second layer of insulation beyond the normal internal insulation
- Double-insulated tools must still be visually inspected before use
- If the outer housing is cracked or damaged, the tool shall be removed from service — the secondary insulation has been compromised
- Double-insulated tools should not be used in wet conditions without additional GFCI protection

11. Training

All employees who use portable electrical tools, equipment, or extension cords shall be trained on:

6. Electrical hazards (shock, electrocution, arc flash, fire)
7. The purpose and function of equipment grounding
8. GFCI operation, testing, and use
9. AEGCP requirements (if applicable to the job site)
10. Visual inspection procedures for cords and equipment
11. Extension cord requirements and limitations
12. Identification of double-insulated tools
13. Reporting procedures for defective equipment
14. Emergency procedures for electrical incidents

Training shall be provided before initial assignment and refreshed annually or when site conditions change.

12. Recordkeeping

- AEGCP test logs (retain for duration of project plus 3 years)
- Equipment and cord inspection logs
- GFCI test documentation (daily test records)
- Employee training records
- Records of defective equipment removed from service

Appendix A: AEGCP Test Log

Job Site / Location: _____

Competent Person: _____

Testing Quarter / Period: _____

Color Code for This Quarter: _____

Date	Equipment / Cord ID	Description	Continuity OK?	Ground Prong OK?	Connections OK?	Pass/ Fail	Color Applied	Tester Initials

Equipment Failing Test — Corrective Action:

Competent Person Signature: _____

Date: _____

Appendix B: Extension Cord / Equipment Inspection Log

Job Site / Location: _____

Inspector Name: _____

Date: _____

Daily Visual Inspection Record:

Date	Cord / Equipment ID	Type	Jacket OK?	Ground Prong?	Plug/ Connector OK?	Strain Relief?	Pass/ Fail	Inspect or

Items Removed from Service:

Date	Cord / Equipment ID	Reason Removed	Disposition (Repair/Destroy)	Follow-Up Date

Inspector Signature: _____

Date: _____

FORBES SAFETY SOLUTIONS

Hydrogen Sulfide (H₂S) Safety Program

Exposure Prevention, Monitoring & Emergency Response

Company:	[COMPANY NAME]
Prepared By:	[NAME / TITLE]
Effective Date:	[DATE]
Revision:	[REV NUMBER]
Regulatory Ref:	29 CFR 1910.1000 / 29 CFR 1926.55 / ANSI Z390.1

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Table of Contents

1. Purpose & Scope

[COMPANY NAME] is committed to protecting employees from the hazards of hydrogen sulfide (H₂S) exposure. This program establishes procedures for H₂S detection, monitoring, personal protective equipment, emergency response, and training to ensure compliance with applicable standards.

This program applies to all employees, contractors, and visitors working at or visiting [COMPANY NAME] locations where H₂S exposure is possible, including oil and gas production, wastewater treatment, confined space entry, and drilling operations.

2. Regulatory References

- 29 CFR 1910.1000 — Air Contaminants (General Industry)
- 29 CFR 1926.55 — Gases, Vapors, Fumes, Dusts, and Mists (Construction)
- ANSI Z390.1 — Accepted Practices for Hydrogen Sulfide (H₂S) Training Programs
- NIOSH Pocket Guide to Chemical Hazards — Hydrogen Sulfide
- 29 CFR 1910.134 — Respiratory Protection
- 29 CFR 1910.146 — Permit-Required Confined Spaces

3. Properties of Hydrogen Sulfide

Understanding the physical and chemical properties of H₂S is critical for safe operations:

Property	Description
Chemical Formula	H ₂ S
Appearance	Colorless gas
Odor	"Rotten egg" smell at low concentrations — DO NOT rely on odor for detection
Vapor Density	1.189 (heavier than air — accumulates in low-lying areas)
Flammability	Flammable — LEL: 4.0%, UEL: 44.0%
Solubility	Soluble in water; released when agitated or heated
Key Hazard	Olfactory fatigue — paralyzes sense of smell at ≥50 ppm

NOTE: NEVER rely on your sense of smell to detect H₂S. Olfactory fatigue occurs rapidly at higher concentrations, and the gas becomes odorless. Always use calibrated gas detection instruments.

4. Exposure Limits

Standard	Limit	Concentration
OSHA PEL (Ceiling)	Maximum at any time	20 ppm
OSHA PEL (Peak)	10-minute maximum	50 ppm
NIOSH REL (Ceiling)	10-minute ceiling	10 ppm
ACGIH TLV-TWA	8-hour average	1 ppm
ACGIH TLV-STEL	15-minute short-term	5 ppm
IDLH	Immediately Dangerous to Life/Health	100 ppm

5. Health Effects by Concentration

The following table summarizes the health effects of H₂S at various concentrations:

Concentration (ppm)	Health Effects
0.01 – 0.3	Odor threshold — faint "rotten egg" smell detectable
1 – 10	Noticeable odor; eye irritation at upper range; headache with prolonged exposure
10 – 50	Strong offensive odor; eye and respiratory irritation; headache; nausea; dizziness
50 – 100	Olfactory fatigue (loss of smell); severe eye and respiratory irritation; pulmonary edema possible
100 – 200	IDLH zone; loss of smell immediate; severe respiratory distress; rapid loss of consciousness possible
200 – 500	Rapid unconsciousness; respiratory paralysis; death possible within minutes
500 – 1000	Immediate collapse; respiratory paralysis; death within minutes without rescue
1000+	Immediate death — single breath can be fatal

6. Common Sources of H₂S

6.1 Oil & Gas Operations

- Wellheads, flow lines, and production equipment
- Tank batteries and storage vessels
- Gas sweetening and sulfur recovery units
- Drilling operations (especially in H₂S-bearing formations)

6.2 Other Sources

- Wastewater treatment plants and collection systems
- Confined spaces (manholes, vaults, pits, tanks)
- Landfills and waste disposal facilities
- Pulp and paper mills
- Agricultural operations (manure pits, silos)

- Geothermal areas and hot springs

7. Roles & Responsibilities

7.1 Management

- Ensure H₂S hazard assessments are conducted for all applicable work locations
- Provide monitoring equipment, respiratory protection, and rescue equipment
- Establish H₂S danger zones, alarm systems, and evacuation routes
- Ensure adequate staffing for buddy system compliance

7.2 Supervisors

- Verify atmospheric monitoring before and during H₂S operations
- Enforce buddy system, PPE requirements, and wind direction awareness
- Ensure all personnel on-site are H₂S-trained before work begins
- Brief all workers on evacuation routes, alarm signals, and assembly points

7.3 Employees

- Attend and complete required H₂S safety training
- Use personal and area monitors as required
- Know evacuation routes and emergency assembly points
- Never enter an H₂S-contaminated area without proper PPE and authorization
- Report all alarms, leaks, and suspected H₂S exposures immediately

8. Atmospheric Monitoring

8.1 Equipment Requirements

- Calibrated personal H₂S monitors shall be worn by all personnel in H₂S areas
- Area monitors shall be placed at strategic locations around work zones
- Monitors shall be bump-tested daily and calibrated per manufacturer specifications
- Spare batteries and sensor replacements shall be available on-site

8.2 Alarm Set Points

Alarm Level	Concentration	Action
Low Alarm	10 ppm	Alert — increase awareness, check wind direction, prepare to evacuate
High Alarm	20 ppm (PEL Ceiling)	Evacuate — move upwind and crosswind to assembly point
TWA Alarm	10 ppm (8-hr average)	Evacuate — cumulative exposure limit reached

8.3 Wind Direction Awareness

- Windsocks shall be installed and visible at all H₂S work locations

- Workers shall be aware of wind direction at all times
- Evacuation routes shall be upwind and crosswind of the H₂S source
- Briefings shall include wind direction and potential changes

9. Buddy System

No person shall work alone in areas where H₂S concentrations may exceed 10 ppm:

- Minimum two-person buddy system required in all H₂S danger areas
- Each buddy must maintain visual and/or voice contact
- Each buddy must carry a personal H₂S monitor and have access to escape SCBA
- Buddy pairs shall monitor each other for signs of H₂S exposure

10. Escape Route Planning

- Primary and secondary evacuation routes shall be established and communicated
- Routes shall be upwind and/or crosswind from potential H₂S sources
- Evacuation maps posted at visible locations around the work area
- Wind direction indicators (windsocks) at assembly points
- Muster/assembly points at safe distances upwind of the source
- Regular drills to ensure all personnel are familiar with evacuation procedures

11. Respiratory Protection

Respiratory protection for H₂S shall follow this hierarchy:

Exposure Level	Required Respiratory Protection
Below 10 ppm	No respiratory protection required (monitoring continues)
10 – 50 ppm	Full-face APR with appropriate cartridges (only for escape, not for entry)
50 – 100 ppm	Full-face SAR (Supplied Air Respirator) in pressure-demand mode
Above 100 ppm (IDLH)	Full-face pressure-demand SCBA or combination SCBA/SAR
Unknown concentration	Full-face pressure-demand SCBA

NOTE: APRs (Air Purifying Respirators) do NOT protect against IDLH concentrations. SCBA is mandatory for concentrations above 100 ppm or unknown atmospheres.

Escape-only SCBA (5–10 minute units) shall be readily available at all H₂S work locations.

12. Rescue Procedures

In the event of an H₂S exposure emergency:

12.1 Self-Rescue

- Hold your breath, don escape SCBA if immediately available
- Move upwind and crosswind to the designated assembly point
- Alert others by radio, horn, or alarm
- Do NOT re-enter the area to assist others unless wearing SCBA

12.2 Rescue of Others

IMPORTANT: Attempting rescue without proper SCBA is the leading cause of multiple H₂S fatalities.

- Do NOT enter an H₂S atmosphere without full-face pressure-demand SCBA
- Contact emergency services (911) immediately
- Only trained rescue personnel wearing SCBA shall attempt rescue
- Remove the victim to fresh air upwind of the source
- Begin CPR if the victim is not breathing (H₂S may cause respiratory arrest)
- Administer supplemental oxygen if trained and equipment is available
- Stay with the victim until EMS arrives

13. Medical Surveillance

Medical surveillance shall be provided for employees routinely working in H2S environments:

- Pre-assignment baseline health assessment
- Annual medical evaluation (focused on respiratory and neurological function)
- Post-exposure medical evaluation following any exposure above the PEL
- Pulmonary function tests, chest X-ray, and neurological screening as directed by the physician
- Medical records retained for duration of employment plus 30 years

14. Training Requirements

14.1 Initial Training (ANSI Z390.1 Compliant)

All employees who may be exposed to H2S shall complete initial training covering:

- Properties, sources, and health hazards of H2S
- Exposure limits and effects at various concentrations
- Detection and monitoring equipment operation
- Respiratory protection selection and use
- Buddy system and wind direction awareness
- Evacuation routes and alarm procedures
- Rescue procedures including CPR and first aid
- Hands-on equipment use (monitor, SCBA donning/doffing)

14.2 Refresher Training

- Annual refresher training for all H2S-exposed employees
- Retraining when job conditions change or new H2S sources are identified
- Retraining after any H2S exposure incident

15. Recordkeeping

- Atmospheric monitoring records — retained for 30 years
- Personal exposure monitoring results — retained for 30 years
- Medical surveillance records — retained for duration of employment plus 30 years
- Training records — retained for duration of employment plus 3 years
- Equipment calibration and maintenance records — retained for 3 years
- Incident and near-miss reports — retained for 5 years

16. Program Review

This program shall be reviewed annually or after any H2S exposure incident, near-miss, or change in operations that may affect H2S exposure risk.

Appendix A: H2S Monitoring Log

Use this log to document atmospheric monitoring results at H2S work locations.

Site / Location: _____ Date: _____

Instrument Type: _____ Serial #: _____

Last Calibration Date: _____ Bump Test: ☐ Pass ☐ Fail

Time	Location / Area	H2S (ppm)	Wind Dir.	Action Taken	Initials

Monitor: _____ Reviewed By: _____

Appendix B: H2S Emergency Action Checklist

Post at all H2S work locations. Review with all personnel before work begins.

IF H2S ALARM SOUNDS OR H2S IS DETECTED:

Step	Action	✓
1	STOP work immediately	☐
2	Hold your breath — don't escape SCBA if immediately available	☐
3	Move UPWIND and CROSSWIND to the assembly point	☐
4	Alert others by radio, horn, or verbal warning	☐
5	Account for all personnel at assembly point (buddy check)	☐
6	Call 911 and notify the Site Supervisor	☐
7	DO NOT re-enter the area without SCBA	☐
8	If rescue needed — only trained rescuers with SCBA	☐
9	Administer first aid / CPR if trained	☐
10	Remain at assembly point until "All Clear" is given	☐

EMERGENCY CONTACTS:

Emergency Services: 911

Site Supervisor: _____ Phone: _____

Safety Department: _____ Phone: _____

Poison Control: 1-800-222-1222

Assembly Point Location: _____

Primary Evacuation Route: _____

Secondary Evacuation Route: _____

Wind Direction (current): _____ Windsock Location: _____

HAZARD COMMUNICATION (HazCom) PROGRAM

Written Safety Program

Per 29 CFR 1910.1200 — Globally Harmonized System (GHS) Aligned

[COMPANY NAME]

[Company Address]

Effective Date: _____

Revision Date: _____

Prepared by Forbes Safety Solutions

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1.0 Purpose and Scope

This Hazard Communication (HazCom) Program has been established to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200, as aligned with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The purpose of this program is to ensure that the hazards of all chemicals used, stored, or handled at [Company Name] worksites are evaluated, and that information concerning these hazards is transmitted to all affected employees.

This program applies to all employees who may be exposed to hazardous chemicals under normal working conditions or during foreseeable emergencies. This includes all work areas, job classifications, and operations where hazardous chemicals are present.

This written program is available to all employees and their designated representatives upon request. A copy is maintained at [location / office].

2.0 Responsibilities

2.1 Program Administrator

The HazCom Program Administrator is: [Name / Title]. This person is responsible for:

- Implementing and maintaining this written program
- Maintaining the chemical inventory and SDS library
- Ensuring proper labeling of all containers
- Coordinating employee training
- Communicating hazard information to contractors
- Reviewing and updating the program annually

2.2 Supervisors / Foremen

- Ensure employees receive HazCom training before working with hazardous chemicals
- Ensure proper labeling of all workplace containers
- Ensure Safety Data Sheets are accessible to all employees on every shift
- Enforce proper use of PPE when handling hazardous chemicals

2.3 Employees

- Attend required HazCom training
- Read and follow SDS information and label warnings
- Use required PPE when working with hazardous chemicals
- Report unlabeled containers, missing SDSs, or chemical spills to their supervisor immediately

3.0 Hazard Classification

[Company Name] relies on the hazard classification provided by chemical manufacturers and importers on their Safety Data Sheets and product labels. The company will not perform independent hazard classification.

Under the GHS-aligned HazCom standard, hazards are classified into two major groups:

Physical Hazards: Flammable gases, flammable liquids, flammable solids, oxidizers, compressed gases, explosives, self-reactive chemicals, pyrophoric materials, organic peroxides, corrosive to metals, and others.

Health Hazards: Acute toxicity, skin corrosion/irritation, serious eye damage/irritation, respiratory or skin sensitization, germ cell mutagenicity, carcinogenicity, reproductive toxicity, specific target organ toxicity (single and repeated exposure), and aspiration hazard.

When a new chemical is introduced to the workplace, the SDS must be obtained and reviewed before the chemical is used. The Program Administrator will update the chemical inventory and ensure proper labeling.

4.0 Safety Data Sheets (SDS)

[Company Name] will maintain a complete and current SDS for every hazardous chemical used at the worksite. SDSs will be readily accessible to all employees during each work shift.

4.1 SDS Management

- SDSs are maintained at: [Location — e.g., safety office, SDS binder in each work area, electronic system]
- New SDSs are obtained before any new chemical is brought to the worksite
- SDSs are reviewed and updated when new or revised versions become available
- If an SDS is not available for a chemical, the Program Administrator will contact the manufacturer/supplier using the SDS Request Letter (Appendix B)
- Electronic SDSs are acceptable provided employees can access them without barriers during each shift

4.2 The 16-Section SDS Format

Under the GHS, all SDSs must follow a standardized 16-section format:

1. **Section 1:** Identification — Product name, manufacturer, emergency phone
2. **Section 2:** Hazard(s) Identification — GHS classification, signal word, pictograms, hazard statements
3. **Section 3:** Composition / Information on Ingredients
4. **Section 4:** First-Aid Measures
5. **Section 5:** Fire-Fighting Measures
6. **Section 6:** Accidental Release Measures
7. **Section 7:** Handling and Storage
8. **Section 8:** Exposure Controls / Personal Protection
9. **Section 9:** Physical and Chemical Properties
10. **Section 10:** Stability and Reactivity
11. **Section 11:** Toxicological Information
12. **Section 12:** Ecological Information
13. **Section 13:** Disposal Considerations
14. **Section 14:** Transport Information
15. **Section 15:** Regulatory Information
16. **Section 16:** Other Information

5.0 Labeling Requirements

5.1 Manufacturer Labels

All containers of hazardous chemicals received at the worksite must have a GHS-compliant label that includes:

- Product identifier (chemical name)
- Signal word ("Danger" or "Warning")
- Hazard statement(s) describing the nature of the hazard
- Precautionary statement(s) describing recommended measures
- GHS pictogram(s) — red-bordered diamond symbols
- Manufacturer/supplier name, address, and phone number

5.2 Workplace (Secondary) Container Labels

When chemicals are transferred to secondary containers, the container must be labeled with at minimum:

- Product identifier (matching the SDS)
- Words, pictures, symbols, or a combination providing general information about the hazards

Exception: Portable containers for immediate use by the employee who performs the transfer do not require labeling, provided the chemical is under that employee's control during the entire shift.

5.3 Label Maintenance

Labels must not be defaced or removed. If a label becomes unreadable, the supervisor must ensure the container is relabeled immediately. Unlabeled containers must be removed from service until properly labeled.

6.0 Chemical Inventory

A master chemical inventory is maintained by the Program Administrator and updated whenever a new chemical is introduced or an existing chemical is removed from use. The inventory includes:

- Chemical / product name (matching the SDS)
- Manufacturer / supplier name
- Work area where the chemical is used or stored
- Hazard classification (physical and health)
- SDS on file (Yes / No)
- Date added to inventory

The Chemical Inventory Template is included in Appendix A.

7.0 Employee Training

All employees who may be exposed to hazardous chemicals must receive HazCom training. Training is provided:

- At the time of initial assignment to a work area with hazardous chemicals
- When a new chemical hazard is introduced to the work area
- Annually as a refresher

7.1 Training Content

Training must cover the following topics:

- An overview of the requirements of 29 CFR 1910.1200 and this written program
- Location and availability of the written HazCom Program and chemical inventory
- How to read and interpret GHS labels, including pictograms, signal words, hazard statements, and precautionary statements
- How to access, read, and use Safety Data Sheets
- Physical and health hazards of the chemicals in the work area
- Protective measures (PPE, engineering controls, work practices) to reduce exposure
- Emergency procedures for chemical spills, leaks, or exposures
- Procedures for non-routine tasks involving hazardous chemicals

The Training Sign-Off Sheet (Appendix C) must be completed for all training sessions.

8.0 Non-Routine Tasks

Before employees perform non-routine tasks that involve potential exposure to hazardous chemicals (e.g., cleaning tanks, entering confined spaces, emergency repairs), the supervisor must:

- Identify the hazardous chemicals that may be involved
- Review the applicable SDS(s) with the affected employees
- Ensure appropriate PPE and safety measures are in place
- Brief employees on the specific hazards and emergency procedures for the task
- Conduct atmospheric monitoring if required by the task or hazard

9.0 Contractor Notification

When contractors work at [Company Name] facilities or jobsites, the following information must be provided:

- The identity of hazardous chemicals to which they may be exposed while on site
- The location and availability of SDSs for those chemicals

- Precautionary measures the contractor's employees should take to protect themselves
- The location of this written HazCom Program and the chemical inventory

Contractors must also provide [Company Name] with SDSs for any hazardous chemicals they bring onto the worksite. Contractors are responsible for training their own employees on the hazards of their chemicals.

10.0 Multi-Employer Worksites

On multi-employer worksites (including construction projects), the host employer or general contractor will:

- Inform all employers of the location and availability of SDSs at the worksite
- Implement a system to communicate chemical hazards introduced by any employer
- Ensure that chemical inventory information is shared and accessible to all employers
- Coordinate labeling systems so all workers can understand the hazard information

Each employer on the multi-employer worksite remains responsible for training their own employees and maintaining their own HazCom program.

11.0 Recordkeeping

The following records must be maintained and made available upon request:

- This written Hazard Communication Program
- Chemical Inventory (updated as chemicals change)
- Safety Data Sheets for all hazardous chemicals (current and historical)
- Employee training records (including dates, topics, attendees, and trainer)
- SDS request letters sent to manufacturers/suppliers

Training records must be maintained for the duration of employment plus 3 years.

Appendix A: Chemical Inventory Template

Use this template to track all hazardous chemicals present at the worksite. Update whenever chemicals are added or removed.

Product Name	Manufacturer	Work Area / Location	Hazard Class	SDS on File?	Date Added

Appendix B: SDS Request Letter Template

[Date]

[Manufacturer/Supplier Name]

[Address]

[City, State, ZIP]

Re: Request for Safety Data Sheet(s)

Dear Sir or Madam:

Under the OSHA Hazard Communication Standard (29 CFR 1910.1200), employers are required to maintain Safety Data Sheets (SDSs) for all hazardous chemicals present in the workplace. We have been unable to locate the SDS for the following product(s) in our files:

[Product Name / Product #]

Please forward the current SDS for the above product(s) to:

[Company Name]

[Attention: Program Administrator Name]

[Address]

[City, State, ZIP]

[Email Address]

If you have any questions, please contact us at [Phone Number]. We appreciate your prompt attention to this matter.

Sincerely,

[Name, Title]

[Company Name]

Appendix C: Training Sign-Off Sheet

Hazard Communication (HazCom) Training

Training Date:	
Trainer Name:	
Location / Project:	
Topics Covered:	☐ Written HazCom Program ☐ Chemical Inventory ☐ SDS Access & Use ☐ GHS Labels ☐ PPE Requirements ☐ Spill Response ☐ Non-Routine Tasks

By signing below, I acknowledge that I have received training on the company's Hazard Communication Program, including how to read labels, access Safety Data Sheets, and protect myself from chemical hazards.

#	Print Name	Company / Employer	Signature	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Appendix D: GHS Pictogram Reference Chart

The Globally Harmonized System (GHS) uses standardized pictograms on labels and SDSs to communicate specific hazards. Each pictogram is a red-bordered diamond shape with a black symbol on a white background. Below is a description of each pictogram and its meaning.

Pictogram Symbol	Pictogram Name	Hazard Description
 Flame	Flammable	Flammable gases, liquids, solids, aerosols. Self-reactive substances. Pyrophoric materials. Self-heating substances. Substances that emit flammable gases when in contact with water. Organic peroxides.
 Flame Over Circle	Oxidizer	Oxidizing gases, liquids, and solids. May cause or intensify fire. May cause explosion.
 Skull and Crossbones	Acute Toxicity (Severe)	Chemicals that are fatal, toxic, or highly toxic if swallowed, inhaled, or absorbed through the skin. Categories 1-3 acute toxicity.
 Exclamation Mark	Irritant / Harmful	Skin and eye irritation. Skin sensitization. Acute toxicity (Category 4 — harmful). Narcotic effects. Respiratory tract irritation. Hazardous to ozone layer.
 Health Hazard (Silhouette)	Serious Health Hazard	Carcinogenicity. Respiratory sensitization. Reproductive toxicity. Specific target organ toxicity (single and repeated exposure). Germ cell mutagenicity. Aspiration hazard.
 Corrosion	Corrosive	Skin corrosion / burns. Serious eye damage. Corrosive to metals.
 Gas Cylinder	Compressed Gas	Compressed gases. Liquefied gases. Refrigerated liquefied gases. Dissolved gases. May explode if heated.
 Exploding Bomb	Explosive	Explosives. Self-reactive substances. Organic peroxides. Unstable explosives. Divisions 1.1 through 1.6.
 Environment	Environmental Hazard	Acute and chronic aquatic toxicity. Hazardous to the aquatic environment. Not mandated by OSHA but may appear on labels/SDSs.

Signal Words: "DANGER" indicates more severe hazards. "WARNING" indicates less severe hazards. A product will display only one signal word — the most severe applicable.

Hazard Statements: Standardized phrases describing the nature and degree of hazard (e.g., "Highly flammable liquid and vapor," "Causes serious eye damage"). These appear on both labels and SDSs.

Precautionary Statements: Recommended measures to minimize or prevent adverse effects from exposure, storage, or handling (e.g., "Keep away from heat/sparks/open flames," "Wear protective gloves/eye protection").

FORBES SAFETY SOLUTIONS

HEARING CONSERVATION PROGRAM

OSHA-Compliant Workplace Safety Program

[COMPANY NAME]

Effective Date: [DATE]

Revision Number: [REV #]

Prepared By: [NAME / TITLE]

Approved By: [NAME / TITLE]

Approval Date: [DATE]

TABLE OF CONTENTS

1. PURPOSE & SCOPE

The purpose of this Hearing Conservation Program is to protect [COMPANY NAME] employees from occupational noise exposure and prevent noise-induced hearing loss (NIHL). This program establishes procedures for noise monitoring, audiometric testing, hearing protector use, training, and recordkeeping in compliance with OSHA standards.

This program applies to all [COMPANY NAME] employees who are exposed to noise levels at or above the Action Level of 85 dBA as an 8-hour time-weighted average (TWA). All contractors working at [COMPANY NAME] facilities or job sites who are exposed to hazardous noise levels are also required to comply with this program.

Program Goals:

- Identify employees exposed to hazardous noise levels through monitoring
- Reduce noise exposure through engineering and administrative controls where feasible
- Provide and ensure proper use of hearing protection devices
- Detect early signs of hearing loss through audiometric testing
- Educate employees on the effects of noise and the importance of hearing conservation

2. REGULATORY REFERENCES

- **29 CFR 1910.95** — OSHA General Industry: Occupational Noise Exposure
- **29 CFR 1926.52** — OSHA Construction: Occupational Noise Exposure
- **29 CFR 1926.101** — OSHA Construction: Hearing Protection
- **NIOSH Criteria for a Recommended Standard — Occupational Noise Exposure (Revised 1998)**
- **ANSI S3.6** — Specification for Audiometers
- **ANSI S12.6** — Methods for Measuring the Real-Ear Attenuation of Hearing Protectors

3. DEFINITIONS

- **Action Level (AL):** An 8-hour TWA of 85 dBA or a dose of 50%. Triggers inclusion in the hearing conservation program.
- **Permissible Exposure Limit (PEL):** An 8-hour TWA of 90 dBA or a dose of 100%. Hearing protection is mandatory above this level.
- **Time-Weighted Average (TWA):** The average noise exposure measured over an 8-hour period, using a 5 dB exchange rate per OSHA.

- **Standard Threshold Shift (STS):** A change of 10 dB or more in average hearing threshold at 2000, 3000, and 4000 Hz in either ear relative to the baseline audiogram.
- **Noise Reduction Rating (NRR):** A single-number rating in decibels that indicates the noise reduction capability of a hearing protector under laboratory conditions.
- **Baseline Audiogram:** The reference audiogram against which future audiograms are compared. Must be obtained within 6 months of first exposure (or 1 year if mobile testing is used, with interim HPD use).

4. ROLES & RESPONSIBILITIES

4.1 Management

- Allocate resources for noise monitoring, audiometric testing, and hearing protection
- Support engineering and administrative controls to reduce noise exposure
- Ensure program compliance across all [COMPANY NAME] operations

4.2 Safety Manager / Program Administrator

- Administer the Hearing Conservation Program and maintain all required records
- Coordinate noise monitoring surveys and audiometric testing
- Select and make available appropriate hearing protection devices
- Conduct annual training for employees in the hearing conservation program
- Evaluate program effectiveness and implement improvements
- Ensure follow-up on Standard Threshold Shifts

4.3 Supervisors

- Ensure employees wear hearing protection in designated noise hazard areas
- Monitor work areas for changes in noise levels that may require reassessment
- Report equipment or process changes that may alter noise exposure levels

4.4 Employees

- Wear hearing protection as required in designated noise areas
- Attend all required audiometric testing appointments
- Participate in annual hearing conservation training
- Report any changes in hearing ability or concerns to the supervisor

- Properly care for and maintain hearing protection devices

5. PROGRAM PROCEDURES

5.1 Noise Monitoring

[COMPANY NAME] shall conduct noise monitoring when information indicates that any employee's exposure may equal or exceed the Action Level of 85 dBA TWA.

Monitoring Requirements:

- Initial monitoring shall be conducted to identify employees for inclusion in the hearing conservation program.
- Monitoring shall be repeated whenever a change in production, process, equipment, or controls increases noise exposures to the extent that additional employees may be exposed at or above the Action Level, or existing protectors may be inadequate.
- All continuous, intermittent, and impulsive noise from 80 dBA to 130 dBA shall be integrated into the exposure measurement.
- Either area monitoring or personal dosimetry may be used.
- Affected employees shall be notified of monitoring results.
- Employees shall be allowed to observe monitoring procedures.

All monitoring shall be recorded on the Noise Monitoring Record Form (Appendix A).

5.2 Permissible Noise Exposure Table

Per 29 CFR 1910.95 Table G-16, the following are permissible noise exposures:

Duration per Day (hours)	Sound Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 or less	115

Note: Exposure to impulsive or impact noise shall not exceed 140 dB peak sound pressure level. When daily noise exposure consists of two or more periods at different levels, the combined effect must be calculated using the formula: $C_1/T_1 + C_2/T_2 + \dots C_n/T_n$. If the sum exceeds 1.0, the mixed exposure exceeds the PEL.

5.3 Audiometric Testing

[COMPANY NAME] shall make audiometric testing available to all employees whose exposure equals or exceeds the Action Level of 85 dBA TWA, at no cost to the employee.

Baseline Audiogram:

- Shall be obtained within 6 months of an employee's first exposure at or above the Action Level.
- If a mobile testing service is used, the baseline may be obtained within 1 year, but the employee shall wear hearing protection from the 6-month mark until the baseline is established.
- Employees shall avoid workplace noise exposure for at least 14 hours before baseline testing. Hearing protectors may be used as a substitute for this quiet period.

Annual Audiogram:

- Shall be obtained within 12 months of the previous audiogram for each employee in the program.
- Each annual audiogram shall be compared to the baseline by a qualified audiologist, otolaryngologist, or physician.

Standard Threshold Shift (STS) Follow-Up:

- If an STS is detected, the employee shall be notified in writing within 21 days.
- Employees not yet wearing hearing protectors shall be fitted with protectors, trained in their use, and required to wear them.
- Employees already wearing protectors shall be refitted and, if necessary, provided with protectors offering greater attenuation.
- The employee shall be referred for audiological evaluation if additional testing confirms the STS.
- If a physician determines the STS is not work-related, [COMPANY NAME] is not required to take further action under this standard but should document the finding.

5.4 Hearing Protector Selection and NRR Derating

[COMPANY NAME] shall provide hearing protectors at no cost to all employees exposed at or above the Action Level. Hearing protectors are **mandatory** for all employees exposed above the PEL of 90 dBA TWA, and for employees who have experienced a Standard Threshold Shift.

Types of Hearing Protection:

- **Disposable Foam Earplugs** — Lightweight, high NRR, single-use. Common NRR: 29-33 dB.
- **Reusable (Pre-Molded) Earplugs** — Durable, washable, lower waste. Common NRR: 22-27 dB.
- **Earmuffs** — Enclose the entire ear, easy to verify proper use. Common NRR: 22-31 dB.

- **Canal Caps (Semi-Insert)** — Convenient for intermittent noise exposure. Common NRR: 17-24 dB.
- **Custom-Molded Earplugs** — Individually fitted for comfort and consistent attenuation.

OSHA NRR Derating Method:

To estimate the actual noise level reaching the ear (estimated exposure), use the following OSHA derating formula:

$$\text{Estimated Exposure} = \text{TWA (dBC)} - (\text{NRR} - 7)$$

If measurements are taken in dBA (most common):

$$\text{Estimated Exposure} = \text{TWA (dBA)} - [(\text{NRR} - 7) \div 2]$$

Example: Employee TWA = 95 dBA, earplug NRR = 29 dB

$$\text{Estimated Exposure} = 95 - [(29 - 7) \div 2] = 95 - 11 = \mathbf{84 \text{ dBA}} \text{ (below the Action Level ✓)}$$

The selected hearing protector must reduce the employee's exposure to below the PEL (90 dBA TWA) or, for employees who have experienced an STS, below the Action Level (85 dBA TWA).

5.5 Hearing Protector Fit and Use

Employees shall be given the opportunity to select hearing protectors from at least two suitable types. Supervisors shall ensure proper fit using the Hearing Protector Fit Verification Checklist (Appendix B). Hearing protectors shall be replaced as necessary due to wear, damage, or loss of attenuation.

6. TRAINING REQUIREMENTS

[COMPANY NAME] shall provide training annually to each employee included in the hearing conservation program. Training shall cover:

- The effects of noise on hearing, including noise-induced hearing loss
- The purpose and procedures of audiometric testing, and an explanation of the testing process
- The purpose of hearing protectors, advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care
- [COMPANY NAME]'s noise monitoring results and their significance
- Access to the OSHA Noise Standard (29 CFR 1910.95) and this written program

Training must be updated to be consistent with changes in PPE and work processes. Training records shall include attendee names, dates, content covered, and trainer information.

7. RECORDKEEPING

[COMPANY NAME] shall maintain the following records:

- **Noise monitoring records:** Employee names, dates, noise levels, instruments used, and calibration data. Retained for a minimum of two (2) years per 29 CFR 1910.95(m)(1).
- **Audiometric test records:** Employee name, job classification, date, examiner name, most recent noise exposure, and audiogram results. Retained for the **duration of employment** per 29 CFR 1910.95(m)(2).
- **Training records:** Attendee names, dates, topics covered, and trainer qualifications. Retained for a minimum of three (3) years.
- **Hearing protector fit verification records:** Retained for a minimum of one (1) year.

All records shall be made available to employees, former employees, and their representatives upon request, and to OSHA upon request.

APPENDIX A: NOISE MONITORING RECORD FORM

NOISE MONITORING RECORD FORM

Company Name: _____

Project / Location: _____

Date of Monitoring: _____

Monitored By: _____

Title: _____

Instrument Information:

Sound Level Meter Make/Model: _____

Serial Number: _____

Dosimeter Make/Model: _____

Serial Number: _____

Pre-Calibration (dB): _____

Post-Calibration (dB): _____

Calibrator Make/Model: _____

Calibration Due Date: _____

Monitoring Results:

Employee Name	Job Title	Location / Task	Monitoring Duration	TWA (dBA)	Peak (dB)

Noise Sources Identified:

1: _____

2: _____

3: _____

Recommended Controls:

Engineering Controls: _____

Administrative Controls: _____

Hearing Protection Required (Type/NRR): _____

Monitoring Technician Signature:

Date: _____

Safety Manager Signature:

Date: _____

APPENDIX B: HEARING PROTECTOR FIT VERIFICATION CHECKLIST

HEARING PROTECTOR FIT VERIFICATION CHECKLIST

Employee Name: _____

Employee ID: _____

Date: _____

Verified By: _____

Hearing Protector Type: _____

Make / Model / NRR: _____

Earplug Fit Verification:

- ☐ Employee was instructed on proper insertion technique
- ☐ Foam earplugs: plug was rolled into a thin, crease-free cylinder before insertion
- ☐ Earplug was inserted deeply into the ear canal
- ☐ After insertion, earplug expanded to fill the ear canal (foam type)
- ☐ Visual check: earplug is not visible when viewed from the front (deep insertion confirmed)
- ☐ Employee reports muffled sound / reduced ambient noise
- ☐ Cup hands over ears test: no significant change in noise level (indicates good seal)
- ☐ Earplug is comfortable and employee can wear it for extended periods

Earmuff Fit Verification:

- ☐ Cushions fully enclose the ears without resting on them
- ☐ Headband provides adequate tension without excessive pressure
- ☐ No gaps between cushion and skin (checked around glasses, hair)
- ☐ Cushions are soft, pliable, and free from cracks or hardening
- ☐ Earmuff is comfortable and employee can wear it for extended periods

General Verification:

- ☐ Employee was offered a choice of at least two hearing protector types
- ☐ Selected protector provides adequate attenuation (reduces exposure below PEL/AL)
- ☐ Employee was trained on proper care and maintenance
- ☐ Employee was trained on proper storage
- ☐ Employee understands when hearing protection must be worn

☐ Replacement protectors are available at the work site

Fit Result:

- ☐ PASS — Hearing protector fits properly and provides adequate attenuation
- ☐ FAIL — Refit required (document action taken below)

Corrective Action Taken: _____

Employee Signature: _____

Date: _____

Verifier Signature: _____

Date: _____

HEAT ILLNESS PREVENTION PROGRAM

Protecting Workers from Heat-Related Hazards

Company:	[COMPANY NAME]
Effective Date:	[DATE]
Revision Number:	[REV #]
Prepared By:	[NAME / TITLE]
Approved By:	[NAME / TITLE]
Approval Date:	[DATE]

FORBES SAFETY SOLUTIONS

Professional Safety Program Template

Table of Contents

1. Purpose and Scope

[COMPANY NAME] is committed to protecting employees from heat-related illnesses and injuries. This Heat Illness Prevention Program establishes procedures and practices to minimize the risk of heat-related illness for all employees who perform work in hot environments, whether outdoors or in indoor settings lacking adequate climate control.

This program applies to all [COMPANY NAME] employees, subcontractors, and temporary workers who may be exposed to heat stress conditions during the course of their work activities.

The goal of this program is to ensure compliance with applicable regulations and to provide a safe and healthful work environment through the implementation of engineering controls, administrative controls, and work practices designed to prevent heat-related illness.

2. Regulatory References

- OSHA General Duty Clause, Section 5(a)(1) of the OSH Act — Requires employers to provide a workplace free from recognized hazards likely to cause death or serious physical harm
- OSHA's "Water. Rest. Shade." Campaign — National emphasis program for outdoor and indoor heat-related hazards
- NIOSH Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments (2016)
- ACGIH Threshold Limit Values (TLVs) for Heat Stress and Heat Strain
- OSHA National Emphasis Program (NEP) on Outdoor and Indoor Heat-Related Hazards (CPL 03-00-024)

3. Definitions

Term	Definition
Heat Stroke	A life-threatening condition where the body's temperature regulation fails. Core temperature rises above 104°F. Symptoms: confusion, altered mental status, slurred speech, loss of consciousness, hot/dry skin or profuse sweating, seizures. MEDICAL EMERGENCY — call 911.
Heat Exhaustion	A serious condition caused by excessive loss of water and salt through sweating. Symptoms: headache, nausea, dizziness, weakness, irritability, thirst, heavy sweating, elevated body temperature, decreased urine output.
Heat Cramps	Painful muscle cramps and spasms caused by loss of body salts and fluid during sweating. Usually occur in the abdomen, arms, or legs.
Heat Rash	Skin irritation caused by excessive sweating in hot, humid environments. Appears

Term	Definition
	as red clusters of pimples or small blisters, typically on the neck, chest, groin, or elbow creases.
Heat Syncope	Fainting or dizziness that occurs when standing for prolonged periods or suddenly rising from a sitting/lying position in hot environments.
Acclimatization	The process of gradually increasing exposure to heat over 7–14 days to allow the body to adapt to working in hot conditions.
WBGT	Wet Bulb Globe Temperature — a composite temperature measurement that accounts for air temperature, humidity, radiant heat, and wind speed.
Heat Index	An index that combines air temperature and relative humidity to indicate perceived temperature and potential health risk.

4. Risk Factors for Heat-Related Illness

The following factors increase the risk of heat-related illness and must be considered when evaluating work conditions:

4.1 Environmental Factors

- Air temperature above 80°F (27°C)
- High relative humidity (above 50%)
- Direct sun exposure or radiant heat sources
- Limited or no air movement
- Sudden changes in temperature (heat waves)

4.2 Work-Related Factors

- Heavy physical exertion (moderate to heavy workload)
- Wearing heavy or non-breathable personal protective equipment (PPE)
- Working near heat-generating equipment or processes
- Extended work shifts or overtime
- Insufficient rest breaks

4.3 Personal Risk Factors

- Lack of acclimatization (new or returning workers)

- Previous heat-related illness
- Age (over 65), obesity, or poor physical fitness
- Dehydration or inadequate fluid intake
- Certain medications (diuretics, blood pressure medications, antihistamines, stimulants)
- Alcohol or caffeine consumption
- Pregnancy

5. Roles and Responsibilities

5.1 Management / Program Administrator

- Implement and maintain this Heat Illness Prevention Program
- Provide resources for water, shade structures, and cooling equipment
- Ensure all supervisors and employees receive heat illness prevention training
- Monitor weather conditions and issue heat advisories
- Investigate all heat-related incidents and near-misses

5.2 Supervisors

- Monitor employees for signs and symptoms of heat-related illness
- Ensure water, rest, and shade are available and accessible
- Implement work/rest schedules based on heat conditions
- Enforce the buddy system during high-heat conditions
- Ensure new employees follow the acclimatization schedule
- Complete and maintain the Daily Heat Stress Monitoring Log (Appendix A)
- Contact emergency services immediately for suspected heat stroke

5.3 Employees

- Drink water frequently — at least 1 cup (8 oz.) every 15–20 minutes
- Take rest breaks in shade or cool areas as directed
- Report signs and symptoms of heat illness immediately to supervisor
- Monitor co-workers (buddy system) for signs of heat illness
- Attend all required heat illness prevention training sessions
- Avoid alcohol and caffeinated beverages during work hours in heat

6. Heat Stress Monitoring

[COMPANY NAME] will monitor environmental heat conditions using one or more of the following methods:

- Wet Bulb Globe Temperature (WBGT) monitoring using a calibrated instrument
- Heat Index calculations using NOAA or OSHA Heat Index charts
- Weather service forecasts and real-time monitoring

Measurements shall be taken at the beginning of each shift and at least every two hours when the temperature exceeds 80°F. Readings shall be documented in the Daily Heat Stress Monitoring Log (Appendix A).

7. Work/Rest Schedules

The following work/rest schedules shall be implemented based on the Heat Index or WBGT measurement. Supervisors shall adjust schedules as conditions change throughout the shift.

Heat Index Range	Risk Level	Work/Rest Schedule	Required Actions
Under 91°F	Lower (Caution)	Normal work schedule	Provide water and shade; encourage hydration; basic heat safety awareness
91°F – 103°F	Moderate	50 min work / 10 min rest each hour	Mandatory water breaks every 15–20 min; shade available; buddy system initiated; monitor for symptoms
103°F – 115°F	High	40 min work / 20 min rest each hour	Mandatory shade rest breaks; physiological monitoring; limit heavy exertion; consider rescheduling to cooler hours
Over 115°F	Very High to Extreme	20 min work / 40 min rest each hour OR suspend work	Evaluate whether work can continue safely; reschedule non-essential tasks; continuous symptom monitoring; emergency resources on standby

8. Acclimatization Plan

New employees or employees returning to work after an absence of 14 days or more must be gradually acclimatized to hot working conditions. The acclimatization schedule is as follows:

8.1 New Workers (No Previous Heat Exposure)

Day	Allowable Workload in Heat
Day 1	20% of normal workload/duration
Day 2	40% of normal workload/duration
Day 3	60% of normal workload/duration
Day 4	80% of normal workload/duration
Day 5+	100% of normal workload/duration

8.2 Experienced Workers (Returning After Absence)

Day	Allowable Workload in Heat
Day 1	50% of normal workload/duration
Day 2	60% of normal workload/duration
Day 3	80% of normal workload/duration
Day 4+	100% of normal workload/duration

Supervisors shall closely monitor acclimatizing workers for signs and symptoms of heat-related illness throughout the acclimatization period.

9. Hydration Requirements

- Potable drinking water shall be provided at no cost and readily accessible to all employees at all times
- Water shall be maintained at a cool temperature (50°F–60°F) where practicable
- Employees shall drink at least 1 cup (8 oz.) of water every 15–20 minutes, even if not thirsty
- During an 8-hour shift in hot conditions, each worker should consume approximately 1 quart (32 oz.) of water per hour
- Electrolyte-replacement drinks may be provided as a supplement but shall not replace water
- Supervisors shall encourage and remind workers to drink water frequently
- Sufficient quantities must be available to allow each employee at least one quart per hour for the entire shift

10. Shade and Cooling Requirements

- When temperatures exceed 80°F, shade shall be available at all times and located as close to the work area as practicable
- Shade structures must accommodate the number of employees on break at any given time
- Shade may be provided by canopies, tents, tarps, buildings, trees, or other natural or artificial means
- Cooling measures may include misting fans, air-conditioned rest areas, cooling vests, and wet towels
- Indoor work areas lacking climate control shall be evaluated for additional ventilation, fans, or portable cooling units

11. Buddy System

When the Heat Index reaches 91°F or above, [COMPANY NAME] shall implement a mandatory buddy system:

- Each worker shall be assigned a buddy to monitor for signs and symptoms of heat illness
- Buddies shall maintain visual and verbal contact throughout the work period
- If a buddy observes signs of heat illness, they shall immediately notify the supervisor and begin first aid
- Workers shall never be left alone in high-heat conditions

12. Emergency Response Procedures

In the event of a suspected heat-related illness, the following procedures shall be followed:

12.1 Heat Stroke (MEDICAL EMERGENCY)

Remember: COOL FIRST, CALL 911 SECOND.

1. Move the worker to a shaded or cool area immediately
2. Call 911 (or local emergency number) — DO NOT delay emergency services
3. Begin aggressive cooling: remove excess clothing, apply cold water or ice packs to neck, armpits, and groin
4. If ice bath is available, immerse the worker up to the neck
5. Fan the worker while applying cold water
6. Do NOT give fluids if the worker is unconscious or has altered mental status

7. Stay with the worker until emergency medical services arrive
8. Notify [COMPANY NAME] management immediately

12.2 Heat Exhaustion

1. Move the worker to a shaded or cool rest area
2. Remove excess clothing and loosen remaining clothing
3. Apply cool, wet cloths or mist with water
4. Provide cool water to drink in small amounts if the worker is conscious and alert
5. Monitor the worker closely; if symptoms worsen or do not improve within 15 minutes, call 911
6. Do not allow the worker to return to work for the remainder of the shift

12.3 Heat Cramps

1. Have the worker rest in a cool area
2. Provide electrolyte-replacement drinks or water
3. Gently stretch and massage affected muscles
4. Worker may return to work once cramps subside and no other symptoms are present

13. Training Requirements

[COMPANY NAME] shall provide heat illness prevention training to all employees and supervisors prior to initial assignment and annually thereafter. Additional training shall be provided at the start of each warm season.

13.1 All Employees

- Types of heat-related illness, signs, symptoms, and risk factors
- Importance of acclimatization and the company's acclimatization procedures
- Hydration requirements — how much and how often to drink
- How to access water, shade, and rest areas
- Work/rest schedules and how they are determined
- Buddy system procedures
- Emergency response procedures — what to do and who to contact
- Personal risk factors (medications, fitness, prior heat illness)

13.2 Supervisors (Additional Training)

- How to monitor weather conditions and use WBGT/Heat Index tools
- How to implement and adjust work/rest schedules
- How to recognize heat illness in workers and take immediate action
- How to administer first aid for heat-related illness
- Documentation and recordkeeping responsibilities
- Procedures for handling employee reports of heat-related symptoms

14. Recordkeeping

[COMPANY NAME] shall maintain the following records related to this program:

- Daily Heat Stress Monitoring Logs (Appendix A) — retained for a minimum of 3 years
- Training records (date, topics, trainer, attendees) — retained for duration of employment plus 3 years
- Heat-related incident reports and investigation findings
- Acclimatization schedules for new or returning workers
- Program review and revision records

15. Program Review

This Heat Illness Prevention Program shall be reviewed and updated at least annually, or more frequently when:

- A heat-related incident or near-miss occurs
- Regulatory requirements change
- Work processes or conditions change significantly
- Deficiencies are identified through audits or inspections

Appendix A: Daily Heat Stress Monitoring Log

Instructions: Complete this log at the beginning of each shift and at least every 2 hours when temperatures exceed 80°F. Retain records for a minimum of 3 years.

Project/Site:	[]	Date:	[]
Supervisor:	[]	Shift:	[]

Time	Temperature (°F)	Humidity (%)	Heat Index / WBGT	Wind Speed	Work/Rest Schedule	Actions Taken / Notes

Incidents/Observations:	[]
Supervisor Signature:	[]
Date:	[]

Appendix B: Heat Illness Symptom Recognition Card

QUICK REFERENCE — Post in visible locations on the jobsite. Distribute to all workers.

HEAT STROKE — CALL 911 IMMEDIATELY

Symptoms: Confusion, altered mental status, slurred speech, unconsciousness, very high body temperature (>104°F), hot/dry skin OR profuse sweating, seizures

First Aid: COOL FIRST — Move to shade, remove clothing, apply cold water/ice to neck/armpits/groin, immerse in ice bath if available. THEN call 911. Fan while cooling. Do NOT give fluids if unconscious.

HEAT EXHAUSTION

Symptoms: Headache, nausea, dizziness, weakness, heavy sweating, cool/moist skin, elevated temperature, irritability, decreased urine output, thirst

First Aid: Move to shade/cool area. Remove excess clothing. Apply cool cloths/mist. Give cool water in small sips if conscious. Monitor closely — call 911 if no improvement in 15 min.

HEAT CRAMPS

Symptoms: Painful muscle cramps/spasms in abdomen, arms, or legs

First Aid: Rest in cool area. Drink electrolyte-replacement fluids or water. Gently stretch/massage muscles. Seek medical help if cramps persist >1 hour.

HEAT RASH

Symptoms: Red clusters of blisters/pimples on neck, chest, groin, or elbow creases

First Aid: Move to cooler environment. Keep affected area dry. Apply powder to increase comfort. Do not use ointments or creams.

HEAT SYNCOPE (FAINTING)

Symptoms: Fainting, dizziness, light-headedness when standing

First Aid: Sit or lie down in cool area. Drink water slowly. If no recovery, seek medical attention.

Emergency Contact: 911 | Company Emergency Contact: [PHONE NUMBER]

Supervisor: [NAME] | Site Location: [ADDRESS]

HOT WORK PERMIT PROGRAM

Written Safety Program

Per 29 CFR 1910.252 & NFPA 51B

[COMPANY NAME]

[Company Address]

Effective Date: _____

Revision Date: _____

Prepared by Forbes Safety Solutions

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- 7.0 Fire Watch Requirements
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- 10.0 Training Requirements
- 11.0 Recordkeeping
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1.0 Purpose and Scope

The purpose of this Hot Work Permit Program is to establish procedures and requirements for the safe performance of hot work operations at [Company Name] facilities and jobsites. This program is designed to prevent fires, explosions, and injuries resulting from welding, cutting, brazing, soldering, grinding, and other spark-producing operations.

This program applies to all employees, contractors, and subcontractors who perform or supervise hot work operations. It complies with the requirements of:

- OSHA 29 CFR 1910.252 — General Requirements for Welding and Cutting
- OSHA 29 CFR 1926.352 — Fire Prevention (Construction)
- NFPA 51B — Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
- NFPA 241 — Standard for Safeguarding Construction, Alteration, and Demolition Operations

2.0 Definitions

Hot Work: Any operation that involves open flames, produces sparks, or generates sufficient heat to ignite flammable or combustible materials. This includes, but is not limited to, welding, cutting, brazing, soldering, grinding, thermal spraying, and thawing pipes with open flames.

Hot Work Permit: A written authorization issued by a designated authority that documents the fire safety precautions in effect for a specific hot work operation at a specific location and time.

Fire Watch: A trained individual stationed at or near a hot work operation to watch for fires and be ready to use fire-extinguishing equipment. Required during hot work and for a minimum of 30 minutes after work is completed.

Designated Hot Work Area: A permanent or semi-permanent location specifically designed, maintained, and approved for hot work operations, where combustible materials are controlled.

Prohibited Area: A location where hot work is not permitted under any circumstances, including areas with flammable atmospheres, near explosive materials, or in areas not authorized by management.

Competent Person: An individual who is capable of identifying hot work hazards, has the authority to take corrective action, and is designated to authorize hot work permits.

Permit Authorizing Individual (PAI): The person responsible for reviewing fire safety conditions at the hot work site, issuing the hot work permit, and verifying that all safety precautions are in place.

3.0 Responsibilities

3.1 Management

- Designate Permit Authorizing Individuals (PAIs) for all work areas
- Ensure adequate resources for fire prevention equipment and training
- Review and update this program annually or when conditions change
- Establish and maintain designated hot work areas

3.2 Permit Authorizing Individual (PAI)

- Inspect the hot work area before issuing permits
- Verify all fire prevention measures are in place
- Issue and post hot work permits at the work location
- Assign qualified fire watch personnel
- Cancel permits if conditions change or precautions are not maintained

3.3 Hot Work Operators

- Obtain a valid hot work permit before beginning any hot work
- Inspect equipment before use and report defects
- Comply with all permit conditions and fire prevention measures
- Stop work immediately if unsafe conditions develop

3.4 Fire Watch Personnel

- Maintain continuous observation during hot work and for a minimum of 30 minutes after completion
- Have fire-extinguishing equipment immediately available and know how to use it
- Know how to activate the fire alarm and contact the fire department
- Have no other duties that would prevent effective monitoring
- Be trained in the use of fire extinguishers

4.0 Hot Work Permit System

A Hot Work Permit must be issued before any hot work is performed outside of designated hot work areas. The permit system includes the following requirements:

4.1 Permit Issuance

- Permits are valid for one shift only (maximum 12 hours) and must be renewed for continued work.
- A new permit is required any time the work location changes.
- The PAI must physically inspect the hot work area and surrounding spaces (including floors above and below, and adjacent rooms) before issuing the permit.
- The completed permit must be posted at the hot work location for the duration of the work.

4.2 Pre-Hot Work Checklist

The PAI must verify the following before issuing a permit:

- Fire detection/sprinkler systems are operational (or alternative protection provided if impaired)
- Combustible materials within 35 feet have been relocated or protected with fire-resistant covers/shields
- Flammable liquids and gases are removed from the area or properly secured
- Floor and wall openings within 35 feet are covered to prevent spark passage
- Atmospheric testing has been conducted if flammable gases/vapors may be present (results must be below 10% LEL)
- Fire extinguisher(s) appropriate for the hazard are immediately available at the work area
- Fire watch personnel are assigned and briefed

4.3 Permit Completion

Upon completion of hot work, the fire watch must remain on duty for a minimum of 30 minutes. The PAI or fire watch must conduct a final inspection of the area. The completed permit must be returned to the site safety office for recordkeeping.

5.0 Designated Hot Work Areas

Designated hot work areas are permanent locations specifically set up and maintained for hot work. A hot work permit is NOT required for work performed in these areas, provided they meet all of the following criteria:

- Floors are non-combustible (concrete, metal, or equivalent)
- Walls and ceilings are non-combustible construction
- No combustible materials are stored within 35 feet
- Adequate ventilation is provided

- Fire extinguishing equipment is readily accessible
- The area is clearly marked as a "Designated Hot Work Area"
- The area is inspected regularly and kept free of combustible accumulations

6.0 Prohibited Areas

Hot work is strictly prohibited in the following areas:

- Areas with explosive or flammable atmospheres (above 10% LEL)
- In or adjacent to areas storing large quantities of flammable or explosive materials
- On or inside containers that have held flammable substances, unless properly cleaned, purged, and tested
- Areas with dust accumulations that could create an explosive atmosphere
- Near sprinkler system risers, fire suppression system components, or fire alarm equipment (unless coordination with the fire alarm monitoring company is completed)
- Any area where the PAI determines conditions are unsafe

7.0 Fire Watch Requirements

A fire watch is required in all of the following situations:

- Hot work is performed in locations where other than a minor fire might develop
- Combustible material in building construction or contents is within 35 feet of the hot work operation and cannot be removed
- Wall or floor openings within 35 feet expose combustible material in adjacent areas
- Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs

7.1 Fire Watch Duration

The fire watch must continue for a minimum of 30 minutes after hot work operations are completed. If conditions warrant (large amounts of combustible material, confined spaces, or adverse conditions), the fire watch period should be extended to 60 minutes or longer as determined by the PAI.

7.2 Fire Watch Qualifications

Fire watch personnel must be trained in the use of fire-extinguishing equipment, familiar with the facility's emergency alarm procedures, and able to identify fire hazards. Fire watch individuals must have no other assigned duties during the fire watch period that would distract from their monitoring responsibilities.

8.0 Fire Prevention Measures

The following fire prevention measures must be implemented for all hot work operations:

- **Combustible Material Control:** Remove all combustible and flammable materials within 35 feet of the hot work operation. Where removal is not practical, protect materials with fire-resistant covers, curtains, or shields.
- **Floor Protection:** Sweep floors clean of combustible debris. If floors are combustible, wet them down or cover with fire-resistant material.
- **Opening Protection:** Seal or cover all openings in floors, walls, and ducts within 35 feet to prevent sparks from traveling to other areas.
- **Fire Suppression Equipment:** A minimum of one portable fire extinguisher (minimum 2A:10BC rating) must be within immediate reach at the work area. For large-scale operations, additional extinguishers, fire hoses, or standpipes may be required.
- **Sprinkler Systems:** Do not impair fire sprinkler systems or automatic fire detection systems for hot work. If impairment is necessary, notify the fire alarm monitoring service and implement alternative protective measures.
- **Ventilation:** Ensure adequate ventilation to prevent the accumulation of flammable vapors and to maintain safe atmospheric conditions.
- **Atmospheric Monitoring:** Conduct atmospheric testing before and during hot work in areas where flammable gases, vapors, or dust may be present. Work must stop immediately if readings exceed 10% LEL.

9.0 Contractor Requirements

All contractors performing hot work on [Company Name] premises or jobsites must:

- Comply with all requirements of this Hot Work Permit Program
- Obtain a hot work permit from the designated PAI before beginning any hot work
- Provide proof that their employees have completed hot work safety training
- Provide their own fire-extinguishing equipment, unless otherwise arranged
- Designate their own fire watch personnel who meet the qualifications in Section 7.2
- Immediately stop work and notify the PAI if unsafe conditions are observed
- Submit completed hot work permits to the site safety office at the end of each shift

10.0 Training Requirements

All personnel involved in hot work operations must receive training on this program. Training must be provided:

- Upon initial assignment to hot work duties
- Annually thereafter

- When changes are made to this program
- When observations indicate that retraining is needed

Training must cover the following topics:

- Fire hazards associated with hot work operations
- The hot work permit system and procedures
- Fire prevention measures and combustible material control
- Fire watch duties and responsibilities
- Proper use of fire extinguishers
- Emergency procedures and alarm activation
- Atmospheric monitoring and testing procedures

11.0 Recordkeeping

The following records must be maintained:

- Completed hot work permits — retained for a minimum of 1 year (or per company/project requirements)
- Hot work training records for all employees and contractors
- Documentation of designated hot work areas and their inspections
- Any incident reports related to hot work operations

HOT WORK PERMIT

[Company Name] — Per 29 CFR 1910.252 / NFPA 51B

Permit #:		Date:	
Start Time:		End Time:	

Location / Area:	
Building / Floor:	
Work Description:	
Type of Hot Work:	☐ Welding ☐ Cutting ☐ Brazing ☐ Grinding ☐ Soldering ☐ Other: _____

FIRE PREVENTION CHECKLIST — Verify BEFORE Issuing Permit

☐	Sprinklers in service / operable? If impaired, notify fire alarm service.
☐	Combustibles removed or protected within 35 feet
☐	Flammable liquids/gases removed or properly secured
☐	Floor/wall openings covered within 35 feet
☐	Fire-resistant covers/shields in place over immovable combustibles
☐	Fire extinguisher(s) available at work area (min. 2A:10BC)
☐	Fire watch assigned and briefed
☐	Floors swept clean of combustible debris

ATMOSPHERIC TESTING (If Required)

LEL Reading:	_____ %	O ₂ Reading:	_____ %
Instrument:		Calibration Date:	

PERSONNEL

Hot Work Operator:	
Fire Watch Name:	
Fire Extinguisher Location:	

AUTHORIZATION

Issued By (PAI):	Signature:	Date/Time:
Operator:	Signature:	Date/Time:
Fire Watch:	Signature:	Date/Time:

POST-WORK FIRE WATCH COMPLETION

Fire Watch End Time:	(minimum 30 minutes after hot work completion)
Area Inspected By:	
Signature:	
Conditions Satisfactory?	☐ Yes ☐ No — If No, describe: _____

FORBES SAFETY SOLUTIONS

Lead Exposure Control Plan

Construction Lead Standard

Prepared for:
[COMPANY NAME]

Regulatory References:

29 CFR 1926.62 (Construction) | 29 CFR 1910.1025 (General Industry)

Effective Date: [DATE]
Review Date: [ANNUAL REVIEW DATE]

Table of Contents

1. Purpose and Scope

This Lead Exposure Control Plan establishes the procedures and controls to protect [COMPANY NAME] employees from occupational exposure to lead during construction activities. This plan implements the requirements of the OSHA Construction Lead Standard (29 CFR 1926.62) and applicable provisions of the General Industry Lead Standard (29 CFR 1910.1025).

This plan applies to all employees and contractors who perform tasks that may result in exposure to lead or lead-containing materials, including but not limited to demolition, renovation, painting, cutting or welding on lead-painted steel, abrasive blasting, bridge work, and residential lead abatement.

Permissible Exposure Limit (PEL): 50 µg/m³ as an 8-hour TWA

Action Level (AL): 30 µg/m³ as an 8-hour TWA

2. Regulatory References

- 29 CFR 1926.62 — Lead Exposure in Construction
- 29 CFR 1910.1025 — Lead (General Industry)
- 29 CFR 1926.103 / 1910.134 — Respiratory Protection
- 40 CFR Part 745 — EPA Lead-Based Paint Renovation, Repair, and Painting (RRP) Rule
- HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards
- NIOSH Criteria for a Recommended Standard: Occupational Exposure to Lead

3. Health Effects of Lead Exposure

Lead is a toxic metal that affects virtually every system of the body. Health effects include:

3.1 Acute Effects (High Exposure)

- Abdominal pain (lead colic), nausea, vomiting
- Muscle weakness and pain
- Fatigue, irritability, headache
- Metallic taste in the mouth

3.2 Chronic Effects (Long-Term Exposure)

- Nervous system: peripheral neuropathy, cognitive impairment, encephalopathy
- Kidney: nephropathy, reduced kidney function
- Reproductive: reduced fertility, miscarriage, developmental effects
- Cardiovascular: hypertension, increased risk of heart disease
- Blood: anemia (lead inhibits hemoglobin synthesis)
- Bones: lead stored in bones; released during pregnancy, illness, or aging

4. Roles and Responsibilities

4.1 Program Administrator / Competent Person

- Develop, implement, and maintain this written exposure control plan
- Conduct or arrange initial exposure assessments
- Select and implement engineering controls and work practices
- Ensure medical surveillance and biological monitoring are provided
- Manage the medical removal protection program
- Review and update this plan at least annually

4.2 Supervisors

- Ensure employees follow the exposure control plan
- Enforce engineering controls, work practices, and PPE requirements
- Ensure hygiene facilities are available and used
- Identify lead-containing materials before starting work (paint surveys, XRF testing)

4.3 Employees

- Follow all procedures in this exposure control plan
- Use required controls and PPE
- Participate in medical surveillance and blood lead level monitoring
- Report any symptoms of lead exposure to the supervisor
- Follow all hygiene requirements (handwashing, no eating/drinking/smoking in work areas)

5. Exposure Assessment

5.1 Initial Determination

The employer shall conduct an initial determination of employee exposure for each job task or work operation where lead exposure may occur. The initial determination shall be based on:

- Industry-wide objective data (when available and representative)
- Personal air monitoring (full-shift 8-hour TWA sampling)
- Historical monitoring data from similar operations

5.2 Interim Protection

Until the initial determination is completed, employees performing the following tasks shall be provided interim protection including respiratory protection and protective clothing:

Task/Activity	Assumed Exposure Level	Interim Protection
Manual demolition of lead-painted structures	> 50 µg/m ³ (above PEL)	Half-face APR with P100, protective clothing, hygiene facilities
Cutting/burning lead-painted steel	> 500 µg/m ³	Full-face APR with P100 or PAPR, full protective clothing
Abrasive blasting of lead-painted surfaces	> 2,500 µg/m ³	Type CE supplied-air blasting hood, full containment
Torch cutting lead pipe	> 500 µg/m ³	Full-face APR with P100, full protective clothing
Lead-based paint removal (heat gun)	> 50 µg/m ³	Half-face APR with P100, protective clothing
Bridge scraping/sanding lead paint	> 50 µg/m ³	Half-face APR with P100, protective clothing
Operating lead-contaminated equipment	> 30 µg/m ³ (above AL)	N95 minimum, protective clothing
Cleanup of lead-contaminated debris	> 30 µg/m ³	Half-face APR with P100, protective clothing

5.3 Monitoring Frequency

Monitoring Result	Action Required
Below Action Level (< 30 µg/m ³)	No further monitoring required unless conditions change
At or above AL, below PEL (30–50 µg/m ³)	Repeat monitoring every 6 months
At or above PEL (≥ 50 µg/m ³)	Repeat monitoring every 3 months; implement additional controls

Employees shall be notified in writing of monitoring results within 5 working days of receipt of results.

6. Common Lead Exposure Tasks in Construction

The following construction activities commonly result in lead exposure and shall be evaluated under this plan:

- Demolition or salvage of structures with lead-containing materials
- Removal or encapsulation of lead-containing materials
- Renovation, remodeling, or abrasion of surfaces with lead-based paint
- Cutting, burning, or welding on lead-painted steel (bridges, structural steel, tanks)
- Abrasive blasting of lead-painted surfaces
- Lead pipe installation, repair, or removal
- Application and removal of lead-based paints and coatings
- Transportation, storage, and disposal of lead-containing waste
- Maintenance or cleanup of lead-contaminated areas
- Bridge work: scraping, sanding, torch cutting, welding on painted steel

7. Engineering Controls

[COMPANY NAME] shall implement engineering controls as the primary means of reducing lead exposure:

- Local exhaust ventilation (LEV) at the point of dust/fume generation
- HEPA-filtered vacuum systems for cleanup and surface preparation
- Enclosed containment systems for abrasive blasting operations
- Wet methods to suppress dust during demolition and surface preparation
- Substitution of lead-free materials where feasible
- Isolation of lead work from other operations (regulated areas, barriers, negative pressure enclosures)
- HEPA-filtered negative pressure enclosures for interior work

Engineering controls shall be used to the maximum feasible extent. Where engineering controls alone are insufficient to reduce exposure below the PEL, they shall be supplemented with respiratory protection.

8. Respiratory Protection

Respiratory protection shall be provided in accordance with the [COMPANY NAME] Respiratory Protection Program and 29 CFR 1926.103/1910.134:

8.1 Respirator Selection

Airborne Lead Concentration	Minimum Respirator	APF
$\leq 500 \mu\text{g}/\text{m}^3$ (10x PEL)	Half-face APR with P100 filters (HEPA)	10
$\leq 1,250 \mu\text{g}/\text{m}^3$ (25x PEL)	PAPR with HEPA filters	25

Airborne Lead Concentration	Minimum Respirator	APF
$\leq 2,500 \mu\text{g}/\text{m}^3$ (50x PEL)	Full-face APR with P100 filters	50
$\leq 50,000 \mu\text{g}/\text{m}^3$ (1,000x PEL)	Full-face PAPR or SAR (continuous flow)	1,000
$> 50,000 \mu\text{g}/\text{m}^3$	Full-face pressure-demand SAR with auxiliary SCBA	10,000
Abrasive blasting	Type CE supplied-air hood	25 (minimum)

All employees using tight-fitting respirators shall be fit-tested initially and at least annually. A user seal check shall be performed each time a respirator is donned.

9. Protective Clothing and Hygiene Facilities

9.1 Protective Clothing

When exposure exceeds the PEL, [COMPANY NAME] shall provide at no cost:

- Disposable or washable protective coveralls or similar full-body clothing
- Gloves, hats, shoe covers, and face/eye protection as appropriate
- Protective clothing shall be cleaned, laundered, or disposed of by the employer
- Employees shall not take lead-contaminated clothing home

9.2 Hygiene Facilities

The following facilities shall be provided when employees are exposed above the PEL:

- Change rooms — with separate clean and dirty lockers/storage for street clothes and work clothes
- Showers — available for employees exposed above the PEL (mandatory at end of shift)
- Hand washing facilities — available at all work areas with lead exposure
- Lunch areas — clean, properly maintained areas where employees can eat and drink

PROHIBITED in work areas:

- No eating, drinking, smoking, chewing tobacco, or applying cosmetics in lead work areas
- No storage of food, beverages, or tobacco products in lead work areas

10. Medical Surveillance

Medical surveillance shall be provided to employees exposed to airborne lead at or above the action level ($30 \mu\text{g}/\text{m}^3$) for more than 30 days per year.

10.1 Blood Lead Level (BLL) Monitoring

Trigger	Frequency
Initial BLL	Before first exposure or upon assignment
Routine BLL (exposure $\geq$ AL)	Every 2 months for the first 6 months, then every 6 months
BLL at or above $40 \mu\text{g}/\text{dL}$	Every 2 months until two consecutive BLLs below $40 \mu\text{g}/\text{dL}$
Medical removal (BLL $\geq 50 \mu\text{g}/\text{dL}$)	Monthly until BLL $< 40 \mu\text{g}/\text{dL}$ on two consecutive tests

10.2 Medical Examinations

Comprehensive medical examinations shall be made available:

- Initial examination (before assignment or upon first exceeding AL for >30 days/year)
- Annually thereafter for employees whose BLL exceeds the AL
- As soon as possible if employee develops signs/symptoms of lead toxicity
- As recommended by the examining physician

Examinations shall include: detailed work and medical history, blood pressure, BLL, ZPP (zinc protoporphyrin), complete blood count, BUN, creatinine, urinalysis, and any other tests deemed necessary.

10.3 Medical Removal

An employee shall be removed from lead exposure when:

- Blood lead level reaches $50 \mu\text{g}/\text{dL}$ (single test) — TRIGGER FOR MEDICAL REMOVAL
- A final medical determination recommends removal

The employee shall be returned to their normal job status when the blood lead level falls below $40 \mu\text{g}/\text{dL}$ on two consecutive tests taken at least one month apart.

10.4 Medical Removal Protection (MRP)

During medical removal, the employer shall maintain the employee's earnings, seniority, and other employment rights and benefits for up to 18 months as though the employee had not been removed.

11. Employee Notification

Employees shall be notified of:

- Air monitoring results — within 5 working days of receipt

- Blood lead level results — within 5 working days of receipt
- Physician's written medical opinion — provided to both employer and employee
- The contents of 29 CFR 1926.62, including Appendices A and B
- Their rights under the lead standard, including access to medical records

12. Training

All employees exposed to lead at or above the action level, or who may be exposed to lead during their duties, shall receive training before initial assignment and at least annually thereafter. Training shall cover:

- The specific nature of lead work operations that could result in exposure
- The health effects of lead exposure (acute and chronic)
- This written exposure control plan and its contents
- The purpose, selection, fitting, use, and limitations of respiratory protection
- Engineering controls, work practices, and their proper use
- Hygiene requirements: handwashing, no eating/drinking/smoking in work areas
- The medical surveillance program including BLL monitoring
- Medical removal protection rights
- Employee rights under 29 CFR 1926.62
- Contents of OSHA's lead standard, including Appendices A and B

13. Recordkeeping

- Exposure monitoring records: retained for at least 30 years (per 29 CFR 1910.1020)
- Medical surveillance records: retained for duration of employment + 30 years
- Blood lead level results: maintained as part of medical records (30 years)
- Written exposure control plan: maintained current
- Training records: maintained for duration of employment
- Objective data: retained for 30 years
- Medical removal records: retained for duration of employment + 30 years

Appendix A: Lead Exposure Monitoring Record

Document all personal air monitoring for lead exposure.

Sample Date:	
Collected by:	
Project/Worksite:	
Laboratory Name:	
Lab Sample ID:	
Analysis Method:	

Employee Sample Information

Field	Data
Employee Name:	
Job Title:	
Task Performed:	
Sample Location:	
Pump Make/Model:	
Pump Serial #:	
Pre-Calibration Flow Rate (L/min):	
Post-Calibration Flow Rate (L/min):	
Sample Start Time:	
Sample Stop Time:	
Total Sample Volume (L):	
Filter Cassette Type:	

Results

Parameter	Result
Lead Concentration ($\mu\text{g}/\text{m}^3$):	
8-Hour TWA ($\mu\text{g}/\text{m}^3$):	
PEL ($50 \mu\text{g}/\text{m}^3$) Exceeded?	☐ Yes ☐ No
Action Level ($30 \mu\text{g}/\text{m}^3$) Exceeded?	☐ Yes ☐ No
Engineering Controls in Use:	
Respiratory Protection in Use:	
Protective Clothing in Use:	

Employee notified of results within 5 working days: ☐ Yes Date: _____

Corrective action required: ☐ Yes ☐ No Action: _____

Reviewed by: _____ Date: _____

Appendix B: Blood Lead Level Tracking Form

Track all blood lead level results for each employee over time.

Employee Name:	
Employee ID:	
Job Title:	
Date of Hire:	
Department/Crew:	
Physician Name:	

Blood Lead Level (BLL) History

Date	BLL (µg/dL)	ZPP (µg/dL)	Lab Name	Action Required	Employee Notified (Date)

Medical Removal Tracking

Field	Data
Date of Medical Removal:	
BLL at Removal:	
Reason for Removal:	
Physician Recommendation:	
Date Returned to Work:	
BLL at Return (must be < 40 µg/dL on 2 consecutive):	
Days on Medical Removal:	

Action Level Reference

BLL Level	Action Required
< 30 µg/dL	No action — below trigger levels
30–39 µg/dL	Continue monitoring per schedule; review controls
40–49 µg/dL	Increase monitoring to every 2 months; evaluate controls; physician review
≥ 50 µg/dL	MEDICAL REMOVAL — remove from lead exposure immediately
Return criteria	Two consecutive BLLs < 40 µg/dL, at least 1 month apart

Maintained by: _____ Date: _____

Reviewed by (Physician): _____ Date: _____

FORBES SAFETY SOLUTIONS

LOCKOUT/TAGOUT

Control of Hazardous Energy Program

29 CFR 1910.147

[COMPANY NAME]

[ADDRESS]

[CITY, STATE ZIP]

Effective Date: [DATE]

Revision: [REV #]

Approved By: [NAME/TITLE]

1. PURPOSE & SCOPE

This Lockout/Tagout (LOTO) Program establishes the minimum requirements for the control of hazardous energy during servicing and maintenance of machines and equipment at [COMPANY NAME]. This program is designed to prevent the unexpected energization, startup, or release of stored energy that could cause injury to employees.

This program applies to all [COMPANY NAME] employees, contractors, and subcontractors who perform servicing, maintenance, or repair work on machines and equipment where the unexpected energization or release of stored energy could cause injury. This program covers all forms of hazardous energy including, but not limited to: electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravitational, and other energy sources.

This program does not apply to:

- Minor tool changes and adjustments that are routine, repetitive, and integral to the use of the equipment, provided work is performed using alternative protective measures
- Work on cord-and-plug-connected electrical equipment where the hazard is controlled by unplugging the equipment and the plug is under the exclusive control of the employee performing the work
- Hot tap operations involving transmission and distribution systems for gas, steam, water, or petroleum products when performed under established procedures and continuity of service is essential

2. REGULATORY REFERENCES

- 29 CFR 1910.147 — The Control of Hazardous Energy (Lockout/Tagout)
- 29 CFR 1910.333 — Selection and Use of Work Practices (Electrical)
- 29 CFR 1910.269 — Electric Power Generation, Transmission, and Distribution
- ANSI/ASSE Z244.1 — Control of Hazardous Energy
- NFPA 70E — Standard for Electrical Safety in the Workplace

3. DEFINITIONS

Authorized Employee: A person who locks out or tags out machines or equipment in order to perform servicing or maintenance. An authorized employee and an affected employee may be the same person when the affected employee's duties also include performing servicing or maintenance on a machine or equipment that must be locked or tagged out.

Affected Employee: An employee whose job requires operating or using a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires working in an area in which such servicing or maintenance is being performed.

Other Employee: An employee who may be in the area where energy control procedures are being implemented but is neither an authorized nor affected employee.

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to: manually operated electrical circuit breakers, disconnect switches, manually operated switches, slide gates, slip blinds, line valves, blocks, and similar devices used to block or isolate energy. Push buttons, selector switches, and other control circuit type devices are NOT energy isolating devices.

Lockout: The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Tagout: The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Lockout Device: A device that uses a positive means (such as a lock, either key or combination type) to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

Tagout Device: A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Zero Energy State: The condition achieved when all hazardous energy sources have been isolated, locked/tagged out, and verified as de-energized.

4. ROLES & RESPONSIBILITIES

4.1 Management/Program Administrator

- Establish, implement, and maintain this LOTO program
- Ensure adequate resources are available for program implementation (locks, tags, hasps, lockout devices)
- Ensure periodic inspections are conducted at least annually
- Ensure all affected employees receive appropriate training
- Review and update this program as necessary, but at least annually
- Maintain records of training, inspections, and equipment-specific procedures

4.2 Supervisors

- Ensure employees under their supervision comply with this program

- Ensure equipment-specific LOTO procedures are developed for all applicable machines and equipment
- Coordinate lockout/tagout activities with affected departments and contractors
- Ensure employees are trained and authorized before performing LOTO
- Participate in periodic inspections and enforce corrective actions

4.3 Authorized Employees

- Apply lockout/tagout devices in accordance with this program and equipment-specific procedures
- Perform servicing and maintenance activities only after verifying zero energy state
- Remove only their own locks and tags upon completion of work
- Notify affected employees before applying and removing LOTO devices
- Participate in required training and periodic inspections

4.4 Affected Employees

- Do not attempt to restart or re-energize machines or equipment that are locked/tagged out
- Understand the purpose and function of LOTO procedures
- Report any violations of this program to their supervisor
- Participate in required training

5. ENERGY SOURCE IDENTIFICATION

[COMPANY NAME] shall conduct a survey of all machines and equipment to identify all sources of hazardous energy. The following energy sources shall be identified and documented for each piece of equipment:

Energy Type	Examples	Isolation Methods
Electrical	Power supply, batteries, capacitors, static charge	Disconnect switch, circuit breaker, removal of fuses
Mechanical	Flywheels, springs, gears, belts, pulleys	Blocking, braking, disconnecting
Hydraulic	Hydraulic lines, accumulators, rams	Valve closure, bleeding, blanking
Pneumatic	Air lines, compressed gas cylinders, reservoirs	Valve closure, bleeding, disconnecting
Chemical	Process lines, tanks, piping systems	Double block & bleed, blanking, draining
Thermal	Steam lines, furnaces, heated materials	Valve closure, cooling, insulating
Gravitational	Elevated components, counterweights,	Blocking, pinning, cribbing, lowering

Energy Type	Examples	Isolation Methods
	suspended loads	
Stored/Residual	Capacitors, springs, elevated machine members	Grounding, repositioning, bleeding, blocking

Equipment-specific energy control procedures shall be developed for each machine or piece of equipment and shall include:

- A description of the machine/equipment and its intended use
- The specific location of all energy isolating devices
- The type and magnitude of energy the machine/equipment uses
- The specific steps required to shut down, isolate, block, and secure the machine/equipment
- The specific steps required to verify isolation and de-energization
- The specific steps for returning the machine/equipment to normal operation

6. LOCKOUT/TAGOUT PROCEDURES

6.1 Preparation for Shutdown

1. The authorized employee shall identify the type and magnitude of energy that the machine or equipment utilizes.
2. The authorized employee shall understand the hazards of the energy to be controlled and the method(s) to control the energy.
3. The authorized employee shall review the equipment-specific LOTO procedure.
4. The authorized employee shall notify all affected employees that servicing is required and that the machine/equipment will be shut down and locked out.
5. The authorized employee shall gather all necessary lockout/tagout devices and hardware.

6.2 Machine/Equipment Shutdown

6. Shut down the machine or equipment using the normal stopping procedure.
7. Operate all shut-down controls to bring the machine or equipment to a complete stop.
8. Move all control switches and selectors to the "OFF" or "NEUTRAL" position.

6.3 Machine/Equipment Isolation

9. Locate all energy isolating devices for the machine/equipment as identified in the equipment-specific procedure.
10. Operate all energy isolating devices to isolate the machine/equipment from its energy source(s).
11. Ensure all stored or residual energy is relieved, disconnected, restrained, or otherwise rendered safe.

6.4 Application of Lockout/Tagout Devices

12. Each authorized employee shall affix their individually assigned lock to each energy isolating device.
13. Each authorized employee shall attach a completed tagout tag to each lock identifying: the employee's name, date, department, reason for lockout, and expected duration.
14. Locks shall be applied so that the energy isolating device is held in the "safe" or "off" position.
15. Where a tagout device is used without a lock (only when lockout is not possible), the tag shall be attached at the same location the lock would have been placed.

6.5 Verification of Isolation (Zero Energy State)

16. After applying LOTO devices, verify that all energy sources have been isolated by attempting to restart the machine/equipment using normal operating controls.
17. Return operating controls to the "OFF" or "NEUTRAL" position after verification.
18. Test all electrical circuits using an appropriate voltage testing device to verify de-energization.
19. Verify that all stored/residual energy has been relieved (check pressure gauges, try moving mechanical parts, check for flow, temperature, etc.).
20. The machine/equipment is now in a zero energy state and servicing may begin.

6.6 Restoring Machine/Equipment to Service

21. Inspect the work area to ensure all tools, parts, and non-essential items have been removed.
22. Ensure all guards and safety devices have been reinstalled and are functional.
23. Verify all employees are clear of the machine/equipment and positioned safely.
24. Notify all affected employees that locks and tags are being removed and the machine/equipment will be re-energized.
25. Each authorized employee shall remove ONLY their own lock(s) and tag(s).
26. Re-energize the machine/equipment following the equipment-specific procedure.
27. Verify proper operation of the machine/equipment and all safety devices.

7. GROUP LOCKOUT/TAGOUT PROCEDURES

When servicing or maintenance is performed by a crew, crafts, departments, or other group, a group lockout/tagout procedure shall provide a level of protection equivalent to that provided by personal lockout/tagout devices.

28. A designated authorized employee shall be assigned overall responsibility for the group lockout/tagout.
29. The designated authorized employee shall ascertain the exposure status of all members of the group.
30. The designated authorized employee shall apply a group lockout device (multi-lock hasp) to each energy isolating device.
31. Each authorized employee in the group shall affix their personal lock to the group lockout device.
32. The designated authorized employee shall verify isolation and communicate the zero energy state to the group.
33. When work is completed, each authorized employee shall remove their personal lock.
34. The designated authorized employee shall remove the group lockout device only after all personal locks have been removed and all group members are accounted for.

7.1 Shift/Personnel Changes

When servicing extends across shifts, the following procedures shall be followed:

- The off-going shift's authorized employee(s) shall communicate the status of lockout to the on-coming shift's authorized employee(s).
- On-coming authorized employees shall apply their locks BEFORE off-going employees remove their locks.
- A documented transfer of lockout responsibility shall be completed at each shift change.

8. LOCK REMOVAL BY OTHER THAN THE APPLYING EMPLOYEE

In the rare situation where an authorized employee is not available to remove their lock, the following procedure shall be followed:

35. Verify that the authorized employee who applied the lock is not at the facility.
36. Make all reasonable efforts to contact the authorized employee to inform them that their lock is being removed.
37. The removal must be authorized by [COMPANY NAME] management (minimum Supervisor level).
38. Document the circumstances and authorization for the removal.
39. Ensure the authorized employee is informed that their lock was removed before they resume work at the facility.

NOTE: This procedure should be used only as a last resort. Management shall investigate why the lock was not removed through normal procedures and take corrective action.

9. ENERGY ISOLATION DEVICE REQUIREMENTS

9.1 Lockout Devices

- Shall be standardized within [COMPANY NAME] by color, shape, or size
- Shall be durable enough to withstand the environment for the maximum period of expected exposure
- Shall be substantial enough to prevent removal without the use of excessive force or unusual techniques (bolt cutters, etc.)
- Each authorized employee shall be assigned their own uniquely keyed lock(s)
- No two locks shall be keyed alike; master keys are prohibited
- Locks shall be identified with the authorized employee's name

9.2 Tagout Devices

- Shall be standardized in print and format
- Shall be durable enough to withstand the environment for the maximum period of expected exposure
- Shall be attached with a non-reusable, self-locking nylon cable tie (minimum 50 lb. tensile strength)
- Shall clearly state: "DANGER — DO NOT OPERATE" or equivalent warning
- Shall include: employee name, date, department, reason, expected duration

- Tags shall never be bypassed, ignored, or removed by anyone other than the person who applied it

9.3 Additional Lockout Hardware

- Multi-lock hasps for group lockout situations
- Valve lockout devices for ball valves, gate valves, and butterfly valves
- Circuit breaker lockouts for various breaker types
- Plug lockout devices for electrical plugs
- Pneumatic/hydraulic lockout devices
- Lockout stations/boards for organized storage of lockout equipment

10. PERIODIC INSPECTIONS

[COMPANY NAME] shall conduct a periodic inspection of the energy control procedure at least annually to ensure the procedure and the requirements of this program are being followed.

10.1 Inspection Requirements

- The inspection shall be performed by an authorized employee other than the one(s) using the energy control procedure being inspected.
- The inspection shall include a review between the inspector and each authorized employee of the employee's responsibilities under the energy control procedure.
- Where tagout is used, the inspection shall include a review between the inspector and each authorized and affected employee of that employee's responsibilities under the energy control procedure.

10.2 Inspection Documentation

Each periodic inspection shall be documented and shall include:

- The machine or equipment on which the procedure was being utilized
- The date of the inspection
- The employees included in the inspection
- The name and signature of the person performing the inspection
- Any deficiencies identified and corrective actions taken

Inspection records shall be maintained by [COMPANY NAME] for a minimum of three (3) years.

11. TRAINING REQUIREMENTS

11.1 Authorized Employee Training

Each authorized employee shall receive training in the following:

- Recognition of applicable hazardous energy sources
- Type and magnitude of energy available in the workplace
- Methods and means necessary for energy isolation and control
- Purpose and use of the energy control procedure
- Equipment-specific LOTO procedures for equipment they are authorized to service
- Proper use of lockout/tagout devices and hardware
- Verification of zero energy state
- Group lockout/tagout procedures
- Procedures for lock removal by other than the applying employee

11.2 Affected Employee Training

Each affected employee shall receive training in the following:

- The purpose and use of energy control procedures
- Recognition of when the energy control procedure is being implemented
- The prohibition against attempting to restart or re-energize equipment that is locked/tagged out

11.3 Other Employee Training

All other employees whose work operations are or may be in an area where energy control procedures may be used shall be instructed about the prohibition against removing lockout/tagout devices and attempting to restart equipment that is locked/tagged out.

11.4 Retraining

Retraining shall be provided:

- When there is a change in job assignments
- When there is a change in machines, equipment, or processes that present a new hazard
- When there is a change in the energy control procedures
- When a periodic inspection reveals inadequacies in the employee's knowledge or use of the procedure
- At minimum intervals as determined by [COMPANY NAME] (recommended: annually)

11.5 Training Documentation

Training records shall include the employee's name, date of training, topics covered, trainer's name, and shall be maintained for the duration of employment plus three (3) years. All training shall be documented and records retained by [COMPANY NAME].

12. RECORDKEEPING

[COMPANY NAME] shall maintain the following records:

- This written LOTO program (current and previous versions)
- Equipment-specific energy control procedures for all applicable machines/equipment
- Energy source survey/inventory documentation
- Employee training records (initial and retraining)
- Annual periodic inspection records
- Lock removal authorization records
- Incident/near-miss investigation reports related to LOTO

All records shall be maintained for a minimum of three (3) years and shall be made available to employees and their authorized representatives upon request.

13. CONTRACTOR COORDINATION

When outside contractors perform work that requires lockout/tagout:

- [COMPANY NAME] shall inform the contractor of the energy control procedures used at the facility.
- The contractor shall inform [COMPANY NAME] of their lockout/tagout procedures.
- [COMPANY NAME] and the contractor shall coordinate their energy control activities to ensure full protection of all employees.
- Contractor employees shall use their own locks (distinctly different from [COMPANY NAME] locks) and shall be trained in [COMPANY NAME]'s LOTO program requirements.

14. PROGRAM REVIEW & REVISION HISTORY

This program shall be reviewed at least annually or whenever changes in operations, equipment, or regulatory requirements necessitate a revision.

Revision #	Date	Description of Change	Approved By

APPENDIX A: LOTO PROCEDURE FORM

Complete this form for each piece of equipment requiring lockout/tagout procedures.

Field	Information
Equipment Name:	
Equipment ID/Number:	
Equipment Location:	
Date Prepared:	
Prepared By:	
Approved By:	

Energy Source Identification

Energy Type	Source/Location	Magnitude	Isolation Device	Isolation Method
Electrical				
Mechanical				
Hydraulic				
Pneumatic				
Chemical				
Thermal				
Gravitational				
Other:				

Lockout/Tagout Sequence

Step #	Procedure Description	Isolation Device Location
1		
2		
3		
4		

Step #	Procedure Description	Isolation Device Location
5		
6		
7		
8		

Verification of Zero Energy State

Verification Method	Result (Pass/Fail)	Verified By	Date

Restoring Equipment to Service

Step #	Procedure Description
1	
2	
3	
4	
5	

APPENDIX B: ANNUAL PERIODIC INSPECTION LOG

Use this form to document the required annual periodic inspection of energy control procedures per 29 CFR 1910.147(c)(6).

Field	Information
Inspection Date:	
Inspector Name:	
Inspector Signature:	
Equipment/Procedure Inspected:	
Location:	

Employees Reviewed During Inspection

Employee Name	Role (Auth/Affected)	Review Completed (Y/N)	Signature

Inspection Findings

Item #	Finding/Deficiency	Corrective Action Required	Date Corrected
1			
2			
3			
4			
5			

Inspector Certification

I certify that the periodic inspection was conducted in accordance with 29 CFR 1910.147(c)(6) and that the energy control procedure(s) identified above have been reviewed with the employees listed.

Inspector Signature: _____ Date: _____

Management Review: _____ Date: _____

FORBES SAFETY SOLUTIONS

Mobile Crane Operation Program

OSHA Compliance Program

Prepared for:

[COMPANY NAME]

Regulatory References:

29 CFR 1926 Subpart CC | ASME B30.5

Date: [DATE] | Revision: [REV NUMBER]

Prepared by: [SAFETY MANAGER NAME / TITLE]

Table of Contents

1. Purpose and Scope

This Mobile Crane Operation Program establishes the requirements and procedures for the safe operation, inspection, and maintenance of mobile cranes used by [COMPANY NAME]. This program has been developed to comply with OSHA's Cranes and Derricks in Construction standard (29 CFR 1926 Subpart CC) and ASME B30.5 (Mobile and Locomotive Cranes).

This program applies to all employees, operators, riggers, signal persons, and subcontractors involved in mobile crane operations at [COMPANY NAME] work sites. It covers all types of mobile cranes, including lattice boom crawler cranes, hydraulic truck cranes, rough terrain cranes, all-terrain cranes, and carry deck cranes.

1.1 Regulatory References

- 29 CFR 1926 Subpart CC – Cranes and Derricks in Construction
- ASME B30.5 – Mobile and Locomotive Cranes
- ASME B30.3 – Construction Tower Cranes (where applicable)
- 29 CFR 1926.1400-1442 – Specific crane operation standards
- ANSI/NCCCO – Crane Operator Certification Standards
- Manufacturer specifications and load charts for each crane in service

2. Roles and Responsibilities

2.1 Crane Program Administrator

[SAFETY MANAGER NAME / TITLE] is responsible for:

- Implementing and maintaining this Mobile Crane Operation Program
- Verifying crane operator certifications are current and valid
- Ensuring all crane inspections are conducted and documented
- Reviewing and approving lift plans for critical/complex lifts
- Investigating crane-related incidents and near-misses
- Coordinating crane-related training

2.2 Crane Operators

- Hold a valid NCCCO, NCCER, or equivalent operator certification for the type and capacity of crane being operated
- Perform daily/shift pre-operation inspections per this program
- Operate the crane in accordance with manufacturer specifications, load charts, and this program
- Refuse to make a lift if conditions are unsafe (operator has stop-work authority)
- Maintain awareness of load weight, radius, capacity, and environmental conditions

2.3 Riggers

- Be qualified per 29 CFR 1926.1404 (qualified rigger criteria)
- Select and inspect rigging hardware before each use
- Attach loads in accordance with rigging best practices and the lift plan
- Communicate with the operator and signal person throughout the lift

2.4 Signal Persons

- Be qualified per 29 CFR 1926.1428 (qualified signal person criteria)
- Use standard ASME hand signals or radio communication
- Maintain clear line of sight with the operator at all times
- Stop the lift if any unsafe condition is observed

2.5 Competent Person

A designated competent person shall be assigned to each crane operation and is responsible for evaluating ground conditions, supervision of assembly/disassembly, power line clearance compliance, and hazard assessment.

3. Operator Certification Requirements

All crane operators at [COMPANY NAME] shall meet the operator certification requirements of 29 CFR 1926.1427:

3.1 Certification Standards

- Operators shall be certified by an accredited testing organization (NCCCO, NCCER, CIC, or OECP) for the type and capacity of crane being operated.
- Certification must be current and not expired, suspended, or revoked.
- Operators must carry their certification card on-site during crane operations.
- A copy of the certification shall be maintained in the operator's personnel file.

3.2 Medical Fitness

Crane operators shall meet the medical fitness requirements, including adequate vision, hearing, and physical capability to safely operate the crane. Medical evaluations shall be conducted in accordance with ASME B30.5 requirements.

3.3 Familiarization

Before operating any crane for the first time, operators must receive familiarization training on the specific make, model, and configuration, including:

- Operating controls and instrumentation
- Safety devices (LMI, anti-two-block, boom length/angle indicators)
- Emergency procedures
- Load chart review and interpretation for the specific crane configuration

4. Crane Selection and Lift Planning

4.1 Crane Selection for the Job

The appropriate crane shall be selected based on the following factors:

1. Load weight (including rigging weight, headache ball, and below-the-hook devices)
2. Lift radius (distance from center of rotation to the load)
3. Lift height required
4. Ground conditions and available setup area
5. Crane capacity at the required radius (per the load chart)
6. Boom length and configuration needed
7. Counterweight configuration
8. Proximity to power lines, structures, and other cranes

4.2 Load Charts – Radius and Capacity

The load chart is the most critical reference for safe crane operation. All lifts shall be planned using the crane's load chart, which is specific to the crane's make, model, boom length, configuration, and counterweight.

NOTE: The crane's rated capacity at any radius is the MAXIMUM load that may be lifted. [COMPANY NAME] requires that no lift exceed 75% of the crane's rated capacity unless a critical lift plan is in place.

Key load chart considerations:

- Always use the correct chart for the actual crane configuration (boom type, jib, outrigger/crawler position)
- Account for the weight of all rigging, blocks, headache balls, and below-the-hook lifting devices
- Capacity decreases as radius increases – never exceed the rated capacity at any radius
- On outriggers: capacity may vary depending on whether outriggers are fully or partially extended
- On rubber: capacity is significantly reduced compared to operation on outriggers

5. Ground Conditions Assessment

A competent person shall evaluate ground conditions before crane setup to ensure the ground can support the crane, outrigger loads, and the maximum anticipated lifted load.

5.1 Ground Condition Requirements

- Ground must be firm, level, drained, and adequately compacted to support the crane's maximum outrigger/track loading.
- Outrigger pads, cribbing, or mats shall be used to distribute outrigger loads. Pad size shall be calculated based on soil bearing capacity.
- Underground utilities, vaults, tanks, and recently backfilled trenches shall be identified and avoided.
- Slopes, edges of excavations, and soft soil areas shall be evaluated and mitigated.
- The crane shall be level within manufacturer-specified tolerances (typically $\pm 1\%$ unless otherwise specified).

5.2 Outrigger Load Calculations

Maximum outrigger load shall be calculated using manufacturer data or engineering analysis. Soil bearing capacity at the setup location shall be verified before crane operations begin.

6. Assembly and Disassembly

Crane assembly and disassembly shall be performed under the direction of a qualified and competent A/D (Assembly/Disassembly) Director in accordance with 29 CFR 1926.1404.

6.1 Requirements

- An A/D Director shall be designated for each assembly/disassembly operation.
- The A/D Director shall review the manufacturer's assembly/disassembly procedures before work begins.
- The crew shall be briefed on the sequence, hazards, and each person's role.
- Adequate clearance from power lines shall be maintained (see Section 9).
- Only personnel essential to the operation shall be in the work area.
- Wind speed limits for assembly/disassembly shall be per manufacturer requirements.

7. Operational Procedures

7.1 Pre-Lift Verification

Before any lift, the operator and lift supervisor shall verify:

1. Load weight is known and documented (actual weight, not estimated).
2. Rigging is inspected, rated for the load, and properly configured.
3. Crane is level and set up per the load chart (outriggers fully extended and set, or on crawlers as specified).
4. Load chart confirms adequate capacity for the maximum radius during the lift.
5. Swing path is clear of personnel and obstructions.
6. Signal person is assigned and positioned (required when operator cannot see the load or the point of landing).
7. Tag lines are attached to control load rotation and swing.

7.2 During the Lift

- No personnel shall be under a suspended load at any time.
- The operator shall not leave the controls while the load is suspended.
- Loads shall not be swung over occupied areas.
- Multi-part line lifts shall be reeved per manufacturer requirements.
- The operator shall monitor the LMI (Load Moment Indicator) and rated capacity at all times.

7.3 Anti-Two-Block Systems

All mobile cranes shall be equipped with a functioning anti-two-block (A2B) device. The A2B system prevents the hook block from being drawn up into the boom tip sheaves, which can result in structural failure and dropped loads.

- The A2B warning and lockout system shall be tested daily before operations begin.
- The A2B system shall not be bypassed, disabled, or overridden at any time.
- If the A2B system activates during a lift, the operator shall stop all motions immediately and lower the load to the ground.

7.4 Wind Speed Limits

Crane operations shall cease when wind speeds exceed the following limits (or lower limits specified by the manufacturer):

Condition	Maximum Wind Speed	Action Required
Normal crane operations	20 mph sustained (typical)	Monitor conditions; follow manufacturer limits
High-wind alert	20-30 mph	Cease lifts with high-windage loads; secure boom; consult manufacturer charts
Crane shutdown	30+ mph (or per manufacturer)	Cease all operations; boom down or secured per manufacturer procedure

Condition	Maximum Wind Speed	Action Required
Assembly / disassembly	Per manufacturer A/D procedures	Typically lower than operational limits

NOTE: Manufacturer wind speed limits for the specific crane model always take precedence. Wind speed shall be measured at the work site using an anemometer.

8. Multi-Crane (Tandem) Lifts

Multi-crane lifts involve two or more cranes lifting a single load simultaneously. These are considered critical lifts and require additional planning and controls.

8.1 Requirements for Multi-Crane Lifts

- A detailed, written lift plan shall be prepared and approved by a qualified person (engineer or qualified lift planner).
- No crane shall be loaded beyond 75% of its rated capacity at any point during the lift.
- A single designated Lift Director shall coordinate all crane movements.
- All operators, riggers, and signal persons shall participate in a pre-lift meeting to review the lift plan, sequence, signals, and abort procedures.
- Communication between all parties shall be established and tested before the lift begins.
- Load distribution between cranes shall be calculated and verified.
- Abort/emergency procedures shall be established before the lift.

9. Power Line Clearance

Contact with energized power lines is one of the leading causes of crane fatalities. [COMPANY NAME] strictly enforces the following power line clearance distances per 29 CFR 1926.1408-1411:

9.1 Minimum Clearance Distances

Voltage (kV)	Minimum Clearance Distance
Up to 50 kV	10 feet (3.05 m)
Over 50 kV to 200 kV	15 feet (4.60 m)
Over 200 kV to 350 kV	20 feet (6.10 m)
Over 350 kV to 500 kV	25 feet (7.62 m)
Over 500 kV to 750 kV	35 feet (10.67 m)
Over 750 kV to 1,000 kV	45 feet (13.72 m)
Over 1,000 kV	As established by utility owner/operator

9.2 Power Line Safety Procedures

1. Identify all overhead and underground power lines within the work area before operations begin.
2. Assume all power lines are energized unless the utility owner confirms de-energization and grounding in writing.
3. Maintain the minimum clearance distances (above) for all parts of the crane, load, load line, rigging, and tag lines.
4. A dedicated spotter/signal person shall be assigned when operating within the Table A assessment distance.

5. If the crane cannot maintain the required clearance, the power line must be de-energized and visibly grounded, or insulating barriers must be installed.
6. Pre-lift planning shall include a power line hazard assessment for every lift within the work area.

NOTE: If any part of the crane, load line, or load contacts a power line, all personnel shall stay clear of the crane and load. The operator shall remain in the cab and attempt to swing or drive the crane clear. If unable to move clear, the operator shall remain in the cab until the utility confirms the line is de-energized.

10. Crane Inspection Requirements

[COMPANY NAME] shall ensure all mobile cranes are inspected in accordance with OSHA regulations and manufacturer requirements.

10.1 Inspection Categories

Inspection Type	Frequency	Performed By	Key Items
Pre-Shift / Daily	Before each shift	Crane Operator	Controls, safety devices (LMI, A2B), wire rope, hydraulic systems, tires/tracks, fluid levels, structural components, load chart legibility
Monthly	Every 30 days	Competent Person	All daily items plus: hooks (for deformation, cracks), wire rope (reeving, end connections), sheaves, boom and jib structural members, outrigger components
Annual	Every 12 months	Qualified Inspector	Comprehensive inspection per manufacturer and ASME B30.5: structural, mechanical, electrical, hydraulic systems, safety devices calibration
Comprehensive	Per manufacturer interval (typically every 4 years or 8,000 hours)	Qualified Inspector / Manufacturer Rep	Disassembly-level inspection of structural and mechanical components. Non-destructive testing (NDT) of critical welds and pins.

10.2 Deficiency Reporting

Any deficiencies identified during inspection shall be:

- Reported to the crane owner and operator immediately.
- Documented on the inspection form with the nature and severity of the deficiency.
- Classified as safety-critical (crane removed from service immediately) or non-critical (repair at next scheduled maintenance).
- Corrected before the crane is returned to service (for safety-critical items).

11. Training

[COMPANY NAME] shall ensure all personnel involved in crane operations are qualified and trained.

11.1 Operator Training

- All operators shall hold a valid, accredited crane operator certification.
- Familiarization training shall be provided for each specific crane make/model before the operator's first use.
- Annual refresher training on crane safety, load charts, and this program.

11.2 Rigger Training

- All riggers shall meet the qualified rigger criteria per 29 CFR 1926.1404.

- Training shall cover sling selection, load weight estimation, hitch types, rigging hardware inspection, and capacity calculations.

11.3 Signal Person Training

- All signal persons shall be qualified per 29 CFR 1926.1428.
- Training shall cover standard ASME hand signals, radio communication protocols, and positioning.

11.4 Awareness Training

All employees working in or around crane operations shall receive awareness-level training covering:

- Staying clear of the crane's swing radius and overhead loads
- Recognizing and avoiding struck-by hazards
- Power line awareness and clearance distances
- Emergency and evacuation procedures during crane operations

12. Recordkeeping and Documentation

[COMPANY NAME] shall maintain the following crane-related records:

- Operator certification copies (current and valid)
- Daily/shift crane inspection records (Appendix A)
- Monthly, annual, and comprehensive inspection reports
- Lift plans (routine and critical lifts – Appendix B)
- Crane maintenance and repair records
- Training records for operators, riggers, signal persons, and awareness training
- Incident and near-miss investigation reports

Record Type	Retention Period
Daily inspection logs	Minimum 3 months (recommended 1 year)
Monthly inspections	Minimum 1 year
Annual / comprehensive inspections	Life of the crane
Lift plans	Duration of project + 1 year
Operator certifications	Duration of employment + 3 years
Training records	Duration of employment + 3 years
Incident reports	Minimum 5 years

Appendix A: Daily Crane Operator Inspection Checklist

[COMPANY NAME]

Daily / Pre-Shift Crane Inspection Checklist

Date: _____

Crane Make / Model: _____

Crane Serial / Unit Number: _____

Operator Name: _____

Operator Certification #: _____

Project / Site Name: _____

Hours on Meter (start of shift): _____

Mark each item: ✓ = OK X = Deficiency N/A = Not Applicable

Cab / Controls

- ☐ All controls labeled and functioning properly
- ☐ Cab windows clean and unobstructed
- ☐ Seat belt / operator restraint functional
- ☐ Horn / audible warning device working
- ☐ Fire extinguisher present and current inspection
- ☐ Load chart present, legible, and accessible

Safety Devices

- ☐ LMI (Load Moment Indicator) tested and functional
- ☐ Anti-two-block (A2B) device tested and functional
- ☐ Boom angle / length indicator functional
- ☐ Outrigger / stabilizer controls functional
- ☐ Swing brake / lock functional

Structural / Mechanical

- ☐ Boom sections – no visible damage, cracks, or deformation

- ☐ Jib (if applicable) – pins secured, no damage
- ☐ Turntable / swing bearing – no unusual play or noise
- ☐ Hook – safety latch present, no cracks or deformation, free rotation
- ☐ Sheaves – rotate freely, no cracks, rope guards in place

Wire Rope

- ☐ No visible broken wires, kinking, crushing, or bird-caging
- ☐ Properly reeved per load chart
- ☐ End connections secure
- ☐ No excessive wear or corrosion

Hydraulic / Pneumatic

- ☐ No visible leaks (hoses, fittings, cylinders)
- ☐ Hydraulic fluid level adequate
- ☐ Outrigger cylinders and pads in good condition

Carrier / Travel System

- ☐ Engine oil, coolant, and fuel levels adequate
- ☐ Tires / tracks in good condition (pressure, wear, damage)
- ☐ Brakes functional (service and parking)
- ☐ Lights and reflectors working
- ☐ Counterweight secure and as specified

Ground Conditions / Setup

- ☐ Ground firm, level, and adequate for crane loading
- ☐ Outriggers fully extended and set on adequate pads/cribbing
- ☐ Crane level within manufacturer tolerances
- ☐ Swing area clear of obstructions and personnel
- ☐ Power line clearance distances maintained

Deficiencies / Comments

Crane Status: ☐ Fit for Service ☐ Restricted Use (explain) ☐ Out of Service

Crane Operator Signature

Date

Supervisor Acknowledgment

Date

Appendix B: Lift Plan Form

[COMPANY NAME]

Lift Plan Form

☐ Routine Lift ☐ Critical Lift ($\geq 75\%$ capacity, multi-crane, personnel hoist, near power lines)

Date: _____

Project / Site Name: _____

Lift Description: _____

Lift Director / Supervisor: _____

Crane Information

Crane Make / Model: _____

Crane Capacity (max rated): _____

Boom Length / Configuration: _____

Counterweight Configuration: _____

Outrigger Position (fully/partially extended):

Load Information

Load Description: _____

Load Weight (verified): _____

Rigging Weight: _____

Total Lifted Weight (load + rigging + block):

Pick Radius: _____

Set Radius: _____

Maximum Radius During Lift: _____

Crane Capacity at Maximum Radius: _____

Percent of Capacity (%): _____

Lift Environment

Wind Speed at Time of Lift: _____

Maximum Allowable Wind Speed: _____

Power Lines Present? ☐ Yes ☐ No

If Yes, Voltage: _____ Clearance Distance: _____

Ground Conditions: _____

Personnel

Crane Operator: _____

Operator Cert #: _____

Signal Person: _____

Rigger(s): _____

Rigging Plan

Sling Type / Size / Capacity: _____

Hitch Type (vertical, choker, basket): _____

Shackles / Hardware: _____

Spreader Bar / Below Hook Device (if applicable):

Pre-Lift Checklist

- ☐ Load weight verified (bill of lading, calculated, or weighed)
- ☐ Load chart reviewed – adequate capacity confirmed
- ☐ Rigging inspected and rated for load
- ☐ Crane inspected (daily inspection complete)
- ☐ Ground conditions assessed – crane level and stable
- ☐ Swing path clear of obstructions and personnel
- ☐ Power line clearance verified
- ☐ Signal person assigned and in position
- ☐ Tag lines attached

- ☐ Pre-lift meeting conducted with all personnel
- ☐ LMI / A2B systems tested and functional

Special Conditions / Notes

Lift Director / Supervisor

Date

Crane Operator

Date

Safety Manager (Critical Lifts Only)

Date

FORBES SAFETY SOLUTIONS

MULTI-EMPLOYER WORKSITE SAFETY PROGRAM

Coordination, Communication & Shared Responsibility

Prepared for:
[COMPANY NAME]

Effective Date: [DATE]

Revision: [REV #]

Table of Contents

1. Purpose and Scope

This Multi-Employer Worksite Safety Program establishes [COMPANY NAME]'s policies and procedures for managing safety and health on worksites where multiple employers are present. On multi-employer worksites, hazards created by one employer can endanger employees of another employer, and OSHA holds employers accountable based on their role in relation to the hazard — not just whether their own employees are exposed.

This program applies to all [COMPANY NAME] projects and facilities where two or more employers are working simultaneously or in sequence in shared workspaces. All employers, subcontractors, and independent contractors working on [COMPANY NAME]-controlled worksites shall comply with this program.

2. Regulatory References

- 29 CFR 1926.16 — Rules of Construction (responsibilities of prime and subcontractors)
- OSHA Multi-Employer Citation Policy — CPL 02-00-124 (December 10, 1999)
- OSHA General Duty Clause — Section 5(a)(1) of the OSH Act
- 29 CFR 1926 — OSHA Safety and Health Regulations for Construction
- 29 CFR 1910 — OSHA General Industry Standards (for general industry multi-employer sites)
- 29 CFR 1904 — Recording and Reporting Occupational Injuries and Illnesses

3. Employer Role Definitions

OSHA's Multi-Employer Citation Policy (CPL 02-00-124) defines four employer roles on multi-employer worksites. An employer may have more than one role simultaneously, and roles may change as site conditions evolve.

3.1 Creating Employer

The employer whose act or omission caused the hazardous condition, regardless of whether their own employees are exposed to the hazard.

- Example: An electrical subcontractor removes a guardrail to install wiring and does not replace it or provide an alternative barrier
- The creating employer is citable even if only another employer's workers are exposed to the hazard
- Responsibility: Eliminate or correct any hazard you create, immediately

3.2 Exposing Employer

An employer whose employees are exposed to a hazard on the worksite, even if the employer did not create the hazard.

- Example: A drywall contractor's employees work near an unprotected floor opening created by another trade
- The exposing employer must protect its employees or remove them from the hazard
- Responsibility: Take reasonable steps to protect your employees, including requesting correction from the controlling/creating employer and removing employees if the hazard is not corrected

3.3 Correcting Employer

An employer who is responsible for correcting a hazard on the worksite, typically through a contractual agreement.

- Example: A scaffolding company contracted to erect and maintain scaffolding for all trades on site
- The correcting employer is citable for failure to correct hazards within their scope of responsibility
- Responsibility: Correct hazards within your contractual scope of work promptly and in compliance with applicable standards

3.4 Controlling Employer

An employer who has general supervisory authority over the worksite, including the power to correct hazards or require others to correct them. The controlling employer is typically the general contractor or construction manager.

- Example: The general contractor who controls site access, schedules work, and has authority to stop work
- The controlling employer must exercise reasonable care to prevent and detect violations on the worksite
- Responsibility: Implement a system to identify and correct hazards, monitor subcontractor compliance, and enforce safety requirements across the site

4. Responsibilities by Role

4.1 [COMPANY NAME] as Controlling Employer

When [COMPANY NAME] serves as the general contractor or controlling employer, we shall:

- Establish and enforce site-specific safety rules and requirements for all employers on site

- Conduct regular safety inspections of all work areas, including subcontractor operations
- Require and verify that all employers have competent persons on site
- Coordinate work activities between employers to minimize multi-employer hazard exposure
- Stop work when imminent danger conditions exist, regardless of which employer created the hazard
- Take reasonable steps to correct hazards identified during inspections or reported by any employer
- Enforce non-compliance procedures when employers fail to correct hazards
- Maintain records of all safety inspections, corrective actions, and enforcement actions

4.2 [COMPANY NAME] as Creating Employer

When [COMPANY NAME]'s work activities create hazards that may affect other employers:

- Immediately eliminate or control the hazard using guardrails, barricades, signage, or other protective measures
- Notify all potentially affected employers of the hazard and protective measures in place
- If the hazard cannot be immediately eliminated, communicate the hazard to the controlling employer and all exposing employers
- Document all hazards created and corrective actions taken

4.3 [COMPANY NAME] as Exposing Employer

When [COMPANY NAME] employees are exposed to hazards created by another employer:

- Immediately notify the creating employer and the controlling employer of the hazard
- Protect [COMPANY NAME] employees through interim measures (remove employees from the area, provide temporary protection)
- Request correction from the responsible employer in writing if verbal requests are not effective
- If the hazard is not corrected promptly, remove [COMPANY NAME] employees from the hazard area
- Document all communications and actions taken

4.4 [COMPANY NAME] as Correcting Employer

When [COMPANY NAME] is contractually responsible for correcting specific hazards:

- Correct hazards within our scope of responsibility promptly and in compliance with applicable OSHA standards
- Inspect corrected conditions to verify they meet regulatory requirements
- Communicate corrections to the controlling employer and all affected employers

5. Hazard Communication Between Employers

Effective communication between employers is essential to multi-employer worksite safety:

5.1 Pre-Work Communication

- Before starting work, each employer shall identify hazards their work activities may create for other employers
- Chemical hazards: Each employer shall make SDS sheets available for all chemicals they bring on site
- Notify the controlling employer and adjacent trades of any hazardous activities planned (hot work, crane operations, energized electrical work, excavation, etc.)

5.2 Ongoing Communication

- Report any new or changed hazards to the controlling employer immediately
- Use the Hazard Communication Notice Between Employers form (Appendix B) for formal hazard communication
- Daily coordination meetings between trades working in shared or adjacent areas
- Post hazard warnings and restricted access signage in shared work areas
- Ensure language barriers are addressed through multilingual signage, interpreters, or visual communication

5.3 Communication Methods

[COMPANY NAME] shall establish the following communication methods on multi-employer worksites:

- Daily pre-task planning meetings for all trades working in shared areas
- Written hazard notifications using standardized forms
- Safety bulletin boards in common areas with current hazard information
- Two-way radio communication between employer supervisors
- Emergency notification system accessible to all employers

6. Coordinated Safety Meetings

[COMPANY NAME] shall coordinate safety meetings to ensure all employers on the worksite are informed and aligned:

6.1 Weekly Multi-Employer Coordination Meeting

- All employers shall attend the weekly coordination meeting conducted by [COMPANY NAME]

- Topics include: upcoming work activities, schedule coordination, new hazards, incident review, and safety concerns
- Meeting minutes shall be recorded and distributed to all employers (Appendix A)
- Attendance is mandatory — absent employers shall be notified of meeting decisions in writing

6.2 Daily Coordination

- Brief daily coordination between trades working in overlapping areas
- Focus on: activities planned for the day, shared workspace boundaries, hazardous operations, and overhead/adjacent work
- Conducted by foremen or designated coordination representatives

6.3 Special Safety Meetings

Called as needed for:

- Critical lift or crane operations affecting multiple employers
- Significant schedule changes affecting work sequencing
- Incidents or near-misses requiring immediate communication
- New hazards or changed conditions affecting multiple employers

7. Shared Workspace Protocols

[COMPANY NAME] shall establish the following protocols for shared workspaces:

- No employer shall remove, relocate, or defeat another employer's safety protections (guardrails, barricades, covers, warning signs) without prior coordination and replacement protection
- Each employer is responsible for housekeeping in their immediate work area, including daily cleanup of tools, debris, and materials
- Shared access routes (stairways, ladders, corridors) shall be kept clear of obstructions by all employers
- Fire extinguishers, first aid kits, and emergency equipment in shared areas shall not be blocked by any employer
- Overhead work shall be communicated, barricaded, and controlled before commencing — workers below shall be notified
- Lock Out / Tag Out procedures shall be coordinated between all employers who may be affected by energy isolation
- Permit-required activities (confined space, hot work) shall include notification to all employers working in the affected area

8. Emergency Coordination

All employers on a multi-employer worksite shall participate in coordinated emergency procedures:

- [COMPANY NAME] (or the designated controlling employer) shall develop the site Emergency Action Plan (EAP) incorporating all employers
- Each employer shall designate an emergency coordinator and provide a current employee headcount
- Unified evacuation routes, assembly points, and accountability procedures shall be communicated to all employers
- All employers shall participate in site-wide emergency drills at least quarterly
- Emergency contact information for each employer's supervisor and safety representative shall be posted at the site office
- First aid and emergency response capabilities shall be coordinated — determine which employer(s) provide first aid responders, AED, and first aid supplies
- All employers shall report emergencies through the unified notification system

9. Injury Reporting Across Employers

Each employer on a multi-employer worksite is responsible for recording injuries and illnesses on their own OSHA 300 Log. However, cross-employer coordination is essential:

- The injured employee's direct employer is responsible for OSHA recordkeeping and workers' compensation
- The controlling employer ([COMPANY NAME]) shall be notified immediately of all injuries, regardless of which employer's employee is injured
- All employers shall participate in incident investigations when the incident involves shared work areas or multi-employer hazards
- Root cause analysis shall identify the creating, exposing, correcting, and controlling employer roles for each incident
- Corrective actions shall be communicated to all employers who may be affected
- OSHA-reportable incidents (fatality, in-patient hospitalization, amputation, loss of an eye) shall be reported by the employing employer; the controlling employer shall coordinate and assist as needed

10. OSHA Inspection Coordination

In the event of an OSHA inspection on a multi-employer worksite:

- [COMPANY NAME] (controlling employer) shall serve as the primary point of contact for the OSHA Compliance Officer
- Immediately notify all employers on site that an OSHA inspection is in progress
- Each employer has the right to accompany the Compliance Officer during the inspection of their work areas
- Each employer is responsible for providing their own safety documentation if requested (programs, training records, JHAs, etc.)
- Do not speculate about another employer's operations — let each employer speak for their own work
- [COMPANY NAME] shall coordinate post-inspection response, including addressing citations and abatement timelines
- Document the inspection, including areas inspected, questions asked, documents requested, and any observations noted

11. Contract Requirements for Multi-Employer Safety

All contracts with employers working on [COMPANY NAME]-controlled multi-employer worksites shall include:

- Requirement to comply with this Multi-Employer Worksite Safety Program
- Obligation to attend coordinated safety meetings
- Hazard communication requirements between employers
- Incident reporting requirements to the controlling employer
- Cooperation with emergency procedures and drills
- Right of the controlling employer to stop work and enforce corrective actions
- Responsibility for safety of their own employees and sub-tier contractors
- Indemnification for citations resulting from the employer's own hazard creation

12. Roles and Responsibilities

12.1 [COMPANY NAME] Project Manager

- Ensure multi-employer safety requirements are included in all contracts
- Support the Site Superintendent in enforcing multi-employer coordination
- Allocate resources for safety coordination activities

12.2 Site Superintendent (Controlling Employer Representative)

- Serve as the primary coordination point for all employers on site
- Conduct or coordinate weekly multi-employer coordination meetings
- Monitor compliance with shared workspace protocols
- Enforce corrective actions and non-compliance procedures

12.3 Safety Manager / Representative

- Develop and maintain the site-specific Emergency Action Plan
- Conduct multi-employer safety inspections
- Coordinate incident investigations involving multiple employers
- Track multi-employer safety metrics and trends

12.4 Each Employer on Site

- Designate a competent person and safety coordinator for their scope of work
- Attend all coordination meetings and communicate hazards proactively
- Maintain their own safety programs, training records, and OSHA logs
- Report all incidents immediately to the controlling employer
- Correct hazards they create or are responsible for promptly

13. Training Requirements

-
- All [COMPANY NAME] project managers, superintendents, and safety personnel shall be trained on the OSHA Multi-Employer Citation Policy and employer role definitions
 - All employers shall ensure their supervisors understand their role and responsibilities on multi-employer worksites
 - Site-specific orientation shall address multi-employer coordination, communication protocols, and emergency procedures
 - Annual refresher training on multi-employer worksite safety

14. Recordkeeping

-
- Multi-Employer Coordination Meeting minutes shall be retained for the project duration plus three (3) years
 - Hazard Communication Notices between employers shall be retained for the project duration plus three (3) years

- Incident investigation reports involving multi-employer hazards shall be retained for five (5) years
- OSHA inspection documentation shall be retained permanently
- Contract safety requirements and employer pre-qualification records per subcontractor management program

15. Revision History

Revision	Date	Author	Description
1.0	[DATE]	[NAME]	Initial Release

Appendix A: Multi-Employer Coordination Meeting Minutes

Use this template to document weekly or as-needed coordination meetings.

Field	Details
Meeting Date / Time	
Meeting Location	
Project Name / Number	
Meeting Conducted By	

Employers in Attendance:

Company Name	Representative Name	Trade / Scope	Signature

Agenda Items Discussed:

1. Upcoming Work Activities / Schedule Coordination:

2. New / Changed Hazards:

3. Incidents / Near-Misses Since Last Meeting:

4. Open Corrective Actions:

5. Safety Concerns Raised by Employers:

6. Action Items:

Action Item	Responsible Employer	Due Date	Status

Meeting conducted by: _____ Date: _____

Appendix B: Hazard Communication Notice Between Employers

Use this form to formally communicate hazards between employers on a multi-employer worksite.

Field	Details
Date	
Project Name / Number	
From (Company Name)	
From (Contact Person / Phone)	
To (Company Name)	
To (Contact Person / Phone)	

Hazard Description:

Location of Hazard:

Affected Area / Employees at Risk:

Protective Measures Currently in Place:

Action Requested:

Urgency: ☐ Immediate ☐ Within 24 Hours ☐ Before Next Shift ☐ Informational

Employer Role Applicable:

☐ Creating Employer ☐ Exposing Employer ☐ Correcting Employer ☐ Controlling Employer

Sent By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Resolution / Follow-Up:

Resolved By: _____ Date: _____

FORBES SAFETY SOLUTIONS

Personal Protective Equipment (PPE) Program

Comprehensive PPE Hazard Assessment, Selection & Training

Prepared for:

[COMPANY NAME]

Reference Standards:

29 CFR 1910.132-138 | 29 CFR 1926.95-106

Date: [DATE] | Revision: [REV NUMBER]

Table of Contents

1. Purpose

This Personal Protective Equipment (PPE) Program establishes the requirements for the selection, use, maintenance, and training associated with personal protective equipment at [COMPANY NAME]. The purpose is to protect employees from workplace hazards that cannot be eliminated through engineering or administrative controls, in compliance with OSHA standards 29 CFR 1910.132-138 and 29 CFR 1926.95-106.

PPE is the last line of defense in the hierarchy of controls and shall be used when hazards cannot be adequately controlled by other means.

2. Scope

This program applies to all employees, contractors, temporary workers, and visitors at [COMPANY NAME] facilities and job sites where workplace hazards require the use of personal protective equipment.

This program covers the following categories of PPE:

- Head protection (hard hats, bump caps)
- Eye and face protection (safety glasses, goggles, face shields)
- Hand protection (gloves by hazard type)
- Foot protection (safety-toed footwear, metatarsal guards)
- Hearing protection (earplugs, earmuffs)
- Respiratory protection (see separate Respiratory Protection Program)
- Body/skin protection (high-visibility vests, protective clothing)
- Fall protection (see separate Fall Protection Program)

3. Responsibilities

3.1 Management

- Provide funding for all required PPE at no cost to employees
- Ensure hazard assessments are conducted and certified
- Support enforcement of PPE requirements
- Review and update this program at least annually

3.2 Safety Manager / Competent Person

- Conduct and certify workplace hazard assessments
- Select appropriate PPE based on identified hazards
- Coordinate PPE training for all affected employees
- Maintain records of hazard assessments, training, and PPE issuance
- Evaluate new PPE products and technologies
- Conduct periodic audits of PPE use and condition

3.3 Supervisors

- Enforce PPE requirements within their work areas
- Monitor employees for proper PPE use, fit, and condition
- Ensure new employees receive PPE training before beginning work
- Report PPE deficiencies and request replacement equipment

3.4 Employees

- Wear required PPE at all times when exposed to hazards
- Inspect PPE before each use and report defects
- Maintain and store PPE properly according to training
- Attend all required PPE training sessions
- Notify supervisor of any changes in hazard conditions

4. Hazard Assessment

4.1 Hazard Assessment Process

The Safety Manager shall conduct a hazard assessment of each work area and job task to identify sources of hazards that require PPE. The assessment shall follow the requirements of 29 CFR 1910.132(d) and include:

1. Walk-through survey of each work area
2. Identification of hazard sources (impact, penetration, compression, chemical, heat, harmful dust, light/radiation, biohazards, electrical, fall, noise)
3. Organization of findings by job classification and work area

4. Selection of appropriate PPE for each identified hazard
5. Written certification of the hazard assessment

4.2 Job-by-Job Hazard Assessment

Each job task shall be individually assessed. The following table provides a framework for documenting hazards by job task:

Job Task / Area	Hazard Type	Body Part at Risk	PPE Required
Welding Operations	Optical radiation, sparks, fumes	Eyes, face, hands, body	Welding helmet, safety glasses, leather gloves, FR clothing
Grinding / Cutting	Flying particles, noise	Eyes, face, ears, hands	Safety glasses w/ side shields, face shield, hearing protection, gloves
Chemical Handling	Splash, vapor, skin absorption	Eyes, face, hands, body	Chemical splash goggles, face shield, chemical-resistant gloves, apron
Overhead Work	Falling objects, impact	Head, feet	Hard hat (Type I or II), safety-toed footwear
Electrical Work	Shock, arc flash, burn	Head, eyes, hands, body	Dielectric hard hat, arc-rated face shield, insulated gloves, arc-rated clothing
Concrete / Masonry	Dust, abrasion, impact	Eyes, lungs, hands, knees	Safety glasses, dust mask/respirator, leather gloves, knee pads
Elevated Work (>6 ft)	Falls	Full body	Full body harness, lanyard, anchor (see Fall Protection Program)
[Add Job Tasks]	[Identify Hazards]	[Body Parts]	[Select PPE]

4.3 Certification of Hazard Assessment

Per 29 CFR 1910.132(d)(2), the hazard assessment must be certified in writing. The certification shall include:

- Identification of the workplace evaluated
- Name of the person performing the assessment
- Date(s) of the assessment

- Document identification as a certification of hazard assessment

See Appendix A for the PPE Hazard Assessment Certification Form.

5. PPE Selection

5.1 PPE Selection Table by Hazard Type

The following table provides guidance for selecting appropriate PPE based on the type of hazard identified during the assessment:

Hazard Category	Hazard Examples	PPE Type	Applicable Standard
Impact	Flying objects, falling tools	Hard hat, safety glasses w/ side shields, safety-toed shoes	ANSI Z89.1, ANSI Z87.1, ASTM F2413
Penetration	Sharp objects, nails	Puncture-resistant soles, cut-resistant gloves, safety glasses	ASTM F2413, ANSI/ISEA 105
Compression (rollover)	Heavy equipment, rolling objects	Safety-toed footwear (metatarsal guard)	ASTM F2413
Chemical exposure	Splashes, vapors, mists	Chemical splash goggles, face shield, chemical-resistant gloves, apron	ANSI Z87.1, manufacturer specs
Heat / Burns	Hot surfaces, sparks, flames	Leather gloves, FR clothing, welding helmet, face shield	NFPA 2112, ASTM F2302
Harmful dust	Silica, wood dust, metals	Dust mask or respirator, safety goggles	NIOSH 42 CFR Part 84
Optical radiation	Welding arc, lasers, UV	Welding helmet (proper shade), laser safety glasses	ANSI Z87.1, ANSI Z136
Noise (>85 dBA)	Machinery, power tools	Earplugs (NRR 25+), earmuffs (NRR 25+)	ANSI S3.19 / S12.6
Electrical	Shock, arc flash	Insulated gloves (class rated), dielectric footwear, arc-rated PPE	ASTM D120, NFPA 70E
Fall hazards	Elevated work >6 ft	Full body harness, SRL, lanyard, anchor	ANSI Z359.1

6. PPE Requirements by Body Part

6.1 Head Protection

Hard hats are required in all areas where there is a danger of head injury from falling objects, impact, or electrical contact. Per 29 CFR 1910.135 and 1926.100:

- Type I hard hats protect the top of the head from impact
- Type II hard hats protect the top and sides from impact
- Class E (Electrical) rated to 20,000 volts
- Class G (General) rated to 2,200 volts
- Class C (Conductive) provides no electrical protection

Hard hats shall be replaced when cracked, dented, or after any significant impact. Suspension systems shall be replaced per manufacturer guidelines. Hard hats shall not be painted, drilled, or modified.

6.2 Eye and Face Protection

Eye and face protection is required per 29 CFR 1910.133 and 1926.102 wherever there is a reasonable probability of injury from flying particles, molten metal, liquid chemicals, acids, caustic liquids, chemical gases/vapors, or light radiation.

- Safety glasses with side shields: minimum requirement for general hazard areas
- Safety goggles: chemical splash, dust, fine particles
- Face shields: used OVER safety glasses/goggles for additional protection
- Welding helmets: minimum shade per OSHA/ANSI welding shade guide

All eye/face protection shall meet ANSI Z87.1 and be marked with the manufacturer's mark and Z87+ for high-impact rating.

6.3 Hand Protection

Per 29 CFR 1910.138, appropriate hand protection shall be selected based on the specific hazards identified:

Hazard	Glove Type	Key Considerations
Cuts / Abrasion	Cut-resistant (ANSI/ISEA A2–A9 rating)	Match cut level to hazard severity
Chemical exposure	Chemical-resistant (nitrile, neoprene, butyl, PVA)	Check permeation data for specific chemicals

Heat / Flame	Leather, Kevlar, aluminized	Temperature rating must exceed exposure
Electrical	Insulated gloves (Class 00–4)	Must be tested per ASTM D120 every 6 months
Cold weather	Insulated, waterproof	Maintain dexterity for task performance
Welding	Leather welding gloves	Minimum gauntlet-style for arc welding

6.4 Foot Protection

Safety-toed footwear meeting ASTM F2413 is required in all areas where there is a danger of foot injuries from falling objects, compression, puncture, or electrical hazards. Requirements include:

- Impact-resistant toe cap (I/75 or I/50 rating)
- Compression-resistant toe (C/75 or C/50 rating)
- Puncture-resistant sole plate when required
- Metatarsal guards for heavy material handling
- Electrical hazard (EH) rated footwear in electrical work areas

6.5 Hearing Protection

Hearing protection is required for all employees exposed to noise levels at or above 85 dBA as an 8-hour TWA per 29 CFR 1910.95 and the company Hearing Conservation Program. Options include:

- Foam earplugs (NRR 25–33): disposable or reusable
- Pre-molded earplugs (NRR 22–27): reusable, custom-fit available
- Earmuffs (NRR 22–31): over-the-head or cap-mounted
- Dual protection (plugs + muffs): required when exposure exceeds 100 dBA

6.6 Respiratory Protection

Respiratory protection is addressed in the separate [COMPANY NAME] Respiratory Protection Program per 29 CFR 1910.134. When respiratory hazards are identified during the PPE hazard assessment, refer to the Respiratory Protection Program for proper selection, fit testing, medical evaluation, and training requirements.

7. Proper Fit and Use

All PPE must properly fit each affected employee. Where manufacturer sizing is available, employees shall be fitted according to manufacturer guidelines. Key requirements:

- PPE shall not create additional hazards (e.g., loose clothing near machinery)
- PPE must be compatible when multiple types are worn simultaneously (e.g., hard hat + earmuffs + safety glasses)
- Prescription eyewear wearers shall use safety glasses with prescription inserts, over-the-glasses (OTG) safety glasses, or prescription safety glasses meeting ANSI Z87.1
- Employees with medical conditions affecting PPE use shall be evaluated by occupational health

8. Inspection and Maintenance

Employees shall inspect PPE before each use. PPE that is damaged, defective, or has exceeded its service life shall be removed from service immediately.

8.1 Inspection Criteria

- Hard hats: Check shell for cracks, dents, penetration, UV degradation (chalky appearance); check suspension for fraying, cracking, or loss of elasticity
- Safety glasses/goggles: Check for scratched lenses, broken frames, missing side shields, damaged seals
- Gloves: Check for tears, punctures, chemical degradation, loss of flexibility
- Safety footwear: Check for exposed toe caps, sole separation, worn tread, damaged eyelets
- Fall protection harnesses: Follow manufacturer inspection criteria (webbing, buckles, D-rings, labels)
- Hearing protection: Check for hardening, deformation, cracking, broken headbands

8.2 Maintenance and Storage

- Clean PPE according to manufacturer instructions
- Store PPE in a clean, dry location away from sunlight and contaminants
- Do not modify or alter PPE in any way
- Replace PPE at manufacturer-recommended intervals or when defects are found
- Maintain an adequate inventory of replacement PPE

9. Employee-Owned PPE

Per 29 CFR 1910.132(h), where employees provide their own PPE, the employer is responsible to ensure that it is adequate, properly maintained, and sanitary.

- Employee-owned PPE must meet the same standards as employer-provided PPE
- The employer shall verify the adequacy of employee-owned PPE
- The employer is not required to reimburse employees for non-specialty safety-toed footwear, prescription safety glasses, or logging boots required by 29 CFR 1910.266(d)(1)(v)
- All other required PPE shall be provided by [COMPANY NAME] at no cost to employees

10. Training

Per 29 CFR 1910.132(f), each employee required to use PPE shall be trained to know at a minimum:

6. When PPE is necessary
7. What PPE is required for their specific job tasks
8. How to properly put on, take off, adjust, and wear PPE
9. The limitations of the PPE
10. The proper care, maintenance, useful life, and disposal of the PPE

10.1 Training Frequency

- Initial training: before job assignment requiring PPE
- Retraining required when:
 - Changes in the workplace render previous training inadequate
 - Changes in the types of PPE render previous training inadequate
 - Employee demonstrates lack of understanding or skill in proper PPE use

10.2 Training Verification

Each employee who has been trained shall demonstrate understanding of the training elements. Training shall be documented and include the employee's name, date, trainer's name, and topics covered.

11. Program Evaluation

[COMPANY NAME] shall evaluate the effectiveness of this program at least annually, or whenever conditions change that may affect PPE needs. Evaluation shall include:

- Review of workplace hazard assessments for accuracy
- Assessment of PPE selection adequacy

- Review of injury/illness records related to PPE
- Employee feedback on PPE comfort, fit, and effectiveness
- Audit of PPE use, condition, and compliance
- Review of new PPE technologies and products

12. Recordkeeping

The following records shall be maintained:

- Written hazard assessment certifications
- PPE issue records (type, date, employee)
- Training records (date, attendees, topics, trainer)
- Inspection and maintenance logs (as applicable)
- Program evaluation records

Records shall be retained for the duration of employment plus three (3) years.

Appendix A: PPE Hazard Assessment Certification Form

CERTIFICATION OF HAZARD ASSESSMENT FOR PPE

Per 29 CFR 1910.132(d)(2)

Company: _____

Work Area / Job Site: _____

Assessment Date: _____

Assessed By: _____

Title: _____

Hazards Identified:

Job Task / Area	Hazard Source	Hazard Type	Body Part(s)	PPE Required

Certification Statement:

I certify that a hazard assessment has been performed for the workplace identified above, that the assessment identified the hazards requiring personal protective equipment, and that the PPE specified above has been selected to protect affected employees from those hazards.

Assessor Name (Print): _____

Assessor Signature: _____

Date: _____

Reviewed By (Management): _____

Date: _____

Appendix B: PPE Issue Record

PERSONAL PROTECTIVE EQUIPMENT ISSUE RECORD

Employee Name: _____

Employee ID / Number: _____

Department / Crew: _____

Job Title: _____

Date	PPE Item Issued	Size	Qty	Condition	Reason (New/Replace)	Issued By	Employee Initials

Employee Acknowledgment:

I have received the PPE listed above and have been trained on its proper use, care, and maintenance. I understand that I am responsible for wearing the PPE as required and for reporting any defects or damage.

Employee Signature: _____

Date: _____

FORBES SAFETY SOLUTIONS

Process Safety Management (PSM) Program

Overview of 14 PSM Elements

Prepared for:
[COMPANY NAME]

Regulatory References:
29 CFR 1910.119

Effective Date: [DATE]
Review Date: [ANNUAL REVIEW DATE]

Table of Contents

1. Purpose and Scope

This Process Safety Management (PSM) Program establishes the framework for managing the hazards associated with processes using highly hazardous chemicals at [COMPANY NAME] facilities. This program implements the requirements of 29 CFR 1910.119 and covers all 14 elements of PSM.

The goal is to prevent unwanted releases of hazardous chemicals, especially into locations that could expose employees and others to serious hazards, by applying management principles and analytical techniques to the entire lifecycle of a process.

2. Regulatory References

- 29 CFR 1910.119 — Process Safety Management of Highly Hazardous Chemicals
- EPA 40 CFR Part 68 — Chemical Accident Prevention (Risk Management Program)
- OSHA PSM NEP (National Emphasis Program)
- CCPS Guidelines for Risk Based Process Safety
- API RP 750, 752, 753 — Management of Process Hazards

3. Applicability and Threshold Quantities

PSM applies to processes involving chemicals at or above the threshold quantities listed in Appendix A of 29 CFR 1910.119, or any process involving 10,000 pounds or more of a flammable liquid or gas. Key examples include:

Chemical	Threshold Quantity (lbs)	Common Applications
Chlorine	1,500	Water treatment, chemical processes
Ammonia (anhydrous)	10,000	Refrigeration, chemical manufacturing
Hydrogen Fluoride	1,000	Oil refining, chemical production
Ethylene Oxide	5,000	Sterilization, chemical processes
Propane (as flammable)	10,000	Fuel storage, heating
Methane (as flammable)	10,000	Natural gas processing
Sulfur Dioxide	1,000	Pulp/paper, chemical processes

PSM does NOT apply to: retail facilities, oil or gas well drilling/servicing, normally unoccupied remote facilities, or hydrocarbon fuels used solely for workplace consumption as a fuel.

4. Roles and Responsibilities

4.1 Facility Management

- Provide overall program leadership and resource allocation
- Ensure PSM elements are implemented and maintained
- Conduct management reviews of PSM program effectiveness
- Ensure compliance audits are conducted every 3 years

4.2 PSM Coordinator

- Administer day-to-day PSM program activities
- Coordinate process hazard analyses and management of change reviews
- Maintain process safety information and documentation
- Track action items from PHAs, incident investigations, and audits

4.3 Process Employees

- Participate in process hazard analyses
- Follow operating procedures and safe work practices
- Report process safety concerns and near-misses
- Complete required PSM training

4.4 Contractors

- Follow all applicable PSM requirements
- Ensure contract employees are trained on process hazards
- Report injuries, illnesses, and incidents

5. The 14 Elements of Process Safety Management

5.1 Employee Participation

[COMPANY NAME] shall develop a written plan of action regarding employee participation in the PSM program. Employees shall be consulted on the conduct and development of process hazard analyses and the development of all other PSM elements. Employees shall have access to process hazard analyses and all other information required under PSM.

5.2 Process Safety Information (PSI)

Complete and accurate process safety information shall be compiled and maintained for each covered process, including:

- Hazards of chemicals used — MSDS/SDS data, permissible exposure limits, physical and reactivity data
- Process technology — block flow or process flow diagrams, process chemistry, safe operating limits, consequences of deviation
- Process equipment — materials of construction, P&IDs, electrical classification, relief system design, ventilation design, safety systems

5.3 Process Hazard Analysis (PHA)

An initial PHA shall be performed for each covered process using one or more of the following methodologies:

- What-If Analysis
- Checklist Analysis
- What-If/Checklist
- Hazard and Operability Study (HAZOP)
- Failure Mode and Effects Analysis (FMEA)
- Fault Tree Analysis

PHAs shall address hazards of the process, engineering and administrative controls, consequences of failure, facility siting, human factors, and evaluation of previous incidents. PHAs shall be updated and revalidated at least every 5 years.

5.4 Operating Procedures

Written operating procedures shall be developed and maintained for each covered process, addressing:

- Steps for each operating phase (startup, normal, temporary, emergency shutdown, normal shutdown, startup after turnaround)
- Operating limits and consequences of deviation
- Safety and health considerations (properties/hazards of chemicals, PPE, exposure controls, safety systems)

Operating procedures shall be reviewed as often as necessary and certified annually.

5.5 Training

Each employee involved in operating a covered process shall be trained in an overview of the process and the operating procedures. Training shall include emphasis on specific safety and health hazards, emergency operations, and safe work practices. Refresher training shall be provided at least every 3 years. Training documentation shall be maintained.

5.6 Contractors

[COMPANY NAME] shall establish and enforce requirements for contractor safety performance in covered process areas:

- Evaluate contractor safety performance and programs during selection
- Inform contractors of known potential fire, explosion, or toxic release hazards
- Explain the emergency action plan to contractors
- Develop and implement safe work practices for contractors
- Periodically evaluate contractor safety performance
- Maintain a contract employee injury/illness log

5.7 Pre-Startup Safety Review (PSSR)

A pre-startup safety review shall be performed for new facilities and for modified facilities when the modification is significant enough to require a change in process safety information. The PSSR shall confirm:

- Construction and equipment are in accordance with design specifications
- Safety, operating, maintenance, and emergency procedures are in place and adequate
- A PHA has been performed for new facilities and recommendations resolved
- Modified facilities meet MOC requirements
- Training has been completed for affected employees

5.8 Mechanical Integrity

A mechanical integrity program shall be established for process equipment including:

- Pressure vessels and storage tanks
- Piping systems (including components)
- Relief and vent systems and devices
- Emergency shutdown systems
- Controls (monitoring devices, sensors, alarms, interlocks)
- Pumps and rotating equipment

The program shall include written maintenance procedures, training for maintenance personnel, inspections and tests per recognized codes/standards (API, ASME, NFPA), deficiency correction, and quality assurance for equipment fabrication and installation.

5.9 Hot Work Permit

A hot work permit shall be issued for all hot work operations conducted on or near a covered process. The permit shall document that fire prevention and protection requirements have been implemented prior to beginning hot work and that the work area has been inspected for potential fire hazards.

5.10 Management of Change (MOC)

[COMPANY NAME] shall establish and implement written procedures to manage changes to process chemicals, technology, equipment, and procedures (excluding "replacement in kind"). The MOC procedure shall address:

- The technical basis for the proposed change
- Impact on safety and health
- Modifications to operating procedures
- Necessary time period for the change
- Authorization requirements

Employees and contractors whose tasks will be affected by the change shall be informed and trained before startup. Process safety information and operating procedures shall be updated. See Appendix A for the MOC Request Form.

5.11 Incident Investigation

Each incident that resulted in, or could reasonably have resulted in, a catastrophic release of a highly hazardous chemical shall be investigated. Investigations shall be initiated within 48 hours, and the team shall include at least one person knowledgeable in the process and a contract employee if the incident involved contractor work.

Investigation reports shall include date, description, factors contributing to the incident, and recommendations. Reports shall be reviewed with affected personnel, and findings/recommendations shall be addressed promptly. Reports shall be retained for 5 years.

5.12 Emergency Planning and Response

An emergency action plan shall be established for the entire plant in accordance with 29 CFR 1910.38. The plan shall include procedures for handling small releases and shall address evacuation routes, alarm systems, emergency response contacts, and coordination with local emergency responders.

5.13 Compliance Audits

[COMPANY NAME] shall certify that the PSM program has been evaluated at least every 3 years to verify that procedures and practices are adequate and being followed. Audit findings and recommendations shall be documented, and the employer shall promptly determine and document an appropriate response. The two most recent audit reports shall be retained.

5.14 Trade Secrets

Employees and their designated representatives shall have access to PSI and PHA information regardless of trade secret claims. [COMPANY NAME] may require confidentiality agreements as permitted under 29 CFR 1910.119(p), but shall not withhold information necessary for compliance with PSM requirements.

6. Training Requirements

PSM-related training shall include:

- Initial PSM overview training for all affected employees before assignment
- Process-specific training on operating procedures and safety systems
- Refresher training at least every 3 years
- Training whenever there are changes (MOC, new hazards, updated procedures)
- Contractor orientation covering process hazards and emergency procedures

Training records, including the identity of the employee, date of training, and means used to verify comprehension, shall be maintained for each employee.

7. Recordkeeping

- Process safety information: maintained current for the life of the process
- Process hazard analyses: retained for the life of the process
- Operating procedures: certified annually, updated as needed
- Training records: maintained for each employee for duration of employment
- Mechanical integrity records: per applicable codes and standards
- MOC documentation: retained for the life of the process
- Incident investigation reports: retained for 5 years
- Compliance audit reports: two most recent audits retained
- Pre-startup safety reviews: retained for the life of the process
- Hot work permits: retained for 1 year minimum

Appendix A: Management of Change Request Form

Complete this form for all proposed changes to process chemicals, technology, equipment, or procedures.

MOC Number:	
Date Initiated:	
Requested by:	
Department/Area:	
Process Affected:	
Type of Change:	

Description of Proposed Change

Technical Basis for Change

Safety and Health Impact Assessment

Consideration	Y/N	Details
Does this change affect process chemistry?		
Does this change affect operating limits?		
Does this change require P&ID update?		
Does this change affect safety systems?		
Is a PHA update required?		
Are operating procedures affected?		
Is employee/contractor training needed?		
Is a PSSR required before startup?		
Is this a permanent or temporary change?		

Approvals

Role	Name	Signature	Date
Initiator			
Area Supervisor			
PSM Coordinator			
Safety Manager			
Plant Manager			

Appendix B: Pre-Startup Safety Review Checklist

Complete before startup of new or modified processes.

PSSR Number:	
Date:	
Process/Unit:	
MOC Reference # (if applicable):	
Conducted by:	
Project Description:	

Item	Verified? (Y/N/NA)	Initials	Comments
Construction per design specifications			
P&IDs current and accurate			
Safety systems functional and tested			
Operating procedures updated			
Maintenance procedures updated			
Emergency procedures updated			
PHA recommendations resolved			
MOC requirements satisfied			
Employee training completed			
Safety interlocks tested			
Relief devices installed and tested			
Alarms functional and tested			
Electrical classification verified			
Ventilation systems operational			
Fire protection systems operational			
Process area clean and clear			
Temporary items removed			
As-built drawings available			

Authorization to Start Up

All items verified satisfactory. Process/unit is authorized for startup.

Authorized by: _____ Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

RESPIRATORY PROTECTION

Program

29 CFR 1910.134

[COMPANY NAME]

[ADDRESS]

[CITY, STATE ZIP]

Effective Date: [DATE]

Revision: [REV #]

Approved By: [NAME/TITLE]

1. PURPOSE & SCOPE

This Respiratory Protection Program establishes the requirements and procedures for the selection, use, and maintenance of respiratory protection equipment at [COMPANY NAME]. This program is designed to protect employees from airborne hazards including dusts, fumes, mists, gases, vapors, and oxygen-deficient atmospheres encountered during construction, maintenance, and utility operations.

This program applies to all [COMPANY NAME] employees, contractors, and subcontractors who are required to wear respirators during work operations, or who voluntarily choose to wear respirators when not required. This program covers all types of respiratory protection including:

- Filtering facepiece respirators (N95, N99, N100, R95, P100)
- Half-face and full-face air-purifying respirators (APR)
- Powered air-purifying respirators (PAPR)
- Supplied air respirators (SAR)
- Self-contained breathing apparatus (SCBA)
- Combination respirators

No employee shall be required to wear a respirator unless they have been medically evaluated, fit tested (for tight-fitting respirators), and trained in accordance with this program.

2. REGULATORY REFERENCES

- 29 CFR 1910.134 — Respiratory Protection
- 29 CFR 1926.103 — Respiratory Protection (Construction)
- 29 CFR 1910.1000 — Air Contaminants (Permissible Exposure Limits)
- 29 CFR 1926.55 — Gases, Vapors, Fumes, Dusts, and Mists
- NIOSH Respirator Selection Logic (Publication 2005-100)
- ANSI Z88.2 — Practices for Respiratory Protection
- OSHA Assigned Protection Factors (APF) — 29 CFR 1910.134, Table 1

3. DEFINITIONS

Program Administrator: The individual designated by [COMPANY NAME] management with overall responsibility for the respiratory protection program. This individual shall be qualified by appropriate training or experience to administer the program.

Permissible Exposure Limit (PEL): The maximum amount or concentration of a chemical that a worker may be exposed to under OSHA regulations, measured as an 8-hour time-weighted average (TWA), short-term exposure limit (STEL), or ceiling limit.

Assigned Protection Factor (APF): The workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees who have been properly fitted and trained.

Maximum Use Concentration (MUC): The maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator. Calculated as: $MUC = APF \times PEL$.

IDLH (Immediately Dangerous to Life or Health): 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.

Fit Test: The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. Required before initial use and at least annually thereafter.

User Seal Check: An action conducted by the respirator user to determine if the respirator is properly seated to the face. Required each time the respirator is donned.

PLHCP: Physician or Other Licensed Health Care Professional — the individual who provides the medical evaluation for respirator use.

Qualitative Fit Test (QLFT): A pass/fail fit test that relies on the subject's sensory detection of a challenge agent (e.g., Bitrex, saccharin, irritant smoke).

Quantitative Fit Test (QNFT): A fit test that uses an instrument to measure the actual amount of leakage into the respirator, resulting in a numerical fit factor.

4. ROLES & RESPONSIBILITIES

4.1 Program Administrator

- Administer and oversee all elements of this respiratory protection program
- Conduct or coordinate workplace exposure assessments
- Select appropriate respiratory protection based on hazard assessments
- Coordinate medical evaluations, fit testing, and training
- Ensure proper maintenance, storage, and inspection of respirators
- Evaluate program effectiveness and update as necessary
- Maintain all required records

Program Administrator: [NAME], [TITLE], [PHONE], [EMAIL]

4.2 Supervisors

- Ensure employees under their supervision are enrolled in the respiratory protection program before using respirators
- Enforce proper respirator use in the workplace

- Monitor work conditions for changes that may affect respiratory hazards
- Ensure employees do not have facial hair or other conditions that interfere with respirator seal
- Report any respirator malfunctions, deficiencies, or employee concerns to the Program Administrator

4.3 Employees

- Use respiratory protection in accordance with this program and training received
- Perform user seal checks each time a respirator is donned
- Inspect, clean, and maintain assigned respirators
- Report any difficulty breathing, respirator malfunction, or changes in work conditions to their supervisor
- Inform supervisor of any medical conditions that may affect respirator use
- Do not alter or modify respiratory protection equipment

5. EXPOSURE ASSESSMENT

[COMPANY NAME] shall conduct an exposure assessment to identify and evaluate respiratory hazards in the workplace. The assessment shall include:

5.1 Initial Assessment

1. Identify all operations, processes, and tasks that may generate airborne contaminants
2. Identify the specific contaminants present (chemical name, CAS number)
3. Determine the physical form of each contaminant (dust, fume, mist, gas, vapor)
4. Estimate or measure employee exposure levels
5. Compare exposure levels to applicable PELs, RELs, TLVs, and IDLH values
6. Determine if engineering controls or work practice controls can reduce exposure below applicable limits
7. Document the assessment results

5.2 Monitoring

Air monitoring shall be conducted:

- During initial assessment to establish baseline exposure levels
- When there is a change in production, process, or control measures
- When there are employee complaints of symptoms related to airborne exposure
- At intervals sufficient to characterize ongoing employee exposures
- Monitoring results shall be communicated to affected employees within 15 working days

5.3 Reasonable Estimate

Where air monitoring is not feasible or where exposure is reasonably expected to exceed PELs based on available information, [COMPANY NAME] may use a reasonable estimate of exposure based on:

- Published data for similar operations and conditions
- Safety Data Sheet (SDS) information
- Professional judgment based on the nature of the operation
- Historical monitoring data from similar operations

6. RESPIRATOR SELECTION

The Program Administrator shall select respirators based on the respiratory hazard(s) to which the employee is exposed and workplace/user factors that affect respirator performance and reliability.

6.1 Selection Criteria

- Nature and concentration of the hazardous substance(s)
- Applicable PEL, REL, TLV, IDLH, or other exposure limit
- Assigned Protection Factor (APF) of the respirator
- Maximum Use Concentration (MUC) — must exceed the workplace concentration
- Warning properties of the contaminant (for APR selection)
- Physical demands of the work
- Duration of exposure
- Need for communication, vision, and mobility
- Potential for oxygen deficiency

6.2 Respirator Types and Assigned Protection Factors

Respirator Type	APF	Typical Applications
Filtering Facepiece (N95, etc.)	10	Nuisance dust, non-oil aerosols below 10× PEL
Half-Face APR	10	Vapors, gases, particulates below 10× PEL
Full-Face APR	50	Higher concentrations, eye irritants below 50× PEL
PAPR (Half-Face)	50	Extended wear, breathing ease, below 50× PEL
PAPR (Full-Face/Hood/Helmet)	1,000	High concentration environments below 1,000× PEL
SAR (Half-Face, Demand)	10	Confined spaces, IDLH with escape provisions
SAR (Full-Face, Pressure-Demand)	1,000	IDLH atmospheres, confined spaces
SCBA (Full-Face, Pressure-Demand)	10,000	IDLH, unknown atmospheres, emergency response

All respirators shall be NIOSH-certified and used in accordance with the conditions of their certification.

7. MEDICAL EVALUATION

Before an employee is fit tested or required to use a respirator, a PLHCP shall determine the employee's ability to use a respirator.

7.1 Medical Questionnaire

- The OSHA Respirator Medical Evaluation Questionnaire (29 CFR 1910.134 Appendix C) shall be administered to each employee before initial respirator use.
- The questionnaire shall be administered confidentially during the employee's normal working hours.

- The employee shall be given the opportunity to discuss the questionnaire and results with the PLHCP.

7.2 Information Provided to PLHCP

The following information shall be provided to the PLHCP:

- Type and weight of respirator to be used
- Duration and frequency of respirator use
- Expected physical work effort
- Additional protective clothing and equipment to be worn
- Temperature and humidity extremes expected
- A copy of this written respiratory protection program
- A copy of 29 CFR 1910.134

7.3 Medical Determination

The PLHCP shall provide a written recommendation to [COMPANY NAME] that includes:

- Whether the employee is medically able to use the respirator
- Any limitations on respirator use
- Need for follow-up medical evaluations

Additional medical evaluations shall be provided when:

- An employee reports medical signs or symptoms related to respirator use
- A PLHCP or supervisor determines reevaluation is necessary
- Information from the program (e.g., fit testing, observations) indicates a need
- There is a change in workplace conditions that may substantially increase the physiological burden

8. FIT TESTING

All employees required to wear tight-fitting respirators shall be fit tested prior to initial use, whenever a different respirator facepiece is used, and at least annually thereafter.

8.1 Fit Test Requirements

- Fit testing shall be performed using OSHA-accepted protocols (29 CFR 1910.134 Appendix A)
- The employee shall be fit tested with the same make, model, style, and size of respirator they will use
- Qualitative fit testing (QLFT) may be used for half-mask respirators only
- Quantitative fit testing (QNFT) may be used for any tight-fitting respirator
- QNFT must achieve a fit factor of at least 100 for half-mask and 500 for full-face respirators

8.2 Conditions Requiring Refit Testing

- Annually (at minimum)
- Change in respirator make, model, style, or size
- Weight change of 20 pounds or more
- Significant facial scarring or dental changes
- Cosmetic surgery affecting facial structure
- Any condition that may affect the respirator-to-face seal

8.3 Facial Hair Policy

Employees who wear tight-fitting respirators shall not have facial hair that comes between the sealing surface of the facepiece and the face, or that interferes with valve function. This includes beards, goatees, sideburns, mustaches that extend below the lip, and stubble of any length in the sealing area.

9. USE, MAINTENANCE & STORAGE

9.1 General Use Requirements

- Employees shall use respirators in accordance with training received and manufacturer's instructions
- Employees shall perform a user seal check each time a respirator is donned (positive and negative pressure checks)
- Employees shall leave the contaminated area immediately if they detect breakthrough, resistance to breathing, or other malfunction

- Respirators shall not be worn when conditions prevent a good face seal (facial hair, missing dentures, temple bars of glasses)

9.2 Cleaning and Disinfecting

- Respirators issued for exclusive use shall be cleaned and disinfected as often as necessary to maintain sanitary conditions
- Respirators shared among employees shall be cleaned and disinfected before each use
- Emergency-use respirators shall be cleaned and disinfected after each use
- Cleaning procedures shall follow 29 CFR 1910.134, Appendix B-2, or equivalent manufacturer recommendations

9.3 Inspection

- All respirators shall be inspected before each use and during cleaning
- Emergency-use respirators shall be inspected at least monthly and after each use
- SCBA shall be inspected monthly (air cylinders checked for volume and condition)
- Inspection shall include: facepiece, head straps, valves, cartridges/filters, connecting tube, harness assemblies, and all other components
- Defective respirators shall be removed from service immediately

9.4 Repairs

- Respirator repairs shall be made only by trained personnel using NIOSH-approved, manufacturer-specified parts
- Repairs shall maintain the NIOSH certification of the respirator
- Reducing or admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer

9.5 Storage

- Respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, and chemicals
- Respirators shall be stored in a clean, dry location away from contaminated areas
- Respirators shall not be stored in lockers or tool boxes unless in a clean container
- Emergency-use respirators shall be stored in accessible locations, clearly marked, and stored in accordance with applicable regulations

9.6 Cartridge/Filter Change Schedule

[COMPANY NAME] shall implement a cartridge/filter change schedule based on:

- Manufacturer's service life recommendations
- OSHA change schedule requirements for specific substances
- Objective data or mathematical modeling (e.g., OSHA's Advisor Genius)
- Warning properties of the contaminant (odor threshold vs. PEL)

Cartridges/filters shall be replaced: at the end of each shift (unless a longer schedule is established), when breathing resistance becomes excessive, when breakthrough is detected, or when damaged.

10. VOLUNTARY USE PROVISIONS

When [COMPANY NAME] determines that respirator use is not required but an employee requests to wear a respirator voluntarily:

10.1 Filtering Facepiece (Dust Mask) Voluntary Use

- The employee shall be provided a copy of 29 CFR 1910.134, Appendix D (Information for Employees Using Respirators When Not Required)
- The employee must ensure that the respirator itself does not create a hazard
- Medical evaluation and fit testing are NOT required for voluntary use of filtering facepieces

10.2 Elastomeric Respirator Voluntary Use

For voluntary use of respirators other than filtering facepieces:

- Medical evaluation IS required
- The employee shall be provided information on cleaning, maintenance, and storage
- Fit testing is recommended but not required by OSHA for voluntary use

11. IDLH ATMOSPHERE PROCEDURES

For employees working in IDLH atmospheres, the following requirements apply:

8. A full-face pressure-demand SCBA with a minimum service life of 30 minutes, OR a combination full-face pressure-demand SAR with an auxiliary self-contained air supply shall be used.
9. An employee or employees located outside the IDLH atmosphere shall be designated to perform rescue duties.
10. Standby employees shall be equipped with pressure-demand SCBA or SAR with auxiliary SCBA and appropriate retrieval equipment.
11. Effective communication shall be maintained between employees inside and outside the IDLH atmosphere.
12. The standby employees shall be trained and available to provide emergency rescue.
13. The employer shall be notified before employees enter an IDLH atmosphere.

NOTE: Interior structural firefighting requires at least two employees inside the structure and at least two employees outside for rescue (OSHA's Two-In/Two-Out Rule).

12. TRAINING REQUIREMENTS

Each employee required to use a respirator shall be trained before initial use. Training shall be comprehensive, understandable, and shall include:

12.1 Training Topics

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise protection
- Limitations and capabilities of the respirator
- How to properly inspect, don, doff, use, and perform user seal checks
- Respirator maintenance and storage procedures
- Recognition of medical signs and symptoms that may limit or prevent effective respirator use
- General requirements of 29 CFR 1910.134
- Emergency procedures and IDLH atmosphere protocols
- Cartridge/filter change schedule and recognition of end-of-service indicators

12.2 Retraining

Retraining shall be provided at least annually and when:

- Changes in the workplace or respirator type render previous training obsolete
- Inadequacies in the employee's knowledge or use of the respirator are identified
- Any other situation in which retraining appears necessary

13. RECORDKEEPING

[COMPANY NAME] shall maintain the following records:

- This written respiratory protection program (current and previous versions)
- Exposure assessment and air monitoring results
- Medical evaluation records (maintained by PLHCP; employer retains written recommendation only)
- Fit test records (employee name, type of test, respirator make/model/size, date, results) — retained for duration of employment plus 30 years per 29 CFR 1910.1020
- Training records (employee name, date, topics, trainer)
- Respirator inspection and maintenance records
- Cartridge/filter change schedule documentation

Medical records shall be maintained in accordance with 29 CFR 1910.1020 (Access to Employee Exposure and Medical Records).

14. PROGRAM EVALUATION

[COMPANY NAME] shall conduct evaluations of the workplace to ensure the provisions of this program are being effectively implemented. The evaluation shall include:

- Consultation with employees regarding respirator selection, use, fit, and maintenance
- Regular inspection of work areas to ensure proper respirator use
- Review of air monitoring data
- Review of fit test results and medical evaluations
- Assessment of employee satisfaction and any reported problems

The Program Administrator shall document program evaluations and corrective actions taken.

Revision History

Revision #	Date	Description of Change	Approved By

APPENDIX A: FIT TEST RECORD FORM

Complete this form for each employee fit test conducted in accordance with 29 CFR 1910.134.

Field	Information
Employee Name:	
Employee ID:	
Job Title:	
Department:	
Date of Test:	
Test Administrator:	

Respirator Information

Field	Information
Manufacturer:	
Model:	
Style:	
Size:	
NIOSH Approval #:	

Fit Test Type

Test Method	Check	Protocol Used
Qualitative (QLFT)	☐	☐ Saccharin ☐ Bitrex ☐ Irritant Smoke ☐ Isoamyl Acetate
Quantitative (QNFT)	☐	☐ PortaCount ☐ Controlled Negative Pressure ☐ Generated Aerosol

QLFT Results

Exercise	Duration	Pass	Fail
Normal Breathing	60 sec	☐	☐
Deep Breathing	60 sec	☐	☐

Exercise	Duration	Pass	Fail
Turning Head Side to Side	60 sec	☐	☐
Moving Head Up and Down	60 sec	☐	☐
Talking/Reading	60 sec	☐	☐
Grimace	15 sec	☐	☐
Bending Over/Jogging in Place	60 sec	☐	☐
Normal Breathing	60 sec	☐	☐

QNFT Results

Exercise	Fit Factor	Pass/Fail
Normal Breathing		
Deep Breathing		
Turning Head Side to Side		
Moving Head Up and Down		
Talking		
Grimace		
Bending Over		
Normal Breathing		
Overall Fit Factor:		

Overall Result: ☐ PASS ☐ FAIL

If FAIL: Employee reassigned to respirator Make: _____ Model: _____ Size: _____

Employee Signature: _____ **Date:** _____

Test Administrator: _____ **Date:** _____

APPENDIX B: RESPIRATOR INSPECTION CHECKLIST

Use this checklist to inspect respirators before each use and during routine maintenance. Replace or repair any defective components before use.

Field	Information
Inspector Name:	
Date:	
Respirator Type:	
Manufacturer/Model:	
Assigned To:	
Serial/ID Number:	

Inspection Items

Component	Condition	OK	Defect	Action Taken
Facepiece	Clean, no cracks, distortion, tears	☐	☐	
Head Straps	Elastic, no breaks, proper tension	☐	☐	
Inhalation Valve	Present, not warped, seats properly	☐	☐	
Exhalation Valve	Present, not warped, seats properly	☐	☐	
Filter/Cartridge	Correct type, not expired, seated properly	☐	☐	
Filter/Cartridge Gaskets	Present, not cracked, seated properly	☐	☐	
Speaking Diaphragm	Present, not cracked (if applicable)	☐	☐	
Lens/Visor	Clean, not scratched/cracked/fogged	☐	☐	

Component	Condition	OK	Defect	Action Taken
Nosecup (if applicable)	Clean, intact, properly positioned	☐	☐	
Breathing Tube (SAR)	Intact, no kinks, properly connected	☐	☐	
Air Supply Hose (SAR)	No kinks, properly connected, no damage	☐	☐	
SCBA Cylinder Pressure	Minimum 90% of rated capacity	☐	☐	
SCBA Regulator	Functions properly, gauge reads correctly	☐	☐	
Alarm (SCBA/SAR)	Functions properly at required pressure	☐	☐	
Storage Container	Clean, intact, properly sealed	☐	☐	

User Seal Check Verification

Check Type	Performed	Result
Positive Pressure Check	☐ Yes ☐ No	☐ Pass ☐ Fail
Negative Pressure Check	☐ Yes ☐ No	☐ Pass ☐ Fail

Disposition

☐ Approved for use ☐ Requires repair ☐ Removed from service

Comments:

Inspector Signature: _____ Date: _____

FORBES SAFETY SOLUTIONS

RETURN TO WORK / LIGHT DUTY PROGRAM

Early Return & Transitional Work Assignments

Prepared for:
[COMPANY NAME]

Effective Date: [DATE]

Revision: [REV #]

Table of Contents

1. Purpose and Scope

This Return to Work / Light Duty Program establishes [COMPANY NAME]'s policy and procedures for returning injured or ill employees to productive work as early as medically appropriate through modified duty or transitional work assignments. Research consistently demonstrates that early return to work benefits the employee, the employer, and the overall safety culture.

This program applies to all [COMPANY NAME] employees who experience work-related injuries or illnesses, as well as supervisors, managers, and human resources personnel involved in the return to work process. This program does not replace or supersede workers' compensation laws, the Americans with Disabilities Act (ADA), or the Family and Medical Leave Act (FMLA).

2. Regulatory References

- Americans with Disabilities Act (ADA) — 42 U.S.C. § 12101 et seq.
- Family and Medical Leave Act (FMLA) — 29 U.S.C. § 2601 et seq.
- State Workers' Compensation Laws (applicable jurisdiction)
- OSHA Recordkeeping — 29 CFR 1904 (Recording and Reporting Occupational Injuries and Illnesses)
- 29 CFR 1904.7 — General recording criteria for injuries and illnesses
- EEOC Enforcement Guidance on Reasonable Accommodation and Undue Hardship

3. Program Philosophy

[COMPANY NAME] believes that early return to work benefits everyone:

3.1 Benefits to the Employee

- Maintains connection to the workplace and coworkers
- Preserves earning capacity and avoids the financial hardship of extended time off
- Supports physical and psychological recovery through purposeful activity
- Reduces the risk of disability mindset and prolonged recovery
- Demonstrates the company's commitment to the employee's well-being

3.2 Benefits to the Employer

- Reduces workers' compensation costs and claim duration
- Maintains productivity and avoids the cost of replacement labor

- Demonstrates a positive safety culture that values employees
- Improves employee morale and retention
- Supports OSHA recordkeeping compliance (restricted work vs. days away)

3.3 Core Principles

- Every injured employee who can perform meaningful work should be offered the opportunity to return
- Modified duty is temporary and transitional — it is not a permanent reassignment
- Return to work decisions are based on medical documentation and job demands analysis
- This program is administered fairly and consistently for all employees
- All medical information is kept confidential in accordance with applicable law

4. Definitions

- **Modified Duty:** Temporary adjustment to the employee's regular job duties to accommodate medical restrictions. The employee performs their regular job with specific tasks modified or eliminated.
- **Transitional Work:** Temporary assignment to alternative tasks that are within the employee's medical restrictions but outside their normal job description. Transitional work is productive, meaningful, and contributes to [COMPANY NAME]'s operations.
- **Full Duty:** The employee's regular job duties with no medical restrictions.
- **Medical Restrictions:** Specific physical limitations documented by the treating physician that define what the employee can and cannot do.
- **Job Demands Analysis:** A written description of the physical requirements of a specific job, including lifting, standing, walking, reaching, and other physical activities.
- **Maximum Medical Improvement (MMI):** The point at which the employee's medical condition has stabilized and is unlikely to improve further with additional treatment.

5. Communication with Treating Physician

[COMPANY NAME] shall maintain timely and professional communication with the treating physician to support the return to work process:

- Provide the physician with a written job demands analysis for the employee's regular position
- Provide a list of available modified duty and transitional work tasks (see Section 6)
- Request specific, written work restrictions including: lifting limits, standing/walking limits, hours per day, and any environmental restrictions

- Communicate the availability of modified duty and request the physician's assessment of the employee's ability to perform these tasks
- Request updated restrictions at each follow-up visit
- Use the Physician Release / Work Restrictions Form (Appendix B) for all communications

All medical communications shall be handled by the designated Return to Work Coordinator and kept in a confidential medical file separate from the employee's personnel file.

6. Job Demands Analysis

[COMPANY NAME] shall maintain current job demands analyses for all positions. Each analysis shall document:

- Essential functions of the position
- Physical requirements (lifting, carrying, pushing, pulling — with weight ranges)
- Posture requirements (standing, sitting, walking, climbing, kneeling, crouching)
- Duration and frequency of each physical demand
- Environmental conditions (heat, cold, dust, noise, confined spaces, heights)
- Cognitive requirements (concentration, decision-making, communication)

Job demands analyses shall be reviewed annually and updated when job duties change. Accurate job demands information enables the physician to make informed return to work decisions.

7. Modified Duty Task Bank

[COMPANY NAME] shall maintain a Modified Duty Task Bank — a list of productive tasks available for employees on restricted duty. Examples include:

- Safety documentation and filing
- Inventory management and organization of tool rooms or supply areas
- Safety equipment inspections (fire extinguishers, first aid kits, eye wash stations)
- SWPPP inspections and BMP monitoring (if physically able)
- Safety training preparation and materials assembly
- Answering phones and performing administrative support
- Quality control inspections and documentation
- Toolbox talk preparation and delivery
- Data entry and recordkeeping
- Mentoring and training new employees (knowledge transfer)

The Modified Duty Task Bank shall be reviewed quarterly and updated as new tasks are identified. All tasks must be productive, meaningful, and within the company's normal operations.

8. Duration Limits

Modified duty and transitional work assignments are temporary by design:

- Modified duty assignments are typically limited to 90 calendar days
- Extensions beyond 90 days may be granted on a case-by-case basis with updated medical documentation and management approval
- The employee's restrictions and progress shall be reviewed at least every two weeks during the modified duty period
- If the employee cannot return to full duty within the modified duty period, [COMPANY NAME] shall evaluate options including: extended modified duty, reassignment, reasonable accommodation under the ADA, or workers' compensation benefits
- Modified duty availability does not guarantee permanent position modification

9. Employee Responsibilities

- Report all work-related injuries and illnesses immediately to your supervisor
- Obtain medical treatment from an authorized healthcare provider
- Provide the treating physician with accurate information about job duties
- Request written work restrictions from the physician at each visit
- Deliver work restriction documentation to the Return to Work Coordinator within 24 hours
- Accept modified duty assignments that are within your medical restrictions
- Comply fully with all medical restrictions while on modified duty — do not exceed restrictions
- Attend all scheduled medical appointments and provide updated restrictions
- Communicate promptly with the Return to Work Coordinator about any changes in your condition
- Cooperate with the return to work process in good faith

10. Supervisor Responsibilities

- Ensure all injuries are reported immediately and the employee receives medical attention
- Contact the Return to Work Coordinator within 24 hours of any injury resulting in medical treatment

- Welcome the returning employee back and assign duties consistent with medical restrictions
- Do not allow or request the employee to perform tasks outside their medical restrictions
- Monitor the employee's compliance with medical restrictions
- Maintain confidentiality of the employee's medical information — share only on a need-to-know basis
- Do not express displeasure, frustration, or resentment about modified duty assignments
- Provide a supportive environment that encourages full recovery and return to full duty

11. Medical Documentation Requirements

All return to work decisions shall be supported by medical documentation:

- Initial Physician Release / Work Restrictions Form completed at the first medical visit
- Updated restrictions at each follow-up appointment
- Medical documentation must include: specific restrictions, duration of restrictions, next appointment date, and anticipated date of full duty release
- Functional Capacity Evaluation (FCE) may be requested when restrictions are unclear or disputed
- Independent Medical Examination (IME) may be arranged through the workers' compensation process if questions remain

12. Confidentiality

[COMPANY NAME] is committed to protecting the confidentiality of employee medical information:

- All medical documentation shall be maintained in a confidential medical file separate from the employee's personnel file
- Medical information shall be shared only with individuals who have a legitimate need to know (Return to Work Coordinator, direct supervisor for restriction compliance, HR)
- Supervisors shall be informed of restrictions, not diagnoses
- Medical records shall be stored in a locked cabinet or secured electronic system
- Confidentiality requirements comply with ADA, HIPAA (where applicable), and state privacy laws

13. Return to Full Duty Process

The transition from modified duty to full duty shall follow these steps:

1. The treating physician provides a full duty release with no restrictions
2. The Return to Work Coordinator reviews the release and confirms full duty clearance
3. The supervisor is notified and the employee is returned to regular duties
4. The Modified Duty Assignment Form is closed out with the return to full duty date
5. A follow-up check is conducted within two weeks to confirm the employee is performing full duties without difficulty
6. The workers' compensation claim is updated to reflect the return to full duty

14. Program Limitations

This Return to Work / Light Duty Program:

- Does not replace or limit workers' compensation benefits to which the employee is entitled
- Does not override the treating physician's medical judgment
- Does not guarantee a permanent position modification or accommodation
- Does not supersede any rights under the ADA, FMLA, or state employment laws
- Is subject to the operational needs of [COMPANY NAME] and availability of modified duty tasks

15. Roles and Responsibilities Summary

15.1 Return to Work Coordinator

- Administer the Return to Work program and serve as the central point of contact
- Communicate with the treating physician and obtain work restrictions
- Match employee restrictions to available modified duty tasks
- Monitor modified duty duration and employee progress
- Maintain confidential medical files

15.2 Human Resources

- Ensure program compliance with ADA, FMLA, and workers' compensation laws
- Coordinate with the workers' compensation insurance carrier
- Provide guidance on reasonable accommodation requests

15.3 Safety Department

- Maintain current job demands analyses for all positions
- Assist with the development and updating of the Modified Duty Task Bank

- Support OSHA recordkeeping for restricted work cases

16. Training Requirements

- All supervisors shall receive training on the Return to Work program, including their responsibilities, confidentiality requirements, and how to support returning employees
- All employees shall receive awareness training on the program during new hire orientation
- Human Resources and the Return to Work Coordinator shall receive training on ADA, FMLA, and workers' compensation interaction
- Annual refresher training for supervisors and managers

17. Recordkeeping

- Modified Duty Assignment Forms shall be retained for the duration of employment plus five (5) years
- Physician Release / Work Restrictions Forms shall be retained in confidential medical files
- OSHA 300 Log entries shall reflect restricted work or days away as applicable (29 CFR 1904)
- Workers' compensation claim records per state retention requirements

18. Revision History

Revision	Date	Author	Description
1.0	[DATE]	[NAME]	Initial Release

Appendix A: Modified Duty Assignment Form

Complete this form when assigning an employee to modified or transitional duty.

Field	Details
Employee Name	
Employee ID / Position	
Supervisor	
Date of Injury / Illness	
Date of Modified Duty Assignment	
Treating Physician	
Expected Duration	

Medical Restrictions (per physician documentation):

Modified Duty Tasks Assigned:

Work Schedule:

Hours per day: _____ Days per week: _____

Employee Signature: _____ Date: _____

Supervisor Signature: _____ Date: _____

RTW Coordinator Signature: _____ Date: _____

Appendix B: Physician Release / Work Restrictions Form

Provide this form to the treating physician. A copy shall be returned to the Return to Work Coordinator.

Field	Details
Employee Name	
Date of Examination	
Diagnosis (if authorized to share)	
Date of Next Appointment	

Work Status:

- ☐ May return to full duty with no restrictions
- ☐ May return to modified / light duty with the following restrictions:

Restriction Category	Restriction Details
Lifting / Carrying	Max ____ lbs ☐ No lifting
Standing / Walking	Max ____ hours ☐ No standing
Sitting	Max ____ hours
Climbing / Heights	☐ No climbing ☐ Limited to ____
Reaching / Overhead Work	☐ No overhead ☐ Limited
Driving / Equipment Operation	☐ No driving ☐ Limited
Environmental	☐ No extreme temps ☐ No dust ☐ Other: ____
Other Restrictions	

Duration of Restrictions: ☐ Until next visit ☐ ____ weeks ☐ Until further notice

Physician Name (Print): _____

Physician Signature: _____ Date: _____

Phone: _____ Fax: _____

FORBES SAFETY SOLUTIONS

SCAFFOLDING SAFETY PROGRAM

OSHA-Compliant Workplace Safety Program

[COMPANY NAME]

Effective Date: [DATE]

Revision Number: [REV #]

Prepared By: [NAME / TITLE]

Approved By: [NAME / TITLE]

Approval Date: [DATE]

TABLE OF CONTENTS

1. PURPOSE & SCOPE

The purpose of this Scaffolding Safety Program is to establish requirements and procedures for the safe erection, use, dismantling, and inspection of scaffolds at [COMPANY NAME] work sites. This program ensures compliance with OSHA standards and protects employees from scaffold-related hazards, including falls, structural collapse, and falling objects.

This program applies to all [COMPANY NAME] employees, subcontractors, and other personnel who erect, dismantle, move, operate, repair, maintain, or work on or from scaffolding at any [COMPANY NAME] project or facility.

Scope of Application:

- All supported scaffolds (frame, tube and coupler, system scaffolds)
- All suspended scaffolds (single-point, two-point / swing stage, multi-point)
- Mobile scaffolds (rolling towers, baker scaffolds)
- Specialty scaffolds (pump jack, ladder jack, bracket scaffolds)

2. REGULATORY REFERENCES

- **29 CFR 1926 Subpart L** — OSHA Construction: Scaffolds (§1926.450–454)
- **29 CFR 1926.451** — General Requirements for Scaffolds
- **29 CFR 1926.452** — Additional Requirements for Specific Types of Scaffolds
- **29 CFR 1926.453** — Aerial Lifts
- **29 CFR 1926.454** — Training Requirements for Scaffolds
- **29 CFR 1926 Subpart M** — Fall Protection (as applicable to scaffold work)
- **ANSI/SSFI SC100** — Scaffolding Safety Standard

3. DEFINITIONS

- **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. Per OSHA, a Competent Person must direct scaffold erection, dismantling, and alteration, and must inspect scaffolds.
- **Qualified Person:** One who by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully

demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project. A Qualified Person designs scaffolds and scaffold components.

- **Supported Scaffold:** A scaffold supported by rigid, load-bearing members such as poles, legs, frames, and outriggers resting on the ground or floor.
- **Suspended Scaffold:** A scaffold suspended by non-rigid means (ropes, cables) from an overhead structure.
- **Mobile Scaffold:** A scaffold mounted on casters or wheels that can be moved without dismantling.
- **Scaffold Tag System:** A color-coded tagging system used to communicate the status and safety conditions of scaffolds. See Section 5.7.

4. ROLES & RESPONSIBILITIES

4.1 Management

- Ensure this program is implemented and enforced at all [COMPANY NAME] projects
- Designate Competent Persons for scaffold operations at each job site
- Provide resources for proper scaffold equipment, PPE, and training
- Ensure scaffold components meet manufacturer specifications and OSHA requirements

4.2 Competent Person

- Direct and supervise the erection, alteration, moving, and dismantling of scaffolds
- Inspect scaffolds before each work shift, after any event that could affect structural integrity (weather, impact), and as conditions warrant
- Authorize scaffold use through the scaffold tagging system
- Identify and correct hazards; remove defective scaffolds from service
- Determine if conditions are safe for scaffold work (wind, weather, loading)
- Select and direct the use of fall protection

4.3 Supervisors

- Ensure only trained and authorized employees work on scaffolds
- Verify scaffold tags are current and conditions meet safe use criteria before assigning work
- Report any scaffold damage, deficiency, or unsafe condition to the Competent Person immediately

4.4 Employees / Scaffold Users

- Complete scaffold safety training before working on any scaffold
- Check the scaffold tag before mounting any scaffold
- Never alter, move, or modify a scaffold without authorization from the Competent Person
- Report unsafe conditions immediately; do not use a red-tagged scaffold
- Use required fall protection at all times while on the scaffold
- Do not exceed the rated load capacity of the scaffold

5. PROGRAM PROCEDURES

5.1 Scaffold Types

Supported Scaffolds are the most common type on construction sites. They rest on the ground and include:

- **Frame Scaffolds** — Prefabricated welded frames with cross-bracing. Most widely used supported scaffold.
- **Tube and Coupler Scaffolds** — Steel tubes connected with couplers. Highly versatile for irregular structures.
- **System Scaffolds** — Proprietary modular scaffolds using rosettes, cups, or wedge connections.

Suspended Scaffolds hang from an overhead structure by ropes or cables:

- **Two-Point (Swing Stage)** — Suspended from two overhead points. Common for building exteriors.
- **Single-Point (Boatswain's Chair)** — Suspended from a single overhead point. Used for light-duty work.
- **Multi-Point** — Suspended from three or more points for large platforms.

Mobile Scaffolds (rolling towers) are mounted on casters/wheels for easy relocation.

5.2 Capacity Requirements

Per 29 CFR 1926.451(a)(1), each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least **four (4) times the maximum intended load** applied or transmitted to it (safety factor of 4:1).

Suspended scaffolds shall have a safety factor of **six (6) times** the intended load for all connections and rope/wire components.

Load classifications per OSHA:

Scaffold Type / Duty Rating	Maximum Intended Load (psf)	Use
Light-Duty	25 psf	Workers + light tools only
Medium-Duty	50 psf	Workers + materials (e.g., bricklaying, stucco)
Heavy-Duty	75 psf	Workers + heavy materials (e.g., stone masonry)

No scaffold shall be loaded in excess of its maximum intended load or rated capacity as established by the Competent Person.

5.3 Platform Construction Requirements

Scaffold platforms shall comply with the following requirements per 29 CFR 1926.451(b):

- Platforms shall be planked or decked as close to the full width as practicable. The gap between the platform and the uprights shall not exceed one (1) inch unless the Competent Person determines a wider gap is necessary (max 9.5 inches with fall protection).
- Each scaffold plank shall extend over its end supports by at least six (6) inches but not more than twelve (12) inches, unless cleated or restrained.
- Scaffold planks shall be at least 2 x 10 nominal (or equivalent) scaffold-grade lumber, or manufactured scaffold decking rated for the intended load.
- Platforms shall not deflect more than 1/60 of the span when loaded.
- All platform surfaces shall be kept clear of debris, snow, ice, and any slipping hazards.
- Front edge of all platforms shall not be more than 14 inches from the face of the work (18 inches for outrigger scaffolds, 3 inches for plastering/lathing).

Guardrail Requirements (per 29 CFR 1926.451(g)):

- Top rail height: 38 to 45 inches above the platform surface
- Midrail: Installed approximately halfway between the top rail and the platform surface
- Toeboards: At least 3.5 inches in height, along all open sides and ends of platforms more than 10 feet above the ground
- Top rail must withstand a force of 200 lbs applied in any downward or outward direction

5.4 Access Requirements

Per 29 CFR 1926.451(e), access must be provided when the scaffold platform is more than 2 feet above or below the point of access. Acceptable means of access include:

- **Portable ladders** — Must extend at least 3 feet above the platform and be secured against displacement.
- **Stair towers** — Required on scaffolds where worker traffic is heavy or where multiple platforms must be accessed frequently.

- **Built-in ladder rungs** — Spaced uniformly at intervals not exceeding 16 ¾ inches.
- **Ramps and walkways** — Sloped no more than 1:3 (vertical to horizontal); slopes steeper than 1:8 shall have cleats.

Prohibited: Climbing cross-braces is prohibited as a means of access on all scaffolds per 29 CFR 1926.451(e)(1).

5.5 Fall Protection Requirements

Fall protection is required on scaffolds when the working height is 10 feet or more above a lower level per 29 CFR 1926.451(g).

Supported Scaffolds: A guardrail system (top rail, midrail, and toeboard) is the primary fall protection. A personal fall arrest system (PFAS) is an acceptable alternative.

Suspended Scaffolds: Both a guardrail system AND a personal fall arrest system are required. PFAS shall be attached to a structural member of the scaffold or to an independent lifeline.

Fall Arrest System Requirements:

- Full-body harness with shock-absorbing lanyard or self-retracting lifeline
- Anchored to a structural member of the scaffold or to an independent structural anchorage capable of supporting 5,000 lbs per employee
- Never tie off to guardrails unless the guardrail system has been specifically designed for that purpose
- Vertical lifelines must be individually assigned — one lifeline per employee

5.6 Scaffold Erection and Dismantling Sequence

All scaffold erection, dismantling, and modification shall be performed under the direct supervision of the Competent Person. The following general sequence applies:

Erection Sequence:

1. Review engineered drawings (if height exceeds manufacturer's recommendations or exceeds 125 feet).
2. Inspect all scaffold components before assembly; reject damaged or defective components.
3. Prepare a firm, level foundation. Use base plates and mudsills to distribute load.
4. Erect the first bay, ensuring plumb and level. Install all bracing per manufacturer specifications.
5. Install platforms, guardrails, and toeboards on each level as erection proceeds.
6. Tie the scaffold to the building or structure at intervals per manufacturer/engineer specifications.
7. Continue erection one bay/lift at a time, maintaining bracing, platforms, and guardrails.
8. Install access (ladders, stair towers) as the scaffold is erected.
9. Complete final inspection and apply scaffold tag (GREEN) upon Competent Person approval.

Dismantling Sequence:

1. Clear the scaffold of all materials, tools, and debris.
2. Tag the scaffold RED — No Entry — before dismantling begins.
3. Begin dismantling from the top level, working downward.
4. Remove guardrails, toeboards, and platforms from each level before removing bracing.
5. Lower (do not throw) scaffold components to the ground.
6. Inspect components as they are dismantled; segregate damaged parts for disposal.
7. Never dismantle a scaffold while workers are on it (other than dismantling crew).

Workers erecting or dismantling scaffolds above 10 feet must use fall protection (PFAS or equivalent) as feasible.

5.7 Scaffold Tagging System

[COMPANY NAME] uses a three-color tagging system to communicate scaffold status:

Tag Color	Status	Meaning
GREEN	SAFE FOR USE	Scaffold has been inspected by the Competent Person, meets all OSHA requirements, and is approved for use. All guardrails, platforms, access, and bracing are in place.
YELLOW	CAUTION	Scaffold is usable but has special conditions or limitations. Additional PPE or precautions may be required (e.g., missing guardrail on one side — fall protection required). Conditions are noted on the tag.
RED	DANGER — DO NOT USE	Scaffold is unsafe, incomplete, damaged, or being erected/dismantled. No personnel shall mount or use a red-tagged scaffold except the erection/dismantling crew under direct Competent Person supervision.

Tags shall be placed at each point of access and shall be clearly visible. Tags must include the Competent Person's name, date, and time of inspection.

5.8 Prohibited Actions

The following actions are **strictly prohibited** at all [COMPANY NAME] work sites:

- Working on scaffolds during storms, high winds (>25 mph unless Competent Person approves), lightning, or ice conditions
- Using a scaffold that has not been inspected and tagged by the Competent Person
- Climbing cross-braces for access
- Working on a red-tagged scaffold
- Exceeding the rated load capacity of the scaffold
- Altering or removing scaffold components without Competent Person authorization
- Using makeshift scaffolds (e.g., stacking pallets, ladders on platforms, barrels)

- Riding a mobile scaffold while it is being moved (unless specific conditions are met per §1926.452(w))
- Using unstable objects (boxes, bricks, loose materials) as scaffold foundations
- Working on platforms without guardrails or fall protection at heights of 10 feet or more
- Using damaged, bent, or corroded scaffold components

6. TRAINING REQUIREMENTS

[COMPANY NAME] shall provide training to each employee who works on or near scaffolds, as required by 29 CFR 1926.454.

6.1 Scaffold Users (All Employees)

Training must cover the following topics:

- Nature of electrical hazards, fall hazards, and falling object hazards in the work area
- Correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling fall protection and falling object protection systems
- Proper use of the scaffold and proper handling of materials on the scaffold
- Maximum intended load and load-carrying capacity of the scaffold
- Recognition of the scaffold tagging system and its requirements
- Any other pertinent requirements of 29 CFR 1926 Subpart L

6.2 Competent Person / Erectors & Dismantlers

In addition to the training above, scaffold erectors and dismantlers must be trained on:

- Nature of scaffold hazards
- Correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question
- Design criteria, maximum intended load-carrying capacity, and intended use of the scaffold
- Fall protection requirements during erection and dismantling

6.3 Retraining

Retraining is required when:

- Changes at the worksite present a hazard the employee has not been trained on
- Changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard the employee has not been trained on

- Inadequacies in an employee's work involving scaffolds indicate a lack of understanding of the hazards

7. RECORDKEEPING

[COMPANY NAME] shall maintain the following records:

- **Training records:** Employee name, date, trainer name, topics covered, and type of scaffold training (user vs. erector/dismantler). Retained for duration of employment plus three (3) years.
- **Scaffold inspection records:** Daily inspection checklists completed by the Competent Person. Retained for duration of the project plus one (1) year.
- **Scaffold erection/modification permits:** Retained for duration of the project plus one (1) year.
- **Engineered scaffold drawings:** Retained for the life of the scaffold configuration.
- **Incident and near-miss reports:** All scaffold-related incidents retained for a minimum of five (5) years.

APPENDIX A: SCAFFOLD ERECTION / MODIFICATION PERMIT

SCAFFOLD ERECTION / MODIFICATION PERMIT

Permit Number: _____

Date: _____

Project Name: _____

Project Location: _____

Scaffold Location (Describe / Mark on Drawing): _____

Scaffold Information:

Scaffold Type (Frame / Tube & Coupler / System / Suspended / Mobile / Other): _____

Scaffold Height: _____

Number of Bays / Lifts: _____

Platform Width: _____

Platform Length: _____

Duty Rating (Light / Medium / Heavy): _____

Max Intended Load (lbs): _____

Foundation / Support:

- ☐ Base plates in place
- ☐ Mudsills or adequate bearing surface provided
- ☐ Foundation is level and firm
- ☐ Screw jacks adjusted for plumb and level

Structural Components:

- ☐ All frames / standards / posts are plumb
- ☐ Cross-bracing installed per manufacturer specifications
- ☐ Horizontal bracing installed where required
- ☐ All connections are properly secured (pins, locks, couplers)
- ☐ Scaffold is tied to the structure at required intervals

Platforms & Access:

- ☐ Platforms are fully planked/decked
- ☐ Platform gaps do not exceed 1 inch at uprights
- ☐ Guardrails installed on all open sides (top rail, midrail, toeboard)
- ☐ Access ladders or stair tower provided
- ☐ Access points do not exceed 2 feet from point of access to platform

Engineered Drawing Required?

- ☐ YES — Attach drawing (height exceeds manufacturer limit or 125 ft)
- ☐ NO — Within manufacturer's specifications

Scaffold Tag Applied:

- ☐ GREEN — Safe for Use
- ☐ YELLOW — Caution (document limitations below)
- ☐ RED — Do Not Use (erection/dismantling in progress)

Yellow Tag Conditions / Limitations: _____

Approvals:

Competent Person (Print Name):

Signature: _____

Date / Time of Inspection:

Next Inspection Due: _____

Supervisor Acknowledgment:

Date: _____

APPENDIX B: DAILY SCAFFOLD INSPECTION CHECKLIST

DAILY SCAFFOLD INSPECTION CHECKLIST

Project Name: _____

Date: _____

Scaffold Location / ID: _____

Competent Person: _____

Scaffold Type: _____

Scaffold Height: _____

Foundation & Base:

- ☐ Base plates / mudsills are in place and in good condition
- ☐ Foundation is stable, level, and free from undermining
- ☐ Screw jacks are properly adjusted
- ☐ No erosion, settling, or displacement of supports

Structural Components:

- ☐ All frames, posts, and standards are plumb and in good condition
- ☐ All cross-bracing and horizontal bracing is properly installed
- ☐ All connections are secure (pins, locks, bolts, couplers)
- ☐ No damaged, bent, or corroded components
- ☐ Scaffold is properly tied to the structure
- ☐ No unauthorized modifications have been made

Platforms:

- ☐ Platforms are fully planked / decked with no missing planks
- ☐ Platform gaps at uprights do not exceed 1 inch
- ☐ Planks extend at least 6 inches over end supports (max 12 inches)
- ☐ Platforms are clean and free of debris, ice, snow, grease, and other slip hazards
- ☐ Platform deflection is within acceptable limits

Guardrails & Fall Protection:

- ☐ Top rails are installed (38–45 inches above platform) on all open sides

- ☐ Midrails are installed at the midpoint between top rail and platform
- ☐ Toeboards (≥ 3.5 inches) are installed on all open sides
- ☐ No missing, loose, or damaged guardrail components
- ☐ Personal fall arrest systems are available (suspended scaffolds)

Access:

- ☐ Safe access (ladder, stair tower, ramp) is provided
- ☐ Ladders are secured and extend 3 feet above the platform
- ☐ No evidence of climbing on cross-braces

Mobile Scaffolds (if applicable):

- ☐ Wheel locks / casters are engaged
- ☐ No personnel on scaffold during movement
- ☐ Outriggers are deployed (if equipped)

Scaffold Tag Status:

- ☐ GREEN — Safe for Use
- ☐ YELLOW — Caution (conditions documented)
- ☐ RED — Do Not Use

Deficiencies Found:

- 1: _____
- 2: _____
- 3: _____

Corrective Actions Taken:

- 1: _____
- 2: _____
- 3: _____

Competent Person Signature: _____**Date / Time:** _____**Supervisor Notification (if deficiencies found):** _____**Date / Time:** _____

Silica Exposure Control Plan

Respirable Crystalline Silica

Prepared for:
[COMPANY NAME]

Regulatory References:

29 CFR 1926.1153 (Construction) | 29 CFR 1910.1053 (General Industry)

Effective Date: [DATE]
Review Date: [ANNUAL REVIEW DATE]

Table of Contents

1. Purpose and Scope

This Silica Exposure Control Plan establishes the procedures and controls to protect [COMPANY NAME] employees from the health hazards associated with occupational exposure to respirable crystalline silica. This plan addresses compliance with the OSHA Silica Standards for Construction (29 CFR 1926.1153) and General Industry (29 CFR 1910.1053).

This plan applies to all employees and contractors who perform tasks that may generate respirable crystalline silica dust, including but not limited to cutting, sawing, drilling, grinding, crushing, or demolishing materials containing silica such as concrete, masonry, morite, stone, sand, and asphalt.

Permissible Exposure Limit (PEL): 50 µg/m³ as an 8-hour TWA

Action Level (AL): 25 µg/m³ as an 8-hour TWA

2. Regulatory References

- 29 CFR 1926.1153 — Respirable Crystalline Silica (Construction)
- 29 CFR 1910.1053 — Respirable Crystalline Silica (General Industry)
- 29 CFR 1926.103 / 1910.134 — Respiratory Protection
- NIOSH Criteria Document: Occupational Exposure to Crystalline Silica
- ACGIH TLV for Crystalline Silica (Quartz): 0.025 mg/m³

3. Health Effects of Silica Exposure

Exposure to respirable crystalline silica can cause serious and often fatal health conditions:

- Silicosis — irreversible fibrosis of the lungs (acute, accelerated, and chronic forms)
- Lung cancer — IARC Group 1 carcinogen
- Chronic Obstructive Pulmonary Disease (COPD)
- Kidney disease
- Autoimmune disorders (scleroderma, lupus, rheumatoid arthritis)
- Tuberculosis (increased susceptibility)

4. Roles and Responsibilities

4.1 Program Administrator / Competent Person

- Develop, implement, and maintain this written exposure control plan
- Conduct or arrange exposure assessments and monitoring
- Select and implement engineering controls and work practices
- Ensure medical surveillance is provided
- Review and update this plan at least annually

4.2 Supervisors

- Ensure employees follow the exposure control plan and use required controls
- Enforce the use of engineering controls, work practices, and PPE
- Identify silica-generating tasks and ensure appropriate controls are in place
- Stop work when controls are inadequate or exposure exceeds limits

4.3 Employees

- Follow all procedures in this exposure control plan
- Use engineering controls, work practices, and PPE as directed
- Report any malfunctions of dust control equipment
- Participate in medical surveillance when required

5. Table 1 Compliance Approach

For construction tasks listed in Table 1 of 29 CFR 1926.1153, [COMPANY NAME] may comply by fully and properly implementing the specified engineering controls, work practices, and respiratory protection for each listed task. When using Table 1, exposure monitoring is not required.

5.1 Table 1 — Selected Tasks and Required Controls

Task / Equipment	Engineering Controls	Required Respiratory Protection (≤ 4 hrs / > 4 hrs)
Stationary masonry saw	Use integrated water delivery system	None / None
Handheld power saw (concrete)	Use integrated water delivery system	None / APF 10
Handheld power saw (concrete)	Use integrated dust collection (HEPA vac)	None / APF 10
Walk-behind saw	Use integrated water delivery system	None / None
Drivable saw	Use integrated water delivery system	None / None
Rig-mounted drill (concrete)	Use integrated water delivery system	None / None
Handheld/stand-mounted drill	Use integrated dust collection (HEPA vac)	None / APF 10
Jackhammer	Use water delivery system (continuous)	APF 10 / APF 10
Handheld grinder (mortar removal)	Use integrated dust collection (HEPA vac)	APF 10 / APF 25
Handheld grinder (other tasks)	Use integrated dust collection (HEPA vac)	None / APF 10
Walk-behind milling machine / floor grinder	Use integrated dust collection (HEPA vac)	None / APF 10
Small drivable milling machine (< half lane)	Use integrated water or dust collection	None / APF 10
Large drivable milling machine (≥ half lane)	Use integrated water or dust collection	None / None
Crushing machines	Use water spray and/or dust collection	None / APF 10
Heavy equipment (demolition)	Use cab with HEPA filtration and + pressure	None / None
Heavy equipment (demolition, no cab)	Apply water to dust source	APF 10 / APF 10
Dowel drilling (concrete)	Use integrated dust collection (HEPA vac)	None / APF 10
Vehicle-mounted drilling (rock/concrete)	Use integrated dust collection or water	None / APF 10

APF 10 = N95 filtering facepiece or half-face respirator with N95/P100 filters. APF 25 = Powered Air-Purifying Respirator (PAPR) with P100 filters.

6. Alternative Exposure Assessment Approach

For tasks not listed in Table 1, or when the employer chooses not to use Table 1, [COMPANY NAME] shall assess employee exposure through objective data or personal air monitoring:

6.1 Initial Exposure Assessment

- Conduct personal air monitoring using calibrated sampling pumps and cyclone samplers
- Collect full-shift samples representing 8-hour TWA exposure
- Samples shall be analyzed by an accredited laboratory using NIOSH Method 7500 or 7602

6.2 Monitoring Schedule

Monitoring Result	Action Required
Below Action Level ($< 25 \mu\text{g}/\text{m}^3$)	No further monitoring required (unless conditions change)
At or above AL, below PEL ($25\text{--}50 \mu\text{g}/\text{m}^3$)	Repeat monitoring within 6 months
At or above PEL ($\geq 50 \mu\text{g}/\text{m}^3$)	Repeat monitoring within 3 months; implement additional controls

Additional monitoring shall be conducted whenever there is a change in production, process, control equipment, personnel, or work practices that may reasonably be expected to result in new or additional exposures.

7. Engineering Controls by Task

[COMPANY NAME] shall implement engineering controls as the primary means of reducing silica exposure:

7.1 Wet Methods

- Continuous water spray applied at the point of dust generation
- Adequate water flow to suppress dust (per tool manufacturer specifications)
- Ensure water supply is available and functional before beginning work
- Use surfactant/wetting agents as needed in dusty conditions

7.2 Local Exhaust Ventilation (LEV)

- Dust collection shrouds on grinders, drills, and cutting tools
- HEPA-filtered vacuum systems (at least 99.97% efficiency for $0.3 \mu\text{m}$ particles)
- Maintain and inspect dust collection equipment per manufacturer schedules
- Empty dust collection containers in a manner that minimizes re-exposure

7.3 Isolation and Enclosure

- Equipment cabs with HEPA filtration and positive pressure
- Remote-control equipment operation where feasible

- Physical barriers to isolate dusty operations from other workers

8. Respiratory Protection

Respiratory protection shall be provided in accordance with 29 CFR 1926.103 / 1910.134 and the [COMPANY NAME] Respiratory Protection Program when:

- Engineering controls and work practices are not sufficient to reduce exposure below the PEL
- During installation or repair of engineering controls
- During tasks requiring respiratory protection per Table 1

8.1 Respirator Selection

Exposure Level	Minimum Respirator	APF
$\leq 500 \mu\text{g}/\text{m}^3$ (10x PEL)	Half-face with N95, P100, or OV/P100	10
$\leq 1,250 \mu\text{g}/\text{m}^3$ (25x PEL)	PAPR with P100 HEPA filters	25
$\leq 2,500 \mu\text{g}/\text{m}^3$ (50x PEL)	Full-face APR with P100 filters	50
$\leq 50,000 \mu\text{g}/\text{m}^3$ (1000x PEL)	Full-face PAPR or SAR	1000
$> 50,000 \mu\text{g}/\text{m}^3$	Full-face pressure-demand SCBA or SAR with escape	10,000+

9. Medical Surveillance

Medical surveillance shall be made available to employees who are or will be exposed to respirable crystalline silica at or above the action level ($25 \mu\text{g}/\text{m}^3$) for 30 or more days per year, or who are required by the standard to use a respirator for 30 or more days per year.

9.1 Examination Schedule

Examination	Timing	Components
Initial/Baseline	Within 30 days of initial assignment	Medical/work history, chest X-ray (ILO classification), pulmonary function test (PFT), latent TB test
Periodic	Every 3 years after baseline	Same as initial examination
Referral	If abnormalities detected	Referral to specialist (pulmonologist); may include CT scan, additional PFT

9.2 Referral Triggers

- Abnormal chest X-ray findings (ILO classification $\geq 1/0$)
- Decline in pulmonary function (FEV1/FVC ratio below lower limit of normal)
- Symptoms of silicosis (persistent cough, shortness of breath, wheezing)
- Positive TB test

The examining physician shall provide a written medical opinion to the employer and employee.

10. Housekeeping

Proper housekeeping is essential to prevent secondary exposure to settled silica dust:

- No dry sweeping or dry brushing where it could contribute to silica exposure
- No use of compressed air to clean surfaces or clothing
- Use wet sweeping, HEPA-filtered vacuuming, or other methods that minimize airborne dust
- Clean work areas at the end of each shift or more frequently as conditions warrant
- Dispose of silica-containing waste in sealed, labeled containers

11. Regulated Areas

Regulated areas shall be established wherever employee exposure to respirable crystalline silica exceeds or can reasonably be expected to exceed the PEL:

- Demarcate the regulated area with signage and barriers
- Restrict access to authorized personnel wearing required respiratory protection
- Post warning signs: "DANGER — RESPIRABLE CRYSTALLINE SILICA — MAY CAUSE CANCER — WEAR RESPIRATORY PROTECTION IN THIS AREA"
- No eating, drinking, smoking, chewing tobacco, or applying cosmetics in regulated areas

12. Written Exposure Control Plan Requirements

This written plan shall be:

- Established and implemented for each workplace or task involving silica exposure
- Specific to the tasks and controls used at [COMPANY NAME] worksites
- Made available to employees, their designated representatives, and OSHA upon request
- Reviewed and updated at least annually, or whenever a change in conditions may affect exposure

13. Training

All employees exposed or potentially exposed to silica shall receive training before initial assignment and annually thereafter, covering:

- Health hazards of respirable crystalline silica exposure
- Tasks and operations that could result in silica exposure
- Specific engineering controls and work practices for assigned tasks
- Proper use and care of respiratory protection
- Purpose and procedures for medical surveillance
- Contents of this written exposure control plan
- Employee rights under the silica standard

14. Recordkeeping

- Exposure monitoring records: retained for 30 years (per 29 CFR 1910.1020)
- Medical surveillance records: retained for duration of employment + 30 years
- Written exposure control plan: maintained current, available upon request
- Training records: maintained for duration of employment
- Objective data used in lieu of monitoring: retained for 30 years

Appendix A: Silica Exposure Monitoring Record

Document all personal air monitoring for respirable crystalline silica.

Sample Date:	
Collected by:	
Project/Worksite:	
Laboratory Name:	
Lab Sample ID:	
Analysis Method:	

Employee Sample Information

Field	Data
Employee Name:	
Job Title:	
Task Performed:	
Sample Location:	
Pump Make/Model:	
Pump Serial #:	
Pre-Calibration Flow Rate (L/min):	
Post-Calibration Flow Rate (L/min):	
Sample Start Time:	
Sample Stop Time:	
Total Sample Volume (L):	
Cyclone Type:	

Results

Parameter	Result
Respirable Dust Concentration (mg/m ³):	
Crystalline Silica (Quartz) Concentration (µg/m ³):	
8-Hour TWA (µg/m ³):	
PEL (50 µg/m ³) Exceeded?	☐ Yes ☐ No
Action Level (25 µg/m ³) Exceeded?	☐ Yes ☐ No
Engineering Controls in Use:	
Respiratory Protection in Use:	

Employee notified of results within 15 working days: ☐ Yes Date: _____

Corrective action required: ☐ Yes ☐ No Action: _____

Reviewed by: _____ Date: _____

Appendix B: Table 1 Quick Reference Card

Post this card at worksites for quick reference on silica controls.

SILICA EXPOSURE CONTROL — TABLE 1 QUICK REFERENCE

PEL: 50 µg/m³ (8-hr TWA) | Action Level: 25 µg/m³ (8-hr TWA)

KEY RULES:

- Always use water delivery or HEPA-filtered dust collection as specified per task
- Wear respiratory protection as required by Table 1 for the task and duration
- Never dry sweep or use compressed air to clean silica dust
- Keep unauthorized workers out of dusty areas
- Report any broken or malfunctioning dust control equipment immediately

COMMON TASKS — QUICK CONTROLS:

Task	Control	Respirator
Concrete cutting (handheld saw)	Water	None (≤4 hrs) / N95 (>4 hrs)
Concrete grinding	HEPA vac dust shroud	None (≤4 hrs) / N95 (>4 hrs)
Mortar removal (grinding)	HEPA vac dust shroud	N95 (≤4 hrs) / PAPR (>4 hrs)
Jackhammering	Water	N95 (all durations)
Core drilling	HEPA vac	None (≤4 hrs) / N95 (>4 hrs)
Demolition (with enclosed cab)	HEPA cab filter	None
Demolition (no cab)	Water spray	N95 (all durations)

For the complete Table 1, refer to 29 CFR 1926.1153 or Section 5 of this Exposure Control Plan.

[COMPANY NAME] | Competent Person: _____ | Phone: _____

FORBES SAFETY SOLUTIONS

Spill Prevention & Response Plan

Prevention, Containment, Response & Reporting

Company:	[COMPANY NAME]
Prepared By:	[NAME / TITLE]
Effective Date:	[DATE]
Revision:	[REV NUMBER]
Regulatory Ref:	40 CFR 112 (SPCC) / 29 CFR 1910.120 / EPA

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Table of Contents

1. Purpose & Scope

[COMPANY NAME] is committed to preventing spills of hazardous materials, petroleum products, and chemicals, and to ensuring a rapid and effective response when spills do occur. This plan establishes procedures for spill prevention, containment, response, cleanup, reporting, and post-incident investigation.

This plan applies to all [COMPANY NAME] facilities, operations, and employees, as well as contractors and visitors who may handle, store, or transport regulated materials.

2. Regulatory References

- 40 CFR 112 — Spill Prevention, Control, and Countermeasure (SPCC) Rule
- 29 CFR 1910.120 — Hazardous Waste Operations and Emergency Response (HAZWOPER)
- 40 CFR 302 — Designation, Reportable Quantities, and Notification (CERCLA)
- 40 CFR 355 — Emergency Planning and Notification (EPCRA)
- Clean Water Act — Section 311
- State and local environmental regulations (facility-specific)

3. Definitions

- **Spill:** Any unplanned or uncontrolled release of oil, petroleum, chemical, or hazardous substance.
- **Reportable Quantity (RQ):** The threshold amount of a hazardous substance that triggers federal reporting when released.
- **Secondary Containment:** A system designed to capture spills from primary storage (berms, dikes, double-walled tanks).
- **SPCC Plan:** Spill Prevention, Control, and Countermeasure Plan — required under 40 CFR 112 for facilities storing >1,320 gallons of oil above ground.
- **NRC:** National Response Center — federal agency receiving spill notifications (1-800-424-8802).
- **SDS:** Safety Data Sheet — document providing hazard information for chemicals.

4. Roles & Responsibilities

4.1 Management

- Provide resources for spill prevention and response equipment
- Ensure compliance with SPCC and HAZWOPER requirements
- Designate a Spill Response Coordinator
- Maintain relationships with environmental agencies and spill response contractors

4.2 Spill Response Coordinator

- Oversee spill prevention measures and equipment inspections
- Coordinate spill response activities and external notifications
- Manage chemical inventory and SDS library

- Conduct post-spill investigations and implement corrective actions
- Ensure spill kits are stocked and strategically located

4.3 Supervisors

- Ensure employees are trained in spill prevention and response
- Enforce proper chemical storage, handling, and transfer procedures
- Initiate spill response and notify the Spill Response Coordinator

4.4 Employees

- Follow all chemical handling, storage, and transfer procedures
- Report spills, leaks, and potential releases immediately
- Know the location of spill kits, SDS binder, and emergency equipment
- Participate in spill response only within their level of training

5. Spill Prevention Measures

5.1 Secondary Containment

- All bulk oil/chemical storage areas shall have secondary containment capable of holding 110% of the largest container or 10% of total volume, whichever is greater
- Containment berms, dikes, or double-walled tanks shall be inspected monthly
- Drain valves on containment systems shall remain closed at all times except during controlled drainage of rainwater
- Portable containment (drip pans, berms) for all transfer and dispensing operations

5.2 Proper Storage

- Segregate incompatible chemicals per SDS compatibility guidelines
- Label all containers with contents and hazard information
- Keep containers closed when not actively dispensing
- Store containers on stable, level surfaces away from traffic areas
- Protect outdoor storage from weather, temperature extremes, and stormwater runoff

5.3 Transfer Procedures

- Use grounding and bonding for flammable liquid transfers
- Attend all transfer operations — never leave transfer unattended
- Use drip pans under all connection and disconnection points
- Verify container integrity before and after transfer
- Prevent overfills — tanks shall not be filled beyond 95% capacity

5.4 Inspections

- Monthly inspection of storage areas, secondary containment, and containers
- Daily visual checks of active storage and transfer areas
- Annual integrity testing for bulk storage tanks (per SPCC)
- Document all inspections and corrective actions

6. Chemical Inventory & SDS Location

[COMPANY NAME] shall maintain a current chemical inventory and Safety Data Sheet (SDS) library:

- Chemical inventory updated at least quarterly and whenever new chemicals are introduced
- SDS library maintained in [LOCATION — e.g., break room, safety office, electronic system]
- SDS available 24/7 to all employees
- Chemical inventory includes: product name, manufacturer, quantity on-site, storage location, and reportable quantity
- A copy of the chemical inventory is included as Appendix B

7. Spill Response Procedures

7.1 Immediate Actions (All Spills)

Upon discovering any spill:

- Ensure personal safety first — do not enter spill area without proper PPE
- Identify the material if possible (check labels, SDS, placards)
- If safe, stop the source of the spill (close valve, upright container, plug leak)
- Warn others in the immediate area
- Notify supervisor and Spill Response Coordinator immediately
- Begin containment efforts if trained and equipped (deploy absorbents, berms)
- Prevent spill from reaching drains, waterways, or storm sewers

7.2 Response by Material Type

7.2.1 Petroleum Spills (Oil, Diesel, Fuel, Hydraulic Fluid)

- Deploy oil-only absorbent pads, socks, or booms
- Dam or block drains and waterways
- Do NOT use water to flush petroleum spills
- Collect all contaminated absorbents in labeled waste containers

7.2.2 Chemical Spills (Acids, Bases, Solvents)

- Consult SDS for specific response guidance and PPE requirements
- Use chemical-specific or universal absorbents
- For acids: neutralizing absorbents may be used if trained
- For reactive chemicals: evacuate area and call hazmat response
- Ensure adequate ventilation — avoid inhaling vapors

7.2.3 Unknown Material Spills

- Do NOT attempt to identify unknown substances by smell or taste
- Evacuate the immediate area and establish a perimeter
- Notify the Spill Response Coordinator and emergency services
- Wait for hazmat-trained responders to identify and manage the spill

NOTE: Employees shall only respond to spills within their training level. HAZWOPER-trained responders handle spills exceeding incidental release levels.

8. Spill Kit Contents & Locations

8.1 Standard Spill Kit Contents

Item	Quantity (per kit)
Oil-only absorbent pads (17" x 19")	50

Universal absorbent pads	25
Absorbent socks (3" x 48")	8
Absorbent boom (5" x 10')	2
Drain covers / mats	2
Nitrile gloves (pairs)	4
Chemical splash goggles	2
Disposal bags (6-mil) with ties	6
Caution tape (200 ft roll)	1
Instruction card / response guide	1

8.2 Spill Kit Locations

[COMPANY NAME] shall place spill kits at the following locations (customize per facility):

- [Loading dock / receiving area]
- [Bulk chemical storage area]
- [Fuel dispensing area]
- [Maintenance shop]
- [Process area / production floor]
- [Vehicle / equipment staging area]

Spill kit locations shall be clearly marked and accessible. Kits shall be inspected monthly and restocked after each use.

9. Reporting Requirements

9.1 Internal Reporting

- ALL spills, regardless of size, shall be reported to the supervisor and Spill Response Coordinator immediately
- Complete the Spill Report Form (Appendix A) within 24 hours

9.2 External Reporting

[COMPANY NAME] shall report spills to regulatory agencies when reporting thresholds are met:

Agency	Reporting Trigger	Contact / Timeframe
National Response Center (NRC)	Any release to navigable waters; release of RQ of hazardous substance	1-800-424-8802 — Immediate
State EPA / Environmental Agency	Per state-specific thresholds	[STATE AGENCY] — Within 24 hours
Local Emergency Planning Committee	Release of extremely hazardous substance $\geq$ RQ	Immediate + written within 30 days
OSHA	Fatality or hospitalization related to spill	1-800-321-OSHA — 8 hours (fatality) / 24 hours (hospitalization)

NOTE: When in doubt about whether a spill is reportable, report it. Under-reporting carries significant regulatory penalties.

10. Cleanup Procedures

- Use appropriate absorbents for the material type
- Work from the outside of the spill inward to prevent spreading
- Collect all contaminated absorbents, soil, and debris
- Place waste in labeled, sealed containers (6-mil bags or drums)
- Do not wash spilled materials into drains, ditches, or waterways
- Verify cleanup is complete through visual inspection and/or sampling
- Decontaminate all tools and PPE used during response

11. Waste Disposal

All spill waste shall be managed as follows:

- Characterize waste (hazardous vs. non-hazardous) based on the material spilled
- Label all waste containers with contents, date, and generator information
- Store waste in designated accumulation area per EPA regulations
- Dispose through licensed waste hauler with proper manifests
- Retain waste manifests and disposal records for minimum 3 years (hazardous waste: per RCRA)

12. Decontamination

- Personnel: remove contaminated clothing, wash affected skin with soap and water
- Equipment: clean with appropriate decontamination solution per SDS guidance
- Vehicles: prevent cross-contamination — wash before leaving the spill area
- Reusable PPE: decontaminate per manufacturer instructions or dispose

13. Post-Spill Investigation

A thorough investigation shall be conducted after every spill to prevent recurrence:

- Root cause analysis — determine why the spill occurred
- Review effectiveness of response actions
- Identify corrective actions (equipment, procedures, training)
- Document findings in the Spill Report Form (Appendix A)
- Update prevention measures as needed
- Share lessons learned with all affected personnel

14. Notification Chain

14.1 Internal Notifications

Contact	Role	Phone
[NAME]	Spill Response Coordinator	[PHONE]
[NAME]	Site Manager	[PHONE]
[NAME]	Safety Department	[PHONE]
[NAME]	Environmental Compliance	[PHONE]
[NAME]	Company Management	[PHONE]

14.2 External Notifications

Agency	Phone
Emergency Services	911
National Response Center (NRC)	1-800-424-8802
State Environmental Agency	[STATE NUMBER]
Local Emergency Planning Committee	[LEPC NUMBER]
Poison Control Center	1-800-222-1222
OSHA	1-800-321-OSHA (6742)
Spill Response Contractor	[CONTRACTOR NUMBER]

15. Training Requirements

15.1 Awareness Level (All Employees)

- Spill prevention measures and good housekeeping
- Spill reporting procedures
- Spill kit locations and basic use
- SDS location and how to read an SDS

15.2 Operations Level (Spill Response Team)

- 24-hour HAZWOPER initial training (or 8-hour refresher annually)
- Material-specific response procedures
- PPE selection and use for spill response
- Containment, cleanup, and decontamination techniques

15.3 Refresher Training

Annual refresher training for all employees. HAZWOPER refresher (8 hours) for spill response team members.

16. Recordkeeping

- Spill report forms — retained for 5 years
- SPCC plan and amendments — retained for 5 years after replacement
- Chemical inventory — retained for 3 years
- Inspection records — retained for 3 years
- Training records — retained for duration of employment plus 3 years
- Waste disposal manifests — retained per RCRA (3 years minimum; hazardous waste longer)
- External agency notifications — retained for 5 years

17. Program Review

This plan shall be reviewed annually, after any reportable spill, or whenever facility operations change significantly. Reviews shall be documented and the plan updated as necessary.

Appendix A: Spill Report Form

Complete within 24 hours of any spill or release incident.

SECTION 1 — INCIDENT INFORMATION

Date of Spill: _____ Time: _____
 Location / Area: _____
 Reported By: _____ Phone: _____
 Weather Conditions: _____

SECTION 2 — MATERIAL INFORMATION

Material Spilled: _____
 Quantity Released (estimated): _____ gallons / lbs / other: _____
 Source of Spill: _____
 Cause: ☐ Equipment failure ☐ Human error ☐ Overfill ☐ Container breach ☐ Other: _____

SECTION 3 — IMPACT

Did material reach: ☐ Soil ☐ Water (surface) ☐ Storm drain ☐ Sanitary sewer ☐ Contained
 Injuries? ☐ Yes ☐ No If yes, describe: _____
 Estimated area affected: _____

SECTION 4 — RESPONSE ACTIONS

Immediate actions taken:

 Cleanup methods:

 Waste generated and disposal method:

SECTION 5 — NOTIFICATIONS

Agency / Person	Notified?	Date / Time	Contact Name
Supervisor	☐ Yes ☐ No		
Spill Response Coordinator	☐ Yes ☐ No		
National Response Center	☐ Yes ☐ No ☐ N/A		
State EPA	☐ Yes ☐ No ☐ N/A		
LEPC	☐ Yes ☐ No ☐ N/A		

SECTION 6 — ROOT CAUSE & CORRECTIVE ACTIONS

Root cause: _____

Corrective actions:

Responsible person: _____ Due date: _____

Completed By: _____ Date: _____

Reviewed By: _____ Date: _____

Appendix B: Chemical Inventory Template

Maintain a current inventory of all chemicals stored at [COMPANY NAME] facilities.

Facility / Location: _____ Date Updated: _____

Prepared By: _____

Product Name	Manufacturer	Max Qty On-Site	Storage Location	SDS On File?	Reportable Qty
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	
				☐ Yes	

SDS Binder Location: _____

Electronic SDS System: ☐ Yes ☐ No System Name: _____

Notes: _____

FORBES SAFETY SOLUTIONS

SUBCONTRACTOR SAFETY MANAGEMENT PROGRAM

Pre-Qualification, Oversight & Compliance

Prepared for:
[COMPANY NAME]

Effective Date: [DATE]

Revision: [REV #]

Table of Contents

1. Purpose and Scope

This Subcontractor Safety Management Program establishes [COMPANY NAME]'s requirements for evaluating, selecting, managing, and monitoring subcontractors to ensure compliance with all applicable safety and health regulations. As a controlling and/or general contractor, [COMPANY NAME] has multi-employer responsibilities under OSHA and must ensure that all subcontractors working on our projects maintain safe work practices.

This program applies to all subcontractors, sub-tier contractors, and their employees performing work on [COMPANY NAME] projects. Compliance with this program is a condition of contract award and continued work on all [COMPANY NAME] projects.

2. Regulatory References

- 29 CFR 1926.16 — Rules of Construction (Multi-employer worksite responsibilities)
- OSHA Multi-Employer Citation Policy — CPL 02-00-124
- 29 CFR 1926 — OSHA Safety and Health Regulations for Construction
- 29 CFR 1904 — Recording and Reporting Occupational Injuries and Illnesses
- OSHA General Duty Clause — Section 5(a)(1) of the OSH Act
- ANSI/ASSP A10 Series — Construction Safety Standards

3. Pre-Qualification Requirements

All subcontractors must complete a pre-qualification process before being awarded a contract or permitted to work on [COMPANY NAME] projects. The following documentation shall be submitted and reviewed:

3.1 Experience Modification Rate (EMR)

- Subcontractors must provide their three most recent years' EMR from their workers' compensation insurance carrier
- Subcontractors with an EMR above 1.0 shall require additional evaluation and may be subject to enhanced monitoring
- Subcontractors with an EMR above 1.25 shall not be awarded contracts without written approval from [COMPANY NAME] executive management and a detailed safety improvement plan

3.2 OSHA Logs and Injury Rates

- Submit OSHA 300/300A Logs for the three most recent complete calendar years
- Total Recordable Incident Rate (TRIR) and Days Away/Restricted/Transfer (DART) rate shall be calculated and compared to industry averages
- Subcontractors with rates significantly above the BLS industry average shall require enhanced oversight

3.3 Safety Programs

Subcontractors shall demonstrate they have the following written safety programs (as applicable to their scope of work):

- Written Safety and Health Program / Injury and Illness Prevention Program
- Hazard Communication Program with SDS access
- Fall Protection Program (if working at heights)
- Lockout/Tagout Program (if performing energy isolation)
- Respiratory Protection Program (if employees wear respirators)
- Confined Space Entry Program (if entering permit-required confined spaces)
- Excavation and Trenching Program (if performing excavation work)
- Substance Abuse / Drug and Alcohol Policy

3.4 Certifications and Training

- OSHA 10-Hour Construction for all field employees (OSHA 30-Hour for superintendents preferred)
- Competent person certifications as required (fall protection, excavation, scaffolding, etc.)
- Trade-specific certifications (crane operator NCCCO, rigging qualifications, etc.)
- Current first aid/CPR certification for designated first aid providers

3.5 Insurance Requirements

- Certificate of Insurance (COI) meeting [COMPANY NAME]'s minimum coverage requirements
- [COMPANY NAME] shall be named as Additional Insured on the subcontractor's general liability and umbrella policies
- Workers' compensation coverage for all employees in the applicable state(s)

4. Pre-Bid Safety Requirements

Safety requirements shall be communicated to potential subcontractors during the bidding process:

- Include this Subcontractor Safety Management Program in all bid packages

- Require subcontractors to acknowledge safety requirements in their bid submission
- Identify site-specific safety requirements and hazards in the bid documents
- Require subcontractors to include safety costs in their bids (PPE, training, safety equipment)
- Conduct pre-bid safety walkthrough for high-hazard scopes of work

5. Contract Safety Language

All subcontract agreements shall include the following safety provisions:

- Requirement to comply with all federal, state, and local safety regulations
- Requirement to comply with [COMPANY NAME]'s safety programs and site-specific safety plan
- Right of [COMPANY NAME] to stop work for imminent danger conditions
- Responsibility for safety training of subcontractor employees
- Incident reporting requirements and timelines
- Indemnification and hold harmless provisions for safety violations
- Right of [COMPANY NAME] to conduct safety inspections and audits
- Non-compliance consequences including back-charges for safety corrections
- Right to remove individuals or the entire subcontractor from the project for serious or repeated safety violations
- Subcontractor responsibility for the safety of their sub-tier contractors

6. Site Orientation

All subcontractor employees shall complete [COMPANY NAME]'s site-specific safety orientation before beginning work on any project. The orientation shall cover:

- Project-specific hazards and safety rules
- Emergency action plan — evacuation routes, assembly points, emergency contacts
- Hazard communication — location of SDS and chemical inventories
- Fall protection requirements and anchorage points
- PPE requirements specific to the project
- Housekeeping and material storage requirements
- Incident and near-miss reporting procedures
- Drug and alcohol policy and testing requirements
- Hot work, confined space, and other permit requirements
- Daily pre-task planning / JHA requirements

Orientation records (name, company, date, signature) shall be maintained on site for the duration of the project.

7. Ongoing Monitoring and Inspections

[COMPANY NAME] shall actively monitor subcontractor safety performance through:

7.1 Daily Monitoring

- Site superintendents and safety professionals shall observe subcontractor work activities daily
- Verify subcontractors are conducting pre-task planning / JHA reviews
- Spot-check PPE compliance and housekeeping
- Address hazards immediately when observed

7.2 Formal Inspections

- Weekly documented safety inspections of all subcontractor work areas
- Inspection findings shall be communicated to the subcontractor foreman within 24 hours
- Subcontractors shall correct identified deficiencies within the specified timeframe
- Follow-up inspections shall verify corrective actions are completed

7.3 Safety Audits

- Periodic safety audits of subcontractor compliance with their safety programs
- Review of subcontractor safety documentation (JHAs, toolbox talk records, training records)
- Audit results and corrective actions shall be documented and tracked

8. Subcontractor Safety Meetings

- Subcontractors shall attend the weekly project safety meeting coordinated by [COMPANY NAME]
- Subcontractors shall conduct their own daily toolbox talks / safety briefings with their crews
- Submit toolbox talk topics and attendance records weekly to [COMPANY NAME]'s site safety representative
- Subcontractor supervisors shall attend any special safety meetings called by [COMPANY NAME]
- Safety meeting attendance is mandatory — non-attendance may result in denial of site access

9. Non-Compliance Procedures

[COMPANY NAME] shall enforce subcontractor safety compliance through a progressive discipline process:

9.1 Progressive Discipline

Level 1 — Verbal Warning:

- First-time minor violations (e.g., PPE not worn, minor housekeeping deficiency)
- Verbal warning issued to the subcontractor foreman
- Immediate correction required

Level 2 — Written Notice:

- Repeated minor violations or first-time moderate violations
- Written Subcontractor Safety Violation Notice issued (Appendix B)
- Corrective action plan and timeline required from the subcontractor
- Back-charges may apply for safety corrections performed by [COMPANY NAME]

Level 3 — Stop Work Order:

- Serious violations, imminent danger conditions, or failure to correct previous violations
- Work stopped until the hazard is corrected and verified
- Written documentation and mandatory corrective action plan
- Meeting with subcontractor management required before work resumes

Level 4 — Removal from Project:

- Willful violations, repeated serious violations, or failure to comply with stop work corrective actions
- Individual employees or the entire subcontractor may be removed from the project
- Removal decision shall be documented and communicated in writing
- Subcontractor may be disqualified from future [COMPANY NAME] projects

9.2 Imminent Danger

Any [COMPANY NAME] employee has the authority and responsibility to stop work immediately when an imminent danger condition exists, regardless of which subcontractor is involved. The progressive discipline process may be bypassed for imminent danger situations.

10. Incident Reporting Requirements

Subcontractors shall comply with the following incident reporting requirements:

- Report all injuries, illnesses, near-misses, and property damage incidents to [COMPANY NAME] within one (1) hour of the incident
- Provide a written incident report within 24 hours using [COMPANY NAME]'s incident report form
- Participate in [COMPANY NAME]'s incident investigation process
- Provide root cause analysis and corrective action plans within the specified timeframe
- Report all OSHA-reportable incidents (fatality, in-patient hospitalization, amputation, loss of an eye) immediately — [COMPANY NAME] shall coordinate the OSHA notification
- Failure to report incidents is a serious violation subject to stop work or removal from the project

11. Document Retention

[COMPANY NAME] shall retain the following subcontractor safety documents:

- Subcontractor Safety Pre-Qualification Forms and supporting documentation — duration of contract plus five (5) years
- Site orientation records — duration of project plus three (3) years
- Safety inspection reports — duration of project plus three (3) years
- Subcontractor Safety Violation Notices — duration of contract plus five (5) years
- Incident reports and investigation records — duration of contract plus five (5) years
- Safety meeting attendance records — duration of project plus three (3) years

12. Roles and Responsibilities

12.1 Project Manager

- Ensure subcontractor pre-qualification is completed before contract award
- Include safety requirements in all subcontract agreements
- Support enforcement of non-compliance procedures

12.2 Site Superintendent

- Conduct or coordinate site-specific safety orientations

- Monitor subcontractor safety performance daily
- Coordinate weekly safety meetings
- Issue verbal warnings and initiate non-compliance procedures

12.3 Safety Manager / Representative

- Review pre-qualification submittals and recommend approval or additional requirements
- Conduct formal safety inspections and audits
- Assist with incident investigations
- Track subcontractor safety metrics and report trends to management

12.4 Subcontractor Responsibilities

- Comply with all [COMPANY NAME] safety requirements and applicable regulations
- Provide qualified, trained, and equipped employees
- Maintain their own safety programs and documentation
- Report all incidents immediately and participate in investigations
- Correct deficiencies identified during inspections within the specified timeframe

13. Training Requirements

- All [COMPANY NAME] project managers and superintendents shall be trained on subcontractor safety management procedures
- Safety personnel shall be trained on pre-qualification review, inspection procedures, and non-compliance documentation
- Training shall be provided during onboarding and refreshed annually

14. Recordkeeping

- Maintain pre-qualification files for each subcontractor
- Retain orientation records, inspection reports, violation notices, and incident reports per the document retention schedule in Section 11
- Track subcontractor EMR, TRIR, and DART rates for trending and evaluation

15. Revision History

Revision	Date	Author	Description
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1.0	[DATE]	[NAME]	Initial Release

Appendix A: Subcontractor Safety Pre-Qualification Form

Complete this form and return with all required documentation to [COMPANY NAME] before contract award.

Field	Details
Subcontractor Company Name	
Address	
Phone / Email	
Primary Contact	
Scope of Work	
Number of Employees	
Years in Business	

Safety Performance Data:

Metric	Year 1: ____	Year 2: ____	Year 3: ____
EMR			
TRIR			
DART Rate			
Fatalities			

Attached Documentation (check all that apply):

- ☐ OSHA 300/300A Logs (3 years) ☐ EMR Letter from insurance carrier
☐ Written Safety Program ☐ Certificate of Insurance
☐ OSHA 10/30 Hour cards ☐ Drug & Alcohol Policy
☐ Competent person certifications ☐ Trade certifications

OSHA Citation History (past 5 years):

- ☐ No citations ☐ Citations attached (describe): _____

Authorized Signature: _____ Title: _____

Print Name: _____ Date: _____

Appendix B: Subcontractor Safety Violation Notice

Issue this notice when a subcontractor safety violation requires written documentation.

Field	Details
Date	
Project Name / Number	
Subcontractor Company	
Subcontractor Foreman	
Issued By	
Violation Level	☐ Level 2 — Written ☐ Level 3 — Stop Work ☐ Level 4 — Removal

Description of Violation:

Regulatory Reference (if applicable):

Required Corrective Action:

Corrective Action Deadline: _____

Warning: Repeated violations may result in removal from this project and disqualification from future [COMPANY NAME] projects.

[COMPANY NAME] Representative: _____ Date: _____

Subcontractor Representative: _____ Date: _____

FORBES SAFETY SOLUTIONS

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

Environmental Compliance & Best Management Practices

Prepared for:
[COMPANY NAME]

Effective Date: [DATE]

Revision: [REV #]

Table of Contents

1. Purpose and Scope

This Stormwater Pollution Prevention Plan (SWPPP) establishes policies, procedures, and best management practices (BMPs) to prevent stormwater pollution from construction and industrial activities conducted by [COMPANY NAME]. This plan is designed to comply with the Clean Water Act Section 402, EPA Construction General Permit (CGP), and applicable state National Pollutant Discharge Elimination System (NPDES) requirements.

The SWPPP applies to all [COMPANY NAME] construction sites, industrial facilities, material storage areas, and operational activities that may impact stormwater quality. This plan covers the identification of potential pollutant sources, implementation of erosion and sediment controls, good housekeeping measures, spill prevention protocols, and inspection and monitoring procedures.

All employees, subcontractors, and site visitors shall comply with the requirements of this SWPPP. Failure to follow stormwater pollution prevention measures may result in regulatory citations, fines, and project stop-work orders.

2. Regulatory References

- Clean Water Act (CWA) Section 402 — National Pollutant Discharge Elimination System
- EPA Construction General Permit (CGP) — 2022 Final CGP for stormwater discharges
- State NPDES permit requirements (varies by jurisdiction)
- 40 CFR Part 122 — EPA NPDES Permit Regulations
- 40 CFR Part 450 — Construction and Development Effluent Limitations Guidelines
- OSHA 29 CFR 1926 — Construction Safety Standards (hazardous materials handling)
- EPA SWPPP guidance documents and fact sheets

3. Site Description and Maps

Each project site shall maintain a current SWPPP that includes a detailed site description and maps. The following information shall be documented and updated as site conditions change:

3.1 Site Description Requirements

- Project name, location (address, latitude/longitude), and NPDES permit number
- Nature of construction activity (e.g., residential, commercial, industrial, infrastructure)
- Total disturbed area in acres and sequence of major grading activities
- Name of receiving water body and proximity to the site

- Identification of any impaired waters (303(d) listed) within one mile of the site
- Soil types and erosion potential (K-factor from USDA soil surveys)
- Existing site vegetation and ground cover conditions
- Pre-construction and post-construction drainage patterns

3.2 Site Map Elements

The SWPPP site map shall include, at minimum:

- Construction site boundaries and disturbed area limits
- Drainage patterns and stormwater flow direction arrows
- Location of all BMPs (silt fence, inlet protection, stabilized entrances, etc.)
- Location of all stormwater discharge points
- Material storage areas, fueling areas, and concrete washout locations
- Location of streams, wetlands, and other water features within 200 feet
- Soil stockpile locations and waste disposal areas
- Location of rain gauge on site

4. Potential Pollutant Sources

[COMPANY NAME] shall identify and address the following categories of potential pollutant sources on each project site:

4.1 Sediment

Sediment is the primary pollutant of concern on construction sites. Sources include exposed soils from grading, trenching, stockpiling, and vehicle tracking. Sediment-laden runoff can degrade water quality, clog storm drains, and harm aquatic habitats.

4.2 Concrete and Cement Washout

Concrete washwater has a pH of 12 or higher and contains fine sediment, chromium, and other metals. All concrete washout shall be contained in designated lined washout areas located at least 50 feet from storm drains and water bodies.

4.3 Fuel, Oil, and Petroleum Products

Equipment fueling, oil changes, and hydraulic fluid leaks can release petroleum hydrocarbons to stormwater. Fueling areas shall be designated and equipped with secondary containment and spill kits.

4.4 Paint, Solvents, and Chemical Products

Paints, adhesives, solvents, and cleaning chemicals shall be stored in covered areas with secondary containment. Empty containers shall be properly disposed of and never rinsed into storm drains.

4.5 Construction Debris and Waste

Dumpsters and waste containers shall be covered and maintained to prevent windblown debris and leachate from contaminating stormwater runoff.

5. Erosion and Sediment Controls

[COMPANY NAME] shall implement the following erosion and sediment control BMPs as appropriate for each site:

5.1 Silt Fence

- Install along the downslope perimeter of all disturbed areas
- Trench silt fence a minimum of 6 inches into the ground
- Inspect after each rain event exceeding 0.25 inches and repair within 24 hours
- Do not install across concentrated flow areas or channels

5.2 Inlet Protection

- Protect all storm drain inlets within the project limits and adjacent to disturbed areas
- Use inlet protection devices rated for anticipated flow rates
- Clean accumulated sediment when it reaches 50% of the device capacity

5.3 Stabilized Construction Entrance

- Install at all vehicle access points to the construction site
- Minimum 50 feet long, 12 inches deep aggregate over geotextile fabric
- Supplement with tire wash or rumble grate as needed to prevent tracking
- Sweep paved roads adjacent to the site as needed (do not wash sediment into drains)

5.4 Slope Stabilization

- Apply temporary erosion blankets on slopes steeper than 3:1 within 14 days of final grade
- Seed and mulch disturbed areas not actively under construction within 14 days
- Install slope drains and diversions to prevent concentrated flow over unprotected slopes

5.5 Sediment Basins and Traps

- Construct sediment basins for drainage areas exceeding 10 acres per CGP requirements
- Design basins to provide a minimum of 3,600 cubic feet of storage per acre drained
- Dewater basins through a perforated riser or skimmer device

6. Good Housekeeping BMPs

- Maintain clean and organized material storage areas at all times
- Store chemicals in original labeled containers with lids secured
- Locate portable toilets on flat ground at least 50 feet from storm drains and water bodies
- Maintain waste dumpsters with closed lids and no overflow conditions
- Designate and label concrete washout areas; dispose of hardened washout as solid waste
- Cover stockpiles not actively being worked with plastic sheeting or erosion blankets
- Never discharge washwater, paint, fuel, or chemicals to storm drains or watercourses
- Post SWPPP notice of permit coverage in a publicly visible location

7. Spill Prevention and Response

[COMPANY NAME] shall implement the following spill prevention and response procedures:

- Maintain spill kits at all fueling, maintenance, and chemical storage areas
- Spill kits shall contain absorbent pads, booms, granular absorbent, and disposal bags
- Train all employees on spill reporting and initial response procedures
- Report spills immediately to the Site Superintendent and SWPPP Administrator
- Contain and clean up all spills immediately; do not wash spills into storm drains
- Report any spill of reportable quantity to the National Response Center (1-800-424-8802) and applicable state agency within 24 hours
- Document all spills and corrective actions in the SWPPP Corrective Action Log

8. Inspection Schedule

SWPPP inspections shall be conducted in accordance with the following schedule:

8.1 Routine Inspections

- At least once every seven (7) calendar days during active construction

- Within 24 hours after any rainfall event of 0.25 inches or greater within a 24-hour period
- Inspections may be conducted on a 14-day cycle if an on-site rain gauge is used and conditions are documented

8.2 Inspection Requirements

Each inspection shall include:

- Visual assessment of all BMPs for proper installation, function, and maintenance needs
- Check all discharge points for evidence of sediment-laden flow or pollutant discharge
- Verify material storage areas, concrete washouts, and fueling areas are properly maintained
- Record rain gauge reading and document any rainfall since last inspection
- Identify and document all deficiencies with photographs
- Initiate corrective actions within 24 hours of identifying deficiencies

8.3 Inspector Qualifications

Inspections shall be conducted by a person knowledgeable in the SWPPP, BMPs, and applicable permit conditions. At a minimum, the inspector shall have completed a qualified SWPPP inspector training program or equivalent experience as required by the CGP and state NPDES permit.

9. Corrective Actions

When inspections or other observations identify SWPPP deficiencies, [COMPANY NAME] shall implement corrective actions as follows:

- Initiate repair or replacement of failed BMPs within 24 hours of discovery
- Complete corrective actions before the next anticipated storm event whenever possible
- Document all corrective actions in the Corrective Action Log, including date identified, description of deficiency, corrective action taken, date completed, and responsible person
- If a prohibited discharge occurs, immediately contain the discharge, notify the SWPPP Administrator, and report to regulatory agencies as required
- Amend the SWPPP as necessary when corrective actions reveal the need for additional or modified BMPs

10. Post-Construction Stormwater Controls

Upon completion of construction, [COMPANY NAME] shall implement permanent stormwater management controls as required by the project plans, local ordinances, and state/federal permits:

- Establish permanent vegetative cover on all disturbed areas with a minimum 70% uniform coverage
- Install permanent stormwater management facilities (detention/retention basins, bioswales, permeable pavement, etc.) per approved engineering plans
- Ensure long-term maintenance plans are in place for all permanent stormwater facilities
- Remove all temporary erosion and sediment control BMPs once permanent stabilization is achieved and vegetation is established

11. Notice of Termination (NOT) Process

Permit coverage shall be terminated when the following conditions are met:

- All construction activities are complete and final stabilization is achieved
- A minimum of 70% uniform vegetative cover is established on all unpaved areas (or equivalent permanent stabilization for arid regions)
- All temporary BMPs have been removed and disposed of properly
- All permanent stormwater controls are installed and functioning

Submit the Notice of Termination (NOT) to the EPA or state permitting authority within 30 days of achieving final stabilization. Retain the SWPPP and all inspection records for a minimum of three (3) years after NOT submission.

12. SWPPP Amendments

The SWPPP is a living document that shall be amended whenever:

- Site conditions change (new phases, revised grading, additional disturbed area)
- Inspections identify the need for additional or modified BMPs
- A change in construction activities alters potential pollutant sources
- Regulatory requirements are updated or permit modifications are issued
- A prohibited discharge occurs requiring revised pollution prevention measures

All amendments shall be documented with the date, description of change, and signature of the SWPPP Administrator. Previous versions shall be retained for the project record.

13. Roles and Responsibilities

13.1 SWPPP Administrator

- Develop and maintain the site-specific SWPPP
- Coordinate BMP installation, inspection, and maintenance
- Ensure inspections are conducted on schedule and documented
- Oversee corrective actions and SWPPP amendments
- Manage permit compliance and regulatory submittals (NOI, NOT)

13.2 Site Superintendent

- Implement SWPPP requirements on a daily basis
- Ensure all subcontractors and employees follow SWPPP procedures
- Report spills and BMP deficiencies to the SWPPP Administrator immediately
- Maintain rain gauge and record precipitation data

13.3 All Employees and Subcontractors

- Attend SWPPP training before beginning work on site
- Follow all good housekeeping and spill prevention procedures
- Report any observed stormwater pollution or BMP damage to the Site Superintendent
- Never discharge pollutants to storm drains or watercourses

14. Training Requirements

[COMPANY NAME] shall provide SWPPP training to all personnel working on the project site:

- Initial SWPPP awareness training during site orientation for all employees and subcontractors
- Detailed BMP installation and maintenance training for personnel responsible for erosion and sediment controls
- Spill prevention and response training for equipment operators and material handlers
- Annual refresher training for all site personnel
- Document all training in the project training log, including date, trainer, attendees, and topics covered

15. Recordkeeping

The following records shall be maintained as part of the SWPPP:

- Current SWPPP document and all amendments

- SWPPP Inspection Logs (weekly and post-rain event)
- Corrective Action Logs
- Rain Gauge Records
- Spill reports and cleanup documentation
- Training records
- Permit correspondence (NOI, NOT, regulatory communications)
- SDS sheets for chemicals stored on site

All records shall be retained for a minimum of three (3) years after the Notice of Termination is filed, or longer as required by state regulations. Records shall be kept on site and available for regulatory inspection at all times during active permit coverage.

16. Revision History

Revision	Date	Author	Description
1.0	[DATE]	[NAME]	Initial Release

Appendix A: SWPPP Inspection Log

Use this form to document all weekly and post-rain event inspections. Complete one form per inspection.

Field	Details
Project Name	[COMPANY NAME] — [PROJECT]
NPDES Permit #	
Inspector Name	
Inspection Date	
Inspection Type	☐ Weekly ☐ Post-Rain Event
Rain Gauge Reading (inches)	
Weather Conditions	

BMP Location	BMP Type	Condition	Corrective Action Needed?	Notes
		☐ Good ☐ Needs Repair ☐ Failed	☐ Yes ☐ No	
		☐ Good ☐ Needs Repair ☐ Failed	☐ Yes ☐ No	
		☐ Good ☐ Needs Repair ☐ Failed	☐ Yes ☐ No	
		☐ Good ☐ Needs Repair ☐ Failed	☐ Yes ☐ No	
		☐ Good ☐ Needs Repair ☐ Failed	☐ Yes ☐ No	
		☐ Good ☐ Needs Repair ☐ Failed	☐ Yes ☐ No	

Inspector Signature: _____ Date: _____

Appendix B: Corrective Action Log

Document all SWPPP corrective actions taken in response to inspection findings or observations.

Date Identified	Deficiency Description	Corrective Action Taken	Date Completed	Responsible Person

Appendix C: Rain Gauge Record

Record daily precipitation readings from the on-site rain gauge. Rain gauge shall be checked daily during active construction and after all rain events.

Project Name: [COMPANY NAME] — [PROJECT]

Month/Year: _____

Date	Rain Gauge Reading (inches)	Inspection Triggered?	Inspector Initials
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No ☐ N/A	

TRAFFIC CONTROL / WORK ZONE SAFETY PROGRAM

Temporary Traffic Control and Worksite Safety Procedures

Company:	[COMPANY NAME]
Effective Date:	[DATE]
Revision Number:	[REV #]
Prepared By:	[NAME / TITLE]
Approved By:	[NAME / TITLE]
Approval Date:	[DATE]

FORBES SAFETY SOLUTIONS

Professional Safety Program Template

Table of Contents

1. Purpose and Scope

[COMPANY NAME] has established this Traffic Control / Work Zone Safety Program to protect employees, motorists, pedestrians, and the public in and around active work zones. This program establishes procedures for the planning, setup, operation, and removal of temporary traffic control measures on all [COMPANY NAME] projects.

This program applies to all [COMPANY NAME] employees, subcontractors, and temporary workers who perform work on or adjacent to public roadways, private roads with public access, or any area where vehicular and/or pedestrian traffic interacts with work activities.

2. Regulatory References

- 29 CFR 1926.200 — Accident Prevention Signs and Tags
- 29 CFR 1926.201 — Signaling
- 29 CFR 1926.202 — Barricades
- 29 CFR 1926.203 — Definitions (Signs, Signals, and Barricades)
- Manual on Uniform Traffic Control Devices (MUTCD) — Part 6: Temporary Traffic Control
- OSHA Work Zone Safety Guidance and Technical Information
- ANSI/ISEA 107 — American National Standard for High-Visibility Safety Apparel and Accessories
- State and local traffic control requirements (as applicable to project location)

3. Definitions

Term	Definition
Temporary Traffic Control (TTC) Zone	A section of highway or road where traffic is managed through a combination of signs, signals, channelizing devices, and other measures to route traffic through or around a work area.
Advance Warning Area	The section of road upstream of the work zone that warns approaching traffic of the upcoming work zone using signs and other warning devices.
Transition Area	The section where traffic is redirected from its normal path to the path required to travel through the work zone, using channelizing devices such as cones, barrels, and barricades.
Activity Area	The section of road where work activity occurs. This includes the workspace (where workers and equipment are located) and a buffer space (empty area between traffic and the work space).
Termination Area	The section downstream of the work zone where traffic returns to normal path.

Term	Definition
	Includes an end transition and may include downstream taper.
Buffer Space	A lateral or longitudinal area within the activity area that separates traffic from the work space. No work activity, worker, or equipment shall be in the buffer space.
Flagger	A trained and certified person who controls traffic through or around the work zone using hand-signaling devices (STOP/SLOW paddle, flags).
MUTCD	Manual on Uniform Traffic Control Devices — the national standard for traffic control device design, application, and placement.
TTC Plan	Traffic Control Plan — a documented plan showing the layout of signs, channelizing devices, and other measures for a specific work zone.

4. Roles and Responsibilities

4.1 Management / Program Administrator

- Develop and maintain this Traffic Control / Work Zone Safety Program
- Ensure all project-specific Traffic Control Plans (TCPs) are prepared and approved before work begins
- Provide all necessary traffic control devices, signs, and high-visibility apparel
- Ensure flaggers and traffic control personnel are trained and certified as required
- Coordinate with local authorities, DOTs, and utility companies as needed

4.2 Supervisors / Competent Person

- Review and implement the project-specific Traffic Control Plan
- Ensure TTC zone is set up correctly before any work begins
- Conduct daily work zone inspections (Appendix B)
- Ensure all workers in or near the work zone wear proper high-visibility apparel
- Monitor traffic control devices throughout the shift — replace displaced or damaged devices immediately
- Ensure flaggers are properly equipped, positioned, and rotated
- Coordinate traffic control changes due to shifting work areas

4.3 Flaggers

- Complete flagger training and certification before performing flagging duties
- Wear high-visibility safety apparel meeting ANSI/ISEA 107 Class 2 or Class 3 requirements
- Use STOP/SLOW paddle as primary hand-signaling device (per MUTCD)
- Maintain an alert, focused presence — no use of personal electronic devices while flagging
- Position at a location visible to approaching traffic and with an escape route
- Communicate with other flaggers by radio, phone, or sight signals

4.4 All Workers in Work Zone

- Wear required high-visibility apparel at all times within or adjacent to the work zone
- Remain within the designated work space — never enter the buffer space or travel lanes
- Stay alert to traffic conditions and follow all traffic control instructions
- Report any concerns about traffic control effectiveness to the supervisor immediately

5. Temporary Traffic Control (TTC) Zone Components

Each TTC zone consists of four areas, arranged in order from upstream to downstream:

5.1 Advance Warning Area

- Series of warning signs placed upstream to notify approaching traffic of the work zone
- Sign spacing depends on road speed: higher speeds require greater spacing between signs
- Minimum sign requirements per MUTCD Part 6: "Road Work Ahead," "Be Prepared to Stop," and others as applicable
- Signs must be retroreflective or illuminated for nighttime visibility

5.2 Transition Area

- Uses tapers of channelizing devices (cones, barrels, tubular markers) to shift traffic to new path
- Taper length formula: $L = S^2 \div 60$ (where L = taper length in feet, S = posted speed in mph)
- For speeds ≤ 40 mph, taper length may be calculated as: $L = S \times W \div 2$ (W = width of offset in feet)
- Device spacing within tapers: typically equal to the posted speed limit (e.g., 45 mph = 45 ft spacing)

5.3 Activity Area

- Includes the work space and buffer space
- Work space: area where workers, equipment, and materials are located
- Buffer space (longitudinal): minimum of the stopping sight distance for the posted speed; typically 100–460 feet depending on speed
- Buffer space (lateral): minimum of 2 feet; 6 feet or more preferred between traffic and work space
- No work activity, workers, or equipment shall be in the buffer space
- Shadow vehicles with truck-mounted attenuators (TMAs) shall be used where required

5.4 Termination Area

- Downstream area where traffic returns to normal path
- Includes downstream taper and "End Road Work" sign
- Channelizing devices are tapered to guide traffic back to normal lanes

6. Flagger Requirements and Procedures

6.1 Certification

All flaggers shall be trained and certified in accordance with state and local requirements. At a minimum, flagger training shall cover:

- Applicable sections of the MUTCD (Part 6)
- State-specific flagger certification requirements
- Proper use of STOP/SLOW paddle and flags
- Flagger positioning, visibility, and escape routes
- Communication methods (radio, sight signals)
- Emergency procedures

6.2 Equipment

- STOP/SLOW paddle (minimum 18 inches, retroreflective for night use)
- 24-inch red flag (for emergencies only — not as primary signaling device)
- High-visibility safety apparel (ANSI/ISEA 107 Class 2 or Class 3)
- Two-way radio or other communication device

6.3 Positioning

- Stand alone — never in a group of workers
- Position far enough upstream to allow approaching traffic time to slow and stop
- Minimum 100 feet from the work space on low-speed roads; greater on high-speed roads
- Stand on the shoulder or in the closed lane — never in an open traffic lane
- Maintain a clear escape route at all times

6.4 Operations

- Flaggers should work no more than 2-hour shifts without a break to maintain alertness
- Flaggers shall not perform any other duties while flagging
- Use standard MUTCD hand-signaling methods with the STOP/SLOW paddle
- Face approaching traffic at all times

7. High-Visibility Apparel Requirements

All workers exposed to vehicular traffic shall wear high-visibility safety apparel in compliance with ANSI/ISEA 107:

Class	Background Material	Retroreflective Material	Required Use
Class 1	217 sq. in. minimum	155 sq. in. minimum	Low-risk areas: parking lots, warehouses (NOT for roadway work)
Class 2	775 sq. in. minimum	201 sq. in. minimum	Workers near roadways — general work zone use. Minimum for flaggers.
Class 3	1240 sq. in. minimum	310 sq. in. minimum	High-speed, high-volume roadways. Required for workers within the right-of-way of highways with speeds > 50 mph.

- High-visibility apparel shall be fluorescent yellow-green, orange-red, or red
- Garments must have retroreflective striping visible from all directions (360°)
- Damaged, faded, or soiled garments that reduce visibility must be replaced immediately
- Apparel shall be worn as the outermost garment

8. Sign Placement and Spacing

Traffic control signs shall be placed in accordance with MUTCD standards:

- Signs must be mounted at the height specified in the MUTCD (minimum 5 feet in urban areas, 7 feet in rural areas to bottom of sign)
- Signs shall be retroreflective or illuminated for visibility during nighttime or low-light conditions
- Sign size must meet MUTCD minimum requirements — larger signs for higher speed roadways
- Signs shall be placed on the right side of the road; supplemental signs on the left side where needed for multi-lane roads
- Damaged, missing, or fallen signs shall be replaced or repositioned immediately

Road Speed	Sign Spacing (Advance Warning)	Typical Sign Sequence
25–35 mph	100 ft between signs	Road Work Ahead → Be Prepared to Stop → Work Zone specific sign
40–50 mph	350 ft between signs	Road Work Ahead → Reduced Speed Ahead → Lane Closure / Flagger Ahead
55+ mph	500 ft between signs	Road Work Ahead → Reduced Speed Ahead → Lane Closure / Flagger Ahead

9. Channelizing Devices

Channelizing devices guide traffic through the work zone transition area. All devices must be in good condition, retroreflective, and properly weighted or anchored.

Device	Typical Use	Specifications
Traffic Cones (28" or 36")	Lane tapers, lane closures, short-duration work	28" min; 36" for roads > 45 mph. Must have retroreflective collars for night use.
Drums / Barrels (36")	Transition areas, lane closures, longer-duration work	36" height min, 18" diameter min. Alternating orange and white retroreflective stripes.
Tubular Markers	Delineation on higher-speed roads	36" height min. Retroreflective. Not for use where physical barrier needed.
Type I / II Barricades	Road closure, pedestrian detours	Retroreflective. Type I for pedestrian areas; Type II for multi-lane road closures.
Type III Barricades	Road closure across full width of	Minimum 4 ft wide. Full retroreflective

Device	Typical Use	Specifications
	road	striping.
Temporary Barriers (Concrete / Water-Filled)	Positive protection for workers in high-speed, high-volume areas	Used where channelizing devices alone are insufficient.

10. Night Work Requirements

When work is performed during nighttime hours (30 minutes after sunset to 30 minutes before sunrise) or in low-light conditions, the following additional requirements apply:

- All signs must be retroreflective and/or illuminated
- All channelizing devices must have retroreflective material
- Flagger stations must be illuminated so the flagger is visible to approaching traffic
- Workers must wear Class 3 high-visibility apparel with retroreflective striping
- Work space shall be illuminated to a level adequate for safe work and visibility to approaching motorists
- Warning lights (Type A or Type C) shall be placed on barricades and channelizing devices as required
- Glare from work zone lighting shall be directed away from approaching traffic
- Arrow boards (Type A, B, or C) shall be used for lane closures on multi-lane roads

11. Internal Traffic Control Plan

In addition to public roadway traffic control, [COMPANY NAME] shall implement internal traffic control measures for on-site equipment and vehicle routes:

- Designate and mark equipment travel routes on the project site
- Separate pedestrian walkways from equipment routes where feasible
- Establish speed limits for on-site vehicles (typically 10–15 mph)
- Use spotters when equipment operates near pedestrians or in congested areas
- Install signage at key intersections and entry/exit points
- Conduct traffic flow assessments as site layout changes
- Brief all workers on internal traffic routes during site orientation
- Require backup alarms on all motorized equipment

12. Speed Reduction Strategies

To protect workers in the activity area, [COMPANY NAME] shall use the following speed reduction strategies where appropriate:

- Reduced speed limit signs (regulatory) per MUTCD and state DOT requirements
- Advance warning signs ("Slow Down" advisory signs)
- Law enforcement presence (coordination with local authorities)
- Narrowed lanes (using channelizing devices to create a calming effect)
- Rumble strips (temporary, where permitted)
- Speed display boards / radar feedback signs
- Flaggers positioned to slow traffic
- Positive protection devices (temporary barriers) where appropriate

13. Training Requirements

[COMPANY NAME] shall provide traffic control and work zone safety training as follows:

Training Element	Frequency	Audience	Documentation
Work zone safety awareness	Initial hire + annually	All employees who work in or near work zones	Training record / sign-in sheet
Flagger certification	Per state requirements (typically every 3-4 years)	All employees designated as flaggers	Flagger certification card
Traffic Control Plan review	Before start of each project	Project supervisors, traffic control personnel	Meeting minutes / sign-in sheet
Night work procedures	Before night work begins	All night shift workers	Training record / sign-in sheet
Internal site traffic safety	Site orientation	All workers on project site	Orientation sign-in sheet
High-visibility apparel requirements	Initial hire + annually	All workers in work zones	Training record

14. Recordkeeping

[COMPANY NAME] shall maintain the following records:

- Traffic Control Plans for each project — retained for 3 years after project completion

- Flagger certification records — retained for duration of employment
- Training records (date, topics, trainer, attendees) — retained for duration of employment plus 3 years
- Daily Work Zone Inspection Checklists (Appendix B) — retained for 3 years
- Incident and near-miss reports related to work zones — retained for 5 years
- Records of permits and coordination with local authorities — retained for 3 years after project completion

15. Program Review

This Traffic Control / Work Zone Safety Program shall be reviewed at least annually and updated when:

- A work zone incident, injury, or near-miss occurs
- Regulatory requirements change (MUTCD updates, OSHA revisions, state/local changes)
- New types of work zones or traffic conditions are encountered
- Deficiencies are identified through audits, inspections, or project reviews

Appendix A: Traffic Control Plan Template

Instructions: Complete this form for each project or phase of work involving traffic control. Attach a diagram/sketch of the TTC zone layout. The plan must be reviewed and approved before work begins.

Project Name:	[]	Project Number:	[]
Project Location:	[]	Road / Highway:	[]
Date Prepared:	[]	Prepared By:	[]
Approved By:	[]	Approval Date:	[]

Road Information

Road Type:	☐ Urban ☐ Rural ☐ Highway ☐ Residential ☐ Other: _____
Speed Limit:	[] mph
Number of Lanes:	[] lanes each direction
ADT (Avg. Daily Traffic):	[] vehicles/day
Sidewalks Present:	☐ Yes ☐ No
Bike Lanes Present:	☐ Yes ☐ No

Work Zone Details

Type of Work:	[]
Duration of Work:	☐ Short-term (< 1 hour) ☐ Intermediate (1-3 days) ☐ Long-term (> 3 days)
Work Hours:	[] to [] ☐ Day ☐ Night
Lane Closures:	☐ None ☐ Partial (specify): _____ ☐ Full road closure
Detour Required:	☐ Yes (attach detour plan) ☐ No
Flaggers Required:	☐ Yes Number: [] ☐ No
Police Required:	☐ Yes ☐ No
Pilot Car Required:	☐ Yes ☐ No

Traffic Control Devices

List all signs, channelizing devices, and equipment to be used:

Device Type	Quantity	Size / Specification	Placement Location

Diagram / Sketch

Attach a scaled or proportional diagram of the TTC zone layout showing:

- Location of all signs (advance warning, regulatory, guide)
- Channelizing device layout and taper lengths
- Work space and buffer space boundaries
- Flagger positions
- Equipment and material storage areas
- Pedestrian and bicycle accommodations (if applicable)
- Arrow board and lighting positions (for night work)

[Attach diagram here or on separate sheet]

Emergency Contact Information

Project Supervisor:	[]	Phone:	[]
Traffic Control Lead:	[]	Phone:	[]
Local Police / DOT:	[]	Phone:	[]
Emergency Services:	911	Hospital:	[]

Plan Prepared By: _____ Signature: _____

Date: _____

Plan Approved By: _____ Signature: _____

Date: _____

Appendix B: Daily Work Zone Inspection Checklist

Instructions: Complete this checklist at the beginning of each shift and periodically throughout the day. Address deficiencies immediately. Retain records for a minimum of 3 years.

Project/Site:	[]	Date:	[]
Inspector:	[]	Shift:	☐ Day ☐ Night
Weather:	[]	Time:	[]

Advance Warning Area

- ☐ All advance warning signs are in place and properly positioned
- ☐ Signs are clean, legible, and retroreflective / illuminated (night)
- ☐ Sign spacing is correct for road speed
- ☐ Signs are stable and not displaced by wind or traffic

Transition Area

- ☐ Channelizing devices are in correct taper pattern
- ☐ All devices are upright, properly spaced, and in good condition
- ☐ Taper length is adequate for road speed
- ☐ Devices are retroreflective (night operations)
- ☐ Arrow board is operational and visible (if used)

Activity Area

- ☐ Buffer space is clear — no workers, equipment, or materials in buffer zone
- ☐ Workers are within designated work space only
- ☐ All workers wearing required high-visibility apparel (Class 2 or 3)
- ☐ Equipment positioned safely within work space
- ☐ Adequate lighting for work activities (night operations)
- ☐ Shadow vehicle / TMA in position (if required)

Flagger Operations

- ☐
- Flagger(s) are certified and properly equipped (STOP/SLOW paddle, radio)

- ☐ Flagger(s) wearing ANSI Class 2 or Class 3 high-visibility apparel
- ☐ Flagger(s) positioned correctly with clear escape route
- ☐ Flagger(s) alert and attentive (no personal device use)
- ☐ Flagger rotation schedule being followed (max 2-hour shifts)

Termination Area

- ☐ End of work zone signs and devices are in place
- ☐ Traffic is transitioning back to normal lanes smoothly
- ☐ All devices and signs are in good condition

General

- ☐ Speed reduction measures are effective
- ☐ Pedestrian and bicycle accommodations in place (if applicable)
- ☐ Emergency access routes are clear
- ☐ All workers briefed on day's traffic control plan
- ☐ Spare traffic control devices available on-site

Deficiencies Found / Corrective Actions

Deficiency	Corrective Action	Corrected By	Time

Inspector Signature: _____ Date: _____

Supervisor Review: _____ Date: _____

FORBES SAFETY SOLUTIONS

Welding, Cutting & Brazing Safety Program

Enhanced Hot Work Safety

Prepared for:
[COMPANY NAME]

Regulatory References:
29 CFR 1926.350-354 | 29 CFR 1910.251-255 | ANSI Z49.1

Effective Date: [DATE]
Review Date: [ANNUAL REVIEW DATE]

Table of Contents

1. Purpose and Scope

This Welding, Cutting & Brazing Safety Program establishes the requirements for safe performance of hot work operations at [COMPANY NAME] worksites. This program applies to all employees, contractors, and subcontractors who perform or supervise welding, cutting, brazing, soldering, or other hot work operations.

This program covers gas welding and cutting (oxy-fuel), shielded metal arc welding (SMAW), gas metal arc welding (GMAW/MIG), gas tungsten arc welding (GTAW/TIG), flux-cored arc welding (FCAW), plasma arc cutting, and brazing/soldering operations.

2. Regulatory References

- 29 CFR 1926.350 — Gas Welding and Cutting
- 29 CFR 1926.351 — Arc Welding and Cutting
- 29 CFR 1926.352 — Fire Prevention
- 29 CFR 1926.353 — Ventilation and Protection in Welding, Cutting, and Heating
- 29 CFR 1926.354 — Welding, Cutting, and Heating in Way of Preservative Coatings
- 29 CFR 1910.251-255 — Welding, Cutting, and Brazing (General Industry)
- ANSI Z49.1 — Safety in Welding, Cutting, and Allied Processes
- NFPA 51B — Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
- AWS D1.1 — Structural Welding Code

3. Roles and Responsibilities

3.1 Management / Program Administrator

- Establish and maintain this written hot work/welding safety program
- Ensure adequate training and resources
- Designate authorized hot work permit issuers
- Ensure fire protection equipment is available and maintained

3.2 Hot Work Permit Issuer / Supervisor

- Inspect and authorize hot work areas before issuing permits
- Ensure fire prevention measures are implemented
- Assign fire watch personnel when required
- Cancel permits when conditions become unsafe

3.3 Welders / Hot Work Operators

- Obtain a hot work permit before beginning any hot work outside designated welding areas
- Inspect equipment before each use
- Maintain safe work practices and use required PPE

- Stop work when unsafe conditions are observed
- Maintain qualification/certification as required

3.4 Fire Watch

- Maintain fire watch during and for at least 30 minutes after hot work completion
- Have firefighting equipment readily available and know how to use it
- Watch for fires in all exposed areas and attempt to extinguish only within capability
- Activate the fire alarm and notify the fire department if unable to extinguish
- Maintain a clear view of the hot work area at all times

4. Hot Work Permit Requirements

A written hot work permit is required for all welding, cutting, brazing, and related operations performed outside of designated welding areas. The permit shall be issued by an authorized person and shall verify:

1. The work area has been inspected for fire hazards
2. Combustible materials within 35 feet have been removed or protected
3. Openings in floors, walls, and ceilings within 35 feet are covered or protected
4. Fire extinguishing equipment is immediately available
5. A fire watch has been assigned (when required)
6. Confined space entry procedures are followed (if applicable)
7. Affected personnel have been notified

The permit shall be posted at the hot work location and retained for at least one year after completion. See Appendix A for the Hot Work Permit Form.

5. Fire Prevention and Fire Watch

5.1 Fire Prevention Requirements

- Remove all combustible materials within 35 feet of hot work, or protect with fire-resistant covers/shields
- Protect combustible floors with fire-resistant material or wet them down
- Seal wall/floor/ceiling openings within 35 feet to prevent spark travel
- Move combustible materials on the other side of walls/partitions if possible
- A fire extinguisher (minimum 20-lb ABC) shall be within immediate reach
- Ensure sprinkler systems are operable; notify fire department if impaired

5.2 Fire Watch Requirements

A fire watch is required when:

- Combustible materials cannot be moved at least 35 feet from the hot work
- Combustible materials are closer than 35 feet and are only protected by covers/guards
- Wall or floor openings within 35 feet expose combustible materials
- Combustible materials adjacent to the opposite side of partitions, walls, ceilings, or roofs

The fire watch shall continue for a minimum of 30 minutes after hot work is completed. Additional monitoring may be required — up to 4 hours for certain conditions per facility policy.

6. Gas Welding and Cutting (Oxy-Fuel)

6.1 Cylinder Storage and Handling

- Store oxygen cylinders at least 20 feet from fuel gas cylinders or separated by a 5-foot high, ½-hour fire-rated barrier
- Secure all cylinders in upright position with chains, straps, or in approved racks
- Keep valve protection caps in place when cylinders are not in use or being moved
- Never lift cylinders by the valve cap or use slings/magnets
- Never use oil, grease, or other lubricants on oxygen fittings or regulators
- Mark empty cylinders "MT" or "EMPTY" and store separately from full cylinders

6.2 Acetylene Safety

- Never exceed 15 psig working pressure for acetylene
- Never use acetylene in a free state at pressures above 15 psig
- Open acetylene cylinder valve no more than 1½ turns; leave wrench in place
- If an acetylene cylinder has been stored on its side, stand upright for at least 2 hours before use
- Never use copper fittings or tubing with acetylene (explosion hazard)

6.3 Flashback Arrestors

Flashback arrestors shall be installed on both the oxygen and fuel gas lines at the regulator connection points. Check valves alone are not sufficient. Flashback arrestors shall be inspected regularly and replaced per manufacturer recommendations.

6.4 Hose and Equipment Inspection

- Inspect hoses before each use for cracks, burns, leaks, or worn fittings
- Replace damaged hoses immediately — do not repair with tape
- Use only approved connectors; never use wire for hose connections
- Purge each hose individually before lighting the torch
- When work is complete, close cylinder valves, bleed lines, and release regulators

7. Arc Welding Safety

7.1 Electrical Hazards

- Only qualified persons shall install, operate, or maintain arc welding equipment
- All arc welding equipment shall be properly grounded
- Inspect cables, connectors, electrode holders, and ground clamps before each use
- Replace damaged insulation and cables immediately
- Never coil or wrap welding cable around the body
- Keep welding cables dry and away from heat, sharp edges, and moving equipment
- Use GFCI protection when welding in damp or wet conditions

7.2 Cable and Connection Requirements

- Use only cables of adequate capacity for the welding current
- Secure the ground clamp as close to the work as practical
- Do not use structural steel, piping, or conduit as a ground return path
- Protect cables from traffic; do not run over cables with vehicles or equipment

7.3 Equipment Shutdown

When arc welding equipment is left unattended, the welder shall disconnect the input power or open the power source disconnect switch. Electrode holders shall be placed to prevent accidental contact.

8. Ventilation Requirements

8.1 General Ventilation

Adequate ventilation shall be provided for all welding, cutting, and brazing operations. Natural ventilation is adequate when:

- The space has at least 10,000 cubic feet per welder
- Ceiling height is at least 16 feet
- Welding is not done in a confined area
- Space does not contain partitions, balconies, or structural barriers that impede airflow

8.2 Mechanical Ventilation

Mechanical ventilation shall be provided when natural ventilation is inadequate. Local exhaust ventilation (LEV) shall provide a minimum air velocity of 100 feet per minute at the welding point. General mechanical ventilation shall provide a minimum of 2,000 CFM per welder.

8.3 Special Ventilation Situations

Additional ventilation or respiratory protection is required when welding:

- Galvanized metal (zinc oxide fumes) — may cause metal fume fever

- Stainless steel — hexavalent chromium (Cr6+) exposure; PEL 5 $\mu\text{g}/\text{m}^3$
- Cadmium-plated or coated materials — extremely toxic
- Lead-painted surfaces — lead exposure controls required
- Beryllium alloys — extremely toxic, carcinogen
- In confined spaces — continuous monitoring and ventilation required

9. Special Precautions

9.1 Confined Space Welding

Welding in confined spaces requires compliance with both the Confined Space Entry Program and this Welding Safety Program:

- A confined space entry permit AND a hot work permit are both required
- Continuous atmospheric monitoring for O₂, LEL, and toxic gases
- Continuous mechanical ventilation — never use oxygen for ventilation
- Remove all cylinders and torches when not in use; close valves when leaving
- Gas cylinders and welding machines shall remain outside the confined space
- Use only low-voltage (80V or less), low open-circuit voltage welding machines

9.2 Welding on Galvanized Metal

When cutting or welding galvanized metal, zinc oxide fumes are generated which can cause metal fume fever. Controls include: local exhaust ventilation positioned at the source, respiratory protection (minimum half-face with P100 or OV/P100 combination cartridges), and awareness training on symptoms of zinc oxide exposure.

9.3 Welding on Stainless Steel (Hexavalent Chromium)

Welding or cutting stainless steel generates hexavalent chromium (Cr6+), a known carcinogen with a PEL of 5 µg/m³ (29 CFR 1926.1126). Required controls include: local exhaust ventilation, respiratory protection (minimum half-face with P100), exposure monitoring, medical surveillance, and hygiene facilities.

10. Personal Protective Equipment

10.1 General PPE Requirements

- Welding helmet with appropriate filter lens shade (see table below)
- Safety glasses with side shields (worn under the helmet)
- Flame-resistant clothing (FR-rated or leather) — no synthetic fabrics
- Leather welding gloves appropriate for the process
- Leather boots (minimum 6-inch high) or metatarsal guards
- Hearing protection when noise levels exceed 85 dBA
- Respiratory protection as determined by exposure assessment

10.2 Filter Lens Shade Selection Guide

Welding Process	Electrode Size / Current	Minimum Shade	Suggested Shade
SMAW (Stick)	< 3/32" (< 60A)	7	10
SMAW (Stick)	3/32"–5/32" (60–160A)	8	10–12

Welding Process	Electrode Size / Current	Minimum Shade	Suggested Shade
SMAW (Stick)	5/32" - 1/4" (160-250A)	10	12
SMAW (Stick)	> 1/4" (250-550A)	11	12-14
GMAW (MIG)	< 60A	7	10
GMAW (MIG)	60-160A	10	11
GMAW (MIG)	160-250A	10	12
GMAW (MIG)	250-500A	10	14
GTAW (TIG)	< 50A	8	10
GTAW (TIG)	50-150A	8	10-12
GTAW (TIG)	150-500A	10	12-14
FCAW	60-160A	10	11
FCAW	160-250A	10	12
FCAW	250-500A	10	14
Oxy-Fuel Cutting	Light (< 1")	3	4-5
Oxy-Fuel Cutting	Medium (1"-6")	4	5-6
Oxy-Fuel Cutting	Heavy (> 6")	5	6-8
Plasma Arc Cutting	< 300A	8	9-12
Plasma Arc Cutting	300-400A	9	12-14
Oxy-Fuel Welding	Light	4	5-6
Oxy-Fuel Welding	Medium	5	6-8
Oxy-Fuel Welding	Heavy	6	8

Note: Auto-darkening helmets shall be tested before each use to verify proper shade response. The minimum shade shall not be less than the values in this table.

11. Welder Qualification

Welders performing structural or code-required welds shall maintain current qualifications per applicable codes (AWS D1.1, ASME Section IX, API 1104, etc.). Qualifications shall include:

- Welding procedure specification (WPS) applicable to the work
- Performance qualification tests per the applicable code
- Documentation of qualification test results
- Requalification when a welder has not used a specific process for 6 months or more

Qualification records shall be maintained at the worksite and available for review.

12. Training

All employees who perform or supervise hot work shall receive training before initial assignment and annually thereafter, covering:

- This written program and its requirements
- Hot work permit procedures
- Fire prevention and fire watch duties
- Equipment inspection and safe operation
- Hazards of welding fumes and ventilation requirements
- PPE selection and use
- Emergency procedures and fire extinguisher use
- Special precautions (confined space welding, galvanized/stainless steel)

Fire watch personnel shall receive specific training on their duties before serving in that capacity.

13. Recordkeeping

- Hot work permits: retained for at least 1 year
- Training records: maintained for duration of employment
- Welder qualifications: maintained current and on-site
- Equipment inspection records: maintained for 3 years
- Welding fume exposure monitoring results: maintained per 29 CFR 1910.1020 (30 years)
- Incident/fire reports: retained for 5 years

Appendix A: Hot Work Permit Form

Complete before beginning any hot work outside designated welding areas.

Permit Number:	
Date:	
Work Location:	
Type of Hot Work:	
Work Description:	
Permit Issuer:	
Hot Work Operator:	
Start Time:	
Estimated Completion Time:	

Pre-Work Fire Prevention Checklist

Item	Y/N/NA
Combustibles removed or protected within 35 feet?	
Floors swept clean of combustible debris?	
Combustible floors protected (wet down or fire-resistant covers)?	
Wall/floor/ceiling openings within 35 feet covered?	
Combustible materials on opposite side of walls/partitions protected?	
Fire extinguisher (min 20-lb ABC) immediately available?	
Sprinkler system operational?	
Fire watch assigned (where required)?	
Confined space permit obtained (if applicable)?	
Hot work area ventilated adequately?	
Smoke/fire detection systems operational or bypassed with notification?	
Affected personnel notified?	
Flammable liquids/gases secured or removed?	

Fire Watch

Fire watch name: _____ Start time: _____

Fire watch duration after completion: ☐ 30 min ☐ 60 min ☐ Other: _____

Fire watch completed: ☐ Yes Time: _____ Signature: _____

Authorization

I have inspected the work area and verified all fire prevention measures are in place.

Permit Issuer Signature: _____ Date/Time: _____

Hot Work Operator Signature: _____ Date/Time: _____

Permit Closure

Work area inspected after fire watch period — no fire hazards observed: ☐ Yes

Permit closed by: _____ Date/Time: _____

Appendix B: Welding Equipment Daily Inspection Checklist

Complete at the start of each shift or before first use.

Date:	
Inspector:	
Equipment Type:	
Equipment ID/Serial:	
Location:	
Manufacturer/Model:	

Arc Welding Equipment

Inspection Item	Pass	Fail	N/A	Comments
Power source: housing intact, no damage				
Power cord/plug: no damage, proper grounding				
Welding cables: insulation intact, no bare spots				
Electrode holder: insulation intact, jaws functional				
Ground clamp: functional, clean contact surfaces				
Cable connections: tight, no corrosion				
Cooling system (if applicable): operational, no leaks				
Wire feeder (if applicable): operational				
GFCI protection available (for wet/damp conditions)				

Oxy-Fuel Equipment

Inspection Item	Pass	Fail	N/A	Comments
Cylinders secured upright				
Cylinder valves: no damage, no leaks				
Valve protection caps: available for storage				
Regulators: gauges functional, no damage				
Flashback arrestors: installed on both				

FORBES SAFETY SOLUTIONS

Inspection Item	Pass	Fail	N/A	Comments
lines				
Hoses: no cracks, burns, or worn spots				
Hose connections: tight, proper fittings				
Torch: cutting tip clean, valves functional				
Leak test completed (soapy water)				
O ₂ and fuel gas stored 20 ft apart or barrier in place				

Deficiencies noted — equipment removed from service: ☐ Yes ☐ No

Corrective action: _____

Inspector Signature: _____ Supervisor Review: _____

52-Week Toolbox Talk Calendar

Forbes Safety Solutions — [Company Name] — Year: _____

Week #	Date	Topic	Category	Presenter	# Attendees	Status
1		New Year Safety Kickoff & Goal Setting	General Safety			
2		Slips, Trips, and Falls Prevention	Fall Protection			
3		Proper Use of PPE	PPE			
4		Cold Stress — Hypothermia & Frostbite	Heat/Cold Stress			
5		Electrical Safety Basics	Electrical			
6		Lockout/Tagout (LOTO) Procedures	Lockout Tagout			
7		Excavation & Trenching Safety	Excavation			
8		Ladder Safety — Setup and Use	Ladders			
9		Hand Tool Safety	Hand/Power Tools			
10		Housekeeping on the Jobsite	Housekeeping			
11		Fire Extinguisher Use (PASS Method)	Fire Prevention			
12		Scaffolding Safety Fundamentals	Scaffolding			
13		Hazard Communication (HazCom/GHS)	HazCom			
14		Silica Dust Exposure Prevention	Silica			
15		Hearing Conservation	PPE			
16		Rigging & Crane Signal Safety	Rigging			
17		Confined Space Entry Awareness	Confined Space			
18		Power Tool Safety	Hand/Power Tools			
19		Spring Weather Hazards — Lightning & Wind	General Safety			
20		Fall Protection — Harness Inspection	Fall Protection			
21		Ergonomics — Lifting Techniques	Ergonomics			
22		Driving Safety & Distracted Driving	Driving			
23		Aerial Lift & Boom Safety	Fall Protection			
24		Heat Illness Prevention — Water, Rest, Shade	Heat/Cold Stress			
25		Struck-By Hazard Awareness	General Safety			
26		Caught-In/Between Hazard Prevention	General Safety			

27		Respiratory Protection	PPE			
28		Concrete & Masonry Safety	General Safety			
29		Heat Stress — Recognizing Symptoms	Heat/Cold Stress			
30		Steel Erection Safety	General Safety			
31		Eye & Face Protection	PPE			
32		Back Injury Prevention	Ergonomics			
33		Welding & Cutting Safety	Fire Prevention			
34		Forklift/Heavy Equipment Safety	Driving			
35		Electrical — Ground Fault Protection (GFCI)	Electrical			
36		Scaffold Erection & Dismantling	Scaffolding			
37		Fall Protection — Guardrails & Safety Nets	Fall Protection			
38		Chemical Spill Response	HazCom			
39		Bloodborne Pathogens Awareness	General Safety			
40		Asbestos Awareness	General Safety			
41		Lead Exposure Prevention	General Safety			
42		Hand & Finger Safety	PPE			
43		Compressed Gas Cylinder Safety	Fire Prevention			
44		Stairways & Stairway Safety	Fall Protection			
45		Emergency Action Plans & Evacuation	Fire Prevention			
46		Crane & Hoist Safety	Rigging			
47		Excavation — Soil Classification	Excavation			
48		Lockout/Tagout — Equipment-Specific	Lockout Tagout			
49		Winter Driving & Cold Weather Prep	Driving			
50		Housekeeping — Year-End Cleanup	Housekeeping			
51		Incident Reporting & Near-Miss Awareness	General Safety			
52		Year-End Safety Review & Lessons Learned	General Safety			

Toolbox Talk Attendance

Forbes Safety Solutions

Date:

Topic:

Project/Site:

#	Print Name	Company / Employer	Trade / Title		
1					
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29					
30					

Total Attendees: 0

ns

Presenter:

Presenter:

[illegible]

Toolbox Talk Dashboard

Forbes Safety Solutions — Performance Tracker

Key Performance Indicators		
Talks Completed	0	
Talks Planned (Total)	52	
Completion Rate	0.0%	
Talks Missed	0	
Talks Upcoming	0	
Talks Rescheduled	0	
Average Attendance per Talk	0.0	
Total Attendance (All Talks)	0	

Talks by Category			
Category	Planned	Completed	Completion %
Fall Protection	5	0	0%
Electrical	2	0	0%
Excavation	2	0	0%
PPE	5	0	0%
Heat/Cold Stress	3	0	0%
Housekeeping	2	0	0%
Rigging	2	0	0%
Confined Space	1	0	0%
HazCom	2	0	0%
Fire Prevention	4	0	0%
Scaffolding	2	0	0%
Ladders	1	0	0%
Silica	1	0	0%
Hand/Power Tools	2	0	0%
Driving	3	0	0%
Lockout Tagout	2	0	0%
Ergonomics	2	0	0%
General Safety	11	0	0%



Toolbox Talk Topic Library

Forbes Safety Solutions — 100+ Topics for Future Reference

#	Topic	Category
1	Fall Protection — Guardrail Systems	Fall Protection
2	Fall Protection — Personal Fall Arrest Systems	Fall Protection
3	Fall Protection — Safety Net Systems	Fall Protection
4	Fall Protection — Leading Edge Work	Fall Protection
5	Fall Protection — Hole Covers	Fall Protection
6	Aerial Lift Safety	Fall Protection
7	Roofing Safety	Fall Protection
8	Ladder Safety — Portable Ladders	Ladders
9	Ladder Safety — Fixed Ladders	Ladders
10	Stairway Safety	Ladders
11	Scaffold Types and Applications	Scaffolding
12	Scaffold Erection and Dismantling	Scaffolding
13	Scaffold Inspection by Competent Person	Scaffolding
14	Suspended Scaffolds	Scaffolding
15	Mobile Scaffolds / Rolling Towers	Scaffolding
16	Excavation Safety — Cave-In Prevention	Excavation
17	Excavation — Sloping & Benching	Excavation
18	Excavation — Shoring & Shielding	Excavation
19	Excavation — Soil Classification	Excavation
20	Utility Locating Before Excavation	Excavation
21	Electrical Safety — GFCI Protection	Electrical
22	Electrical Safety — Extension Cords	Electrical
23	Electrical Safety — Overhead Power Lines	Electrical
24	Electrical Safety — Arc Flash Awareness	Electrical
25	Lockout/Tagout — General Procedures	Lockout Tagout
26	Lockout/Tagout — Equipment-Specific Procedures	Lockout Tagout
27	Lockout/Tagout — Group Lockout	Lockout Tagout
28	Lockout/Tagout — Periodic Inspections	Lockout Tagout
29	Hard Hat Selection and Care	PPE
30	Eye and Face Protection	PPE
31	Hearing Protection — Earplugs vs Muffs	PPE
32	Respiratory Protection — N95 and Half-Face	PPE
33	Glove Selection by Hazard	PPE
34	High-Visibility Clothing	PPE
35	Foot Protection — Safety Toe Footwear	PPE
36	PPE Inspection and Replacement	PPE
37	Heat Illness Prevention — Water, Rest, Shade	Heat/Cold Stress
38	Heat Stroke vs Heat Exhaustion	Heat/Cold Stress
39	Acclimatization to Heat	Heat/Cold Stress
40	Cold Stress — Hypothermia Prevention	Heat/Cold Stress
41	Cold Stress — Frostbite Recognition	Heat/Cold Stress

42	Working in Extreme Weather	Heat/Cold Stress
43	Housekeeping — Clean Work Areas	Housekeeping
44	Housekeeping — Material Storage	Housekeeping
45	Housekeeping — Waste Disposal	Housekeeping
46	Rigging — Sling Inspection	Rigging
47	Rigging — Wire Rope Safety	Rigging
48	Rigging — Crane Hand Signals	Rigging
49	Crane Safety — Pre-Operation Inspection	Rigging
50	Crane Safety — Load Charts	Rigging
51	Confined Space — Permit-Required Entry	Confined Space
52	Confined Space — Atmospheric Testing	Confined Space
53	Confined Space — Rescue Planning	Confined Space
54	Confined Space — Ventilation	Confined Space
55	HazCom — Reading an SDS	HazCom
56	HazCom — GHS Label Elements	HazCom
57	HazCom — Chemical Storage Compatibility	HazCom
58	HazCom — Chemical Spill Response	HazCom
59	Fire Extinguisher Types (A, B, C, D, K)	Fire Prevention
60	Fire Prevention on the Jobsite	Fire Prevention
61	Hot Work Permit Procedures	Fire Prevention
62	Welding and Cutting Safety	Fire Prevention
63	Emergency Action Plans	Fire Prevention
64	Evacuation Routes and Assembly Points	Fire Prevention
65	Silica Exposure — Table 1 Controls	Silica
66	Silica — Exposure Assessment	Silica
67	Silica — Respiratory Protection Requirements	Silica
68	Silica — Medical Surveillance	Silica
69	Hand Tool Safety — Inspection and Use	Hand/Power Tools
70	Power Tool Safety — Guards and Switches	Hand/Power Tools
71	Circular Saw Safety	Hand/Power Tools
72	Powder-Actuated Tools	Hand/Power Tools
73	Pneumatic Tool Safety	Hand/Power Tools
74	Grinder Safety — Wheel Guards and RPM	Hand/Power Tools
75	Defensive Driving	Driving
76	Distracted Driving Prevention	Driving
77	Backing Safety — Spotters and Mirrors	Driving
78	Forklift Safety — Pre-Operation Inspection	Driving
79	Heavy Equipment — Blind Spots	Driving
80	Winter Driving Preparation	Driving
81	Ergonomics — Proper Lifting	Ergonomics
82	Ergonomics — Repetitive Motion Prevention	Ergonomics
83	Ergonomics — Manual Material Handling	Ergonomics
84	Back Injury Prevention	Ergonomics
85	Struck-By Hazards — Flying Objects	General Safety
86	Struck-By Hazards — Falling Objects	General Safety
87	Caught-In/Between Prevention	General Safety

88	Concrete and Masonry Safety	General Safety
89	Steel Erection Safety	General Safety
90	Demolition Safety	General Safety
91	Asbestos Awareness	General Safety
92	Lead Exposure Prevention	General Safety
93	Bloodborne Pathogens	General Safety
94	First Aid and CPR	General Safety
95	Incident Reporting and Near-Miss Awareness	General Safety
96	Job Hazard Analysis (JHA)	General Safety
97	Toolbox Talk Best Practices	General Safety
98	New Employee Safety Orientation	General Safety
99	Subcontractor Safety Coordination	General Safety
100	Drug and Alcohol Awareness	General Safety
101	Fatigue and Alertness	General Safety
102	Mental Health and Suicide Prevention	General Safety
103	Compressed Gas Cylinder Handling	General Safety
104	Flammable Liquid Storage	General Safety
105	Personal Hygiene on Site	General Safety
106	Emergency Communication Procedures	General Safety
107	Traffic Control / Flagging Operations	General Safety
108	Nighttime Work Safety	General Safety
109	Noise Exposure Monitoring	General Safety
110	Crane — Rigging Hardware Inspection	Rigging
111	Scaffold Access — Ladder vs Stairway	Scaffolding

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Regulatory Reference
29 CFR 1926.502
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OSHA Guidance

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29 CFR 1926.50
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OSHA 3071
OSHA Guidance
29 CFR 1926.21
OSHA Multi-Employer
Company Policy
OSHA Guidance
OSHA Guidance
29 CFR 1926.350
29 CFR 1926.152
29 CFR 1926.51
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MUTCD
OSHA Guidance
29 CFR 1926.52
29 CFR 1926.251
29 CFR 1926.451(e)

FORBES SAFETY SOLUTIONS

ASBESTOS & LEAD AWARENESS

Identification, Health Risks & Protective Measures

Ref: 29 CFR 1926.1101 (Asbestos) | 29 CFR 1926.62 (Lead)

TOOLBOX TALK

KEY STATISTICS

~3,000 Cases/Year

Mesothelioma diagnoses in the U.S. — nearly all from asbestos exposure

~500,000 Children

Have blood lead levels above the CDC reference value in the U.S.

Pre-1980 Buildings

Highest risk for asbestos-containing materials and lead-based paint

WHERE ARE THESE MATERIALS FOUND?

- Asbestos: floor tiles, ceiling tiles, pipe insulation, pipe wrap, roofing materials, joint compound
- Asbestos: boiler insulation, duct wrap, spray-applied fireproofing, transite panels
- Lead: paint in pre-1978 buildings (most common source), solder in plumbing joints
- Lead: glazed ceramics, imported consumer products, some industrial coatings
- If you suspect ACM (asbestos-containing material) or LBP (lead-based paint) — STOP WORK immediately
- Do NOT disturb, cut, sand, or demolish suspected materials — report to your supervisor at once
- Testing and survey by qualified professionals is required before any demolition or renovation work

HEALTH EFFECTS

- Asbestos exposure causes mesothelioma, lung cancer, and asbestosis — often with 10-40 year latency
- There is no safe level of asbestos exposure — even brief disturbances can release deadly fibers
- Asbestos fibers are microscopic and cannot be seen, smelled, or tasted
- Lead poisoning affects the nervous system, kidneys, reproductive system, and brain development
- Acute lead exposure: abdominal pain, fatigue, headaches, muscle/joint pain
- Chronic lead exposure: memory loss, mood disorders, reduced cognitive function, organ damage
- Workers can carry lead dust home on clothing — endangering family members (take-home exposure)

CONTROLS & PPE REQUIREMENTS

- Never use power tools, dry sweeping, or compressed air on suspected ACM or LBP — creates airborne hazards
- Wet methods: keep materials damp to minimize fiber/dust release during any authorized disturbance
- HEPA vacuums required for cleanup — standard shop vacuums spread fine particles into the air
- PPE for asbestos: minimum half-face respirator with P100 filters, disposable coveralls, gloves
- PPE for lead: respirator appropriate to exposure level, coveralls, gloves, shoe covers
- Decontamination: use designated wash stations; do not eat, drink, or smoke in work areas
- Only trained and licensed abatement workers may perform removal of ACM or LBP

QUIZ — TEST YOUR KNOWLEDGE

Q1: What should you do if you suspect you've found asbestos-containing material?

A: Stop work immediately, do not disturb the material, and report it to your supervisor.

Q2: Why are HEPA vacuums required instead of regular shop vacuums?

A: Standard vacuums cannot capture fine asbestos fibers or lead dust and spread them into the air.

Q3: Name two common locations where lead-based paint is found on construction sites.

A: Pre-1978 building surfaces (walls, trim, doors) and plumbing solder joints.

SIGN-OFF SHEET

Asbestos & Lead Awareness

#	Print Name	Signature	Company	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Back Safety & Proper Lifting

[Company Name]

[Date]

Why This Matters

1 in 5

Workplace injuries
are back-related

\$100B+

Annual cost of
back injuries
in the U.S.

51 lbs

NIOSH recommended
weight limit under
ideal conditions

Proper Lifting Technique

1. Plan the Lift

Assess the weight, check your path, and decide if you need help or mechanical aids before lifting.

2. Get Close

Stand as close to the load as possible. The farther the load is from your body, the greater the strain on your back.

3. Bend at the Knees

Squat down by bending your knees — not your waist. Keep your back straight and chest forward.

4. Get a Firm Grip

Use your full hand, not just your fingers. Ensure the load is stable before lifting.

5. Lift with Your Legs

Straighten your legs to lift. Let your leg muscles do the work, keeping the load close to your body.

6. No Twisting

Turn with your feet, not your torso. Twisting while carrying a load is a leading cause of back injuries.

Additional Back Safety Measures

Team Lifts

If a load exceeds 51 lbs or is awkward to handle, get a partner. Communicate clearly — one person leads the lift.

Mechanical Aids

Use dollies, hand trucks, forklifts, or hoists whenever available. Mechanical aids dramatically reduce injury risk.

Stretching & Warm-Up

Begin each shift with light stretching. Cold muscles are more prone to strains and tears.

Body Positioning

Avoid reaching overhead or bending at the waist for extended periods. Reposition materials to waist height when possible.

Know Your Limits

If a load feels too heavy, it probably is. Never risk injury to save time — ask for help.

NIOSH Lifting Equation — Key Factors

The NIOSH Recommended Weight Limit (RWL) starts at 51 lbs and is reduced by multipliers based on the conditions below. If conditions are not ideal, the safe lifting weight drops significantly.

Factor	Description	Impact
Horizontal Distance	How far the load is from your body	Farther = lower safe weight
Vertical Location	Height of the load at start of lift	Very high/low = reduced limit
Vertical Travel	How far you move the load up/down	Greater distance = more strain
Asymmetry Angle	Degree of twisting during the lift	Twisting reduces safe weight
Frequency	How often you lift per minute	More frequent = lower limit
Coupling Quality	Quality of handles or grip	Poor grip = reduced safe weight

Quiz / Discussion

Q1: What body part should do the heavy lifting — your back or your legs?

A: Your legs. Keep your back straight and use your leg muscles to power the lift.

Q2: What is the NIOSH recommended weight limit under ideal conditions?

A: 51 pounds. This limit decreases when conditions are not ideal.

Q3: What should you do if a load feels too heavy?

A: Stop and ask for help. Use a team lift or mechanical aid — never risk injury.

ATTENDANCE SIGN-OFF

#	Name (Print)	Signature	Date
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Bloodborne Pathogens Awareness

Ref: 29 CFR 1910.1030 — Bloodborne Pathogens Standard

[Company Name]

[Date]

WHY THIS MATTERS

5.6M

Workers in healthcare and other industries are at risk of occupational exposure to bloodborne pathogens

3

Primary BBPs: HIV, Hepatitis B (HBV), and Hepatitis C (HCV)
— all potentially fatal

95%

Hepatitis B vaccine effectiveness rate —
vaccination is the best protection for at-risk workers

Understanding Bloodborne Pathogens

WHAT ARE BBPs?

- Bloodborne pathogens are infectious microorganisms in human blood that cause disease
- HIV: attacks immune system — no vaccine available
- Hepatitis B (HBV): attacks the liver — vaccine available and highly effective
- Hepatitis C (HCV): chronic liver disease — no vaccine, but treatable
- BBPs can survive outside the body in dried blood for up to a week (HBV)

HOW TRANSMISSION OCCURS

- Through broken skin (cuts, abrasions, dermatitis, acne)
- Mucous membranes (eyes, nose, mouth) contact with infected blood/fluids
- Needlestick or sharp object injuries
- On construction sites: contact with blood at first aid scenes, contaminated sharps, human waste
- NOT spread by casual contact, coughing, sneezing, or sharing food/water

Universal Precautions & Protection

UNIVERSAL PRECAUTIONS

- Treat ALL blood and body fluids as if they are infectious
- Wear nitrile or latex gloves when providing first aid or handling potentially contaminated materials
- Use eye protection and face shields if splashing is possible
- Use CPR barrier devices — never perform mouth-to-mouth without a barrier
- Wash hands immediately after removing gloves

WHAT TO DO ON A JOBSITE

- If you encounter blood/body fluids: do NOT touch without PPE
- Alert your supervisor immediately
- Clean contaminated surfaces with 10% bleach solution or approved disinfectant
- Place contaminated materials in labeled biohazard bags
- Hep B vaccination: offered at no cost to at-risk employees
- Report any exposure incident immediately for post-exposure evaluation

Exposure Incident Response Steps

Step	Action	Details
1	Immediate care	Wash wound with soap and water; flush eyes/mucous membranes with clean water
2	Report exposure	Notify supervisor immediately — document how it occurred
3	Medical evaluation	Seek confidential medical evaluation and follow-up within 24 hours
4	Source identification	If possible, identify the source individual (with consent)
5	Documentation	Complete exposure incident report with date, time, circumstances
6	Follow-up	Blood testing at baseline, 6 weeks, 3 months, and 6 months post-exposure

QUIZ / DISCUSSION

1

Name the three primary bloodborne pathogens of concern in the workplace.

Answer: HIV (Human Immunodeficiency Virus), HBV (Hepatitis B Virus), and HCV (Hepatitis C Virus).

2

What does 'universal precautions' mean?

Answer: Treat all human blood and body fluids as if they are known to be infectious — always use appropriate PPE regardless of the perceived risk.

3

What is the first thing you should do after an exposure incident?

Answer: Immediately wash the wound with soap and running water (or flush eyes with clean water), then report the exposure to your supervisor for documentation and medical follow-up.

ATTENDANCE SIGN-OFF

Bloodborne Pathogens Awareness

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FORBES SAFETY SOLUTIONS

CAUGHT-IN / CAUGHT-BETWEEN HAZARDS

OSHA Focus Four — 29 CFR 1926

TOOLBOX TALK

[Company Name]

[Date]

WHY THIS MATTERS

Caught-In/Between: The Last of OSHA's "Focus Four" Hazards

5-7%

**of Construction
Fatalities**

Caught-in/between is
one of the "Fatal Four"

18-24

Deaths Per Year

Workers killed annually
in caught-in/between incidents

#4

**Focus Four
Hazard**

Joins falls, struck-by,
and electrocution

Source: OSHA Fatal Four Statistics / Bureau of Labor Statistics Census of Fatal Occupational Injuries

TYPES OF CAUGHT-IN/BETWEEN HAZARDS

MACHINERY

- Caught in unguarded rotating parts (gears, rollers, augers)
- Clothing, hair, or jewelry pulled into running equipment
- Hand/fingers caught in moving belt or chain drive

EQUIPMENT & OBJECTS

- Crushed between backing equipment and a fixed object
- Caught between equipment swing radius and a wall or post
- Pinch points between moving and stationary machine parts

COLLAPSING MATERIALS

- Trench cave-in burying workers
- Collapsing stacked materials or unsecured loads
- Structural collapse during demolition or excavation

PREVENTION MEASURES

CATEGORY	PREVENTION MEASURES
Machine Guarding & LOTO	• All moving parts must have guards in place (29 CFR 1910.212) • Lockout/Tagout before ANY maintenance or adjustment • Never reach into operating machinery
Personal Precautions	• No loose clothing, jewelry, or long hair near rotating equipment • Never position body between equipment and immovable objects • Stay clear of equipment swing radius at all times
Trench & Excavation Safety	• Trench protective systems required at 5 ft depth • Sloping, shoring, or shielding per competent person • Never enter an unprotected trench — no exceptions
Equipment & Vehicles	• Use spotters when backing heavy equipment • Establish barricades around swing radius areas • Never walk between operating equipment and structures

REAL-WORLD SCENARIOS

SCENARIO	HAZARD TYPE	WHAT WENT WRONG	PREVENTION
Clothing caught in unguarded auger	Caught In — Machinery	Machine guard removed, loose sleeve pulled worker in	Replace guard; no loose clothing policy; LOTO for cleaning
Worker crushed between backing truck and wall	Caught Between — Equipment	No spotter; worker in blind spot between truck and structure	Use spotter; establish exclusion zone; high-vis vest
Trench cave-in buries worker	Caught In — Collapse	No protective system; trench deeper than 5 ft without shoring	Trench box or sloping; competent person inspection
Hand caught in conveyor belt	Caught In — Machinery	Worker cleared jam without shutting down conveyor	LOTO before clearing jam; never reach into running equipment

Discuss: Has anyone on this crew witnessed or experienced a caught-in/between near miss?

QUIZ / DISCUSSION

1 Name the three types of caught-in/between hazards.

Answer: Caught in running machinery, caught between equipment and fixed objects, and caught in collapsing materials (e.g., trench cave-in).

2 At what depth must trench protective systems be used?

Answer: 5 feet. Trenches 5 feet or deeper require protective systems (sloping, shoring, or shielding) unless excavated in stable rock.

3 What must be done before performing maintenance on equipment with moving parts?

Answer: Lockout/Tagout (LOTO) — De-energize the equipment and apply lock and tag to prevent unexpected startup.

TOOLBOX TALK SIGN-OFF

Caught-In / Caught-Between Hazards

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Working in Cold Weather

Ref: OSHA Cold Stress Guidance | NIOSH Cold Stress Publication

[Company Name]

[Date]

TOOLBOX TALK

WHY THIS MATTERS

~700

Workers die annually in the U.S. from environmental heat and cold exposure combined

-25°F

Wind chill at which exposed skin can develop frostbite in as little as 15 minutes

95°F

Below this core body temperature, hypothermia begins — confusion, shivering, and loss of coordination set in

Cold-Related Illnesses: Recognize the Signs

HYPOTHERMIA

- Core body temp drops below 95°F
- Early signs: shivering, fatigue, confusion, loss of coordination
- Severe: slurred speech, drowsiness, slow pulse, loss of consciousness
- First Aid: Move to warm area, remove wet clothing, warm center of body first, give warm beverages (no alcohol), seek EMS immediately

FROSTBITE & TRENCH FOOT

- Frostbite: skin freezes — numbness, waxy appearance, white/gray patches on ears, nose, fingers, toes
- Do NOT rub affected area — warm gently with body heat or warm (not hot) water
- Trench foot: prolonged exposure to cold, wet conditions — swelling, numbness, blisters
- Prevention: keep feet dry, change wet socks frequently, air out boots at breaks

Cold Weather Protection Strategies

LAYERING SYSTEM

- Base layer: moisture-wicking (polyester, merino wool) — never cotton
- Mid layer: insulating (fleece, down) — traps body heat
- Outer layer: wind/waterproof shell — blocks wind chill and rain/snow
- Protect extremities: insulated gloves, warm hat (40% heat loss from head), face covering in extreme cold

WORK PRACTICES

- Schedule warm-up breaks every 60-90 minutes in heated areas
- Use buddy system — watch coworkers for signs of cold stress
- Chemical hand/toe warmers in gloves and boots
- Stay hydrated — dehydration increases cold injury risk even in winter
- Monitor wind chill factor — not just temperature

Wind Chill Risk Levels

Wind Chill Temp	Risk Level	Action Required
Above 20°F	Low risk	Standard cold weather PPE, regular monitoring
20°F to 0°F	Moderate risk	Warm breaks every 60 min, buddy system required
0°F to -20°F	High risk	Warm breaks every 40 min, limit exposure time
-20°F to -40°F	Very high risk	15-min max exposure, heated enclosures required
Below -40°F	Extreme danger	Non-emergency outdoor work should be suspended
—	All levels	Ensure warm beverages available, emergency warming shelter on site

QUIZ / DISCUSSION

1

What are the three layers of a proper cold-weather layering system?

Answer: Base layer (moisture-wicking), mid layer (insulating fleece/down), and outer layer (wind/waterproof shell).

2

What should you NOT do if a coworker shows signs of frostbite?

Answer: Do not rub or massage the frostbitten area — this can cause further tissue damage. Warm gently with body heat or warm water.

3

Why is hydration still important when working in cold weather?

Answer: Dehydration increases the risk of cold-related injuries. Cold air is dry and your body still loses moisture through breathing and sweating under heavy layers.

ATTENDANCE SIGN-OFF

Working in Cold Weather

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By signing above, I confirm that I attended this toolbox talk and understand the material presented.

CONFINED SPACE ENTRY

29 CFR 1910.146 & 1926 Subpart AA

Presenter: _____

Date: _____

WHY THIS MATTERS

- From 2011 to 2018, 1,030 workers died in confined spaces — an average of 129 deaths per year (BLS Census of Fatal Occupational Injuries).
- More than 60% of confined space fatalities are would-be rescuers. The worker who goes in to save a buddy without proper equipment becomes the second victim.
- Atmospheric hazards are invisible killers: hydrogen sulfide (H₂S) deadens your sense of smell at high concentrations, carbon monoxide (CO) is odorless, and oxygen-deficient air gives no warning before you collapse.
- Permit-required confined spaces account for the majority of fatalities. The permit exists to force you through a checklist that keeps you alive.
- Construction now has its own confined space standard (29 CFR 1926 Subpart AA) — if you're in construction, you must follow it, not just the general industry rule.

Source: [BLS Confined Space Fatalities Fact Sheet](#)

ATMOSPHERIC TESTING & PERMIT ELEMENTS

- Test the atmosphere BEFORE entry, in this order: (1) Oxygen — must be 19.5% to 23.5%, (2) Flammability (LEL) — must be below 10% of the lower explosive limit, (3) Toxics — H2S below 10 ppm, CO below 25 ppm.
- Test at multiple levels — top, middle, and bottom of the space. Gases stratify: H2S is heavier than air (sinks), methane is lighter (rises), CO mixes evenly.
- Continuous atmospheric monitoring during the entire entry, not just at the start. Conditions change — welding, coating, or disturbing sludge can release deadly gases instantly.
- Entry permit must include: space identification, purpose of entry, date/time, authorized entrants, attendant name, atmospheric readings, rescue procedures, communication method, and entry supervisor signature.
- Permit-required vs. non-permit: A permit-required space has a recognized hazard (atmospheric, engulfment, configuration, or other). You can reclassify to non-permit ONLY by eliminating all hazards and documenting the basis.

ATTENDANT DUTIES & RESCUE PLANNING

- The attendant stays OUTSIDE the space for the entire entry. No exceptions. Their job is to monitor entrants, maintain communication, track who is inside, and summon rescue if anything goes wrong.
- The attendant must NEVER enter the space to attempt rescue. This is how 60% of confined space deaths happen. Your job is to call for help, not become the next victim.
- Communication must be continuous. If you lose contact with an entrant for any reason, initiate emergency procedures immediately — do not wait to see if they respond.
- Rescue planning: Non-entry rescue (retrieval systems with tripods and winches) is preferred. Entry rescue requires a trained rescue team with SCBA on standby. "Call 911" is not a rescue plan — municipal responders may not arrive equipped for confined space rescue.
- Every entrant must wear a chest or full-body harness attached to a retrieval line unless the retrieval line creates a greater hazard. The retrieval system must be in place and functional before anyone enters.

DISCUSSION QUESTIONS

Take 5 minutes to discuss with your crew:

1. Can you identify every confined space on this site? Which ones are permit-required and which are not?
2. If our gas monitor alarmed right now, what's the immediate procedure? Who do you contact first?
3. Who is the trained attendant for today's entry, and what are the three things they must never do?
4. If you saw a co-worker collapse in a confined space, what would you do — and what would you NOT do?

ATTENDANCE SIGN-OFF

Date: _____ Topic: Confined Space Entry Presenter: _____

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PERMIT-REQUIRED CONFINED SPACE AWARENESS

Understanding Entry Hazards and Required Controls

Reference: 29 CFR 1910.146 | 29 CFR 1926 Subpart AA

FORBES SAFETY SOLUTIONS

KEY STATISTICS

~100

Workers die in confined spaces in the U.S. every year

60%

Of confined space fatalities are would-be rescuers

#1

Atmospheric hazards are the leading cause of confined space deaths

WHAT MAKES A SPACE "CONFINED" AND "PERMIT-REQUIRED"

Confined Space — Three Criteria — large enough to enter and perform work; has limited or restricted entry/exit; not designed for continuous occupancy

Permit-Required — Hazard #1 — contains or has the potential to contain a hazardous atmosphere (toxic, flammable, oxygen-deficient/enriched)

Permit-Required — Hazard #2 — contains material that could engulf or trap an entrant (grain, sand, water, sewage)

Permit-Required — Hazard #3 — has an internal configuration that could trap or asphyxiate (inwardly converging walls, sloping floors)

Permit-Required — Hazard #4 — contains any other recognized serious safety or health hazard (mechanical, electrical, thermal)

Key Rule — never enter any confined space without first determining if it is permit-required — assume it is until proven otherwise

ATMOSPHERIC HAZARDS AND MONITORING

Oxygen Deficiency — below 19.5% O₂ is immediately dangerous; normal atmosphere is 20.9%

Oxygen Enrichment — above 23.5% O₂ creates extreme fire and explosion risk

Flammable Gases — monitor for LEL (Lower Explosive Limit); entry prohibited above 10% LEL

Toxic Gases — H₂S, CO, and other toxics must be below their PEL before entry

Continuous Monitoring — atmospheric testing must occur before entry and continuously throughout the work

Calibrated Instruments — all gas monitors must be bump-tested daily and calibrated per manufacturer requirements

ROLES, PERMITS, AND RESCUE PLANS

Entrant — the worker who enters; must know the hazards, monitor conditions, and exit immediately if danger arises

Attendant — remains outside at all times; tracks entrants, monitors conditions, summons rescue — never enters

Entry Supervisor — authorizes entry by signing the permit; verifies all precautions are in place before work begins

The Permit — documents hazards, controls, atmospheric readings, rescue plan, and duration — posted at the entry point

Rescue Plan — non-entry retrieval (tripod + harness) is preferred; entry rescue only by trained rescue teams

Never Enter Without a Permit — even to retrieve a tool — an unauthorized entry can be fatal in seconds

KNOWLEDGE CHECK

Which of the following is NOT one of the three criteria that define a confined space?

- A) Large enough to enter and perform work
- B) Contains a hazardous atmosphere
- C) Has limited or restricted entry/exit
- D) Not designed for continuous occupancy

Answer: B) A hazardous atmosphere makes it permit-required, but it is not one of the three defining criteria of a confined space.

CONFINED SPACE AWARENESS — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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CRANE SIGNAL PERSON TRAINING

Standard Hand Signals and Communication Requirements

Reference: 29 CFR 1926.1419-1422

FORBES SAFETY SOLUTIONS

KEY STATISTICS

250+

Crane-related deaths in the
U.S. over the past decade

80%

Of crane accidents involve
human error or
miscommunication

100%

Of multi-crane lifts require a
designated signal person

SIGNAL PERSON QUALIFICATIONS & RESPONSIBILITIES

Qualified Signal Person — must be evaluated by a qualified third party or employer per OSHA 1926.1419

Know Standard Signals — must demonstrate proficiency in all standard hand signals before directing crane operations

Clear Line of Sight — signal person must maintain visual contact with operator at all times or use alternative communication

Competent in Load Path — must understand load dynamics, swing radius, and rigging to anticipate movements

Authority to Stop — any signal person can issue STOP and the operator must obey immediately

When Required — signals are mandatory when the operator cannot see the load, landing zone, or the path of travel

STANDARD HAND SIGNALS — OSHA / ASME B30.5

Hoist — forearm vertical, index finger pointing up, move hand in small circles

Lower — arm extended downward, index finger pointing down, move hand in small circles

Swing — arm extended, point with finger in direction of swing of boom

Boom Up — arm extended, fingers closed, thumb pointing upward

Boom Down — arm extended, fingers closed, thumb pointing downward

Stop — arm extended, palm down, move arm back and forth horizontally

Emergency Stop — both arms extended, palms down, move arms back and forth horizontally

Dog Everything — clasp hands in front of body — halt all operations

VOICE & RADIO SIGNALS AND LINE OF SIGHT

Voice / Radio Signals — permitted when hand signals are not practical due to distance, obstructions, or darkness

Dedicated Channel — radio communication must use a dedicated channel free from unrelated traffic

Confirm Before Moving — operator must repeat the signal back and receive confirmation before executing the movement

Line of Sight Required — if the signal person loses sight of the load or operator, all operations must stop immediately

Multiple Signal Persons — only one designated signal person directs at a time; transfer of duties must be clearly communicated

Signal Person Positioning — must stand in a safe location visible to the operator and clear of the swing radius and load path

KNOWLEDGE CHECK

What hand signal requires BOTH arms extended, palms down, moving back and forth?

- A) Stop
- B) Dog Everything
- C) Emergency Stop
- D) Boom Down

Answer: C) Emergency Stop — both arms distinguish it from a regular stop (one arm).

CRANE SIGNAL PERSON TRAINING — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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Distracted Driving / Fleet Safety

[Company Name]

[Date]

Why This Matters

3,500+

People killed by
distracted driving
per year (NHTSA)

4.6 sec

Average eyes-off-road
time when texting
at 55 mph = 100 yds

6x

More likely to
cause a crash than
drunk driving

Three Types of Driver Distraction

Visual

Taking your eyes off the road

Looking at a phone, GPS, map, or passenger. Checking mirrors excessively. Rubbernecking at roadside events.

Manual

Taking your hands off the wheel

Texting, eating, drinking, adjusting radio or climate controls, reaching for objects in the cab.

Cognitive

Taking your mind off driving

Daydreaming, emotional stress, hands-free phone conversations, fatigue, thinking about work tasks.

Texting is the most dangerous because it involves all three types of distraction simultaneously.

Fleet Safety Rules & Best Practices

Cell Phone Policy

No handheld phone use while driving — ever. Many company policies also prohibit hands-free calls. Pull over safely if you must take a call.

Pre-Trip Planning

Plan your route before departure. Set GPS destination while parked. Check weather and road conditions in advance.

Seatbelts Required

Wear your seatbelt at all times. All passengers must also be belted. No exceptions — it's the single most effective crash protection.

Defensive Driving

Maintain safe following distance (4+ seconds). Scan intersections. Anticipate other drivers' actions. Slow down in work zones.

Fatigue on Long Drives

Take a break every 2 hours or 100 miles. If drowsy, pull over — don't push through. Avoid driving during your normal sleep hours.

Report Unsafe Conditions

Report vehicle defects, near-misses, and unsafe road conditions immediately. Your report could prevent the next incident.

Pre-Trip & Safe Driving Checklist

Before Departure

Walk-around inspection completed

Tires, lights, mirrors, wipers checked

Seatbelt on before starting vehicle

GPS/route set before departure

Phone silenced and stored away

On the Road

Mirrors properly adjusted

Load secured (if applicable)

Weather and road conditions reviewed

Emergency equipment present

Scheduled breaks planned for long trips

Quiz / Discussion

Q1: How long does texting take your eyes off the road on average?

A: 4.6 seconds — at 55 mph, that's the length of a football field driven blind.

Q2: What are the three types of driver distraction?

A: Visual (eyes off road), manual (hands off wheel), and cognitive (mind off driving).

Q3: What should you do if you need to make a phone call while driving?

A: Pull over to a safe location and stop the vehicle before making the call.

ATTENDANCE SIGN-OFF

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DRUG & ALCOHOL AWARENESS

Maintaining a Safe and Drug-Free Workplace

Reference: Drug-Free Workplace Act | Company Policy

FORBES SAFETY SOLUTIONS

KEY STATISTICS

65%

Of all workplace accidents
are related to substance
abuse

3-5×

Impaired workers file
workers' comp claims at 3 to
5 times the rate

40%

Of industrial fatalities involve
alcohol or drug use

EFFECTS OF IMPAIRMENT ON JOBSITE SAFETY

Slowed Reaction Time — impaired workers cannot respond quickly to hazards, moving equipment, or emergency signals

Poor Judgment — drugs and alcohol reduce risk perception — impaired workers take shortcuts and ignore safety procedures

Loss of Coordination — balance, fine motor skills, and spatial awareness deteriorate, increasing fall and struck-by risk

Reduced Alertness — drowsiness, tunnel vision, and inability to concentrate put the worker and everyone nearby at risk

Prescription Medications — opioids, muscle relaxants, sedatives, and some antihistamines can impair just as severely as illegal drugs

Your Responsibility — inform your supervisor if a prescribed medication may affect your ability to work safely — before starting your shift

TESTING, CONSEQUENCES, AND ZERO TOLERANCE

Pre-Employment Testing — drug screening is required before starting work on any project

Random Testing — unannounced random testing may occur at any time during employment

Post-Incident Testing — mandatory drug and alcohol testing after any recordable incident or near-miss

Reasonable Suspicion — supervisors trained to recognize impairment signs may require immediate testing

Consequences of Violation — positive test, refusal to test, or tampering results in immediate removal from site and potential termination

Zero Tolerance Policy — possession, use, sale, or being under the influence of drugs or alcohol on the jobsite is strictly prohibited

REPORTING CONCERNS AND EAP RESOURCES

How to Report Concerns — if you suspect a coworker is impaired, report it to your supervisor or safety manager immediately and confidentially

You Are Not Being Disloyal — reporting a concern may save that person's life and the lives of everyone working around them

Employee Assistance Program (EAP) — free, confidential counseling and support services available to all employees and their families

EAP Covers — substance abuse, mental health, stress management, financial counseling, and family issues

Voluntary Self-Referral — employees who seek help voluntarily before a policy violation may be eligible for assistance rather than discipline

Your Role — keep yourself and your coworkers safe — look out for each other, speak up, and never cover for impaired behavior

KNOWLEDGE CHECK

What should you do if a prescription medication you are taking may affect your ability to work safely?

- A) Take half the dose so you can still work
- B) Inform your supervisor before starting your shift
- C) Only tell someone if you feel impaired
- D) There is no requirement to disclose prescriptions

Answer: B) Inform your supervisor before starting your shift — it is your responsibility to report any medication that may impair job performance.

DRUG & ALCOHOL AWARENESS — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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FORBES SAFETY SOLUTIONS

EMERGENCY ACTION PLAN REVIEW

Evacuation, Alarms, Assembly Points & Emergency Contacts

Ref: 29 CFR 1910.38 | 29 CFR 1926.35

TOOLBOX TALK

KEY STATISTICS

Only 40% of Businesses

Have an emergency preparedness plan — leaving the majority unprepared

Minutes Matter

Effective evacuation depends on knowing routes and assembly points before an emergency

Every Worker's Responsibility

Every person on site must know the EAP — emergencies don't wait for management

PURPOSE & KEY EAP ELEMENTS

- The Emergency Action Plan (EAP) establishes procedures for responding to workplace emergencies
- OSHA requires a written EAP that is communicated to all employees (29 CFR 1910.38 / 29 CFR 1926.35)
- Know your PRIMARY evacuation route and at least one ALTERNATE route from every work area
- Identify your designated assembly point — go there immediately after evacuating
- Headcount procedures: supervisors must account for every person at the assembly point
- Never re-enter the building or work area until the all-clear is given by an authorized person
- Review the EAP at every new site, whenever the plan changes, and at least annually

ALARMS, EQUIPMENT & KEY LOCATIONS

- Know what the alarm signals sound like and what each one means (fire, evacuation, shelter-in-place, all-clear)
- Fire extinguisher locations: know the nearest extinguisher to your work area and how to use PASS (Pull-Aim-Squeeze-Sweep)
- First aid kits: know the location of the nearest kit and who the designated first aid responders are
- AED locations: know where Automated External Defibrillators are positioned on site
- Severe weather shelter areas: identify interior rooms or reinforced areas for tornado/storm shelter
- Emergency contact numbers: post emergency numbers for 911, site safety officer, and project manager visibly
- Know the location of utility shut-offs (gas, electric, water) in case of emergency

EVACUATE VS. SHELTER IN PLACE

- EVACUATE for: fire, explosion, gas leak, bomb threat, structural collapse, or any order to evacuate
- SHELTER IN PLACE for: severe weather (tornado, lightning), external chemical release, active threat
- When evacuating: walk — do not run; use designated routes; assist anyone needing help; do NOT use elevators
- When sheltering: move to interior rooms away from windows; close doors; wait for further instructions
- Reporting emergencies: call 911, then notify your supervisor and site safety officer immediately
- If you discover a fire: activate the nearest alarm, evacuate, call 911 — only fight a small fire if trained and safe
- Practice makes prepared: participate in every drill and ask questions if anything is unclear

QUIZ — TEST YOUR KNOWLEDGE

Q1: What are the two main response options in an emergency, and when is each used?

A: Evacuate (fire, gas leak, explosion) or Shelter in Place (severe weather, external chemical release).

Q2: What does the acronym PASS mean for fire extinguisher use?

A: Pull the pin, Aim at the base of the fire, Squeeze the handle, Sweep side to side.

Q3: After evacuating, what must you do at the assembly point?

A: Report to your supervisor for headcount — never re-enter until the all-clear is given.

SIGN-OFF SHEET

Emergency Action Plan Review

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FORBES SAFETY SOLUTIONS

ELECTRICAL SAFETY & ARC FLASH AWARENESS

Toolbox Talk — Electrical Hazard Awareness

[Company Name]

[Date]

Reference: 29 CFR 1910.331-335 | NFPA 70E | 29 CFR 1926.405

WHY THIS MATTERS

Arc flash can reach temperatures of 35,000°F — four times hotter than the surface of the sun.

~1,000

Electrical injuries
per year in
U.S. workplaces

5–10

Arc flash incidents
per day in the U.S.
(NFPA data)

35,000°F

Arc flash
temperature —
explosive force

ARC FLASH & APPROACH BOUNDARIES

WHAT IS ARC FLASH?

An arc flash is an explosive release of energy caused by an electrical fault between conductors or a conductor and ground.

Dangers include:

- Temperatures up to 35,000°F
- Explosive pressure wave (blast)
- Molten metal shrapnel
- Intense light — can cause blindness
- Severe burns and hearing damage

APPROACH BOUNDARIES (NFPA 70E)

BOUNDARY	WHO MAY ENTER	REQUIREMENT
Arc Flash Boundary	Qualified / Unqualified w/ PPE	Arc-rated PPE required
Limited Approach	Qualified persons only	Shock hazard awareness
Restricted Approach	Qualified with written plan	Insulated tools & shock PPE
Prohibited Approach	Same as direct contact	Same PPE as direct contact

PPE CATEGORIES & QUALIFIED PERSONS

ARC FLASH PPE CATEGORIES (NFPA 70E)

CAT	cal/cm ²	REQUIRED PPE
1	4	Arc-rated shirt/pants, safety glasses, hearing protection, leather gloves
2	8	Cat 1 + arc-rated face shield, balaclava
3	25	Arc flash suit hood, arc-rated jacket/pants, insulated gloves w/ leather protectors
4	40	Multi-layer arc flash suit, heavy-duty insulated gloves, full face shield + hood

QUALIFIED VS. UNQUALIFIED

Qualified Person:

- Trained to work on or near exposed energized parts
- Can identify hazards and determine approach boundaries
- Authorized to enter restricted/prohibited boundaries

Unqualified Person:

- Must stay outside the limited approach boundary
- May NOT work on energized equipment
- Must be escorted if entering limited boundary

KEY ELECTRICAL SAFETY RULES

DE-ENERGIZE FIRST

De-energizing is ALWAYS the safest option.

Lockout/Tagout (LOTO) Steps:

- Notify all affected employees
- Identify all energy sources
- Isolate energy sources
- Apply lockout/tagout devices
- Verify zero energy state
- Test before you touch!

CONSTRUCTION SITE REQUIREMENTS

GFCIs required on all construction sites

(29 CFR 1926.405)

- Inspect all cords and tools before each use
- Keep minimum 10 ft clearance from overhead power lines (up to 50kV)
- Never use damaged cords — replace immediately
- Do not overload circuits or use multi-outlet adapters
- Mark all electrical panels — keep 36" clearance
- Report any shock, tingle, or sparking immediately

QUIZ / DISCUSSION

Q1 What is the safest approach before performing electrical work?

Answer: De-energize the equipment first using Lockout/Tagout (LOTO) procedures, then verify zero energy before starting work.

Q2 What PPE category requires a full arc flash suit, and what is its cal/cm² rating?

Answer: Category 4 — rated at 40 cal/cm². Requires multi-layer arc flash suit, heavy-duty insulated gloves, full face shield and hood.

Q3 Can an unqualified person work inside the limited approach boundary?

Answer: No. Unqualified persons must stay outside the limited approach boundary and may only enter if escorted by a qualified person.

ATTENDANCE SIGN-OFF

By signing below, I acknowledge that I attended and understood this Toolbox Talk on Electrical Safety / Arc Flash Awareness.

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Eye & Face Protection

[Company Name]

[Date]

Why This Matters

2,000

Workplace eye
injuries per day
requiring treatment

90%

Of eye injuries are
preventable with
proper eyewear

\$300M+

Annual cost of
workplace eye
injuries in the U.S.

Common Eye & Face Hazards

Flying Debris

Cutting, chipping, grinding, and drilling generate high-speed particles that can penetrate the eye

Grinding Sparks

Metal grinding produces hot sparks and fragments that cause severe burns and corneal damage

Chemical Splash

Solvents, acids, caustics, and cleaning agents can cause permanent eye damage on contact

UV Radiation

Welding arcs, sunlight, and cutting torches emit UV that causes painful flash burns (arc eye)

Dust & Fine Particles

Concrete dust, sawdust, and insulation fibers cause irritation, scratches, and infections

Types of Eye & Face Protection

Safety Glasses

Impact-rated lenses with side shields. Required for general construction work. Must meet ANSI Z87.1 — look for the "Z87+" marking on the lens.

Safety Goggles

Sealed fit around the eyes. Required for chemical splash, dust exposure, and high-impact tasks where debris can enter from sides.

Face Shields

Full-face coverage. Used over safety glasses for grinding, chipping, and chemical handling. Not standalone protection.

Welding Helmets

Auto-darkening or fixed-shade lenses for welding and cutting operations. Proper shade number based on the welding process.

Best Practices & ANSI Z87.1 Markings

Best Practices

Wear eye protection at all times on site

Inspect lenses for scratches and damage daily

Use anti-fog coatings in humid environments

Ensure side shields are always attached

Prescription safety glasses must also meet Z87.1

Replace damaged or scratched eyewear immediately

- Clean lenses with approved lens cleaner only

ANSI Z87.1 Markings

Marking	Meaning
Z87+	High-impact rated
Z87	Basic impact rated
D3	Splash/droplet protection
D4	Dust protection
D5	Fine dust protection
W (shade #)	Welding shade filter
U (scale #)	UV filter rating

Quiz / Discussion

Q1: What percentage of eye injuries are preventable with proper PPE?

A: 90% — the vast majority of eye injuries can be avoided with correct eyewear.

Q2: What marking on safety glasses indicates high-impact rating?

A: Z87+ stamped on the lens confirms it meets ANSI high-impact standards.

Q3: Can a face shield be worn alone as eye protection?

A: No — face shields must always be worn over safety glasses or goggles.

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FALL PROTECTION

29 CFR 1926.501-503

Presenter: _____

Date: _____

FORBES SAFETY SOLUTIONS

TOOLBOX TALK

WHY THIS MATTERS

- Falls are the #1 killer in construction. In 2024, falls to a lower level caused 370 fatalities among construction and extraction workers — over a third of all construction deaths (BLS CFOI 2024).
- Fall Protection has been OSHA's most cited violation for 15 consecutive years, with over 7,000 citations issued in FY 2024 alone.
- The average fall fatality happens from just 6 to 10 feet. You don't need to be on a high-rise to die.
- Most fall deaths are 100% preventable. The equipment exists. The standards are clear. The gap is compliance.
- A single fall fatality can result in OSHA penalties exceeding \$150,000, criminal referrals, and project shutdowns.

Source: [OSHA Fall Prevention Campaign](#)

FORBES SAFETY SOLUTIONS

100% TIE-OFF & ANCHORAGE POINTS

- 100% tie-off means you are connected at ALL times when at 6 feet or above — no exceptions for "just a second" or "I'm almost done."
- Anchorage points must support 5,000 lbs per worker or be designed by a qualified person as part of a complete PFAS with a safety factor of 2.
- Never tie off to conduit, vents, antenna mounts, or anything you haven't verified. If you wouldn't hang your truck from it, don't hang yourself from it.
- When moving between anchorage points, use a dual-lanyard system so one hook is always connected before the other releases.
- Guardrails are the first line of defense — they protect without any action from the worker. Use them wherever feasible before defaulting to personal fall arrest.

HARNESS INSPECTION & RESCUE PLANNING

- Inspect harnesses before every use with the ABC method: A = Anchors/D-rings (centered between shoulder blades), B = Buckles/Belts (no fraying, all buckles lock), C = Connections/Straps (no cuts, burns, chemical damage).
- Any harness involved in a fall arrest event must be immediately removed from service and destroyed — no exceptions, even if it "looks fine."
- Rescue planning is not optional. OSHA requires a rescue plan BEFORE anyone goes to height. "Call 911" is not a rescue plan — suspension trauma can kill in under 30 minutes.
- Every crew working at height must have a rescue method available: self-rescue training, rescue team on standby, or mechanical retrieval equipment.
- Never modify, paint, or attach unauthorized items to fall protection equipment. If the manufacturer didn't put it there, it doesn't belong.

DISCUSSION QUESTIONS

Take 5 minutes to discuss with your crew:

1. Where on this jobsite are we most exposed to fall hazards today? Are all those areas controlled?
2. When was the last time you actually inspected your harness — and what would you look for?
3. If someone on your crew went into suspension right now, what's our plan to get them down in under 6 minutes?
4. Have you ever seen someone skip their tie-off "just for a second"? What would you say to them?

ATTENDANCE SIGN-OFF

Date: _____ Topic: Fall Protection Presenter: _____

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Fatigue & Alertness

[Company Name]

[Date]

Why This Matters

70%

Higher likelihood
of incidents for
fatigued workers

17 hrs

Awake = impairment
equivalent to
0.05% BAC

13%

Of workplace
injuries attributed
to fatigue

Fatigue Risk Factors

Long Shifts

Shifts over 10 hours significantly increase fatigue risk. Extended overtime compounds the effect over consecutive days.

Inadequate Sleep

Adults need 7–9 hours of quality sleep. Chronic sleep debt accumulates and cannot be fully recovered in one night.

Night & Rotating Shifts

Working against your natural circadian rhythm disrupts sleep quality and reduces alertness during critical hours.

Monotonous Tasks

Repetitive, low-stimulation work reduces mental engagement. Vigilance drops sharply after 20-30 minutes of monotony.

Physical Demands

Heavy manual labor, heat exposure, and dehydration accelerate physical fatigue and slow reaction times.

Personal Factors

Sleep disorders, medications, poor nutrition, and off-duty activities (second jobs, caregiving) all contribute to fatigue.

Fatigue Countermeasures

Sleep Hygiene

Maintain a consistent sleep schedule. Dark, cool, quiet bedroom. Avoid screens 1 hour before bed. Limit caffeine after 2 PM.

Hydration & Nutrition

Dehydration accelerates fatigue. Drink water throughout the shift. Eat balanced meals — avoid heavy, sugary foods.

Strategic Breaks

Take breaks every 2 hours minimum. Short 10-15 minute rest breaks restore alertness more than you think.

Report Fatigue

If you're too tired to work safely, speak up. It's not weakness — it's the same as reporting any other hazard.

Supervisor Awareness

Watch for signs in your crew: yawning, slow reactions, irritability, errors. Intervene before an incident occurs.

Buddy System

Look out for each other. A coworker may not realize how impaired they are — fatigue affects self-assessment.

Fatigue Warning Signs & Impairment Scale

Warning Signs of Fatigue

- Frequent yawning or heavy eyelids
- Difficulty concentrating or focusing
- Slower reaction times
- Increased irritability or mood changes
- Making unusual mistakes or errors
- Microsleeps (nodding off briefly)
- Forgetting tasks or procedures
- Poor decision-making and judgment

Fatigue vs. Alcohol Impairment

Hours Awake	Equivalent BAC
17 hours	~0.05%
20 hours	~0.08% (legal limit)
24 hours	~0.10%
36 hours	~0.14%

After 17 hours awake, your impairment level equals having a blood alcohol content of 0.05% — enough to significantly slow reaction time.

Quiz / Discussion

Q1: Being awake for 17 hours equals impairment at what BAC level?

A: 0.05% BAC — enough to significantly impair reaction time and judgment.

Q2: Name three warning signs that a coworker may be fatigued.

A: Yawning, difficulty concentrating, slower reactions, irritability, making unusual mistakes, microsleeps.

Q3: What should you do if you feel too fatigued to work safely?

A: Report it to your supervisor immediately. Fatigue is a workplace hazard like any other.

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Fire Prevention on the Jobsite

Ref: 29 CFR 1926.150–155 — Fire Protection and Prevention

[Company Name]

[Date]

TOOLBOX TALK

WHY THIS MATTERS

4,000+

Structure fires at construction sites reported annually in the United States

\$300M+

Annual property damage from fires on construction and renovation sites

37%

Of construction fires are caused by hot work operations (cutting, welding, brazing)

Common Fire Causes on Construction Sites

IGNITION SOURCES

- Hot work: welding, cutting, brazing, soldering — sparks can travel 35+ feet
- Electrical faults: overloaded circuits, damaged cords, temporary wiring
- Temporary heating devices placed too close to combustibles
- Smoking in unauthorized areas
- Improperly discarded rags soaked with solvents or oils

FUEL SOURCES & CONDITIONS

- Flammable liquids: gasoline, solvents, adhesives, paints stored improperly
- Combustible construction materials: lumber, insulation, packaging
- Accumulated trash, sawdust, and debris on site
- Compressed gas cylinders stored near heat sources
- Poor housekeeping is the #1 contributing factor to fire spread

Fire Extinguisher Use & Response

P.A.S.S. TECHNIQUE

- P — PULL the pin to unlock the extinguisher
- A — AIM the nozzle at the base of the fire, not the flames
- S — SQUEEZE the handle to release the extinguishing agent
- S — SWEEP side to side at the base until the fire is out
- Stand 6-8 feet from the fire; back away facing the fire area

FIGHT OR EVACUATE?

- ONLY fight a fire if: it is small (trash can size), you have a clear escape route, the extinguisher is rated for the fire type, and you are trained
- EVACUATE if: fire is spreading, room fills with smoke, you are unsure, or extinguisher is empty/ineffective
- Always alert others and call 911 before attempting to fight
- Know your site evacuation routes and assembly points

Hot Work Permit & Housekeeping Requirements

Requirement	Standard	Key Details
Hot Work Permit	Required	Written permit for all welding, cutting, brazing operations
Fire Watch	30 min minimum	Trained person monitors area during and 30 min after hot work
Extinguisher distance	Within 25 ft	Fully charged, correct type extinguisher within travel distance
Flammable storage	Approved cabinets	Max 25 gallons per cabinet; away from ignition sources
Combustible clearance	35 ft radius	Remove or cover combustibles within 35 ft of hot work
Daily cleanup	End of shift	Remove trash, oily rags, and debris daily; rags in metal containers with lids

QUIZ / DISCUSSION

1

What does P.A.S.S. stand for when using a fire extinguisher?

Answer: Pull the pin, Aim at the base of the fire, Squeeze the handle, Sweep side to side.

2

How long must a fire watch be maintained after hot work is completed?

Answer: A minimum of 30 minutes after hot work operations have ended to ensure no smoldering material remains.

3

Name two conditions where you should evacuate rather than fight a fire.

Answer: Any two of: the fire is spreading rapidly, the room is filling with smoke, you don't have a clear escape route, the extinguisher is empty or ineffective, or you are untrained.

ATTENDANCE SIGN-OFF

Fire Prevention on the Jobsite

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By signing above, I confirm that I attended this toolbox talk and understand the material presented.

FORBES SAFETY SOLUTIONS

PORTABLE GENERATOR SAFETY

Carbon Monoxide, Electrical Hazards & Safe Operation

Ref: 29 CFR 1926.405 | OSHA/NIOSH Generator Safety Guidance

TOOLBOX TALK

KEY STATISTICS

~70 Deaths/Year

From carbon monoxide poisoning linked to portable generators

900+ ER Visits/Year

CO poisoning incidents involving portable generators

#1 Generator Hazard

Carbon monoxide — odorless, colorless, and deadly

Source: U.S. Consumer Product Safety Commission (CPSC)

CARBON MONOXIDE & PLACEMENT

- NEVER operate a generator indoors, in garages, basements, or any enclosed/partially enclosed space
- Place generators at least 20 feet from buildings with exhaust directed away from doors, windows, and vents
- CO is odorless and colorless — you cannot detect it without a monitor
- Early CO poisoning symptoms: headache, dizziness, nausea, confusion, weakness
- Advanced symptoms: loss of consciousness, brain damage, death — can occur in minutes
- Use battery-operated CO detectors in nearby occupied spaces when generators are running
- If anyone shows CO symptoms, move to fresh air immediately and call 911

ELECTRICAL HAZARDS & GFCI PROTECTION

- Always use a Ground Fault Circuit Interrupter (GFCI) when connecting tools or equipment
- Properly ground the generator per manufacturer instructions and 29 CFR 1926.405
- Never plug a generator directly into a building's wiring (backfeeding) — use a transfer switch
- Inspect power cords for damage before each use — replace frayed or cut cords immediately
- Keep generators dry; do not operate in rain or wet conditions without proper cover
- Never overload a generator — know the wattage rating and total connected load
- Use heavy-duty, outdoor-rated extension cords with adequate wire gauge

FUEL HANDLING & STORAGE

- Turn off the generator and let it cool completely before refueling — fuel on a hot engine can ignite
- Store fuel in approved containers away from the generator and any ignition sources
- Never store fuel indoors or near occupied buildings
- Keep a fire extinguisher rated for flammable liquids (Class B) near the generator at all times
- Do not smoke near generators or fuel storage areas
- Inspect fuel lines and connections for leaks before starting
- Follow manufacturer lockout/tagout procedures for maintenance and repairs

QUIZ — TEST YOUR KNOWLEDGE

Q1: How far from buildings should a portable generator be placed?

A: At least 20 feet away, with exhaust directed away from doors, windows, and vents.

Q2: Why must you use a GFCI with a portable generator?

A: To protect against electrical shock from ground faults in connected equipment.

Q3: Why should you never refuel a generator while it is running?

A: Fuel spilled on a hot engine can ignite and cause a fire or explosion.

SIGN-OFF SHEET

Portable Generator Safety

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GHS / HAZARD COMMUNICATION & SDS READING

Understanding Chemical Labels, Pictograms, and Safety Data Sheets

Reference: 29 CFR 1910.1200 | Globally Harmonized System (GHS)

FORBES SAFETY SOLUTIONS

KEY STATISTICS

50,000+

Hazardous chemicals used in
U.S. workplaces

32M

Workers potentially exposed
to chemical hazards annually

16

Standardized sections in
every Safety Data Sheet

GHS PICTOGRAMS — THE 9 HAZARD SYMBOLS

Flame — flammable gases, liquids, solids, aerosols, and self-reactive substances

Flame Over Circle — oxidizers that can cause or intensify fire

Exploding Bomb — explosives, self-reactive chemicals, and organic peroxides

Skull and Crossbones — acutely toxic substances — fatal or toxic if swallowed, inhaled, or through skin contact

Corrosion — causes severe skin burns, eye damage, or corrodes metals

Health Hazard (person) — carcinogens, mutagens, reproductive toxins, respiratory sensitizers, organ toxicity

Exclamation Mark — irritants, narcotic effects, skin sensitizers, acute toxicity (less severe)

Gas Cylinder — compressed, liquefied, dissolved, or refrigerated gases under pressure

Environment — aquatic toxicity — hazardous to the aquatic environment (not mandatory under OSHA)

SDS 16-SECTION FORMAT — KEY SECTIONS

Section 1 — Identification — product name, manufacturer, emergency phone number

Section 2 — Hazard(s) Identification — GHS classification, signal word, pictograms, hazard & precautionary statements

Section 4 — First-Aid Measures — symptoms, required treatment by route of exposure (inhalation, skin, eye, ingestion)

Section 8 — Exposure Controls / PPE — permissible exposure limits (PELs), engineering controls, required PPE

Sections 9–11 — Physical/chemical properties, stability/reactivity, and toxicological information

Sections 14–16 — Transport, regulatory, and other information including revision date

EMPLOYEE RIGHTS AND CONTAINER LABELING

Right to Know — every employee has the legal right to access SDS for any chemical in their workplace

SDS Location — SDS binders or digital access must be available at all times during the shift — know where yours are

Container Labels Must Include — product name, signal word (Danger or Warning), GHS pictograms, hazard statements, and precautionary statements

Secondary Containers — must be labeled with product name and hazards when transferred from the original container

Never Remove Labels — defaced or missing labels must be replaced immediately — an unlabeled container is a violation

Training Requirement — employers must train workers on HazCom at hire and whenever a new chemical hazard is introduced

KNOWLEDGE CHECK

Which SDS section tells you what PPE is required when working with a chemical?

- A) Section 2 — Hazard Identification
- B) Section 4 — First-Aid Measures
- C) Section 8 — Exposure Controls / PPE
- D) Section 11 — Toxicological Information

Answer: C) Section 8 — Exposure Controls / Personal Protective Equipment.

GHS / HAZCOM & SDS READING — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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FORBES SAFETY SOLUTIONS

HAND & POWER TOOL SAFETY

29 CFR 1926.300-307 | 29 CFR 1910.242-244

TOOLBOX TALK

[Company Name]

[Date]

WHY THIS MATTERS

Tools Are Involved in Hundreds of Thousands of Injuries Every Year

110K

**Hand Tool ER
Visits / Year**

Workers sent to the
emergency room annually

400K

**Power Tool ER
Visits / Year**

Injuries from power tools
requiring medical treatment

510K+

**Total Annual
Tool Injuries**

Combined hand and power
tool injuries each year

Source: Bureau of Labor Statistics / U.S. Consumer Product Safety Commission

HAND TOOL SAFETY

CATEGORY	KEY PRACTICES
Inspection & Condition	• Inspect all tools before each use • Remove damaged tools from service immediately • No mushroomed heads on chisels or wedges
Proper Use	• Use the right tool for the job — no improvising • Proper wrench sizing — never use cheater bars • Keep cutting tools sharp (dull = more force = less control)
Carrying & Storage	• Carry tools in a belt or bucket, not pockets • Never carry tools loose in hands while climbing • Store tools properly — designated racks and boxes
Housekeeping	• Return tools to proper storage after use • Keep work area clear of unused tools • Secure tools at height to prevent dropped objects

POWER TOOL SAFETY

CATEGORY	KEY PRACTICES
Guards & Safety Devices	• All guards must be in place before operation • Never remove or bypass safety guards • Trigger locks — use and verify function
Electrical Safety	• Use grounded or double-insulated tools only • Inspect cords for damage before each use • GFCI protection required on construction sites
Powder-Actuated Tools	• Only certified/trained operators may use • Treat like a loaded firearm — never point at anyone • Test fire into approved material before each shift
General Rules	• Disconnect power before changing accessories • Keep cords clear of cutting path and heat • Never carry a tool by its cord

PPE REQUIREMENTS FOR TOOL USE

TASK / TOOL	EYE	FACE SHIELD	HEARING	GLOVES
Grinding / Cutting	Required	Required	Required	Task-specific
Drilling / Hammering	Required	Recommended	As needed	Task-specific
Powder-Actuated Tools	Required	Required	Required	Required
Hand Tools	Required	As needed	As needed	Task-specific
Saws (circular, recip.)	Required	Recommended	Required	Anti-vibration

Always match gloves to the task — cut-resistant for sharp materials, anti-vibration for power tools, leather for hot work.

QUIZ / DISCUSSION

1 What should you do before using any tool on the jobsite?

Answer: Inspect it. Check for damage, defects, or wear. Remove damaged tools from service immediately — never use a defective tool.

2 Why is using a dull cutting tool more dangerous than a sharp one?

Answer: A dull tool requires more force to cut, reducing control and increasing the chance of the tool slipping and causing injury.

3 Who is permitted to operate a powder-actuated tool?

Answer: Only workers who have been trained and certified on that specific tool. Treat it like a firearm — never point at anyone.

TOOLBOX TALK SIGN-OFF

Hand & Power Tool Safety

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HEAT ILLNESS PREVENTION

OSHA Heat NEP & State Standards (CA, TX, AZ, NM)

Presenter: _____

Date: _____

WHY THIS MATTERS

- Heat killed at least 211 workers between 2017 and 2022, and those numbers significantly undercount the true toll — many heat deaths are recorded as heart attacks or falls (EPI/BLS data).
- An estimated 28,000 workplace injuries per year are directly linked to working on hot days, affecting virtually every industry including indoor work (GW/Harvard 2025 study).
- Injury risk starts climbing at a heat index of 85°F and rises steeply above 90°F. By the time it "feels hot," you're already in the danger zone.
- New and returning workers are at the highest risk. Over 50% of heat-related deaths occur in a worker's first few days on the job.
- States like California, Arizona, Texas, and New Mexico have specific heat regulations. Know your state's trigger temperatures and required rest breaks.

HEAT STROKE vs. HEAT EXHAUSTION

- HEAT EXHAUSTION: Heavy sweating, cold/clammy skin, weak pulse, nausea, dizziness, headache. The body is still trying to cool down. Move to shade, cool water, loosen clothing.
- HEAT STROKE: Body temp above 103°F, hot/red/DRY skin (sweating has stopped), rapid strong pulse, confusion, slurred speech, loss of consciousness. THIS IS A MEDICAL EMERGENCY — call 911 immediately.
- The critical difference: heat exhaustion is the warning, heat stroke is the failure. If you miss the warning, you're fighting for someone's life.
- Water-Rest-Shade is the rule. Drink water every 15-20 minutes even if you don't feel thirsty. By the time you're thirsty, you're already behind on hydration.
- Acclimatization protocol: New workers or those returning from 7+ days off must ramp up over 14 days — start at 20% workload on day 1 and increase by no more than 20% per day.

FIELD PROCEDURES & EMERGENCY RESPONSE

- Buddy system is mandatory in high-heat conditions. Never let someone work alone — confused workers don't recognize their own symptoms.
- Pre-shift planning: Check the heat index forecast. Above 80°F, increase water and shade. Above 90°F, implement mandatory rest cycles. Above 105°F, consider rescheduling work.
- Provide cool (not ice cold) drinking water at the rate of 1 quart per hour per worker, positioned within easy walking distance. No water = no work.
- Shade or air-conditioned rest areas must be available when temps exceed trigger levels. Workers showing ANY symptoms must be relieved immediately — do not wait for them to ask.
- Emergency action: If someone shows heat stroke signs (confusion, no sweating, hot skin), call 911 immediately, move them to shade, apply cold water/ice to neck, armpits, and groin. Do not give fluids if unconscious.

DISCUSSION QUESTIONS

Take 5 minutes to discuss with your crew:

1. How much water have you actually drunk today? Could you point to where the nearest water and shade station is right now?
2. Do we have any new workers on the crew this week? Are they on an acclimatization schedule?
3. What's the difference between heat exhaustion and heat stroke — and what do you do for each?
4. Who is your buddy today? Would you know if they were starting to show symptoms?

ATTENDANCE SIGN-OFF

Date: _____ Topic: Heat Illness Prevention Presenter: _____

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Housekeeping on Construction Sites

[Company Name]

[Date]

Why This Matters

25%

Of all workplace
injuries involve
slips, trips & falls

#1

OSHA violation
cited on
construction sites

3x

Higher fire risk
with poor
housekeeping

Key Hazards from Poor Housekeeping

Slips, Trips & Falls

Debris, spills, uneven surfaces, and cluttered walkways cause the most common construction injuries

Fire Hazards

Accumulated waste materials, oily rags, and blocked fire exits dramatically increase fire risk

Puncture Wounds

Protruding nails are the #1 cause of puncture wounds on job sites — boards must be de-nailed or stacked safely

Delayed Emergency Response

Blocked aisles and cluttered exits prevent quick evacuation and slow emergency responder access

Pest & Health Issues

Improperly stored food waste and standing water attract pests and create unsanitary conditions

Housekeeping Best Practices

Clear Walkways

Maintain unobstructed paths at all times. Remove debris, cords, and materials from travel routes immediately.

Material Storage

Stack materials neatly and securely. Keep stored items away from edges, walkways, and overhead power lines.

Scrap & Waste Removal

Remove waste materials regularly throughout the day. Don't let debris accumulate — use designated waste areas.

Nail Management

Bend or remove protruding nails from lumber immediately. Never leave boards with nails facing upward.

Tool Organization

Return tools to designated areas after use. Never leave tools on scaffolds, ladders, or elevated surfaces.

Dumpster Management

Keep dumpster areas clear. Don't overfill containers. Schedule regular pickup to prevent overflow.

End-of-Shift Cleanup Checklist

All walkways and stairways clear of debris

Tools returned to storage or gang boxes

Scrap materials removed to designated waste area

Protruding nails bent or removed from lumber

Electrical cords coiled and stored properly

Flammable materials stored in approved containers

Dumpsters and waste bins not overfilled

Work area swept and materials stacked securely

Quiz / Discussion

Q1: What is the #1 cause of puncture wounds on construction sites?

A: Protruding nails in lumber and scrap boards.

Q2: Name three hazards that result from poor housekeeping.

A: Slips/trips/falls, fire hazards, puncture wounds, delayed emergency response, pest issues.

Q3: When should cleanup occur — only at end of shift?

A: No — housekeeping should be ongoing throughout the day, with a thorough cleanup at end of shift.

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FORBES SAFETY SOLUTIONS

LADDER SAFETY

Toolbox Talk | 29 CFR 1926.1053

[Company Name]

[Date]

WHY THIS MATTERS

22,710

Ladder injuries treated
in emergency rooms
annually (BLS)

161

Fatal falls from ladders
per year in the U.S.
(BLS Census of Fatal Injuries)

#1

Falls are the leading
cause of death in
construction (OSHA)

Falls are an OSHA "Focus Four" Hazard

Ladder-related incidents account for a significant share of fall injuries and fatalities on construction sites. Most ladder accidents are preventable — caused by improper setup, wrong ladder selection, overreaching, or failure to inspect before use. Following OSHA standards and basic safe practices saves lives.

LADDER TYPES, RATINGS & SETUP RULES

Ladder Types & Duty Ratings

Type	Rating	Capacity
Type IAA — Special Duty	Extra Heavy	375 lbs
Type IA — Industrial	Extra Heavy	300 lbs
Type I — Industrial	Heavy Duty	250 lbs
Type II — Commercial	Medium Duty	225 lbs
Type III — Household	Light Duty	200 lbs

Construction requires Type I, IA, or IAA

Setup Rules (Extension Ladders)

- 4-to-1 ratio: For every 4 ft of height, set the base 1 ft out from the wall
- Extend 3 feet above the landing or upper support point
- Secure the top of the ladder to prevent displacement — tie off or have a spotter
- Set on a firm, level surface — never on boxes, barrels, or unstable ground
- Lock all spreaders and extension locks before climbing
- Face the ladder when ascending or descending — always

THREE-POINT CONTACT & PRE-USE INSPECTION

Three-Point Contact Rule

Always maintain three points of contact when climbing or descending:

- Two hands + one foot, or
- Two feet + one hand
- Do NOT carry tools or materials in your hands while climbing — use a tool belt, hoist line, or bucket
- Never overreach — keep your belt buckle between the side rails
- Move one hand or foot at a time
- Grip the rungs, not the side rails (better grip if foot slips)

Pre-Use Inspection Checklist

Inspect BEFORE EVERY USE — remove defective ladders from service immediately

- Check rungs/steps for cracks, bends, corrosion, or missing components
- Verify locking mechanisms (spreaders, extension locks) engage fully
- Look for grease, oil, mud, or wet/slippery surfaces on rungs and feet
- Check safety feet / pads — must be intact and non-slip
- Ensure all labels (duty rating, safety instructions) are legible
- Metal ladders: check for dents, bends, or damage to rails
- Fiberglass ladders: check for chips, cracks, or UV degradation

COMMON VIOLATIONS & WHEN NOT TO USE A LADDER

Common OSHA Violations

- Using a damaged or defective ladder
- Not extending 3 ft above the landing point
- Setting up at wrong angle (too steep or too shallow)
- Standing on the top cap or top rung of a stepladder
- Using a metal ladder near electrical hazards
- Overloading — exceeding the duty rating (body weight + tools + materials)
- Placing on uneven or unstable surfaces
- Using a ladder horizontally as a scaffold plank

When NOT to Use a Ladder

Use scaffolding or an aerial lift instead when:

- Work requires both hands for an extended period
- Task duration exceeds 15-30 minutes at height
- Heavy materials or tools must be brought up
- Work height exceeds ladder capacity or safe reach
- Multiple workers need simultaneous elevated access
- High wind conditions or adverse weather
- Work is near power lines (use fiberglass + maintain clearance, or use a non-conductive lift)

QUIZ / DISCUSSION QUESTIONS

1. What is the correct setup angle for an extension ladder?

Answer: 4-to-1 ratio — for every 4 feet of height, the base is 1 foot away from the wall

2. What does "three-point contact" mean, and why is it important?

Answer: Always maintain two hands and one foot, or two feet and one hand on the ladder. It prevents falls caused by loss of balance.

3. Name two situations where you should use scaffolding or an aerial lift instead of a ladder.

Answer: When work requires both hands for extended periods, when task duration exceeds 15-30 min, when heavy materials must be transported, or when multiple workers need access.

ATTENDANCE & SIGN-OFF

Ladder Safety | [Date] | [Company Name]

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LOCKOUT/TAGOUT (LOTO)

29 CFR 1910.147

Presenter: _____

Date: _____

WHY THIS MATTERS

- Failure to control hazardous energy kills an estimated 48 workers per year and causes 17,690 lost-workday injuries (NSC 2023 data).
- OSHA estimates that proper compliance with the LOTO standard would prevent 120 fatalities and 50,000 injuries every year.
- LOTO violations are consistently in OSHA's Top 10 most cited standards. "I thought the power was off" has been the last thought of too many workers.
- Hazardous energy doesn't just mean electrical. Hydraulic lines hold pressure, springs store mechanical energy, pipes carry steam, and chemical reactions continue after shutdown.
- Every incident investigation involving uncontrolled energy comes back to the same root cause: someone skipped a step because they were in a hurry.

Source: [OSHA LOTO Fact Sheet](#)

ENERGY TYPES & ISOLATION PROCEDURES

- Six energy types to control: ELECTRICAL (disconnect and verify zero energy), MECHANICAL (block/secure moving parts), HYDRAULIC (bleed lines and block), PNEUMATIC (bleed air pressure), THERMAL (allow cool-down or insulate), CHEMICAL (drain, purge, or neutralize).
- Every piece of equipment must have a written, machine-specific LOTO procedure. Generic procedures get people killed — each machine has unique energy sources and isolation points.
- The isolation sequence: (1) Notify all affected employees, (2) Shut down equipment using normal stopping procedure, (3) Isolate ALL energy sources, (4) Apply YOUR lock and tag, (5) Verify zero energy state.
- Verification is the most skipped and most critical step. After lockout, attempt to start the equipment. Test circuits with a meter. Bleed trapped pressure. Verify. Every. Time.
- Tags are NOT locks. A tag is a warning device only — it does not physically prevent operation. Every worker in the danger zone must apply their own lock.

GROUP LOTO & CRITICAL RULES

- Group LOTO: When multiple crews work on the same equipment, a primary authorized employee coordinates lockout. Each worker still applies their own lock to a group lockbox.
- Shift change protocol: The outgoing shift cannot remove their locks until the incoming shift has applied theirs. There must be zero gap in protection.
- NEVER remove another person's lock. The only person who removes a lock is the person who put it on. If they left site, follow the employer's specific lock-removal procedure with supervisor authorization and documented verification.
- Try-out procedure after maintenance: Ensure all workers are clear, all tools removed, guards replaced, then remove locks in reverse order. The primary authorized employee removes the last lock.
- Annual inspections of LOTO procedures are required. An authorized employee who does NOT normally use the procedure must review it. Document the review with names, dates, and equipment covered.

DISCUSSION QUESTIONS

Take 5 minutes to discuss with your crew:

1. Can you name all the energy sources on the equipment you're working with today? Are you sure you've got them all?
2. When was the last time you actually tried to start a machine after locking it out to verify zero energy?
3. Have you ever been pressured to skip LOTO because the job would "only take a minute"? What happened?
4. If you found a lock on equipment with no tag or an unreadable tag, what would you do?

ATTENDANCE SIGN-OFF

Date: _____ Topic: Lockout/Tagout (LOTO) Presenter: _____

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FORBES SAFETY SOLUTIONS

NIGHT WORK & LOW-VISIBILITY SAFETY

Illumination, High-Visibility Clothing & Fatigue Management

Ref: 29 CFR 1926.56 (Illumination) | ANSI/ISEA 107

TOOLBOX TALK

KEY STATISTICS

2x Higher Fatality Rate

Night-shift construction workers face roughly double the fatal injury risk

Class 2 Minimum

High-visibility garments required for all construction workers near traffic

5 Foot-Candles

Minimum illumination required for general construction areas per OSHA

Source: OSHA, ANSI/ISEA 107, BLS Fatality Data

LIGHTING REQUIREMENTS

- OSHA 29 CFR 1926.56 sets minimum foot-candle requirements by work area:
- General construction areas and concrete placement: 5 foot-candles minimum
- General construction plants and shops: 10 foot-candles minimum
- Indoor warehouses, corridors, hallways, and exit ways: 5 foot-candles minimum
- First aid stations, offices, and shops: 30 foot-candles minimum
- Position temporary lighting to eliminate dark spots, shadows, and glare
- Secure all temporary lighting fixtures to prevent them from falling or being knocked over

HIGH-VISIBILITY CLOTHING & EQUIPMENT

- ANSI/ISEA 107 Class 2 garments minimum for all workers in low-visibility conditions
- Class 3 garments required for flaggers working at night (full body visibility)
- Hi-vis garments must include retroreflective striping — not just fluorescent color
- Replace garments when retroreflective material is faded, torn, or dirty enough to reduce visibility
- Equip all mobile equipment with retroreflective markings and functional lighting
- Use cones, delineators, and barricades with reflective sheeting to mark hazard zones
- Ensure backup alarms and strobe lights are operational on all equipment used at night

FATIGUE, COMMUNICATION & AWARENESS

- Night shift workers have elevated fatigue risk — schedule regular breaks and rotate tasks
- Recognize fatigue warning signs: difficulty concentrating, slow reactions, irritability, microsleeps
- Communication is harder at night — use radios, hand signals with illuminated wands, and spotters
- Brief crews on changed site conditions before each night shift begins
- Wildlife awareness: nocturnal animals (snakes, rodents, insects) are more active — watch your step
- Maintain clear access to emergency routes and ensure they are well-lit at all times
- Report any lighting failures, dark areas, or visibility concerns immediately to your supervisor

QUIZ — TEST YOUR KNOWLEDGE

Q1: What is the minimum foot-candle requirement for general construction areas?

A: 5 foot-candles, as required by OSHA 29 CFR 1926.56.

Q2: What class of high-visibility garment must flaggers wear during night work?

A: Class 3 garments, which provide full-body visibility with retroreflective striping.

Q3: Name two strategies for managing fatigue during night shifts.

A: Schedule regular breaks and rotate tasks to keep workers alert and reduce error risk.

SIGN-OFF SHEET

Night Work & Low-Visibility Safety

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Overhead Power Line Awareness

Ref: 29 CFR 1926.1408 | 29 CFR 1926.416(a)

[Company Name]

[Date]

TOOLBOX TALK

WHY THIS MATTERS

~60

Workers die annually from power line contact — electrocution is one of OSHA's Fatal Four

10 ft

Minimum clearance distance from overhead power lines under 50kV for all equipment and workers

53%

Of power line fatalities involve cranes, boom trucks, and aerial lifts making contact

Clearance Distances & Hazard Recognition

MINIMUM CLEARANCE BY VOLTAGE

- Up to 50kV: minimum 10 feet clearance for equipment, loads, and personnel
- 50kV to 200kV: minimum 15 feet clearance
- 200kV to 350kV: minimum 20 feet clearance
- 350kV to 500kV: minimum 25 feet clearance
- Over 500kV: 25 ft + 5 ft for each additional 100kV — or as determined by utility

HAZARD RECOGNITION

- LOOK UP before you set up — survey every work area for overhead lines
- Power lines may sag in hot weather, increasing contact risk
- Assume all lines are energized unless the utility confirms de-energization in writing
- Electricity can arc — you do NOT have to touch the line for electrocution to occur
- Metal ladders, scaffolding, long pipes, and rebar can all conduct electricity

Equipment Operations & Spotter Requirements

WORKING NEAR POWER LINES

- Designate a qualified spotter when operating cranes, boom trucks, or aerial lifts near lines
- Spotter must have a clear view of the clearance zone and be in constant communication
- Use range-limiting devices or proximity alarms when available
- Post warning signs at site entry points identifying overhead hazards
- Create a pre-work plan with clearance distances mapped for each overhead line

DE-ENERGIZATION & ALTERNATIVES

- Best option: request utility to de-energize and ground the line
- If de-energization not possible: insulating barriers or line covers installed by the utility
- Use non-conductive tools and equipment when working near energized lines
- Barricade the area and establish restricted zones around overhead lines
- Maintain minimum distances even for stored materials and equipment staging

If Equipment Contacts a Power Line

Step	Action	Critical Details
1	Stay in the cab	The cab and tires provide insulation — you are safest INSIDE the equipment
2	Warn others	Shout to everyone: stay back at least 35 ft from equipment
3	Call 911	Request power company and emergency services immediately
4	Do NOT exit	Do not step out or touch the ground while touching the equipment
5	If fire forces exit	Jump clear — both feet together, not stepping out. Do NOT touch equipment and ground simultaneously
6	Hop away	Keep feet together and hop/shuffle at least 35 ft away to avoid step potential (ground voltage gradient)

QUIZ / DISCUSSION

1

What is the minimum clearance distance from overhead power lines under 50kV?

Answer: 10 feet for all equipment, loads, and personnel. This distance increases with higher voltage levels.

2

If your equipment contacts a power line, what should you do first?

Answer: Stay inside the cab. The equipment and tires provide insulation. Call 911, warn others to stay back at least 35 feet, and wait for the utility to de-energize the line.

3

If you must exit equipment that has contacted a power line (e.g., due to fire), how do you exit safely?

Answer: Jump clear with both feet together — never step out. Then hop or shuffle with feet together at least 35 feet away to avoid step potential electrocution from the ground voltage gradient.

ATTENDANCE SIGN-OFF

Overhead Power Line Awareness

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By signing above, I confirm that I attended this toolbox talk and understand the material presented.

Personal Fall Arrest System (PFAS) Inspection

Pre-Use Inspection Requirements for Harnesses, Lanyards & SRLs

Ref: 29 CFR 1926.502(d), ANSI Z359.11

Why PFAS Inspection Matters

395

Fatal falls in construction in a recent year — many involving failed or uninspected fall protection

100%

PFAS must be inspected before EVERY use — no exceptions

1 Fall

After a single fall arrest event, the entire PFAS must be removed from service permanently

Inspecting Your Harness

- Check all webbing for cuts, frays, burns, chemical damage, abrasion, and pulled stitching — run the webbing through your hands inch by inch
- Inspect D-rings (dorsal, sternal, side): look for cracks, distortion, corrosion, sharp edges, and proper movement
- Examine all buckles: ensure they lock and release properly, check for deformation, corrosion, and missing components
- Verify labels are legible: manufacturer, model, date of manufacture, and standards compliance (ANSI Z359.11) must be readable
- Check grommets and hardware attachment points for looseness, corrosion, or damage
- Inspect all stitching — especially load-bearing bar-tack stitching — for broken threads, pulled seams, or UV degradation

Inspecting Lanyards & Self-Retracting Lifelines

- Lanyards: check webbing or cable for cuts, kinks, frays, burns, abrasion, and corrosion along the entire length
- Snap hooks: verify the gate locks properly, the keeper spring returns fully, and there is no corrosion or distortion
- Shock absorber pack: inspect the outer cover for tears or deployment indicators — if the pack shows signs of activation, remove from service
- Self-Retracting Lifelines (SRLs): extend and retract the line fully — it should retract smoothly without sticking or jerking
- Check the SRL housing for cracks, dents, and corrosion — inspect the mounting bracket and swivel for damage
- Verify the SRL label: check manufacture date, inspection date, and that annual competent-person inspection is current

Removal from Service, Storage & Documentation

- Remove from service IMMEDIATELY after any fall arrest event — the harness, lanyard, and all connectors must be destroyed or returned to manufacturer
- Remove from service if you find any visible damage: cuts, frays, deformation, corrosion, label illegibility, or broken stitching
- Remove expired equipment per manufacturer guidelines — do not exceed the recommended service life
- Store PFAS in a clean, dry, cool area away from chemicals, UV light, moisture, and sharp objects
- Never hang equipment on nails or sharp hooks — use wide hangers or storage bags
- Document every inspection: date, inspector name, equipment serial number, condition, and pass/fail determination

Knowledge Check

Q1: How often must a personal fall arrest system be inspected?

A: Before every use — a pre-use inspection is required each time the equipment is put on.

Q2: What must happen to a harness and lanyard after they arrest a fall?

A: They must be immediately removed from service — the entire system must be destroyed or returned to the manufacturer.

Q3: Name three things to check when inspecting a harness.

A: Webbing for cuts/frays, D-rings for cracks/distortion, and buckles for proper locking — plus legible labels and intact stitching.

PFAS Inspection — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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Pinch Points & Crushing Hazards

Recognizing and Avoiding Compression Injuries on the Job

Ref: 29 CFR 1910.212, 29 CFR 1926.300

The Danger of Pinch Points

125K+

Hand and finger injuries occur
in U.S. workplaces each year
— many from pinch points

#2

Hand injuries rank as the
second most common
workplace injury type across
all industries

80%

Of pinch point injuries are
preventable with proper
guarding and awareness

Where Pinch Points Occur

- Between two moving parts: gears, rollers, belt drives, and chain sprockets
- Between a moving part and a stationary object: press rams, closing doors, swing-radius of excavators
- Rotating equipment: drill presses, lathes, augers, and power take-offs (PTOs)
- During material handling: setting steel, lowering loads, stacking pipe, closing gates and tailgates
- Between the ground and moving equipment: tracks, outriggers, and lowering platforms
- Always ask: 'Where could my hands, fingers, or body get caught between two objects?'

Machine Guarding & Hand Placement

- Never remove or bypass machine guards — they are engineered barriers between you and moving parts
- If a guard is missing or damaged, stop work and report it immediately — do not operate the equipment
- Keep your hands and fingers away from pinch points — use push sticks, pliers, or other tools to feed material
- Be aware of hand placement when guiding loads, closing doors, or connecting components
- Use lockout/tagout (LOTO) procedures before reaching into any area with moving parts for maintenance or clearing jams
- Barricade pinch point areas where workers could inadvertently enter the danger zone

Glove Selection & Body Positioning

- Wear cut-resistant or impact gloves when handling materials with pinch hazards — they provide critical protection
- NEVER wear gloves near rotating equipment (drills, lathes, grinders) — gloves can catch and pull your hand in
- Know the difference: gloves protect from pinch/crush between objects, but create entanglement hazards with rotating parts
- Position your body to avoid the line of fire — never place any body part where it could be caught if equipment shifts
- Maintain situational awareness: watch for swing radius of equipment, moving conveyors, and closing mechanisms
- Communicate with coworkers before moving loads or operating equipment to ensure everyone is clear of pinch points

Knowledge Check

Q1: Name two locations where pinch points commonly occur on a job site.

A: Between two moving parts (gears, rollers) and between a moving part and stationary object (press rams, closing doors).

Q2: When should you NOT wear gloves around equipment?

A: Near rotating equipment such as drills, lathes, and grinders — gloves can catch and pull your hand into the machine.

Q3: What should you do if a machine guard is missing or damaged?

A: Stop work immediately, do not operate the equipment, and report the missing guard to supervision.

Pinch Points & Crushing Hazards — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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RESPIRATORY PROTECTION AWARENESS

Selecting, Fitting, and Using Respirators on the Jobsite

Reference: 29 CFR 1910.134

FORBES SAFETY SOLUTIONS

KEY STATISTICS

5M+

U.S. workers required to
wear respirators on the job

#4

29 CFR 1910.134 is the 4th
most cited OSHA standard

90%

Of respiratory injuries are
preventable with proper
protection

WHEN RESPIRATORS ARE NEEDED AND TYPES AVAILABLE

When Required — whenever engineering controls alone cannot reduce airborne contaminants below the PEL or when IDLH conditions exist

Filtering Facepiece (N95) — disposable half-mask that filters particles; does not protect against gases or vapors

Half-Face Respirator — reusable mask covering nose and mouth; accepts cartridges for particulates, gases, or combination

Full-Face Respirator — covers entire face including eyes; provides higher protection factor and splash protection

PAPR — Powered Air-Purifying Respirator — uses a blower to pull air through filters; ideal for extended wear

SCBA — Self-Contained Breathing Apparatus — supplies clean air from a tank; required for IDLH and unknown atmospheres

FIT TESTING, SEAL CHECKS, AND FACIAL HAIR

Fit Testing Requirement — every tight-fitting respirator user must pass an initial fit test and annual retest per 29 CFR 1910.134(f)

Qualitative vs. Quantitative — qualitative uses taste/smell agents; quantitative uses instruments to measure leakage — both are OSHA-accepted

User Seal Check — Every Time — positive and negative pressure seal checks must be performed each time the respirator is donned

Facial Hair Prohibition — beards, stubble, or sideburns that interfere with the seal are prohibited for tight-fitting respirators

Medical Evaluation — a physician or licensed healthcare professional must clear a worker medically before respirator use

Documentation — fit test results, medical clearances, and training records must be maintained by the employer

CARTRIDGE SCHEDULES, IDLH, AND MAINTENANCE

Cartridge Change Schedules — employer must establish a change schedule based on contaminant type, concentration, humidity, and breathing rate

End-of-Service Indicators — some cartridges have ESLI; if not, a written change schedule is mandatory — never rely on smell alone

IDLH Situations — Immediately Dangerous to Life or Health — requires SCBA or airline respirator with escape bottle

Buddy System — at least one standby person must be present outside the IDLH area with rescue equipment

Inspection and Storage — inspect before and after each use; store in a clean, sealed container away from contaminants and sunlight

Never Alter Equipment — do not modify respirators, remove valves, or use unapproved parts — doing so voids NIOSH certification

KNOWLEDGE CHECK

How often must a user perform a seal check on a tight-fitting respirator?

- A) Once per shift
- B) Only during the annual fit test
- C) Every time the respirator is put on
- D) Weekly

Answer: C) Every time — a positive and negative pressure seal check is required each time the respirator is donned.

RESPIRATORY PROTECTION AWARENESS — SIGN-OFF

All attendees must print and sign below to confirm understanding of this topic.

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Rigging Safety Fundamentals

Ref: 29 CFR 1926.251 — Rigging Equipment for Material Handling

[Company Name]

[Date]

WHY THIS MATTERS

50+

Workers killed annually in
crane and rigging-related
incidents in construction

#1

Cause of rigging fatalities:
being struck by a falling load
due to rigging failure

60°

At a 60° sling angle, capacity is
only 87% of rated — angle
always affects capacity

Sling Types & Selection

SLING TYPES

- Wire Rope: high strength, good for heavy loads, heat-resistant, but inspect for broken wires and kinks
- Synthetic Web: lightweight, won't mar loads, wide bearing surface — avoid near heat, chemicals, sharp edges
- Alloy Steel Chain: excellent for high-heat and abrasive environments, durable — heavy to handle
- Synthetic Round Slings: flexible, lightweight, protect load finish — vulnerable to cuts and UV damage

HITCH CONFIGURATIONS

- Vertical Hitch: single leg, straight pull — 100% of rated capacity
- Choker Hitch: sling wraps around load and through itself — 75% of rated capacity
- Basket Hitch: sling cradles the load with both ends on hook — up to 200% of rated capacity (with balanced load at 90°)
- Always verify hitch type matches the load shape, center of gravity, and weight

Sling Angle Capacity Chart

Sling Angle	Capacity Factor	Example: 10,000 lb Rated Sling
90° (vertical)	100%	10,000 lbs
60°	87%	8,700 lbs
45°	71%	7,100 lbs
30°	50%	5,000 lbs
Below 30°	DO NOT USE	Sling stress exceeds safe limits
—	Rule	Never use slings at angles below 30° from horizontal

Inspection, Signals & Safe Practices

SLING INSPECTION — REMOVE FROM SERVICE

- Wire rope: 6+ broken wires in one lay, kinking, crushing, bird-caging, corrosion, heat damage
- Synthetic web: cuts, tears, snags, acid/chemical burns, melting, excessive wear, missing labels
- Chain: stretched or bent links, cracks, gouges, excessive wear (10%+ reduction)
- All slings: missing or unreadable capacity tags, prior unauthorized modifications

SAFE RIGGING PRACTICES

- Know the load weight — never guess; check shipping docs, calculate, or use a scale
- Use tag lines to control load movement — never guide loads by hand
- Learn standard hand signals; use a qualified signal person
- NEVER stand under a suspended load — the #1 rigging safety rule
- Inspect all rigging equipment before each shift

QUIZ / DISCUSSION

1

What is the capacity factor of a sling used at a 45-degree angle?

Answer: 71% of the sling's rated capacity. A sling rated at 10,000 lbs can only safely lift 7,100 lbs at a 45° angle.

2

Name two conditions that require a wire rope sling to be removed from service.

Answer: Any two of: six or more broken wires in one lay, kinking, crushing, bird-caging, corrosion, heat damage, or a missing/unreadable capacity tag.

3

What is the single most important rule in rigging safety?

Answer: Never stand under a suspended load. If the rigging fails or the load shifts, anyone underneath is at risk of fatal injury.

ATTENDANCE SIGN-OFF

Rigging Safety Fundamentals

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FORBES SAFETY SOLUTIONS

SILICA DUST EXPOSURE

Toolbox Talk | 29 CFR 1926.1153

[Company Name]

[Date]

WHY THIS MATTERS

2M+

Construction workers
exposed to silica dust
in the U.S. annually

100%

Silicosis is irreversible
and has no cure —
prevention is critical

#1

Leading cause of
occupational lung
disease in construction

What is Respirable Crystalline Silica?

Silica is a mineral found in concrete, brick, block, mortar, stone, and sand. When these materials are cut, ground, drilled, or crushed, tiny dust particles become airborne and can be inhaled deep into the lungs — causing silicosis, lung cancer, COPD, and kidney disease.

OSHA PEL & COMMON EXPOSURE SOURCES

OSHA Permissible Exposure Limit (PEL): **50 $\mu\text{g}/\text{m}^3$** (8-hour TWA)

Where Silica Is Found

- Concrete and cement products
- Brick, block, and mortar
- Natural stone and granite
- Sand and gravel
- Engineered stone countertops
- Asphalt (contains sand/aggregate)

High-Risk Tasks

- Cutting concrete or masonry with a saw
- Grinding or polishing concrete surfaces
- Drilling into rock, concrete, or block
- Demolition of concrete structures
- Mixing dry concrete or mortar
- Sweeping or blowing concrete dust

REQUIRED CONTROLS (TABLE 1 COMPLIANCE)

Task / Equipment	Engineering Control	Respiratory Protection
Handheld power saw	Integrated water delivery to suppress dust	None when controls used per Table 1
Walk-behind saw	Integrated water delivery to suppress dust	None when controls used per Table 1
Jackhammer / Breaker	Continuous water feed at point of impact	APF 10 respirator when controls used
Grinder (4.5" or smaller)	Vacuum with HEPA filter attached to guard	APF 10 respirator when controls used
Drill (handheld)	Vacuum with HEPA filter or water delivery	None when controls used per Table 1
Indoor sweeping / cleanup	Wet sweeping or HEPA-filtered vacuum	APF 10 respirator

RESPIRATORY PROTECTION & MEDICAL SURVEILLANCE

Respiratory Protection

- Required when engineering controls alone don't reduce exposure below the PEL ($50 \mu\text{g}/\text{m}^3$)
- Minimum: NIOSH-approved N95 filtering facepiece (APF 10)
- Higher exposures may require half-face or full-face respirators with P100 filters
- Workers must be fit-tested annually and medically cleared before use
- Employers must have a written Respiratory Protection Program per 29 CFR 1910.134

Medical Surveillance

- Required for workers exposed above the Action Level ($25 \mu\text{g}/\text{m}^3$) for 30+ days/year
- Baseline exam within 30 days of initial assignment
- Follow-up exams every 3 years (minimum)
- Includes: medical history, chest X-ray, pulmonary function test (spirometry)
- Employer must cover all costs and provide results to the worker in writing
- Workers diagnosed with silicosis must be referred to a specialist

QUIZ / DISCUSSION QUESTIONS

1. What is OSHA's Permissible Exposure Limit (PEL) for respirable crystalline silica in construction?

Answer: 50 $\mu\text{g}/\text{m}^3$ as an 8-hour time-weighted average (TWA)

2. Name two engineering controls that can be used to reduce silica dust exposure when cutting concrete.

Answer: Integrated water delivery (wet cutting) and vacuum dust collection systems with HEPA filtration

3. How often must medical surveillance exams be conducted for workers exposed above the Action Level?

Answer: Baseline exam within 30 days of initial assignment, then every 3 years at minimum

ATTENDANCE & SIGN-OFF

Silica Dust Exposure | [Date] | [Company Name]

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FORBES SAFETY SOLUTIONS

SLIPS, TRIPS, AND FALLS

Leading Causes, Prevention & Good Housekeeping

Ref: 29 CFR 1926.25 (Housekeeping) | 29 CFR 1926 Subpart M

TOOLBOX TALK

KEY STATISTICS

#1 Cause of Death

Falls are the leading cause of fatalities in the construction industry

~25% of All Injuries

Slips, trips, and falls account for roughly one-quarter of all workplace injuries

OSHA Focus Four

Falls are one of OSHA's Focus Four hazards — the top causes of construction deaths

Source: BLS Census of Fatal Occupational Injuries | OSHA

COMMON CAUSES OF SLIPS, TRIPS & FALLS

- Wet, oily, or greasy surfaces — spills not cleaned up promptly
- Uneven ground, potholes, or changes in floor level without markings or ramps
- Cluttered walkways with tools, materials, or debris blocking the path
- Poor lighting in work areas, stairways, corridors, and access points
- Cords, hoses, welding leads, or air lines running across walkways without covers
- Missing or damaged handrails on stairs, ramps, and elevated platforms
- Weather conditions: ice, mud, rain, and wet leaves create slippery surfaces
- Improper footwear lacking slip-resistant soles or adequate ankle support

PREVENTION STRATEGIES

- Housekeeping: clean as you go — keep walkways clear of tools, scrap, and debris at all times
- Clean up spills immediately; use absorbent material and post wet floor warnings
- Wear proper footwear with slip-resistant, sturdy soles appropriate for the work environment
- Use three-point contact (two hands and one foot, or two feet and one hand) on ladders and stairs
- Slow down on wet, icy, or uneven surfaces — take smaller steps to maintain balance
- Cover or ramp all cords, hoses, and lines crossing walkways; use cord covers or elevate them
- Ensure adequate lighting in all work areas — request temporary lighting where needed
- Report hazards immediately: broken stair treads, missing covers, damaged guardrails, spills

FALL PROTECTION & GUARDRAILS

- Fall protection required at 6 feet in construction (29 CFR 1926 Subpart M)
- Guardrail systems: top rail at 42" (+/- 3"), midrail at 21", toeboards at floor level
- Inspect guardrails daily — never remove or bypass them without implementing alternate protection
- Floor holes and wall openings must be covered or guarded; mark covers 'HOLE' or 'COVER'
- Personal fall arrest systems: full-body harness, shock-absorbing lanyard, and secure anchor point
- Inspect all fall protection equipment before each use — remove damaged items from service
- Training: every worker must understand the fall hazards of their specific tasks and the controls in place

QUIZ — TEST YOUR KNOWLEDGE

Q1: At what height is fall protection required in the construction industry?

A: 6 feet above a lower level, per 29 CFR 1926 Subpart M.

Q2: What does 'three-point contact' mean when climbing a ladder?

A: Always maintain two hands and one foot, or two feet and one hand, in contact with the ladder.

Q3: Name three common causes of slips, trips, and falls on construction sites.

A: Wet surfaces, cluttered walkways, and cords/hoses running across paths without covers.

SIGN-OFF SHEET

Slips, Trips, and Falls

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Spotter & Backing Safety

Preventing Struck-By Incidents During Vehicle & Equipment Operations

Ref: 29 CFR 1926.601-602

Forbes Safety Solutions

Backing Accident Statistics

~70

Workers struck by backing
vehicles on construction sites
each year

Top 10

Backing accidents rank among
the leading causes of
construction fatalities
nationwide

90%

Of backing incidents are
preventable with proper
spotter use and safe backing
procedures

Spotter & Driver Responsibilities

- A spotter's sole duty is to guide the driver — never perform other tasks while spotting
- The spotter must maintain constant visual contact with the driver and remain visible at all times
- Position yourself where the driver can see you in mirrors or directly — never stand in the vehicle's path of travel
- Use standardized hand signals: stop (closed fist raised), back up (arm extended with beckoning motion), turn left/right (arm pointing direction)
- The driver must stop immediately if they lose sight of the spotter — no exceptions
- Establish a communication plan before starting: agree on signals, path, and hazards

When Spotters Are Required & Blind Spots

- A spotter is required whenever the driver's view is obstructed, near pedestrians, in congested areas, or near excavations and drop-offs
- Common blind spots: directly behind the vehicle, right side of dump trucks, rear of loaders and excavators, all sides of large cranes
- Walk around the vehicle before backing — check for workers, tools, materials, and uneven ground (the 360-degree walk-around)
- Backup cameras and alarms are aids — they are NOT replacements for a trained spotter
- Never assume a path is clear because it was clear moments ago — conditions on active job sites change constantly

Best Practices for Backing Safety

- Minimize backing whenever possible — plan routes that allow forward-only travel or pull-through parking
- Use a spotter for every backing operation near workers, structures, or limited-visibility areas
- Sound the horn before backing — even when a spotter is present — to alert nearby workers
- Back slowly and smoothly — maintain a speed that allows instant stopping
- Ensure all workers in the area are aware of vehicle movements and maintain safe distances
- Report any near-misses immediately — these are opportunities to prevent future incidents

Knowledge Check

Q1: What should a driver do if they lose sight of their spotter?

A: Stop the vehicle immediately and do not move until visual contact with the spotter is re-established.

Q2: Are backup cameras and alarms an acceptable substitute for a spotter?

A: No. Cameras and alarms are aids only — they do not replace a trained spotter.

Q3: What is the 360-degree walk-around, and when should it be done?

A: A complete visual inspection around the vehicle before backing to check for workers, obstacles, and hazards.

Spotter & Backing Safety — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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Stop Work Authority

Every Worker's Right and Obligation to Halt Unsafe Work

Ref: OSHA General Duty Clause, ANSI Z10

Why Stop Work Authority Matters

#1

The General Duty Clause
requires employers to provide
a workplace free from
recognized hazards

100%

Every worker — regardless of
role or rank — has the right to
stop unsafe work

ZERO

There should be zero
retaliation for exercising Stop
Work Authority

What Is Stop Work Authority (SWA)?

- Stop Work Authority (SWA) means every worker has the right AND obligation to stop work when they observe unsafe conditions or behaviors
- SWA applies to all employees, contractors, and visitors — regardless of position or seniority
- It is not limited to your own work — you can stop any task you believe poses a danger to any person on site
- SWA is a proactive safety tool, not a disciplinary action — it is designed to prevent injuries before they occur
- Organizations with strong SWA programs demonstrate that safety always takes priority over production schedules

When & How to Invoke SWA

- Invoke SWA when you see an imminent danger, an uncontrolled hazard, or a deviation from the job plan or safety procedures
- Examples: unexpected energy source, fall protection not in use, excavation showing signs of instability, worker impairment, missing permits
- To invoke: clearly state 'I am exercising Stop Work Authority' — all work in the affected area must cease immediately
- Secure the area and notify your supervisor or the person in charge of the task
- No worker shall face retaliation, discipline, or negative consequences for invoking SWA in good faith

After SWA Is Invoked & Management Role

- After SWA: the hazard is evaluated by the crew and supervision — identify root cause and corrective actions
- Work does not resume until the hazard has been eliminated or adequately controlled and all workers agree it is safe
- Document every SWA event: what was observed, who stopped work, what corrections were made, and the outcome
- Management must visibly support SWA — lead by example, recognize workers who use it, and never pressure resumption of unsafe work
- Build a culture where stopping work for safety is celebrated, not tolerated — SWA only works when workers trust the system
- Regularly review SWA events in safety meetings to reinforce the process and share lessons learned

Knowledge Check

Q1: Who has Stop Work Authority on a job site?

A: Every worker — employees, contractors, and visitors — regardless of position or seniority.

Q2: What should happen after someone invokes SWA?

A: All work in the affected area stops, the hazard is evaluated, corrective actions are taken, and work resumes only when all agree it is safe.

Q3: Can a worker be disciplined for stopping work due to a safety concern?

A: No. There must be zero retaliation for exercising SWA in good faith.

Stop Work Authority — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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STRUCK-BY HAZARDS

OSHA Focus Four — Toolbox Talk

[Company Name]

[Date]

WHY THIS MATTERS

Struck-by incidents are one of OSHA's "Focus Four" — the leading causes of death in construction.

~75

Fatal struck-by
injuries per year
in construction

~15%

Of all construction
fatalities are
struck-by incidents

#2

Leading cause of
death on construction
sites (BLS data)

FOUR TYPES OF STRUCK-BY HAZARDS

FLYING OBJECTS

Objects propelled through the air by a tool, machine, or explosive force. Examples: debris from grinding/cutting, nail gun projectiles, pneumatic tool fragments.

FALLING OBJECTS

Objects that fall from an upper level. Examples: tools dropped from scaffolding, unsecured materials on elevated surfaces, bricks or concrete from demolition.

SWINGING OBJECTS

Objects that swing and strike a worker. Examples: crane loads turning or swinging unexpectedly, a beam or panel rotating during rigging, equipment booms swinging.

ROLLING OBJECTS

Objects that roll and strike a worker. Examples: pipes or cylinders on slopes, vehicles/equipment rolling or backing over workers, unsecured wheel-mounted equipment.

COMMON STRUCK-BY SCENARIOS

SCENARIO	HAZARD	KEY CONTROL
Unsecured materials falling from elevated work	Falling object	Toe boards, screens, debris nets, hard hats below
Equipment backing over workers on site	Rolling object	Spotters, backup alarms, exclusion zones, high-vis vests
Flying debris from cutting, grinding, or chipping	Flying object	Face shields, safety glasses, machine guards, barriers
Swinging crane loads striking workers	Swinging object	Tag lines, never stand under loads, signal person
Tools or materials dropped from scaffolds	Falling object	Tool tethering, toe boards, barricaded areas below

PREVENTION MEASURES

PERSONAL PROTECTIVE EQUIPMENT

- Hard hats — required in all active work areas
- Face shields and safety glasses for cutting/grinding
- High-visibility vests near mobile equipment
- Steel-toe boots in all construction areas
- Metatarsal guards when heavy objects are handled

ENGINEERING & WORK PRACTICES

- Toe boards and screens on scaffolds
- Secure all loads — never leave materials unsecured at height
- Tag lines on all suspended loads
- Equipment backup alarms and spotters
- Never stand under suspended loads
- Tool tethering when working at height
- Barricade and sign hazardous areas below overhead work

QUIZ / DISCUSSION

Q1 Name the four types of struck-by hazards.

Answer: Flying objects, falling objects, swinging objects, and rolling objects.

Q2 What should you always use when working near crane operations to control a suspended load?

Answer: Tag lines — and never stand directly under a suspended load.

Q3 A coworker is grinding steel without a face shield. What should you do?

Answer: Stop the task, remind them of the PPE requirement, and ensure they put on a face shield and safety glasses before resuming.

ATTENDANCE SIGN-OFF

By signing below, I acknowledge that I attended and understood this Toolbox Talk on Struck-By Hazards.

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TRENCHING & EXCAVATION SAFETY

29 CFR 1926.650-652

Presenter: _____

Date: _____

WHY THIS MATTERS

- Trench collapses killed 39 workers in 2022 — the worst year in a decade. Numbers dropped to 15 in 2023 and 12 in 2024 after OSHA's zero-tolerance enforcement push.
- One cubic yard of soil weighs as much as a car — roughly 3,000 lbs. A partial collapse can pin you in seconds and crush your chest so you can't breathe.
- 85% of all trenching fatalities from 2011-2021 occurred in the construction industry (CPWR/BLS data).
- OSHA has a zero-tolerance policy for unprotected trenches: immediate inspections, willful citations, and criminal prosecution referrals.
- The average rescue time for a buried worker is 6+ minutes. The survival window for full burial is about 4 minutes. You have to get it right before anyone goes in.

Source: [OSHA Trench Safety Data](#)

FORBES SAFETY SOLUTIONS

COMPETENT PERSON & SOIL CLASSIFICATION

- A Competent Person must be on site at all times when workers are in the trench. This person has the authority to shut down work immediately — no foreman override.
- The Competent Person classifies soil before any worker enters: Type A (most stable, e.g. clay), Type B (medium, e.g. crusite gravel), Type C (least stable, e.g. wet sand). When in doubt, assume Type C.
- Soil classification determines your protective system: Type A can use 3/4:1 slopes, Type B needs 1:1, Type C needs 1.5:1 — or use shoring/shielding.
- Previously disturbed soil is NEVER Type A, regardless of what it looks like. If a trench was backfilled and re-dug, default to Type B at best.
- Daily inspections are required before each shift, after rain, and after any event that could change conditions. Document everything.

PROTECTIVE SYSTEMS & ACCESS/EGRESS

- Three protective system options: SLOPING (cutting walls back at safe angles), SHORING (hydraulic or timber supports), or SHIELDING (trench boxes). Choose based on soil type, depth, and site conditions.
- Any trench 5 feet or deeper requires a protective system unless the Competent Person determines the excavation is in stable rock. No exceptions.
- Trenches 4 feet or deeper require a ladder, ramp, or stairway within 25 feet of every worker. You should never have to walk more than 25 feet to get out.
- Never stack spoil piles, equipment, or materials within 2 feet of the trench edge. That weight can trigger a collapse.
- Water accumulation is a collapse trigger. Pump standing water before entry and monitor continuously. Rain overnight? Re-inspect before anyone goes in.

DISCUSSION QUESTIONS

Take 5 minutes to discuss with your crew:

1. Who is the Competent Person on this site today? Does every crew member know who that is?
2. What soil type are we working in right now — and how was that classification made?
3. How far is the nearest exit point from where workers are in the trench? Is it within 25 feet?
4. If a wall started to crack or bulge right now, what's your immediate response?

ATTENDANCE SIGN-OFF

Date: _____ Topic: Trenching & Excavation Safety Presenter: _____

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Working Near Water — Drowning Prevention

Protecting Workers from Drowning Hazards on Construction Sites

Ref: 29 CFR 1926.106

Forbes Safety Solutions

Drowning Risks in Construction

~30

Construction workers die from drowning each year in the United States

6 ft

PFDs are required when working within 6 feet of water where a drowning hazard exists

< 60s

Cold water shock can incapacitate even strong swimmers in under 60 seconds

When PFDs & Rescue Equipment Are Required

- Personal flotation devices (PFDs) are required for all workers within 6 feet of water where a drowning hazard exists
- PFDs must be U.S. Coast Guard-approved and properly fitted — test the fit before each use
- Ring buoys with at least 90 feet of line must be available at 200-foot intervals along waterfront operations
- Rescue skiffs or boats must be immediately available where workers are over water on barges or platforms
- Swimming ability is NOT a substitute for wearing a PFD — even strong swimmers drown in workplace incidents
- Flotation devices must be provided on all barges, over-water platforms, and temporary structures above water

Cold Water, Flash Floods & Environmental Hazards

- Cold water shock: sudden immersion in cold water triggers involuntary gasping and rapid breathing — you can inhale water in seconds
- Cold water also causes rapid loss of muscle control — swimming ability drops dramatically within 3-5 minutes
- Be alert to flash flood hazards when working in or near storm drains, culverts, channels, and low-lying areas
- Monitor weather conditions — stop work and evacuate if flooding is forecast or water levels begin to rise
- Never enter flooded areas to retrieve equipment or materials — the risk is not worth it
- Be aware of currents even in seemingly calm water — moving water exerts enormous force on the body

Rescue Procedures & Best Practices

- Know the site rescue plan before starting work — identify rescue equipment locations, trained rescuers, and emergency contacts
- Practice 'reach, throw, row, go': first reach with a pole, throw a ring buoy, use a boat — entering the water is the last resort
- Only trained personnel should attempt in-water rescues — an untrained rescuer often becomes a second victim
- Ensure all workers near water are trained in basic water rescue and CPR/first aid
- Inspect PFDs and rescue equipment daily — replace damaged or expired gear immediately
- Post warning signs near all water hazards and brief every worker during site orientation

Knowledge Check

Q1: At what distance from water must workers wear PFDs?

A: Within 6 feet of water where a drowning hazard exists.

Q2: Why is swimming ability NOT an acceptable substitute for a PFD?

A: Even strong swimmers can be incapacitated by cold water shock, currents, or fatigue — PFDs keep you afloat regardless.

Q3: What is the correct rescue sequence for a worker who has fallen into water?

A: Reach, throw, row, then go — entering the water is the last resort and only by trained rescuers.

Working Near Water — Drowning Prevention — Sign-Off Sheet

By signing below, I confirm I attended this Toolbox Talk and understand the material presented.

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#	Employee Name	Hazcom	Fall Protection	Confined Space	LOTO
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Legend Green = Current (within 12 months)
Yellow = Expiring within 60 days
Red = Expired (over 12 months)

FORBES SAFETY SOLUTIONS

Safety Training Attendance Tracker – Annual

Year: _____

Ref: Various OSHA Training Requirements:

[illegible]

[illegible]

FORBES SAFETY SCORE

Training Log — Running

Year: _____

[illegible]

SOLUTIONS

Record

[illegible]

