Section 01 : Title Variance Procedure

Marco Martinez
Safety Director

Jump to Section

Policy Statement

The intent of this policy is to standardize the way the company deviates from safety and health policies, procedures, rules, or practices established within the Safety and Health Manual.

Definitions

Variance

Any deviation to standard policies, procedures, rules, or practices from the Safety and Health Manual

General Requirements

1. It is the responsibility of Operations, along with the individual Trade Partner(s), client or other stakeholders to properly complete the form and submit in a timely manner.
2. Review and approval is the responsibility of the Regional or National Safety Director. The reason for variance shall have a clear purpose and be sufficiently supported in all cases.
3. Time frame for all variance requests is 72 hours.
4. Health and Safety variances must take into consideration all risks and shall not compromise safety or have a negative impact on the environment to any degree.
5. Variances may have a term of up to one year or less, and in no case, are approved for more than five years. In all cases, a variance will be considered project specific and becomes part of the project specific safety plan.
6. Approved variances will be maintained in the project and kept current.
7. Operations must communicate, execute and enforce throughout the life of the variance.
8. Variance renewals are subject to the same scrutiny and requirements as the original variance request.
9. Post each Variance Form in a conspicuous location on the project site.

Annexes

Forms and Permits

Variance Request Form

Functional Manager

James Robles
National Safety Director

Change History

Date	Description
08/10/2021	Section Reviewed

VARIANCE REQUEST FORM

Project Requesting Variance: **Job #:** **Date:**

Name of Operations Employee Preparing Variance: **Phone #:**

Company Requesting: ☐ JE Dunn Construction ☐ Trade Partner

What policy, procedure, standard, code, etc. are you requesting variance to?

Please explain why the variance is necessary.

Variance Start Date: **Variance Stop Date:**

Please identify the established controls to support the variance request in protecting personnel safety, health, and/or the environment.

REVIEW & APPROVAL OF THIS VARIANCE MUST BE IN PLACE PRIOR TO EXECUTION.

SR. PROJECT OPERATIONS PERSONNEL APPROVAL ☐ Approved ☐ NOT Approved

Signature: Date:

DIRECTOR OF FIELD OPERATIONS APPROVAL ☐ Approved ☐ NOT Approved

Signature: Date:

NATIONAL OR REGIONAL SAFETY DIRECTOR APPROVAL ☐ Approved ☐ NOT Approved

Signature: Date:

National or Regional Safety Director has the authority to approve/deny all variance requests, without exception.

SAFETY & HEALTH MANUAL

Section 02: Safety Culture (Injury Free Workplace)


Royal Willard
Senior Safety Manager

Jump to Section

Intent Statement

The intent of this section is to provide a consistent safety management approach committed to eliminating all occupational injuries and incidents. JE Dunn's Injury Free Workplace program will be commonly known as "Everyone, Everywhere, All the Time".

Stop Work Authority

The purpose of Stop Work Authority is to ensure that all employees, trade partners and visitors are given the responsibility and authority to stop work when employees believe that a situation exists that places them, their coworker, or the public at risk or in danger.
JE Dunn Management is committed to maintaining and encouraging the Stop Work Authority of all employees. No employee will ever be reprimanded or retaliated against for using his or her Stop Work Authority. All employees are required to stop work if asked to do so. JE Dunn Management will evaluate each stop work occurrence and work will not resume until all issues have been resolved. Management will explain the way they resolved the stop work occurrence to all employees involved.

General Requirements

- JE Dunn Construction promotes and adheres to all regulatory Environmental, Safety and Health policies and procedures. JE Dunn Constructions' objective is to provide the best service while maintaining a safe and healthy work environment.
- Roles & Responsibilities –
- Specific Roles and Responsibilities defined in JE Dunn's "Responsibility and Accountability Matrix" and the execution of Safety Activities.
  - **JE Dunn Project Executive/Manager/Superintendent** - Leads Injury Free execution effort. Works to define injury free execution strategy for the scope of work defined. Ensures adequate resources dedicated to the project (manpower, funding, etc.). Remains committed and are visible in driving project safety to achieve the Injury Free goal.
  - **JE Dunn Safety** – Works with Project Management to define Injury Free scope of work and works to ensure appropriate funding is placed in project budgets to accommodate all aspects of the Health and Safety Plan. Works with Project Management to develop training and workshops, monitors perception survey participation when conducted and provides feedback for the project, schedule for project staff, including subcontractors as necessary. With project management in the lead, coordinates lunch and learn exercises.
  - **JE Dunn Superintendents** - Works with JE Dunn Safety Manager, JE Dunn employees, and trade partners to ensure compliance with all aspects of the Injury Free Workplace concept. Co-leads the Injury Free trainings and lunch n learn schedules.
  - **Trade Partner(s)/Sub-tier Trade Partner(s)** – Work in conjunction with JE Dunn Construction.
- Company to ensure compliance with all aspects of the Injury Free Workplace concept. Shall attend and participate in scheduled Injury Free Workshops and Lunch and Learn exercises. Trade partner management shall ensure employees participate in Injury Free Workplace efforts including but not limited to Safety Perception Surveys, Site Wide All Hands meetings/announcements, etc. Trade Partners Safety Representative will attend monthly safety committee meetings.

Safety Culture Training

- To change the mindset of our employees we provide safety cultural training program consisting of three classes, START, SCEW and SULU.
- **Supervisor Training in Accountability and Recognition Techniques (START)**: Explains why safety accountability works, how a positive safety culture impacts the bottom line and what supervisors can do to inspire strong performance.
- **Safety Culture Excellence Workshop (SCEW)**: Fosters understanding of why incidents happen, the essential criteria for a culture of safety excellence and the mechanics of an accountability-based management system.
- **Speak Up!/Listen Up! (SULU)**: Gives employees simple tools and a practical process for delivering and receiving safety-related feedback effectively.

Trade/Craft Employers and Employees

Employer Responsibilities:

- Provide the necessary leadership and problem-solving skills to jobsite supervision
- Provide positive recognition
- Be fair and consistent with enforcement
- Promote an effective training plan
- Treat all employees in a respectful and dignified manner, acknowledging contributions to a successful project
- Promote and foster an environment free of recognized hazards
- Respond to any work stoppages based on stop work authority and ensure all issues have been resolved.

Employee Responsibilities:

- Actively participate in daily stretch and flex
- Attend, support, and participate in daily JSAs
- Perform work in a manner which prevents incident and accidents to themselves, fellow workers, the public and property
- Cooperate and participate in investigations, as necessary
- Be responsible for your safety as well as your fellow-workers
- Arrive to work every day fit for duty and on time
- Respect and obey employer and customer rules and policies

Functional Manager


Nate Mock
Safety Director

Change History

Date	Description
8/2021	Added the Stop Work Authority subsection
8/2021	Under General Requirements modified Superintendent's responsibilities to co-lead Injury Free Training.
8/2021	Added a Safety Culture Training subsection.
8/2021	Removed Indictor Section from this section of the safety manual
8/2021	Added in the Employer responsibilities subsection; Respond to any work stoppages based on stop work authority and ensure all issues have been resolved
8/2021	Added in the Employee responsibilities subsection; Responsibility to stop any unsafe act or condition (Stop Work Authority)

- Be proactive and focused keeping distraction and inactive time to a minimum
- Wear and maintain required PPE
- Inspect tools and equipment before use to ensure proper working condition
- Attend and participate in toolbox talks
- Hazard Recognition – see it, fix it, report it
- Report all accidents, incidents and near misses
- Never walk past or leave an unsafe condition; make it safe or report it immediately to your supervisor
- Responsibility to stop any unsafe act or condition (Stop Work Authority)
- Ensure work area is free of all safety hazards
- Be respectful and have a positive attitude
- Follow safe, reasonable, and legitimate management directives
- Adhere to starting and quitting times, including lunch and break periods.

Section 03: Safety Accountability and Responsibility Matrix

David Hulse
Safety Director

https://jedunn.sharepoint.com/:b:/s/Quality/EQjx4IQ-RwdOgXKIA-ro7dMBjf9HgNOU7Xs3TynCNqupjw?e=5jJTNY

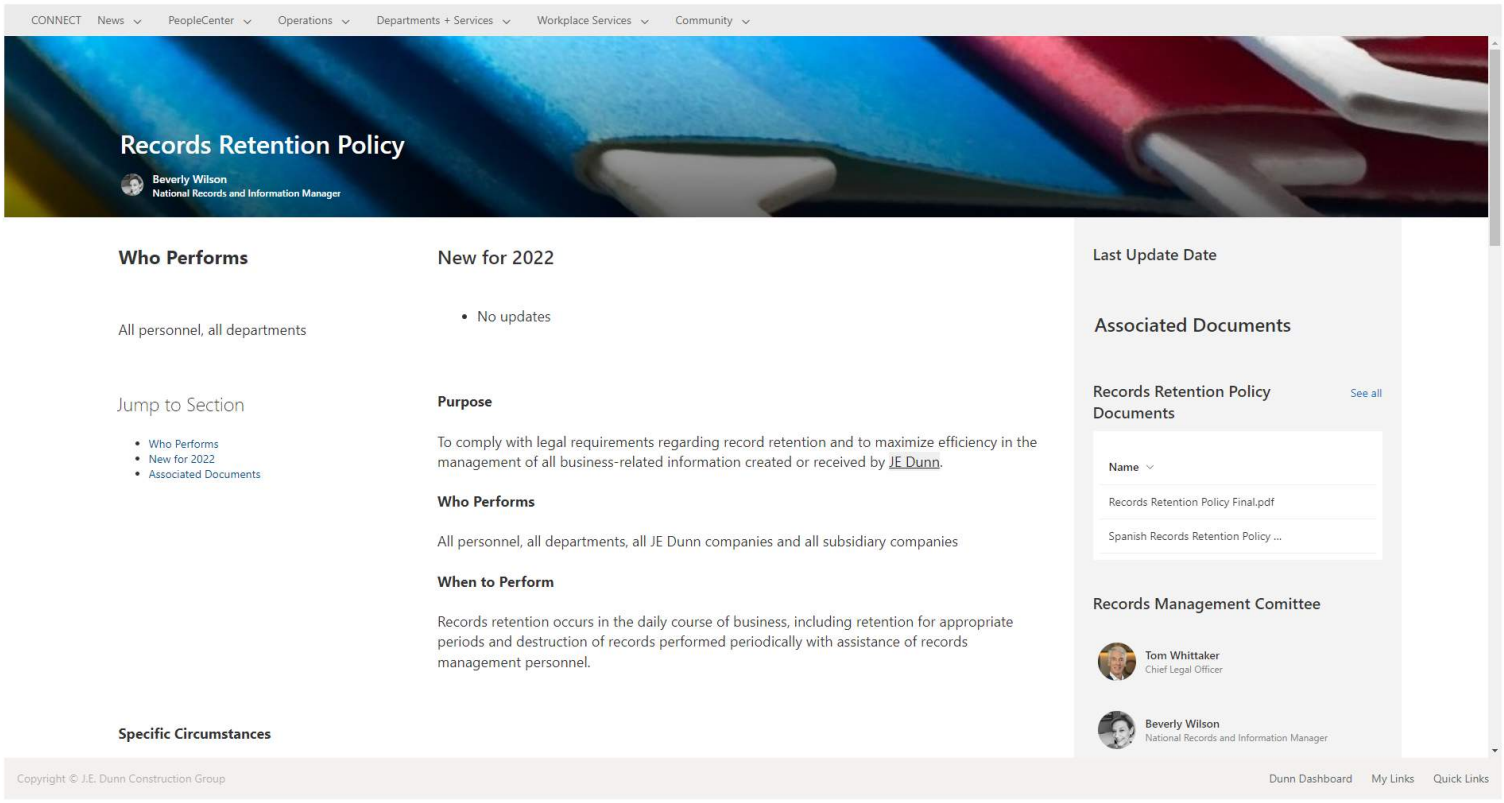
Safety and Quality Accountability-Responsibility Matrix.pdf
jedunn.sharepoint.com

LAYERS OF RESPONSIBILITY	PURSUIT	PRE-CONSTRUCTION	CONSTRUCTION	CLOSE-OUT/START-UP
	Start every meeting with a safety moment. — Publicly recognize projects/teams/employees for proper safety and quality activities. (spanning all phases)			
CEO REGIONAL PRESIDENTS Senior Top Management VISIBLY committed. Sustained commitment shows investment/actions.			Participate in one Leadership Safety and Quality Walk per month. Attend Incident After Action Reviews, as required.	
	Start every meeting with a safety moment. — Publicly recognize projects/teams/employees for proper safety and quality activities. — Office/Division safety meetings one time per month. (spanning all phases)			
SENIOR EXECUTIVE OFFICE LEADER DCO/DFO Top Management VISIBLY committed. Middle Management is ACTIVELY involved.	Set expectations for every project. Provide sufficient budget for project safety and quality.	Ensure safety and quality expectations are established with project teams prior to and at Start Strong.	Ensure safety and quality expectations are being met during Project Reviews. Conduct monthly project safety and quality walk. Recognize good safety and quality behavior. Participate in Regional Safety Steering meetings. Attend Incident After Action Reviews.	Participate in Close-out meeting following substantial completion. Ensure warranty jobs are established to track any warranty related work.
	Start every meeting with a safety moment. — Hold project team members accountable for safety and quality expectations. (spanning all phases)			
GENERAL SUPERINTENDENT PROJECT EXECUTIVE GROUP MANAGER 1-2 Senior Middle Management is ACTIVELY involved. Front-line Supervision is PERFORMANCE-focused.	Set expectations (zero incidents) for every project. Communicate responsibility and accountability with each team member. Provide sufficient budget for project safety and quality. Identify safety and/or quality requirements that may have a major impact on project budget.	Review design for safety and quality considerations. Ensure all trade partners are pre-qualified in SMS before accepting bids. Verify safety and quality leading indicator processes are addressed. Ensure safety and quality expectations are established with project teams prior to and at Start Strong.	Regularly review project safety scorecard (at least monthly). Regularly review project safety and quality dashboards (at least monthly). Recognize good safety and quality behavior. Attend one monthly project safety meeting. Publicly recognize projects/teams/employees for proper safety and quality activities monthly. Participate in leadership safety and quality walks on every project monthly. Ensure investigations are conducted for all accidents, incidents, and near-misses. Attend Incident After Action Reviews.	Conduct Close-out meeting following substantial completion. Ensure lessons learned are captured and shared. Ensure warranty jobs are established to track any warranty related work.
	Start every meeting with a safety moment. — Ensure all team members understand and follow safety and quality expectations. (spanning all phases)			
SENIOR SUPERINTENDENT SUPERINTENDENT 1-3 SENIOR PROJECT MANAGER PROJECT MANAGER 1-2 Middle Management is ACTIVELY involved. Front-line Supervision is PERFORMANCE-focused.	Ensure sufficient budget provided for project safety and quality. Identify safety and/or quality requirements that may have a major impact on project budget.	Ensure environmental surveys have been completed prior to start of work. Identify and request any specific safety and quality training needs for project team. Review design for safety and quality considerations. Develop site specific Safety and Health Plan. Develop site specific Emergency Action Plan. Develop site specific Quality Plan. Ensure all trade partners are pre-qualified in SMS before accepting bids. Initiate 3rd party peer reviews - verify closure of items. Initiate in-house constructibility review - verify closure of items. Ensure safety and quality requirements are shown in baseline schedule. Identify/allocate appropriate safety resources. Review design for safety and quality considerations. Develop site safety and quality plans, as applicable. Establish clinic and hospital support for each project.	Ensure project safety scorecard is fully and completely implemented. Ensure project quality and safety dashboards are complete and current. Conduct daily stretch and flex. Regularly review JSAs. Conduct weekly project safety and quality walk/inspection (preferably with safety and quality professional) and document using BIM 360 Field. Recognize good safety behavior and quality work. Participate in project orientations, as requested. Attend/conduct one tool-box talk per week. Participate in monthly safety meetings and recognize safety and quality excellence. Participate in investigations/debriefings for all accidents, incidents, and near-misses as applicable. Implement Site Specific Safety and Quality plans. Ensure project partners understand and follow project safety and quality plan. Implement site EAP. Conduct pre-install meetings. Stop and report any unsafe act or poor quality condition. Review project 360 safety/quality data for team participation, trending and issue closure. Ensure project specific safety and quality requirements are updated and reflected on project schedule.	Participate in Close-out meetings following substantial completion. Ensure lessons learned are captured and shared. Ensure warranty jobs are established to track any warranty related work.
	Start every meeting with a safety moment. — Ensure all workers have the proper training and/or certifications to perform the work. — Ensure all team members understand and follow safety and quality expectations. Ensure proper equipment is ordered and available on site before work begins. (spanning all phases)			
TRADE FOREMAN 1-2 SENIOR PROJECT ENGINEER PROJECT ENGINEER 1-2 FIELD ENGINEER Front-line Supervision is PERFORMANCE-focused.		Prepare quality action/work-plan including: testing, mock-up and pre-installation meeting requirements. Engage key trade partners for quality checklist relating to their scopes of work. Ensure safety and quality requirements are shown in baseline schedule.	Conduct safety and quality observations and document using BIM 360 Field. Lead or participate in daily stretch and flex. Recognize, record and reward safe behavior and quality work. Update and review JSAs daily with all team members. Participate in project orientations when applicable. Conduct tool-box talks. Participate in investigations for accidents, incidents, and near-misses. Stop and report any unsafe act or poor quality condition. Regularly review personal safety plans with individuals (e.g. JSA notebooks) Regularly discuss current activities quality work plans. Review project 360 safety/quality data for team participation, trending and issue closure. Ensure project specific safety and quality requirements are updated and reflected on project schedule.	Participate in Close-out meetings following substantial completion. Ensure lessons learned are captured and shared.
TRADE/CRAFT EMPLOYEES Employees are ACTIVELY participating.		Provide input to project team in development of site specific Emergency Action Plan. Assist project team in identifying and resourcing appropriate training needs.	Participate in daily stretch and flex. Attend, support, and participate in daily JSAs review. Be responsible for your safety as well as your fellow workers. Be responsible for the quality installation of your work. Inspect tools and equipment before use to ensure proper working condition. Attend and participate in tool-box talks. Report all accidents, incidents, and near-misses. Ensure work area is free of safety and quality hazards. Stop and report any unsafe act or poor quality condition.	
SUPPORT SERVICES: IPS, PRECON/ESTIMATING, LOGISTICS, LEGAL, FINANCE, HR, RISK	Provide input for project pursuit proposals. IPS Leaders engage project team to ensure sufficient budgets for service. Precon/Estimating identifies safety/quality budget.	Assist with pre-planning efforts as requested. Provide training as needed. Perform in-house construction review and identify critical items.	Schedule team members for training on proper procedures. Attend site specific safety orientation as applicable. Provide monthly/weekly safety and quality performance statistics to project team. Support accident, incident, and near-miss investigations/debriefs. Provide training as needed.	Ensure lessons learned are captured and shared.

SAFETY & QUALITY ACCOUNTABILITY & RESPONSIBILITY MATRIX

LAYERS OF RESPONSIBILITY	ACTIONS DURING PURSUIT	ACTIONS DURING PRE-CONSTRUCTION	ACTIONS DURING CONSTRUCTION	ACTIONS DURING CLOSE-OUT/START-UP
CEO REGIONAL PRESIDENTS **Senior Top Management VISIBLY committed.** Sustained commitment shows investment/actions.	Start every meeting with a safety moment.		Publicly recognize projects/teams/employees for proper safety and quality activities. **Participate in one Leadership Safety and Quality Walk per month.** Attend Incident After Action Reviews, as required.	
SENIOR EXECUTIVE OFFICE LEADER DCO/DFO **Top Management VISIBLY committed.** Middle Management is ACTIVELY involved.	Start every meeting with a safety moment. **Set expectations for every project.** Provide sufficient budget for project safety and quality.	Publicly recognize projects/teams/employees for proper safety and quality activities. Ensure safety and quality expectations are established with project teams prior to and at Start Strong.	Office/Division safety meetings one time per month. **Ensure safety and quality expectations are being met during Project Reviews.** Conduct monthly project safety and quality walk. **Recognize good safety and quality behavior.** Participate in Regional Safety Steering meetings. **Attend Incident After Action Reviews.**	**Participate in Close-out meeting following substantial completion.** Ensure warranty jobs are established to track any warranty related work.
GENERAL SUPERINTENDENT PROJECT EXECUTIVE GROUP MANAGER 1-2 **Senior Middle Management is ACTIVELY involved.** Front-line Supervision is PERFORMANCE-focused.	Start every meeting with a safety moment. **Set expectations (zero incidents) for every project.** Communicate responsibility and accountability with each team member. **Provide sufficient budget for project safety and quality.** Identify safety and/or quality requirements that may have a major impact on project budget.	**Review design for safety and quality considerations.** Ensure all trade partners are pre-qualified in SMS before accepting bids. **Verify safety and quality leading indicator processes are addressed.** Ensure safety and quality expectations are established with project teams prior to and at Start Strong.	Hold project team members accountable for safety and quality expectations. Regularly review project safety scorecard (at least monthly). **Regularly review project safety and quality dashboards (at least monthly).** Recognize good safety and quality behavior. **Attend one monthly project safety meeting.** Publicly recognize projects/teams/employees for proper safety and quality activities monthly. **Participate in leadership safety and quality walks on every project monthly.** Ensure investigations are conducted for all accidents, incidents, and near-misses. **Attend Incident After Action Reviews.**	**Conduct Close-out meeting following substantial completion.** Ensure lessons learned are captured and shared. **Ensure warranty jobs are established to track any warranty related work.**
SENIOR SUPERINTENDENT SUPERINTENDENT 1-3 SENIOR PROJECT MANAGER PROJECT MANAGER 1-2 **Middle Management is ACTIVELY involved.** Front-line Supervision is PERFORMANCE-focused.	Start every meeting with a safety moment. **Ensure sufficient budget provided for project safety and quality.** Identify safety and/or quality requirements that may have a major impact on project budget.	**Ensure environmental surveys have been completed prior to start of work.** Identify and request any specific safety and quality training needs for project team. **Review design for safety and quality considerations.** Develop site specific Safety and Health Plan. **Develop site specific Emergency Action Plan.** Develop site specific Quality Plan. **Ensure all trade partners are pre-qualified in SMS before accepting bids.** Initiate 3rd party peer reviews - verify closure of items. **Initiate in-house constructibility review - verify closure of items.** Ensure safety and quality requirements are shown in baseline schedule. **Identify/allocate appropriate safety resources.** Review design for safety and quality considerations. **Develop site safety and quality plans, as applicable.** Establish clinic and hospital support for each project.	Ensure all team members understand and follow safety and quality expectations. Ensure project safety scorecard is fully and completely implemented. **Ensure project quality and safety dashboards are complete and current.** Conduct daily stretch and flex. **Regularly review JSAs.** Conduct weekly project safety and quality walk/inspection (preferably with safety and quality professional) and document using BIM 360 Field. **Recognize good safety behavior and quality work.** Participate in project orientations, as requested. **Attend/conduct one tool-box talk per week.** Participate in monthly safety meetings and recognize safety and quality excellence. **Participate in investigations/debriefings for all accidents, incidents, and near-misses as applicable.** Implement Site Specific Safety and Quality plans. **Ensure project partners understand and follow project safety and quality plan.** Implement site EAP. **Conduct pre-install meetings.** Stop and report any unsafe act or poor quality condition. **Review project 360 safety/quality data for team participation, trending and issue closure.** Ensure project specific safety and quality requirements are updated and reflected on project schedule.	**Participate in Close-out meetings following substantial completion.** Ensure lessons learned are captured and shared. **Ensure warranty jobs are established to track any warranty related work.**
TRADE FOREMAN 1-2 SENIOR PROJECT ENGINEER PROJECT ENGINEER 1-2 FIELD ENGINEER **Front-line Supervision is PERFORMANCE-focused.**	Start every meeting with a safety moment. Ensure all workers have the proper training and/or certifications to perform the work. Ensure all team members understand and follow safety and quality expectations. Ensure proper equipment is ordered and available on site before work begins.	Prepare quality action/work-plan including: testing, mock-up and pre-installation meeting requirements. **Engage key trade partners for quality checklist relating to their scopes of work.** Ensure safety and quality requirements are shown in baseline schedule.	Conduct safety and quality observations and document using BIM 360 Field. **Lead or participate in daily stretch and flex.** Recognize, record and reward safe behavior and quality work. **Update and review JSAs daily with all team members.** Participate in project orientations when applicable. **Conduct tool-box talks.** Participate in investigations for accidents, incidents, and near-misses. **Stop and report any unsafe act or poor quality condition.** Regularly review personal safety plans with individuals (e.g. JSA notebooks) **Regularly discuss current activities quality work plans.** Review project 360 safety/quality data for team participation, trending and issue closure. **Ensure project specific safety and quality requirements are updated and reflected on project schedule.**	**Participate in Close-out meetings following substantial completion.** Ensure lessons learned are captured and shared.
TRADE/CRAFT EMPLOYEES **Employees are ACTIVELY participating.**		Provide input to project team in development of site specific Emergency Action Plan. **Assist project team in identifying and resourcing appropriate training needs.**	Participate in daily stretch and flex. **Attend, support, and participate in daily JSAs review.** Be responsible for your safety as well as your fellow workers. **Be responsible for the quality installation of your work.** Inspect tools and equipment before use to ensure proper working condition. **Attend and participate in tool-box talks.** Report all accidents, incidents, and near-misses. **Ensure work area is free of safety and quality hazards.** Stop and report any unsafe act or poor quality condition.	
SUPPORT SERVICES: IPS, PRECON/ESTIMATING, LOGISTICS, LEGAL, FINANCE, HR, RISK **System is FLEXIBLE to accommodate the culture.** Safety system is POSITIVELY perceived by the workforce.	**Provide input for project pursuit proposals.** IPS Leaders engage project team to ensure sufficient budgets for service. **Precon/Estimating identifies safety/quality budget.**	**Assist with pre-planning efforts as requested.** Provide training as needed. **Perform in-house construction review and identify critical items.**	**Schedule team members for training on proper procedures.** Attend site specific safety orientation as applicable. **Provide monthly/weekly safety and quality performance statistics to project team.** Support accident, incident, and near-miss investigations/debriefs. **Provide training as needed.** Recognize, record, and reward safe behavior and good quality practice. **Stop and report any unsafe act or poor quality condition.** Safety and Quality staff provide on-site observation and feedback to project team.	Ensure lessons learned are captured and shared.

Records Retention Policy [Policy Center]



Who Performs

All personnel, all departments

Jump to Section

- Who Performs
- New for 2022
- Associated Documents

New for 2022

- No updates

Purpose

To comply with legal requirements regarding record retention and to maximize efficiency in the management of all business-related information created or received by JE Dunn.

Who Performs

All personnel, all departments, all JE Dunn companies and all subsidiary companies

When to Perform

Records retention occurs in the daily course of business, including retention for appropriate periods and destruction of records performed periodically with assistance of records management personnel.

Specific Circumstances

Last Update Date

Associated Documents

Records Retention Policy Documents — See all

Name
Records Retention Policy Final.pdf
Spanish Records Retention Policy ...

Records Management Comittee

Tom Whittaker
Chief Legal Officer

Beverly Wilson
National Records and Information Manager

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Section 05: Planning for Safety


David Hulse
Safety Director

Jump to Section

Intent Statement

Proper planning is critical to success. The intent of this section is to outline the responsibilities and processes for risk planning prior to the start of all JE Dunn projects.

Definitions

JHA (Job Hazard Analysis)

A list of all project specific hazards related to activities within a scope of work. The JHA is required as part of the pre-installation meeting for each major scope.

JSA (Job Safety Analysis)

A list of the hazards related to the daily work plan and the safety measures that will be implemented to control these hazards. Each crew is required to complete a JSA form and conduct a JSA meeting daily

General Requirements

Responsibilities

1. The Project Executive (PX) is responsible for preparing the estimate. The PX will collaborate with the Safety Director to discuss and agree upon realistic funds to support the safety plan and staff requirements in accordance with conditions, company safety policies, Federal and State Safety and Health Regulations, owner, and other regulatory agency requirements.
2. It is the responsibility of the Project Manager and Superintendent to develop and implement a Project Specific Safety Plan. Responsibilities also include providing the necessary planning, supervision, training, and documentation to execute the plan effectively. The safety department shall review the plan to ensure all recognized hazards are addressed. They shall also be responsible to monitor the plan to ensure changes are made to reflect changed conditions or statutes.
3. The safety department shall assist the Project Manager and Superintendent in achieving the safety goals and objectives for the project. They will also regularly audit the program to ensure compliance with all rules and requirements.

Pre-planning safety meeting

The purpose of this in-house meeting is to determine the components of the project specific safety plan. The meeting shall be conducted with a representative of the safety department to discuss company safety policies, project specific and/or owner mandated safety requirements, and local issues or concerns that may affect overall safety of the project.

Project Specific Safety Plan Components

The key components of a project specific safety plan, including but are not limited to:

1. Project pre-planning safety meeting to address site specific requirements of the project. Prevention through Design (PtD) and Construction Prevention through Design (CHPtD) should be evaluated and assessed to mitigate and eliminate risks throughout the life cycle of the project.
2. Assignment of Trade Partner safety responsibilities (Safety Assignment Matrix)
3. Identification of medical clinic and hospital for emergencies
4. Pre-installation meetings with Trade Partners for all major or high risk scopes of work
5. Safety orientation
6. Job Hazard Analysis (JHA) for each scope of work
7. Job Safety Analysis (JSA) for each task and process (perform daily)
8. Safety audits
9. Safety walks
10. Review the site-specific program to address changed conditions
11. Emergency Action Plan
12. Records management
13. Identify required safety equipment and supplies.
14. Schedule Start Strong meetings (Include key IPS personnel).

Risk Planning at the Start of Major Scopes or Tasks

Project team review of the Project Specific Safety and Health Plan must include:

- Review risks associated with the project
- Check status of safety equipment ordered
- Identify changed conditions from original risk assessment
- Confirm coordination complete with utility companies, railroads, airports, and other government authorities and all permits and/or licenses have been obtained.

Annexes

Plans and Checklists

Emergency Action Plan
Emergency Phone List
Multiple Threat Checklist and Telephone Procedure
Site Specific Safety Plan
Safety Assignment Matrix
Safety Project Budget Worksheet
Fall Protection Work Plan Form

Pre-Installation Checklists

Crisis Reference Cards

Bomb Threat, Terror, Suspicious Package, HAZMAT, and WMD
Earthquake
Fire
Hostile Intruder (Violent Employee)
Hurricane
Medical Emergency
Severe Weather

Functional Manager


David Hulse
Safety Director

Change History

Date	Description
8/25/2021	Removed reference to utilization of safety scorecard

Safety Inspection of Equipment

An inspection must be performed on all equipment upon delivery to ensure all company safety requirements are met.

Pre-Installation Meetings

The purpose of this meeting is to identify safety issues inherent with the type of work being performed and to provide workable solutions ensuring employee safety.

The Superintendent and Project Manager must conduct a detailed Pre-Installation Meeting for all major scopes of work. Planning for this meeting will include collaboration with the safety department.

The Pre-Installation Checklist must be used for each scope:

- Blasting
- Demolition
- Sheetrock/Drywall
- EIFS
- Electrical
- Excavation
- Generic checklist (to be used on other scopes not listed)
- Horizontal Formwork
- Masonry
- Pier Drilling
- Plumbing
- Precast
- Roofing
- Steel erection
- Vertical formwork
- Wood framing

Trade Partners shall have a jobsite Foreman and Project Manager present at the Pre-Installation Meeting. The Foreman is responsible for ensuring compliance with all applicable Federal, State and local safety and health regulations on the project as well as full compliance with the JE Dunn safety program. In cases where a lower tier Trade Partner is involved, a field representative should be in attendance and/or all minutes from the Pre-Installation Meeting should be forwarded to the lower tier Trade Partner. The primary Trade Partner's Foreman is responsible for the compliance of all lower tier Trade Partners.

Contact with the Insurance Carrier

The Risk Management department will notify claims and loss control offices of the project start date. The safety department will secure forms, posters, training literature, and a list of approved doctors for medical treatment. Arrange for loss control visits including a pre-start visit to study plans and make recommendations.

Engineering / Consultation / Peer Reviews

Adequate factors of safety shall be included when designing/selecting temporary structures, rigging, cranes, material hoists, shoring/bracing and other devices. (Refer to the manufacturer's recommendations and Federal, State Safety and Health Regulations for specific requirements). Consult manufacturer literature for load limits.

Engineers shall be consulted to review/approve:

- The use of equipment or material placements on temporary or partially completed structures
- Allowing equipment to work next to adjacent buildings or structures
- Excavations or soil retention systems used when OSHA guidelines concerning such excavations cannot be followed
- When system design may be affected by environmental conditions.

Public and Property Protection

- Only authorized persons shall be allowed on the jobsite.
- Visitors must sign in at the project office and sign a release of liability statement. They will be supplied appropriate personal protective equipment to wear during the visit and will be escorted.
- A third party preliminary survey of the adjacent/surrounding property is highly recommended to document existing conditions of structures and surrounding area. Photographs or videotapes should be taken to clearly establish the pre-existing conditions.
- A temporary construction security fence shall be installed. The determinations and location of this requirement shall be made by the project superintendent, project manager, and safety director at the beginning of the project.
- Requirement for offsite protection of public property and pedestrians shall be in accordance with ANSI A10.34 Protection of the Public on or Adjacent to Construction Sites.
- Onsite parking shall be limited to authorized vehicles and shall be done at the vehicle owners' risk.

Required Signage and Postings

Required Project Sign Package #1:

- Bi-Lingual Jobsite safety requirement signage
- Personal protective equipment banner
- Entering the work zone signage
- Visitors Must Check in at the Designated Trailer
- Stop Work Authority
- No Trespassing and Keep Out – Construction Area
- Hard Hat Area
- First Aid Station
- Storm Shelter Area
- Emergency Signal (3 horn blast)
- Evacuation Area

These signs must be installed at every gate. No trespassing /hard hat signs shall be also posted every 100 feet on the perimeter fencing around the project. Due to the location of the project, bilingual warning signs may be required to be posted.

All State, Federal required posters shall be obtained by contacting the JE Dunn regional safety department to order these posters. Posters will be shipped directly to the project, office or an alternate address. The superintendent is responsible for ensuring these posters are posted in a prominent area.

In addition to the Federal and State required posters, the following posters and/or information are mandatory and shall be placed with the other posters mentioned above. When the environment dictates, bilingual signage may be required:

- Emergency Phone Numbers (Fire, Police, Hospital, Clinic)
- OSHA 300 Log (February 1st through March 31st)
- Key supervisor after hours contact information

Security

During the estimate phase, a determination shall be made on the type and level of security that will be required on the project. Input shall be received from the Regional Safety Director.

Watchman and security requirements shall be reviewed on an individual basis by the Superintendent, Project Manager, and Safety Director at the beginning of each project. Decisions and budget requirements should be based on:

- The location of the project (good/bad)
- Public exposure
- Proximity to housing with children
- Remoteness of the project
- Amount of materials and/or equipment that will be stored on the project
- Pedestrian and automobile traffic patterns

Planning considerations on each project shall address the following:

- Security system – a monitored security system tailored to the project should be considered for installation in the project office, tool storage room or trailer, meeting area, etc.
- Project lighting – Lights shall be installed to illuminate the building, project trailers, equipment, materials, parking lots, and walkways.
- Six-foot chain link fence or the equivalent should encompass the project. If the area is too large for perimeter fencing, and no public nuisance exposure is present, with approval from the safety director, the fencing can be limited to an area around the project trailer and material storage area. If full project fencing is not used, all entrances to the project shall be secured by gate or cable during non-work hours.
- All tool lock-ups such as company trailers or tool rooms that are inside the building shall have covered locking devices installed.
- Small machines and hand-held tools must be secured.
- A uniformed, unarmed security guard may be assigned to the project as conditions dictate.
- A security service may be contracted to perform drive by observations of the project(s).
- Live feed video monitoring by a third party may be utilized to supplement security on site.

Site security must also be reviewed on a regular basis. Conditions may change on the project that may warrant a review of the security needs.

Medical Facility Set-up

At the start of a project, the Superintendent will contact the regional safety department with the start date and location of the project. The regional safety department shall conduct a search of available medical clinics in the area. Once the clinics are identified, a member of the regional safety department or his designee will tour and interview clinic representatives.

Selection criteria shall be, but is not limited to:

- Distance from the project
- Business hours of the clinic
- Ease of access (parking, location)
- Whether in-clinic bilingual services are available
- Average wait time (amount of time the injured employee waits to be seen)
- Average turnaround time (total amount of time spent at the clinic)
- Condition/cleanliness of the clinic
- Type of services offered
- Qualifications of the physicians
- Number of physicians on duty
- Types of drug testing available
- Discounts extended to the client
- Whether the clinic is approved by the insurer
- References provided.

Once a clinic is selected, the regional safety department representative shall meet with the clinic to set up written protocols to include, but is not limited to:

- Fit-for-Duty
- Injured workers
- Instructions for sending work ability reports (both method and contacts)
- Contact information for representatives of the project, company, insurer, and agency
- Referral authorization information
- Billing information
- Drug testing protocols
- Fees associated with treatment and drug testing
- Listing authorized individuals for receiving confidential information
- Restricted work availability
- PT and returning visit scheduling instructions
- Any other special instruction needed to provide direction to the clinic on the treatment of the injured worker.

Contact should be made with the hospital and ambulance services:

- Provide the job location, best route and any special instructions.

First-Aid/AED Device

1. A doctor approved first aid kit and eye wash station for treatment of minor injuries shall be placed on the project. The kits shall be sized for the project. Contents of the kits should be determined by the exposure. Other than aspirin, no other over the counter or prescription medication shall be stocked in the kits.
2. In cases where work is a considerable distance from the project office, smaller kits shall be

provided for gang boxes. The kits should be inspected on a regular basis. Kits should be restocked or replenished as needed.
3. An AED device shall be available on all projects that have a full time on-site safety person assigned.
4. Ensure that at least one worker on each shift is certified in First Aid/CPR/AED by the American Red Cross or equivalent.
5. The Safety Department shall host annual First Aid/ CPR training to ensure that all supervisors are currently certified.
6. Establish a policy for transportation of injured workers to doctors or hospitals.
7. During supervisory and tool box meetings, educate workers in the basic procedures for handling the injured.

Project Crisis / Emergency Response Plan

The Crisis Emergency Response Plan is designed to provide personnel at all JE Dunn project locations, nationwide, with basic policies and procedures for the response, recovery, restoration and return to operations after a severe disruption.

Responsibilities

Operations is responsible for developing and disseminating a written project specific Emergency Action Plan which includes:

1. Designating the primary and alternate Site Incident Commander (SIC)
2. Selecting and training enough Site Emergency Plan Coordinators (SEPC)
3. Maintaining appropriate emergency equipment on-site including emergency notification signal/horn, weather radio, flashlights, spare batteries, and other equipment deemed appropriate given site location/conditions
4. Coordinating the emergency plan with building owner's or tenant emergency plan if applicable
5. Developing and posting a 24-hour contact list for emergency responders, Trade Partners, utilities and building facility managers as applicable (Emergency Phone List template)
6. Notifying the Safety Director of any project emergency
7. Maintaining the written plan as conditions change.

The **Site Incident Commander (SIC)** is responsible for:

1. Coordinating worker training on the procedures for reporting emergencies
2. Identifying and posting the location of safe exits, and evacuation routes and update during construction
3. Identifying appropriate internal and external shelter or evacuation areas
4. Conducting drills to assess effectiveness of the plan.

The **Safety Director** is responsible for reviewing the emergency response plan with Operations.

All workers shall be familiar with the Emergency Action Plan and participate in all drills.

Reporting an Emergency

In the event of an on-site emergency, a worker shall immediately contact 9-1-1 as appropriate, followed by notification to the designated SEPC.

All workers shall be prepared to report the following information to emergency personnel and the SEPC:

- Type of emergency
- Location
- Severity

Emergency Notification Signal

The project must establish and effective system in which to notify all workers on site of an emergency. The standard notification system is 3 horn blasts.

Evacuation / Assembly Area

1. Designate a primary and secondary assembly area.
2. When the emergency notification signal is sounded, all employees shall immediately cease work, and proceed directly to the designated assembly area and report to their supervisor.
3. The SEPC shall coordinate employee count with the Foreman or Trade Partner supervisors. The SEPC shall notify the SIC of any unaccounted-for workers.
4. Workers shall not leave the assembly area until all-clear message or signal is given.

Project Emergency Action Plans should address the following:

1. Medical Emergency
2. Severe Weather
3. Fire
4. Hostile Intruder (Violent Employee)
5. Bomb Threat, Terror, Suspicious Package, HAZMAT, and WMD
6. Earthquake
7. Hurricane
8. National C/ERP Policy

Handling the Press or Public

All media inquiries are to be directed to the designated spokesperson. If the spokesperson is not available and the situation demands immediate communication with the media, please review the following guidelines:

1. Remember that our first and most important priority is the safety and well-being of our employees, their families and other individuals affected by this situation. Reinforce this with the media in every communication.
2. "No Comment" is never an appropriate response. If you are asked a question that you can't respond to or are uncertain about, assure the media that you will seek out the answer and respond as soon as possible.
3. Keep responses short and direct. Avoid over-informing.
4. Never supply information "off-the-record". Assume you are always on the record.
5. Body language can send an important message about your control of the situation. Look your interviewer directly in the eye and project a sense of confidence.
6. Do what you promise. If you commit to getting back to a reporter with a response, do so as quickly as possible or ensure that someone else will.
7. Don't get pulled into a hole. If a reporter takes you down a path of questioning that seems unproductive or inappropriate, try to redirect the discussion to issues that are more pertinent to the crisis at hand.
8. Practice does make perfect. There's no substitute for "trying out" your own responses

before an interview. Even in a crisis, pull a colleague aside and ask him/her to drill you for a few minutes.
9. Speak the reporter's language, remembering that he/she may not be familiar with the construction vocabulary.
10. Remember: The right information is always better than fast information. Even when you feel pressured, if you are unsure about any response, offer to get back to the reporter with the right answer. The media will appreciate your commitment to providing solid information.

BOMB THREAT/SUSPICIOUS PACKAGE/HAZARDOUS MATERIAL (HAZMAT)/TERRORIST ATTACK (TERROR)/WEAPONS OF MASS DESTRUCTION (WMD) CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting a **BOMB THREAT/SUSPICIOUS PACKAGE/HAZ MAT/TERROR/WMD** crisis at a JE Dunn office or project site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

A *BOMB THREAT/SUSPICIOUS PACKAGE/HAZ MAT/TERROR/WMD* crisis is any event that involves loss of life, potential loss of life, serious property damage or disruption of operations and services at a JE Dunn location due to presence of a bomb / incendiary device or suspicious package, the presence of hazardous materials, terrorist threat or actions, or the use of WMD.

RESPONSE PROTOCOL

1. If a **suspicious package** or **hazardous substance** is discovered:

    - Move away from the package or substance;
    - Do NOT use your cell phone within 100 feet of the package;
    - Do NOT touch the substance or move, shake, or attempt to open the package;
    - Evacuate the area and wash your hands and/or any affected area of contact;
    - Inform others not to enter the area.

The individual making the discovery shall immediately contact their Incident Commander, department manager, or 9-1-1 and provide as much information as possible about the package or substance, including any specific characteristics (color, texture, odor, smoke, etc.). In addition:

- Quarantine yourself if exposed to a suspicious substance.
- The Incident Commander or emergency personnel will direct whether the affected area should be evacuated and isolated.
- If instructed, vacate all affected areas and move into a safe location (either shelter-in-place or external evacuation, as directed by emergency personnel or the Incident Commander).
- The facilities manager will address environmental issues.

2. If a **telephone call or information** is received stating a **bomb** or **hazardous substance** is nearby:

- Be calm, courteous, and listen. Do not interrupt the caller. If possible, notify another person of the situation while the caller is on the line.
- Write down the call as precisely as possible, noting as much of the information on the attached **Caller Checklist** as possible.
- Note the possible location of the device.
- Do not hang up the phone when the call is completed. Keep the line open or place it on "hold."
- Call 9-1-1 and your Incident Commander (or department manager) to advise them of the call and provide a detailed written text of the call.
- Evacuate the affected location; move to a designated safe location as directed by the Incident Commander or emergency personnel.
- Do not re-enter the area until directed to do so by the Incident Commander or emergency personnel.

4. If a HAZMAT is released **outside** the building:

- Employees in hallways or open areas are to shelter-in-place in the nearest room.
- Close windows & window treatments.
- Crouch down in areas that are away from windows.
- Notify the receptionist, Incident Commander, or facilities/building manager so that air ventilation systems may be shut down, if possible.

5. If a Terrorist Attack occurs, or a WMD is set off, **outside** the building:

- Do not use radios, cell phones, etc., that may trigger other WMDs; use land-lines if possible to notify emergency personnel.
- If biological agents may be involved, affected individuals quarantine themselves.
- Unaffected individuals shall relocate to a separate, safe place.
- Do not mass individuals in large numbers at a single location.
- Be alert to community-wide emergency notifications and directions from your Incident Commander or emergency personnel.

EVACUATION PROCEDURES

Do not evacuate the building unless you have firsthand knowledge there is a BOMB/SUSPICIOUS PACKAGE/HAZMAT/TERROR/WMD situation in the building or emergency personnel or the Incident Commander instruct you to evacuate.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

CALLER CHECKLIST & TELELPHONE PROCEDURE

Instructions: Be calm, courteous, and listen. Do not interrupt the caller. Attempt to notify a supervisor or other employee while caller is on the line. Record the following information as soon as possible after the call:

Name of Operator:_____ Time: _____ Date: _____
Number at which call was received: _____

Caller's Identity:
Male: ____ Female: ____ Adult: ____ Juvenile: ____ Approximate Age: ____
Origin of Call:
Local: ____ Long Distance: ____ Booth: ____ Internal: ____ Undetermined: _____

VOICE CHARACTERISTICS:
__ Loud __ Soft
__ High Pitch __ Deep
__ Raspy __ Pleasant
__ Intoxicated
__ Other: _____

LANGUAGE:
__ Excellent
__ Good
__ Fair
__ Poor
__ Foul
__ Other: _____

MANNER:
__ Calm __ Angry
__ Rational __ Irrational
__ Coherent __ Incoherent
__ Deliberate __ Emotional
__ Righteous __ Laughing
__ Other: _____

SPEECH:
__ Fast __ Slow
__ Distinct __ Distorted
__ Stutter __ Nasal
__ Slurred __ Lisp
__ Other: _____

ACCENT:
__ Local
__ Not Local
__ Foreign
__ Race
__ Religion
__ Other: _____

BACKGROUND NOISES:
__ Factory __ Trains
__ Bedlam __ Animals
__ Music __ Quiet
__ Office __ Voices
__ Airplanes __ Mixed
__ Traffic __ Party
__ Other: _____

PRETEND YOU HAVE DIFFICULTY HEARING—KEEP CALLER TALKING; QUESTIONS TO ASK:
When will it go off? _____
Where is it located? _____
What kind of bomb/substance is it? _____
Where are you calling from? _____
What is your name and address? _____

ACTION TO TAKE IMMEDIATELY AFTER RECEIVING CALL: Write down the call as precisely as possible, noting time of call, length of call, any distinguishing characteristics of the callers voice, to include male/female, accent, age, etc. and the possible location.

- Do not hang up the phone when the call is completed. Keep the line open or place it on "HOLD".
- Write out the message in its entirety with any other comments.

OTHER INFORMATION / TEXT OF CALL:

_____
_____
_____
_____

EARTHQUAKE CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting an **EARTHQUAKE** crisis at a JE Dunn office or project site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

AN *EARTHQUAKE crisis* is any event that involves loss of life, potential loss of life, serious property damage or disruption of operations and services at a JE Dunn location due to an earthquake.

RESPONSE PROTOCOL

What to Do During an Earthquake

Be aware that some earthquakes are actually foreshocks and a larger earthquake might occur. Minimize your movements to a few steps to a nearby safe place and stay indoors until the shaking has stopped and you are sure exiting is safe.

1. Office Protocols
   - DROP to the ground; take COVER by getting under a sturdy table or other piece of furniture; HOLD ON until the shaking stops. If there is not a table or desk near you, cover your face and head with your arms and crouch in an inside corner of the building.
   - Stay away from glass, windows, outside doors and walls, and anything that could fall, such as lighting fixtures or furniture.
   - Use a doorway for shelter only if it is in close proximity to you and if you know it is a strongly supported, load-bearing doorway.
   - Stay inside until shaking stops and it is safe to go outside. Research has shown that most injuries occur when people move to a different location inside the building or try to leave too soon.
   - Be aware that the electricity may go out or the sprinkler systems or fire alarms may turn on.
   - DO NOT use the elevators.

2. Jobsite Protocols
   - Stay at the jobsite.
   - Move away from buildings, streetlights, and utility wires.

- Once in the open, stay there until the shaking stops. The greatest danger exists directly outside buildings, at exits, and alongside exterior walls. Ground movement during an earthquake is seldom the direct cause of death or injury.
- Most earthquake-related casualties result from collapsing walls, flying glass, and falling objects.

3. If you are in a moving vehicle
   - Stop as quickly as safety permits and stay in the vehicle. Avoid stopping near or under buildings, trees, overpasses, and utility wires.
   - Proceed cautiously once the earthquake has stopped. Avoid roads, bridges, or ramps that might have been damaged by the earthquake.

4. If trapped under debris
   - Do not light a match.
   - Do not move about or kick up dust.
   - Cover your mouth with a handkerchief or clothing.
   - Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

FIRE CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting a **FIRE** crisis at a JE Dunn office or project site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

What is *a FIRE crisis*? A fire crisis is an event that involves loss of life, potential loss of life, serious property damage or disruption of operations and services at a JE Dunn location due to a fire.

RESPONSE PROTOCOL

1. In the event of a fire, the alarm shall immediately be activated. (See your locality's Emergency Training Plan for specific office protocol.)

2. When a fire alarm is activated, all occupants will evacuate the building. Emergency Plan Coordinators (EPC) should ensure employees are leaving their designated area. No employee shall attempt to enter a burning building to conduct search and rescue.

3. If a person is unable to evacuate on their own, associates should, if possible and without causing further harm, try to help evacuate the person or move the person to an area of refuge. Should a person have to remain in the building due to circumstances beyond his/her control, the EPC will notify the Incident Commander and arriving fire officials of the person's location and the condition of the person (e.g., handicapped, wheelchair bound, injured, etc.).

EMERGENCY PLAN COORDNIATOR DUTIES

1. Conduct a sweep of your assigned area. Be certain that everyone is evacuating the building.

2. If possible, assist with the extraction of any physically-challenged personnel or, at a minimum, move the person to an area of refuge. If unable to extract or otherwise assist, record the location of any individuals who require assistance of emergency personnel for extraction.

3. Assemble with your personnel at a pre-designated safe location and account for your personnel.

4. Record any missing personnel and their last known location and report this information to the Incident Commander or emergency services personnel.

EVACUATION PROCEDURES

1. When an evacuation of a building is ordered or when the fire alarm activates, all employees are to assemble in the designated area(s) as detailed in your locality's Emergency Training Plan or as discussed with your Emergency Plan Coordinator.

2. Do not use elevators. Although elevators typically do not function when a fire alarm is active and will typically remain open on the bottom floor, do not use them even if operable. Use the stairs.

3. Employees with guests in the building are responsible to ensure all guests are escorted to a safe location.

4. Walk in a single file line while exiting through the corridors and stairwells.

5. If smoke is encountered, drop to the floor and crawl along the wall to the nearest exit.

6. When approaching a closed door, feel the door with the back of your hand. If the door is cool, carefully open the door and (if safe) proceed with the evacuation.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

HOSTILE INTRUDER / VIOLENT EMPLOYEE (HI/VE) CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting a **HI/VE** crisis at a JE Dunn office or project site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

A *HI/VE crisis* is any event that involves loss of life, potential loss of life, serious property damage or disruption of operations and services at a JE Dunn location due to hostile or violent actions of an employee or third party (invited or trespassing).

RESPONSE PROTOCOL

What to do if you are in ***direct contact*** with a HI/VE:

1. **Respond quietly and calmly.** Indicate your desire to listen and understand the problem. Allow the person to describe the problem. If the person gives orders that can be reasonably followed, follow them.

2. **Ask questions.** Respectful concern and interest may demonstrate that aggression is not necessary.

3. **Consider offering an apology.** Even if you've done nothing wrong, an apology may calm the individual and encourage cooperation. *"I'm sorry that happened. What can we do now that will solve the problem?"*

4. **Signaling for assistance.** The individual may be antagonized if you call for assistance; **DO NOT** activate fire or other similar alarms. Only persons not in direct contact with the HI/VE should consider whether they can safely seek assistance or contact emergency personnel. Refer to your locality's Emergency Training Plan regarding any specific duress signal procedures.

5. **Do not attempt to intervene physically or deal with the situation yourself**. It is critical that the police take charge of any incident that can or does involve physical harm.

What to do if you ***are aware of***, but not in contact with, a HI/VE:

1. The person making the discovery shall immediately contact 9-1-1 and provide as much information as possible. Provide a description of the individual's specific

characteristics (gender, height, weight, hair color, race, and type of and color of clothing and weapon(s), if any). **Do not approach the intruder.**

2. **Do not activate fire alarms or similar devices which may aggravate the situation.**

3. Notify an EPC of the situation so that a shelter-in-place evacuation will start. Employees in hallways or open areas should seek shelter in the nearest room.

4. Lock doors, turn off lights and close window/window treatments.

5. Crouch down in areas that are out of sight from doors and windows.

6. If gunshots are heard within a building, close, lock and/or barricade room doors and turn off the lights to the area. Stay in the locked room/area until contacted by emergency personnel, police or the Incident Commander.

7. Follow evacuation procedures, <u>if directed</u>.

EVACUATION PROCEDURES

Do not attempt to evacuate the building unless you are in the room or immediate area where gun shots are being fired.

Evacuate only 1) if advised by emergency personnel or your Incident Commander to evacuate the building, 2) if you are on a building floor below the situation and can safely evacuate, or 3) if there is imminent danger in the immediate area requiring evacuation to a safe area. Instead, shelter-in-place if possible.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

HURRICANE CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting a **HURRICANE** crisis at a JE Dunn office site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

What is *a HURRICANE crisis*? A hurricane crisis is a specific weather-related event that involves loss of life, potential loss of life, serious property damage or disruption of operations and services at a JE Dunn location.

RESPONSE PROTOCOL

JE Dunn's goal is to take early preventative action to ensure the safety of our employees and secure the physical offices and jobsites in the event of a hurricane. Affected offices should already have – and consult – their own hurricane-specific preparedness plan.

1. **Watch Notification (potential danger within 36 to 48 hrs)**
   - Regional President, Incident Commander, and Regional Emergency Response Team will meet to implement the Hurricane Preparedness Plan.
   - Emergency Plan Coordinators to assemble as requested by Incident Commander.
   - Group Managers/Regional Safety Director will monitor weather reports.
   - Group Managers will notify key JE Dunn supervision in affected offices and job sites of storm status and timeframe for preparation.
   - Manpower and final supplies required shall be addressed at this time.
   - Jobsites will put job-specific Hurricane Preparedness Plan steps in effect and begin preparing for the storm. Jobsites will assemble subcontractors and communicate plans and preparation timetable as soon as possible.
   - Office employees will implement Hurricane Preparedness Plan by moving all unnecessary documents to storage or core areas of the building.
   - Inventory and restock all emergency supplies, flashlights, batteries, drinking water, etc.

2. **Warning Notification (likelihood that storm will affect area within 24 hrs)**
   - The Incident Commander will notify all key personnel that a hurricane warning is in effect. Telephone numbers and contacts should be obtained from each subcontractor and collected at the main office.
   - Notify Dunn Risk Management Department and insurance carrier of impending storm and make tentative arrangements for insurance adjuster to be available after the storm.
   - Jobsites will proceed with preparations to secure sites. Tie-down all loose materials and remove or secure all equipment and trailers. Special attention should be paid to partially-completed or tilt wall structures.
   - JE Dunn and its subcontractors will be responsible for their own individual areas of responsibility / trailers / lay-down at the site.

- *JE Dunn personnel must ensure that all subcontractors perform their due diligence in preparing for the event as JE Dunn is ultimately responsible for the entire site.*
- Remove all sensitive jobsite records and computers, etc., to a safe location, preferably the nearest physical office. The office will move all files, drawings and sensitive records or equipment offsite or away from exterior walls or windows to the center or core of the building. Secure all loose items in parking lot. Secure all doors and windows and lower shades. Laptop computers should be removed from the offices/sites by the assigned employee so employees can continue to work from a remote location.
- Perform general review of all jobsites before evacuating the area. Group Managers will be advised when the sites are secured. Designated key personnel will perform the final review and check to be sure all projects are secured and closed.
- Final photos (and video when possible) of the project should be taken at this time to help establish extent of subsequent damage.

3. Mandatory Evacuation Notification-Obey all public evacuation orders

- Special attention should be paid to any projects in a low lying area prone to flooding or forced evacuation. Once the authorities declare these areas off-limits, it is difficult to get in and close a job site.
- Group Managers will confirm that all job sites as well as main office are closed and secured.
- JE Dunn personnel should have already been released and directed to follow any public evacuation notices for their locality.

4. **After the Storm**

- Group managers will instruct employees on recovery and return to work procedures consistent with the Hurricane Preparedness Plan.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

MEDICAL EMERGENCY CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting a **MEDICAL EMERGENCY** crisis at a JE Dunn office or project site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

What is *a MEDICAL EMERGENCY*? A medical emergency is an injury or illness that is acute and poses an immediate risk to a person's life or long term health. Depending on the medical emergency (Heart Attack, Stroke, Trauma Injury, etc.), a disruption to operations and services at a JE Dunn location may result.

RESPONSE PROTOCOL

Emergency Services, First Aid, CPR, and AED

- If you need medical assistance or require emergency services, call 9-1-1 and also summon your location's designated First Responders.
- Notify the Receptionist of the emergency so they may direct emergency services to the emergency.
- First aid kits are provided in the office and job trailer.
- **Contact designated First Responders for your location for assistance in rendering treatment for CPR and use of Automatic External Defibrillators (AED) (if available).**

Specific Medical Emergencies

1. Chest Pain/Possible Heart Attack

- Dial 9-1-1 for emergency medical assistance. Summon a First Responder to use the AED (if available).
- First Responders may administer CPR if the person suspected of having a heart attack is unconscious.

2. Choking (clutching throat, inability to talk, difficulty breathing, etc.)

- Summon First Responders or perform "five-and-five" cycle (five back blows between the person's shoulder blades with the heel of your hand, five abdominal thrusts, also known as the Heimlich maneuver; repeat). Give chest thrusts to a person who is obviously pregnant or known to be pregnant or too large to reach around.
- Call 9-1-1 if "five-and-five" cycle is not immediately successful.

- If you are alone, perform the back blows and adnominal thrusts before calling 9-1-1. If another person is available, direct that person to dial 9-1-1 while you perform the cycle.

3. Fainting

- Summon First Responders to position person on their back and elevate legs approximately 12 inches.
- Loosen any tight clothing such as a tie or collar.
- Check airway/breathing and check for signs of circulation.
- If the person vomits, position on his or her side.
- If a person does not regain consciousness within 1 minute, call 9-1-1.

4. Fracture, Head Trauma, Severe Bleeding or Severe Sprain

- Summon First Responders.
- If the injury involves major trauma, call 9-1-1.
- If severe head trauma occurs, keep the person still, stop any bleeding and watch for changes in breathing and alertness; call 9-1-1.

5. Shock (resulting from trauma, heatstroke, allergic reactions, severe infection, poisoning or other causes)

- Summon First Responders and call 9-1-1.
- Have the person lie down; check for signs of circulation, and elevate legs approximately 12 inches.
- Keep the person warm and comfortable; turn the person on his or her side to prevent choking if the person vomits or bleeds from the mouth.
- Do not offer the person any food or drink.

6. Stroke

A stroke is a true emergency. Seek immediate medical assistance. The sooner treatment is given, the more likely that damage can be minimized. Every moment counts.

- Call 9-1-1 immediately if you notice a sudden onset of stroke symptoms:
  - Body weakness or numbness, complaints of dimness, blurring or loss of vision
  - Loss of speech/trouble talking
  - Unexplained dizziness, unsteadiness or a sudden fall.
- Summon First Responders.

EMERGENCY PLAN COORDNIATOR and FIRST RESPONDER DUTIES

1. Ensure emergency personnel have been contacted.
2. Be aware of qualified First Responders in your area/department.
3. Keep crowds away from the ill or injured person.
4. Attempt to identify the affected person; find out if they take any medication.

5. One or two persons should be appointed as bystanders to meet emergency services upon arrival and guide them to the proper location.

EVACUATION PROCEDURES

Unless the situation is particularly hazardous and likely to further endanger the affected person, evacuation of an injured victim requires special skills and should be left to emergency personnel. First Responders and EPCs should ensure that other persons maintain an adequate distance away from the situation.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

SEVERE WEATHER CRISIS Reference Card

This Reference Card establishes a protocol for managing and reporting a **SEVERE WEATHER** crisis at a JE Dunn office or project site. It was created to ensure that critical crisis response procedures are followed and to ensure that communication with all key audiences, including the media, occurs quickly, accurately and appropriately.

What is *a SEVERE WEATHER crisis*? A severe weather crisis (Thunderstorm, Blizzard/Ice Storm, Flood, or Tornado) is a weather related event that involves loss of life, potential loss of life, serious property damage, or disruption of operations and services at a JE Dunn location.

RESPONSE PROTOCOL

JE Dunn will monitor the weather on an ongoing basis if a severe watch is issued by the US Weather Service. The Human Resources Department and/or the Incident Commander will determine if the business will close before travel conditions become dangerous or reopen when conditions for travel are safe.

1. Office Protocols
    - Be alert for notification of a pending disaster by siren, public address system, intercom, email or telephone.
    - Close, but do not lock, all doors, if directed or when performing an internal evacuation.
    - Stay away from windows and objects that might fall.
    - In the event of a tornado:
        - Shelter-in-place in an interior area hallway or evacuate to designated safe areas of the building as instructed.
        - Cover your head, neck and face in the event of flying debris.
        - Do not seek cover in large gymnasiums, auditoriums, or similar large open areas or spaces.
        - If you are in a car or trailer and the tornado is nearby, get out immediately; lie face down in a ditch or nearest ravine and cover your head with your hands.

2. Jobsite Protocols
    - Employees in outdoor areas are to seek shelter in secure buildings.
    - Tornado: If in a car or trailer or otherwise unable to shelter in a secure structure, lie face down in a ditch or nearest ravine and cover your head with your hands.

EMERGENCY PLAN COORDNIATOR DUTIES

1. Conduct a sweep of your assigned area. Be certain that everyone is moving to the designated safe area or, if the business has closed, ensure that everyone has evacuated the building.

2. Assist with the extraction of any physically-challenged personnel. At a minimum, attempt to move these persons to a proper refuge area and record the location of any individuals who require emergency personnel to assist with the extraction. Advise emergency personnel immediately of the person's condition and location.

3. Assemble with your personnel at a designated safe location and account for your personnel.

4. Record any missing personnel and their last known location and report this information to the Incident Commander or emergency personnel.

MANAGING THE MEDIA

Please refer to the Crisis Communications Reference Card.

Project Name:

The Emergency Action Plan (EAP) defines the procedures to be used when responding to emergency situations on this job site. Every Contractor must be aware of and use the procedures in this plan should events occur that are outlined. Failure to act in the prescribed manner can create confusion, leading to putting people and materials at risk and delaying or preventing the initiation of appropriate actions to resolve the emergency.

All emergencies, regardless of type, must be reported to the project management team as soon as the required emergency notifications have been made.

Emergencies include:

- Injury to one or more workers
- Weather related events such as, tornados and severe thunder storms.
- Other emergency events, such as, fire, earthquake, structure failure, crane collapse, bomb threat, chemical spill, extended power loss, etc.

Each of these types of events must be responded to in a timely and correct manner.

Workers must be made aware of and trained in their role should there be an emergency. The following is contact information for key project team members for reporting an emergency. Please contact them in the following order:

First / Last Name	Title	Phone Number
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

List Field Supervisory Personnel first, Safety personnel second, and Office personnel third.

Injuries that are incapacitating or life threatening will require a Superintendent or Foreman in the nearby area to call 9-1-1 immediately and direct the emergency to the appropriate location at the project site. Directly following the call to 9-1-1 the Superintendent, Foreman, or trades workers with knowledge of the issue shall contact a member of the JE Dunn Safety Department.

All workers must be trained in the requirements of the project EAP, with training initially occurring at project worker orientation with updates provided at the first weekly toolbox talk of each quarter. A tool box talk sheet shall be used to document updated training.

EMERGENCY EVACUATION PROCEDURE

When the emergency signal, consisting of is enacted, all employees shall immediately cease work, secure all equipment, and proceed directly to the designated assembly area (Primary Evacuation Point and / or Secondary Evacuation Point) and remain there until further instructions are assigned by the Supervisor.

Evacuation/Assembly Area:

During any evacuation, unless otherwise directed, the primary assembly area is:

Do not leave the area until you have notified your Supervisor and have received instructions regarding return to work. In the event the primary assembly area is hazardous, the secondary assembly area will be at .
(see attached map)

Superintendents / Foremen for each Contractor / Trade Partner on site will be checking to ensure all of their workers are safely out of the hazard zone. Do not leave the assembly area until you are accounted for and receive instructions from your Supervisor or Safety representative.

MEDICAL EMERGENCIES

All injuries, regardless of how minor, must be reported to as soon as possible and as required by the Claim Management and Reporting Procedures.

Workers with first aid and minor injuries that are not life-threatening but in need of medical treatment, must be transported to the accompanied by a Superintendent, or Foreman or their designee from the company employing the injured worker(s).

DO NOT SEND AN INJURED WORKER TO THE CLINIC ON HIS/HER OWN UNLESS INSTRUCTED TO DO SO BY THE SAFETY MANAGER.

In the event of an incapacitating or life threatening injury, call 9-1-1 requesting an ambulance. Stay on the line until the dispatcher tells you to hang up. If in doubt, call 9-1-1.

The Foreman should ensure that personnel are dispatched to the project gate to assist emergency medical personnel in getting to the injured worker.

Fire:

In the event of a fire your first thought should be to put it out if you can do so safely. Fire extinguishers are provided throughout the site. If you are not sure that you can put out the fire, don't try. Immediately contact a JE Dunn Superintendent or Foreman.

Earthquake:

While earthquakes may not often be experienced in this project region, they can happen and could be severe. If an earthquake occurs, immediately evacuate to the designated assembly area and report to your Supervisor.

DO NOT LEAVE THE ASSEMBLY AREA UNTIL TOLD TO DO SO BY YOUR SUPERVISOR OR THE SAFETY MANAGER.

Weather:

In the case of a severe thunder storm, evacuation will be on a case by case basis. If there is lightning in the area, the lead Superintendent(s) and the site Foremen, in conjunction with the Site Safety Manager, will determine if work must be halted and evacuation is necessary for the safety of the workers.

Bomb Threat/Explosion:

In the event you receive a bomb threat, regardless of how you receive it, notify your immediate supervisor who will then notify the lead Superintendent. The lead Superintendent will initiate a general evacuation of the site.

If an explosion occurs, even a small one, immediately shut down your work and evacuate to the primary assembly area. Do not remain in the area as there may be secondary explosions or structural failure of existing buildings.

Hazardous material exposure/spills:

Trade Partners who use chemical compounds for construction purposes will have SDS's present and available on site for all chemicals, regardless of quantity. SDS's must be clear and legible. In the event a worker is exposed to a significant quantity of a particular chemical and is transported to a medical facility, the SDS for that material must be faxed to the medical provider.

Contractors / Trade Partners that have chemical compounds on hand for construction purposes are required to have a spill kit. The spill kit must be able to handle at least the contents of at least one of the largest container in which the material is packaged. Cleanup of the spilled chemical will be done in accordance with the manufacturer's directions.

When a spill of any size occurs, contact the lead Superintendent, and the Safety Manager. Tell them what has been spilled and how much. **DO NOT ATTEMPT CLEAN UP AND DISPOSAL BEFORE MAKING THIS NOTIFICATION!** Containment of large spills may be started while also contacting the individuals indicated. Only workers trained to use spill kits should attempt to do so. If possible, protect the area from other workers entering and becoming contaminated or tracking the chemical into other parts of the site.

Disposal of hazardous waste must be done in accordance with all federal, state and local regulations. Copies of invoices, bills of lading, etc., indicating how and where the material / waste were disposed of, will be provided to the General Contractor Safety Manger, upon completion of the disposal process.

UTILITY COMPANY EMERGENCY CONTACTS

(Specify name of the company, phone number and point of contact)

	Name of the Company	Point of Contact	Phone Number
Electric:			
Traffic:			
Water:			
Gas / Petroleum:			
Communication:			
Other(s):			

Project Name:

Project Address:

*** A copy of this document shall be placed on the wall next to the phone as well as posted inside a window but visible from the outside.*

Name of the Company	Phone Number
FIRE Department:	**9-1-1**
POLICE Department:	**9-1-1**
HOSPITAL:	**9-1-1**
AMBULANCE:	**9-1-1**
Utility Locates:	
Gas Company:	
Electric Company:	
Water Department:	
Telephone Company:	

After Hours Emergency Contacts:

Name	Phone Number	Name	Phone Number

FALL PROTECTION WORK PLAN

Fall protection is required at 6 feet; however, a written plan is required at or above 10 feet.

JE DUNN CONSTRUCTION

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Company:	Site Location:
Job Task:	
Job Location/Description:	

Plan Prepared By:	Date:

- Workers must review and sign this fall protection work plan prior to starting work. Workers must understand this plan and be trained in fall protection and the systems and equipment that will be used.
- This Fall Protection Work Plan must be posted at the worksite for the duration of work activities.

1. Identify potential fall hazards *(check all that apply)*

☐	Mobile elevating work platforms	☐	Stairways
☐	Excavations/trenches	☐	Roof steep slope (greater than 4:12)
☐	Floor openings	☐	Roof low slope (4:12 or less)
☐	Wall openings	☐	Swing fall
☐	Skylight openings	☐	Hazardous process/equipment
☐	Roof openings	☐	Debris/objects falling to lower level
☐	Elevator shaft	☐	Sharp edges
☐	Ladders (fixed or portable)	☐	Reinforcing steel installation
☐	Scaffold	☐	Other:

2. Describe the fall hazard(s) details

3. Identify fall protection systems to be used

☐	Guardrail system	☐	Aerial lift
☐	Covers (holes and openings)	☐	Horizontal lifeline
☐	Appropriate anchors for systems used	☐	Vertical lifeline and rope grab
☐	Personal fall arrest system	☐	Warning line
☐	Personal fall restraint system	☐	Mobile Fall Protection Unit
☐	Positioning device system	☐	Other:
☐	Scaffold with guardrail	☐	Other:
☐	Scissor lift	☐	Other:

4. Describe procedures for assembly, maintenance, inspection, disassembly of fall protection system to be used

5. Describe procedures for handling, storage, securing tools and materials

6. Identify methods of overhead protection for workers who may be in, or pass through the area below worksite

☐	Barricading	☐	Toeboards/screens on scaffolds
☐	Hard Hat Lanyard	☐	Toeboards/covers on floor openings
☐	Catch net	☐	Screens on guardrails
☐	Warning signs	☐	Secure large tools
☐	Tool belts	☐	Overhead Protection:
☐	Tool lanyards	☐	Other:

7. Identify method for prompt, safe removal of injured workers
CALL 503-460-4000 IF FALL OCCURS

☐	Written agreement with:	☐	Self-rescue
☐	Site first aid	☐	Other employees
☐	Elevator/Stairs	☐	Other:

8. Identify method used to determine adequacy of anchorage points

☐	Evaluation by professional engineer	☐	Existing engineering/design documents
☐	Manufacturer's data	☐	Other:

9. Describe and identify locations of anchorage points

10. Select system components

☐	Full body harness	☐	Choker
☐	Vertical lifeline	☐	Carabiner
☐	Horizontal lifeline	☐	Rope grab
☐	Lanyard	☐	Personal shock absorber
☐	Boatswains chair	☐	Beamer
☐	Connecting devices (identify)	☐	Anchorage points (identify)
☐	Other:	☐	Other:

11. Distance from anchor to ground, lower level or obstruction (see page 4 chart)

12. Calculated minimum fall clearance (see page 4 chart)

13. Inspection Checklist

☐	Identification tags
☐	Horizontal lifeline tension is correct
☐	Integrity of stitching in shock absorber
☐	Integrity of stitching in harness/lanyard
☐	Manufacturers assembly/disassembly instructions
☐	Locking capability of retractable lanyards assured
☐	Locking capability of carabiners assured
☐	Locking capability of snap hooks assured
☐	Knots and other connection methods do not weaken lifeline
☐	Lifelines installed and protected from cuts or abrasions
☐	Rope (wear, fraying, damage, mildew)
☐	Lanyards (wear, fraying, damage, mildew)
☐	D-rings have adequate strength, are not cracked or deformed
☐	Guardrails are sound and of adequate strength
☐	Devices that are used to connect to horizontal lifelines lock in both directions
☐	Anchorage points provide adequate strength and are capable of meeting requirements
☐	Hole covers are secured, marked and capable of withstanding anticipated weight loads
☐	Warning line meets strength and other requirements
☐	Inspection of Overhead Protection
☐	Other:
☐	Other:
☐	Other:

14. Employee(s) trained to work under this plan

Name (print)	Signature	Date

Name/title of Competent Person who is provided training under this plan:

15. Work Plan Approval(s)

Name of Lead Worker/Supervisor	Signature	Date
Designed Engineered System: (Name of Qualified Person)	**Signature**	**Date**
Name of Designated Competent Person On-site	**Signature**	**Date**

Fall clearance is the minimum vertical distance needed between the anchor point and a lower level (this can be the ground or lower obstruction) with a safety factor to prevent the worker from hitting the lower level in a fall.

What is the distance from the anchor point to the ground or lower level where a worker would fall?

If a worker falls, when wearing a fall protection system, what is the minimum fall clearance from the anchor point to the worker's feet including a 3 ft. safety factor? *(Calculate as shown below)*

The calculated minimum fall clearance of a specific fall protection system may never be equal or greater than the distance between the anchor point and the lower level.

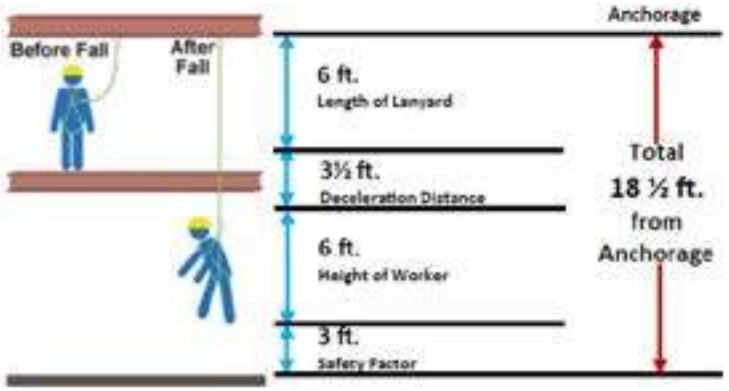
Description	Distance
Lanyard length or free fall distance for self-retracting lifeline	
Maximum allowable deceleration distance	**3½ ft.**
Workers height	
Other component if applies	
Safety factor	**3**
Minimum fall clearance (sum of above)	

Calculating Fall Clearance Using a Shock Absorbing Lanyard

Example:

- First, add the length of the shock absorbing lanyard (6 ft.) to the maximum elongation of the shock absorber during deceleration ($3^{1/2}$ ft.) to the average height of a worker (6 ft.)
- Then, add a safety factor of 3 ft. to allow for the possibility of an improperly fit harness, a taller than average worker and/or a miscalculation of distance.
- The total, $18^{1/2}$ ft. is the suggested safe fall clearance distance for this example.

NOTE: Should the shock absorbing lanyard be used in conjunction with a cross-arm anchorage connector or other, the additional length of the anchorage connector must be taken into consideration

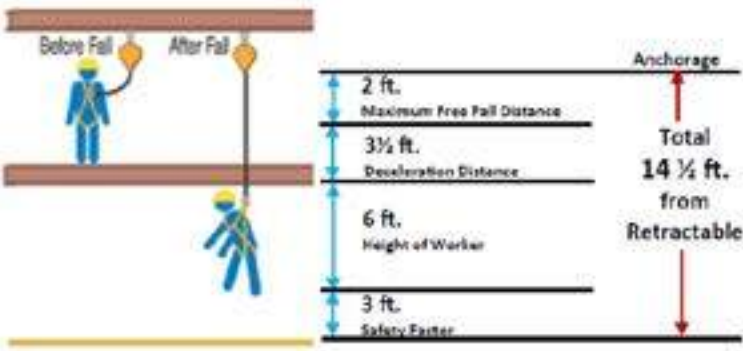


Calculating Fall Clearance Using a Self-Retracting Lifeline

Example:

- First, add the maximum free fall distance (2 ft.) with a retractable lifeline to the maximum deceleration distance ($3^{1/2}$ ft.) to the average height of a worker (6 ft.)
- Then, add a safety factor of 3 ft. to allow for the possibility of an improperly fit harness, a taller than average worker and/or a miscalculation of distance.
- The total, $14^{1/2}$ ft. is the suggested safe fall clearance distance for this example.

NOTE: When using a retractable lifeline, the distance is calculated from the point where the retractable attaches to the back D-ring of the worker's harness.



Multiple Threat Checklist & Telephone Procedure

Be calm, courteous, and listen. DO NOT interrupt the caller.
Notify Supervisor or Security by pre-arranged plan while caller is on the line.

Name of Operator: **Time:** **Date:**

Number at which call was received:

CALLER'S IDENTITY:

☐ Male ☐ Female ☐ Adult ☐ Juvenile Approximate Age:

ORIGIN OF CALL:

☐ Booth ☐ Internal ☐ Local ☐ Long Distance

CALLER'S CHARACTERISTICS:

Voice Characteristics:

☐ Loud ☐ Soft
☐ High Pitch ☐ Deep
☐ Raspy ☐ Pleasant
☐ Intoxicated ☐ Other

Language:

☐ Excellent ☐ Good
☐ Fair ☐ Poor
☐ Foul

Manner:

☐ Calm ☐ Angry
☐ Rational ☐ Irrational
☐ Coherent ☐ Incoherent
☐ Deliberate ☐ Emotional
☐ Righteous ☐ Laughing

Notes:

Speech:

☐ Fast ☐ Slow
☐ Distinct ☐ Distorted
☐ Stutter ☐ Nasal
☐ Slurred ☐ Lisp

Accent:

☐ Local ☐ Foreign
☐ Not Local
☐ Race
☐ Religion

Background Noises:

☐ Factory ☐ Trains
☐ Bedlam ☐ Airplanes
☐ Animals ☐ Mixed
☐ Quiet ☐ Traffic
☐ Office ☐ Voices
☐ Party ☐ Music

Notes:

PRETEND YOU HAVE DIFFICULTY HEARING – KEEP CALLER TALKING (Questions to Ask):

When will it go off (bomb)?

Where is it located?

What kind of bomb is it? What kind of hazardous material is it?

Where are you calling me from?

What is your name and address?

ACTIONS TO TAKE IMMEDIATELY AFTER RECEIVING CALL:

- Write down the call as precisely as possible, noting time of call, length of call, any distinguishing characteristics of the caller's voice, to include male/female, accent, age, etc. and the possible location.
- **Do not hang up the phone when the call is completed**. Keep the line open or place it on "Hold".
- Write out the message in its entirety with any other comments.

DETAILED WRITE-UP OF CALL:

SAFETY ASSIGNMENT MATRIX

Project Name:

DESCRIPTION	INSTALL	MAINTAIN	REMOVE
First Aid Kit			
Tool Box Talks			
SDS Sheets			
Site Fencing			
Security			
Site Security Lighting			
Traffic Control			
Walkways (Define)			
Signage - Traffic Control			
Signage - General Hazard Warning			
Road Protection			
Temporary Ladders			
Cribbing/Shoring			
Overhead Protection			
G.F.C.I.'s			
Gas Storage			
Fire Protection			
Building Access			
Temporary Ladders			

SAFETY ASSIGNMENT MATRIX

Project Name:

DESCRIPTION	INSTALL	MAINTAIN	REMOVE
Temporary Lights			
Temporary Guardrails/Barricades - Perimeter			
Temporary Guardrails/Barricades - Holes/Shafts			
Temporary Guardrails/Barricades - Stairways			
Temporary Guardrails/Barricades - Elevator			
Scaffolding (Define Multi-Use)			
Temporary Heat			
Fire Watch			
Propane Storage			
General House Cleaning			
Temporary Partitions			
Electrical Rooms – Temporary Protection/Signage			
Personal Protective Equipment			
Temporary Roads			
Power Line Protection			
Underground Utility Location			
Floor Holes			

Additional Comments:

The Project Manager is responsible for completing, with input from the Safety Department and the site Superintendent, prior to the Project Pre-Planning

General Information

Project Name: Project Number:

Project Location:

Client:

Start Date: Completion Date:

☐ CM ☐ GC ☐ Large CCIP ☐ Small CCIP

Type of Work Required at the Project:

Yes	No		Yes	No	
☐	☐	Blasting	☐	☐	EIFS
☐	☐	Demolition	☐	☐	Mass Excavation
☐	☐	Steel Erection	☐	☐	Retention Systems
☐	☐	Asbestos or Lead Abatement	☐	☐	Tunneling or Boring
☐	☐	Vertical Wall (Concrete)	☐	☐	Elevated Horizontal Concrete
☐	☐	Mechanical	☐	☐	Electrical
☐	☐	Plumbing	☐	☐	Roofing
☐	☐	Masonry	☐	☐	Wood Framing
☐	☐	Confined Space	☐	☐	Tilt Wall / Precast

List any unusual or hazardous tasks or operations:

Site Environment

1. Are the existing utilities on the project located and marked?

   Water: Yes ☐ No ☐

   Electricity: Yes ☐ No ☐

   Gas: Yes ☐ No ☐

   Sewer: Yes ☐ No ☐

   Local One-Call Phone Number:

2. Describe adjacent structures, businesses, residential areas, and major roads and highways:

3. Video Survey completed of surrounding structures, roads and parking lots: Yes ☐ No ☐

   Date Survey Completed:

4. Anticipated office trailer location and employee parking:

5. Has site specific Emergency Response Plan been developed and supervision trained? Yes ☐ No ☐

Traffic Control and Protection of the Public

1. Are any road closures or special traffic control measures anticipated? Yes ☐ No ☐

2. Will any sidewalks be closed? Yes ☐ No ☐

3. List potential General Public exposures during and after working hours:

4. Will covered walkways or other protection measures need to be installed? Yes ☐ No ☐

Site Security (Refer to Site Security Memo)

Fencing and gate type locations:

Will security alarm and/or security services be used? Yes ☐ No ☐

Will additional site lighting need to be added? Yes ☐ No ☐

General Health and Safety

1. How many temporary toilets will be needed?
2. Who will provide drinking water?
3. Methods to protect floor and wall openings, shafts, stairs and other openings (reference floor hole policy):
4. Any special scaffold requirements? Yes ☐ No ☐ If Yes, explain:
5. What type of scaffolds will be used?
6. Overhead protection at building entrances? Yes ☐ No ☐ (reference overhead protection policy)
7. Special work permits required? Yes ☐ No ☐
   - Hot Work:
   - Lock out tag out or shutdown procedure:
   - Confined Space:
8. Who will collect Trade Partner SDS programs?
9. Where will they be located?
10. Has a safety packet been ordered? Yes ☐ No ☐
11. Have Trade Partner's Safety Programs been submitted reviewed and retained on site? Yes ☐ No ☐

Fire Protection – Prevention

1. City / Local requirements for standpipes?

2. Will bulk fuel storage be allowed on the project? Yes ☐ No ☐

3. Will temporary heat or air conditioning be required? Yes ☐ No ☐

4. Has local fire departments been contacted and notified of site? Yes ☐ No ☐

Health Hazards and Controls

1. Is any demolition or remodeling work to be done? Yes ☐ No ☐
2. If yes. The owner is required to provide you with a copy of the Environmental Survey.
3. Has a copy been sent to the Safety Department and all Trade Partners? Yes ☐ No ☐
4. Do you expect to have any PCB's, asbestos, chlorofluorocarbons, lead or mercury handling or disposal on the project? Yes ☐ No ☐
5. Do you anticipate any mold exposure? Yes ☐ No ☐
6. Discuss dust and noise control exposures and anticipated method reducing or eliminating:

7. Has the Silica Exposure Control Plan completed? Yes ☐ No ☐

Crane Hoisting and Material Handling

Utilize the Hoisting & Policy Manual

1. Will there be any cranes on the project? Yes ☐ No ☐
2. Do you anticipate any tandem or critical? Yes ☐ No ☐
3. Will there be a man or material hoist on the project? Yes ☐ No ☐
4. If multi-story structure, what method(s) will be used to get materials and people to upper floors?

5. Will receiver bays/outrigger platforms be used? Will they be designed into guardrail system? Yes ☐ No ☐

Perimeter Guardrails/ Horizontal Lifeline System

1. What type of perimeter guardrail/horizontal lifeline system (HLL) will be used?

2. Who will install Guardrail systems?

3. If a horizontal life line system is used as a guardrail, who designed the system?

4. Who will inspect/maintain the guardrail systems?

5. Who will maintain the permits for authorization to remove/replace the systems?

Special types of training to be required by JED Safety Department

Has proof of training been presented to JE Dunn?

	Yes	No		Yes	No
Asbestos / Lead Awareness	☐	☐	Scaffolding (Frame / Suspended)	☐	☐
Crane / Crane Flagging	☐	☐	Rigging	☐	☐
Aerial Lift Boom or Scissor	☐	☐	Traffic Control (Flagging)	☐	☐
Vertical / Column Wall Form	☐	☐	Confined Space	☐	☐
Fall Protection (Personal Fall Arrest)	☐	☐	Respiratory Protection / Fit Test	☐	☐
Silica Awareness	☐	☐	Horizontal Debris Netting	☐	☐
Other:	☐	☐	Other:	☐	☐

Competent Person Trainings: (list type of training and employee's name)

Additional Comments or Concerns

Appendices

SAFETY & HEALTH MANUAL

Section 06: Safety Meetings and Committees


Steven Vara
Senior Safety Manager

Jump to Section

Intent Statement

The intent of this section is to achieve a consistent approach for standard safety meetings and committees during construction. Active participation and cooperation between Operations, craft personnel, and Trade Partners will improve work conditions and behaviors.

Functional Manager


James Robles
National Safety Director

Change History

Date	Description
8/23/2021	Special Construction Hazard Meetings changed to (High Risk Activity Meeting (HRA)).
8/23/2021	Refocus Meetings section changed Limit from 5 – 10 minutes in the field to (15 – 30 Minutes in the field).
9/9/2021	Removed regularly inspecting to adding (Monthly safety committee audits)
9/9/2021	Section 2 Toolbox Talk meeting added (on a weekly basis) to the first sentence and removed (weekly) at the beginning of the sentence.

Meetings

Toolbox Talk Meeting

A Toolbox Talk shall be conducted for all employees, on a weekly basis. Topics for the talk should be appropriate for the current work activities. The subject should be safety related and presented in a format in which all attendees can understand.

Refocus Meetings

These meetings should be held to help the workers refocus on safety and removing distractions from the workplace. They can be held after a long weekend/holiday, whenever the project is having incidents or near misses, supervision sees a lack of safety focus, at the start of a major scope of work, to recognize the project for a job well done or any other safety concern that needs attention. These meetings can be job wide or with an individual team or group.

Key points:

- Set clear safety expectations and remove ambiguity from the work environment.
- Limit to 15-30 minutes in the field.
- Discuss unsafe conditions, behaviors and mutually agree on solutions.

High Risk Activity Meeting

High Risk Activity Meetings shall be conducted to bring together different parties for the recognition of special hazards and procedures including, but not limited to:

- Precast Erection (daily meeting)
- Hazardous/heavy and critical lifts
- Equipment start up, etc.
- Confined space entry (unique spaces / hazards as defined by Health and Safety)
- Shut down, turnaround
- Introduction of flammable liquids
- Highway/Road work adjacent to project
- Utility work involving any local utilities (e.g., gas lines, power, water, etc.)

Safety Committees

The committee concept stresses cooperation and commitment to safety as a shared responsibility between Operations, Health and Safety, and Trade Partners. Personnel can become actively involved in and make positive contributions to the project; their ideas can be translated into actions. The committee serves as a forum for discussing changes in regulations, programs, processes, and potential new hazards.

- A project safety committee consisting of a representative of every major Trade Partner shall be formed on site when the project exceeds 75 daily craft workers on site.
- This committee shall meet monthly to discuss safety related issues pertaining to the project.
- The superintendent shall chair this committee and will be responsible for ensuring all concerns raised by the committee are addressed.
- Actively participating in health and safety instruction programs and evaluating the effectiveness of these programs.
- Monthly safety committee audits of the facility will be conducted to detect unsafe conditions, safe practices, hazardous materials, and environmental factors.
- Disseminating safety and hazard communications to project personnel.

SAFETY & HEALTH MANUAL

Section 07: Incident Reporting, Investigation, and Injury Management

Joe Liello
Safety Manager

Jump to Section

Intent Statement

The intent of this section is to provide a consistent approach for reporting and investigating incidents and managing injuries.

Definitions

Near Miss

An unplanned event that did not cause injury or damage but could have

Incident

An unplanned, undesired event that hinders the completion of a task and may cause injury, illness, or property damage or some combination of all three in varying degrees from minor to catastrophic that could have been prevented

After Action Review

An approach for identifying the underlying causes of an incident so that the most effective solutions can be identified and implemented that prevent recurrences of that incident and others in the future.

Executive Debrief

A consistent communication tool to share a summary of a Class 2 incident. Specifically, where a JE Dunn employee experienced an OSHA Recordable incident. This communication should present what occurred, key causal factors, root cause and corrective actions to specific JE Dunn Leaders.

Regional Debrief

A consistent communication tool to share a summary of a Class 2 incident. Specifically, where Trade Partner employee experienced an OSHA Recordable incident. This communication should present what occurred, key causal factors, root cause and corrective actions to specific Regional JE Dunn Leaders and Trade Partner Supervision.

General Requirements

1. The Project Executive is responsible for ensuring all incidents and near misses are reported in a timely manner and investigated.
2. Safety department shall provide timely support to Operations for incident investigation.
3. The Project Operations Team is responsible for investigating each type of event and for implementing appropriate corrective and preventive measures, as necessary.
4. The Operations Team is specifically responsible for the following actions per this section of the JE Dunn Corporate Safety and Health Manual:
   a. Incident Notifications to Project, Office and Regional Leadership.
   b. Investigations, After Action Review (AAR), and Corrective Action implementation
   c. Executive Debrief Meeting
   d. Incident Broadcast publication
5. Approve and implement corrective / preventive measures.
6. The correct Incident Report based on incident type must be used to document the incident investigation, After Action Review process and corrective actions.
7. Incident Broadcasts are jointly prepared by the Project Operations Team and the safety department.

Near Miss, Incident, and Accident Reporting by Classification

1. All near misses, incidents, and accidents must be reported immediately to your supervisor regardless of severity.
2. Supervisors must promptly report the event to their local safety representative.
3. All JE Dunn or Trade Partner injuries on Large DCIP projects must be entered into Aclaimant within 8 hours regardless of completeness.

Class I Incidents

The Superintendent and safety professional shall receive notification within four (4) hours of Class I incidents.

If an individual visits the first aid station to receive consultation or treatment for an injury, the case must be reported. Regardless of severity, it's required to report this injury to the insurance carrier.

Class I Incidents include, but are not limited to:

- First Aid Injuries
- Property damage of less than $25,000
- Fires that incur damage less than $25,000
- Spills or releases under the regulatory reporting threshold quantity
- Near Misses

Class II Incidents

Project supervision and/or full-time safety professional is required to notify the Regional Safety Director within one (1) hour to include all Trade Partners.

The Regional Safety Director will notify the following people within two (2) hours via text, followed by an email, Regional Leadership, Project Leadership, National Safety Director and National Director of Construction Operations.

Class II Incidents include, but are not limited to:

Annexes

Forms and Permits

After Action Report Form
Incident Statement – Witness or Injured Party

Functional Manager

Nate Mock
Safety Director

Change History

Original Published Date: April 7th 2017

Date	Description
8/2021	Definitions of After Actions Review, Executive Debrief and Regional Debrief
8/2021	The After Action Review process included and defined including the required meeting structure and correct actions.
8/2021	The Executive and regional debrief process was outside include when each must be conducted, attendances and outline

- OSHA Recordable injuries or illnesses
- Property damage between $25,000-$50,000 involves injury and/or a third party
- Fires with damage between $25,000-$50,000
- Spills or releases that exceed the regulatory reporting threshold quantity
- Regulatory agency visits to work site
- Job shutdown due to a safety infraction, deficiency, or non-conformity

Class III Incidents

Project supervision and/or on-site safety professional is required to notify the Regional Safety Director IMMEDIATELY via phone call and text.

The Regional Safety Director will notify the following people IMMEDIATELY via phone call and text, Regional Leadership, Project Leadership, National Safety Director and National Director or Construction Operations.

Class III Incidents include, but are not limited to:

- Hospitalization or death of employee, trade partner, third party, owner, project stakeholder
- Spills and/or releases of hazardous substances that cause a threat to jobsite or surrounding area
- Job shutdown due to emergency or regulatory action
- Incidents or events resulting in media attention
- All explosions or implosions
- Incident involving criminal activity
- Damage that may reasonably exceed $50,000

Investigation Procedures

1. Isolate, eliminate, and control the hazard(s).
2. Secure the area to preserve evidence.
3. Do not allow any equipment, tools, materials, etc. involved in the incident to be removed from the scene without consultation.
4. Verify the condition of all safeguards implemented at the time of the incident.
5. Photograph the scene
6. Interview witnesses and participants as soon as possible. Do not solicit opinions regarding the cause of the incident. Separate the witnesses as soon as possible and obtain contact information from each witness. Obtain written statements in their own writing and from their own account. Immediately following, review the statement, ask questions, then document the questions and answers.
7. Develop a map of witness locations.
8. Develop a chronological sequence of events.
9. Obtain weather-related data.

In addition to the steps above, additional information may be useful or required:

1. Notify proper authorities as required by regulations. (Consult with Regional Safety Director prior to notification)
2. Collect all photographs, diary notes, measurements, and the physical conditions that may have had a bearing on the accident.
3. Examples: lack of guardrails, poor housekeeping, defective scaffolding, surface or road conditions, skid marks, weather conditions, time of accident, visibility/illumination, condition of equipment, etc.
4. Determine if proper PPE was used. Collect PPE if possible.
5. Determine the amount of experience, knowledge, and/or training the injured worker had in the type of work in which he/she was performing. Investigate whether hazards and safe practices related to the accident were covered in orientation, tool-box-talk meetings, or job instructions.
6. Consider physical or human factors that may be a contributing case of the incident. Issues such as loss of consciousness, heart attack, confusion, irrational behavior, attempting too much for size and physical strength, etc. should all be considered.
7. Collect previous information and inspections, to include but not limited to; BIM 360 Field Reports, audits, Daily Journal, meeting minutes, pre-installation meeting notes, JSA and JHA.

After Action Review

The After Action Review process is used to determine the key factors involved in an incident to prevent future occurrences.

The After Action Review (AAR) process should not be used to place blame or find fault on the individual(s) involved in the incident.

AAR Meeting Structure

1. The AAR meeting will require a meeting that includes but is not limited to, JE Dunn Project Manager and Superintendent, JE Dunn Safety, Trade Partner Supervision, Individual(s) involved and Owner Representation if required.
2. JE Dunn Manager and/or Superintendent will be responsible for organizing and running the AAR meeting.
3. Based on the incident investigation JE Dunn and Trade Partner Supervision will populate the Injury / Illness Investigation Report- (NEW FORM)
4. During the AAR Meeting the Injury / Illness Investigation Report will be reviewed for accuracy.
5. During the AAR meeting the group will come to a consensus on key causal factors and perform a Root Cause Analysis (RCA).
6. Based on the determined key causal factors and root cause, corrective actions will be assigned to prevent future occurrences.

Corrective Actions

1. Corrective actions identified during the AAR process need to be logged.
2. All corrective actions need to be assigned to an individual(s) that will be responsible for implementation and execution.
3. Due dates must be assigned to any corrective action. The assigned individual(s) are required to track the corrective action to closure.
4. If an incident was caused by an unsafe act and was determined that an individual(s) knowing violated a JE Dunn safety policy or procedure, the project team must implement disciplinary action in accordance with Section 9 of this manual.

Debrief

The intent of this section is to provide a consistent approach for developing and delivering incident debriefs to leadership.

Executive Debriefs

1. An executive Debriefs shall be conducted for Class 2 – JE Dunn Employee injuries, and Class 3 events. (Note: See Regional Debrief for Trade Partner Class 2 injuries)
2. The following leaders shall be invited to the executive debrief.
   a. JE Dunn – CEO
   b. JE Dunn – DCO
   c. JE Dunn – CFO
   d. JE Dunn – CLO
   e. JE Dunn – National Director of Risk
   f. JE Dunn – National Director of Safety
   g. JE Dunn – Regional President, DCO, DFO, PX, Gen Sup, Safety Director
   h. JE Dunn – Project Sup, PM and local Safety
3. The debrief will be a virtual meeting that utilizes the Debrief Template as discussion points.
4. The debrief shall be scheduled no further than 14 days from the incident date.
5. Contact Executive Administrative Assistant to schedule the virtual meeting.

Regional Debriefs

1. A Regional Debriefs shall be conducted for all Significant Near Misses and Class 2 – Trade Partner Employee injuries.
2. The following leaders shall be invited to the executive debrief.
   a. JE Dunn – Regional President, DCO, DFO, PX, Gen Sup, Safety Director
   b. JE Dunn – Project Sup, PM, Foreman, and local Safety
   c. Trade Partner – PM, Sup, Foreman, injured party, and local safety
3. The debrief will be a virtual meeting that utilizes the Debrief Template as discussion points.
4. The debrief shall be scheduled no further than 14 days from the incident date.
5. The Project Coordinator will be contacted to schedule the virtual meeting.

Debrief Template

The debrief template provided in the Annex Section must be utilized to provide a summary of the incident, root cause and action steps to help reduce the likelihood of reoccurrence.

Non-Job Related Injuries

1. If an employee reports a non-job-related injury to a supervisor, the supervisor should question the employee on the type of injury, when and how it happened and whether the employee is under a doctor's care. That information should be documented.
2. The supervisor should contact the safety department on guidance whether to allow the employee to work with the reported condition.

Pay Policy Concerning On-the-Job Injuries

When an employee sustains an on-the-job injury, and leaves the job for treatment, the employee shall be paid in accordance with state statutes. If a union agreement requires more than state statute, the Safety Director shall address at a regional level.

Restricted Work Activities

When an employee is placed on restricted work activity by the treating physician, the project shall accommodate and provide work for this employee under those restrictions. If the Superintendent does not have work available for the employee under the restrictions, the Superintendent shall make every effort to find this employee work on another project. An employee that is placed on restricted work activity shall not be sent home, terminated, or laid off without authorization from the regional safety department.

WITNESS OR INJURED PARTY INCIDENT STATEMENT

(This document must be attached to the completed Injury/Illness Report)

SECTION I: Employee's Information

Date of Incident: **Date Reported:** **Time of Incident:** ☐ AM ☐ PM

Employee Name: **Date of Birth:**

Employee Home Address: **Last Four of SSN#:**

Employee Phone Numbers: (home) **(mobile)** **(work)**

Contracting Company: **Employee's Job Title:**

Employee Supervisor's Name: **Supervisor's Phone Number:**

Employee's Hire Date: **Length of Time in Current Job:**

SECTION II: Incident Description

Specific Location of Incident:

Provide a detailed description of what happened in your own words:

SECTION III: Statement Completion

This Witness Statement was prepared by:

Name (print):

Company:

Job Title:

Date:

Signature:

AFTER ACTION REPORT
(AAR)

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Project:	Project Number:	
Event Date:	Event Start Time:	Event End Time:
Meeting Date:	Meeting Time:	
Contractor:	Trade Partner:	Third Tier:
Specific Location:		

INJURY UPDATE SECTION

Note: If any injury occurred the following section must be completed.

Description of Injury:

Status of Injured Employee:

ROOT CAUSE ANALYSIS (RCA) SECTION

What did we want to happen?

Type answer here

What actually happened? (Problem Statement)

Type answer here

Chronology:

Type answer here

AFTER ACTION REPORT
(AAR)

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Current Situation:

Type answer here

Contributing Factors:

- *Type answer here*

Root Cause:

- *Type answer here*

What did we learn?

- *Type answer here*

What will we do different next time?

- *Type answer here*

AFTER ACTION REPORT
(AAR)

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

AR SECTION

AR#	Description of A/R	Status	Notes	AR Owner	Due Date
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

EVENT CLASSIFICATION

First Aid	Yes		No		Near Miss	Yes		No	
Recordable	Yes		No		Service Interruption	Yes		No	
DART Case	Yes		No		Environmental	Yes		No	

ATTENDEES

Name	Company	Email

AFTER ACTION REPORT
(AAR)

JE DUNN CONSTRUCTION

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

PHOTOS | ATTACHMENTS

SAFETY & HEALTH MANUAL

Section 08: Drug and Alcohol Policy

Nate Mock
Safety Director

Policy Center - Drug and Alcohol Policy

Drug and Alcohol Policy

Tom Whittaker
Chief Legal Officer

This policy applies to all employees and all applicants for employment of the Company.

New for 2022

- No updates

Last Update Date

Associated Documents

Drug and Alcohol Policy Documents See all

Name
Drug and Alcohol Policy_2019_05...
DrugandAlcohol_FINAL_050719_S...
Minnesota Drug and Alcohol Poli...

Jump to Section

Purpose

In compliance with the Drug-Free Workplace Act of 1988, JE Dunn Construction Company, "the Company" has a longstanding commitment to provide a safe, quality-oriented and productive work environment. Alcohol and drug abuse pose a threat to the health and safety of the Company employees and to the security of the company's equipment and facilities. For these reasons, the Company is committed to the elimination of drug and alcohol use and abuse in the workplace.

Scope

This policy applies to all employees and all applicants for employment of the Company. The Safety and human resource (HR) department is responsible for policy administration.

Employee Assistance Program

The Company will assist and support employees who voluntarily seek help for drug or alcohol problems before becoming subject to discipline or termination under this or other Company policies. Such employees will be allowed to use accrued paid time off, placed on leaves of absence, referred to treatment providers and otherwise accommodated as required by law. Employees may be required to document that they are successfully following prescribed treatment and to take and pass follow-up tests if they hold jobs that are safety-sensitive or require driving, or if they have violated this policy previously. While the Company will always consider the EAP as an option for employees who test positive under this Policy, the EAP is not intended to replace the normal disciplinary process.

Employees should report to work fit for duty and free of any adverse effects of illegal drugs or alcohol. This policy does not prohibit employees from the lawful use and possession of prescribed medications. Employees must, however, consult with their doctors about the medications' effect on their fitness for duty and ability to work safely, and they must promptly disclose any work restrictions to their supervisor.

Work Rules

1. Whenever employees are working, are operating any Company vehicle, are present on the Company premises or are conducting company-related work offsite, they are prohibited from:
   a. Using, possessing, buying, selling, manufacturing or dispensing an illegal drug (to include possession of drug paraphernalia).
   b. Being under the influence of alcohol or an illegal drug as defined in this policy.
   c. Possessing or consuming alcohol.
2. There may be circumstances in which alcohol is served at Company events or gatherings. If that is the case, then employees may consume alcohol only to the extent it does not lead to impairment of performance or otherwise violate the law. Employees are expected to consume alcohol responsibly and represent the Company appropriately.
3. The presence of any detectable amount of any illegal drug, illegal controlled substance in an employee's body system, while performing company business or while in a company facility, is prohibited. Alcohol is only allowed at company sponsored events.
4. The Company will also not allow employees to perform their duties while taking prescribed drugs that adversely affect their ability to safely and effectively perform their job duties. Employees taking a prescribed medication must carry it in a container labeled by a licensed pharmacist or be prepared to produce the container if asked.
5. Any illegal drugs or drug paraphernalia will be turned over to an appropriate law enforcement agency and may result in criminal prosecution.

Required Testing

Consistent with applicable laws and subject to any applicable collective bargaining agreement, the Company reserves the right under this Policy to require employees to undergo testing for alcohol and/or drugs as described below. All testing will be on Company time and at the Company's expense. Circumstances which could warrant testing for alcohol and/or drugs are as follows:

A. Pre-employment

Applicants being considered for hire must pass a drug test post-offer pre-employment drug testing, unless covered by a collective bargaining agreement that contradicts this Policy or provides more stringent requirements. Refusal to submit to testing will result in disqualification of further employment consideration. Candidate is responsible for providing transportation to the designated testing facility.

B. Reasonable suspicion

Employees are subject to testing based on (but not limited to) observations by at least two members of management, when practical, of apparent workplace use, possession or impairment. HR should be consulted before sending an employee for testing. Management must use the facts and circumstances, including the following, to document specific observations and behaviors that create a reasonable suspicion that an employee is under the influence of illegal drugs or alcohol. Examples include:

- Odors (smell of alcohol, body odor or urine).
- Movements (unsteady, fidgety, dizzy).
- Eyes (dilated, constricted or watery eyes, or involuntary eye movements).
- Face (flushed, sweating, confused or blank look).
- Speech (slurred, slow, distracted mid-thought, inability to verbalize thoughts).
- Emotions (argumentative, agitated, irritable, drowsy).
- Actions (yawning, twitching).
- Inactions (sleeping, unconscious, no reaction to questions).

When reasonable suspicion testing is warranted, both management and HR/Safety, when possible, should meet with the employee to explain the observations and the requirement to undergo a drug and/or alcohol test as soon as reasonably possible. Refusal by an employee will be treated as a positive drug test result and could result in immediate termination of employment.

Under no circumstances will the employee be allowed to drive himself or herself to the testing facility. Another employee must transport the employee or arrange for alternative transportation to the testing facility.

C. Post-accident

Employees are subject to testing when they cause or contribute to accidents that seriously damage a JE Dunn vehicle, machinery, equipment or property or that result in an injury to themselves or another employee requiring offsite medical attention. A circumstance that constitutes probable belief will be presumed to arise in any instance involving a work-related accident or injury in which an employee who was operating a motorized vehicle (including, but not limited to, forklifts, pickup trucks, cranes/hoists, aerial/man-lifts, or ATV's) is found to be responsible for causing the accident. In any of these instances, the investigation and subsequent testing should take place as soon as possible, and preferably within two hours following the accident, if not sooner. Refusal by an employee will be treated as a positive drug test result and could result in immediate termination of employment.

Under no circumstances will the employee be allowed to drive himself or herself to the testing facility. Another employee must transport the employee or arrange for alternative transportation to the testing facility.

D. To remain in compliance with Federal D.O.T. standards and the regulations of any other governing Federal or State agency.

E. To meet lawful contractual requirements of a project owner, project insurance requirements, or the lawful provisions of a collective bargaining agreement.

Therapeutic Drugs

This policy does not prohibit the use of a therapeutic drug unless such therapeutic drug affects the employee's capacity to properly perform essential job duties or creates a danger to him/her or to others in the work place. "Therapeutic drugs" include legally obtained prescription drugs, controlled substances, and over-the-counter drugs used in accordance with the employee's related prescription and/or directions. Therapeutic drugs do not include any Schedule 1 drugs as so designated under the Federal Controlled Substances Act.

Any employee whose use of any therapeutic drug(s) may affect his/her capacity to properly and safely perform job duties or may create a danger to himself/herself or to others in the work place should report the therapeutic drug use to his/her supervisor. The Company will address the matter as confidentially as practical under the circumstances. An employee may be allowed to continue to work, even though under the influence of a therapeutic drug, if the Company has determined, after consultation, that the employee does not pose a threat to his/her own safety or health or the safety or health of other employees, and the employee is able to perform the essential functions of his/her position with or without a reasonable accommodation while using the therapeutic drug. Otherwise, the employee may be required to take a leave of absence in accordance with company policy or comply with other appropriate action determined by the Company.

Collection and Testing Procedures

Alcohol Testing: Employees subject to alcohol testing due to reasonable suspicion or client requirements, will be transported to a JE Dunn-designated facility and directed to provide breath specimens. Breath specimens will be tested by trained technicians using federally approved breath alcohol testing devices capable of producing printed results that identify the employee. If an employee's breath alcohol concentration is .04 or more, a second breath specimen will be tested approximately 20 minutes later. The results of the second test will be determinative. Alcohol tests may, however, be a breath, blood or saliva test, at the company's discretion. For purposes of this policy, test results generated by law enforcement or medical providers may be considered by the company as work rule violations.

Controlled Substances (Illegal Drug) Testing: Employees subject to drug testing will be transported to a JE Dunn-designated facility and directed to provide specimens. All specimens collected for purposes of a drug screen under this policy will be handled using strict chain of custody procedures which are outlined below. They are designed to insure the integrity of the specimen from the time of collection through the performance of all requested tests. They are also designed to document the details of the specimen collection, identification, transportation, receipt of, and custody of that specimen.

Specimens submitted under the chain of custody protocol will be collected and processed as follows:

a) The employee who submits to a drug screen must produce some type of valid photo identification, (i.e., driver's license).

b) Normally, a non-observed collection procedure will be used. The sample will be checked for temperature and PH content to ensure its validity.

c) Precautions will be taken using a double seal, tamperproof container and chain of custody documentation that accompany the sample through

collection, transportation, testing, and storage. These precautions will help assure the test results are accurate and are returned on the correct individual.

A urine sample will be taken for the purposes of a 10-panel drug test. However, a blood sample may be taken, where consistent with applicable law, if an employee is injured and a urine sample is not available. At its option and consistent with state laws, the Company may also seek saliva or blood testing of employees to determine possible impairment due to marijuana. Drug testing may also be performed consistent with any procedures approved and recognized by the U.S.D.O.T.

Results that indicate a "positive dilute" will be treated as a positive result of drugs or alcohol. Results of a test that indicate a "negative dilute" or are otherwise inconclusive, the Company reserves the right under this Policy to require the employee to undergo a follow up test or be retested for alcohol and/or drugs as described herein. A second test may be an observed test. All rights, remedies and procedures under this Policy also apply to any follow up test or retest required by the Company. This mandatory testing will be at the Company's expense.

The cutoff levels for all controlled substances established by the Department of Health and Human Services ("DHHS") will be used for establishing a positive test for initial and confirmatory testing.

Applicants and employees subject to drug testing should use a JE Dunn-designated testing facility and directed to provide urine specimens. Applicants and employees may provide specimens in private unless they appear to be submitting altered, adulterated or substitute specimens. If the initial test indicates a "negative dilute" result, subsequent testing would be observed.

Collected specimens will be sent to a certified laboratory and tested for evidence of marijuana, cocaine, opiates, amphetamines, PCP, benzodiazepines, methadone, methaqualone and propoxyphene use. (Where indicated, specimens may be tested for other illegal drugs.) The laboratory will screen all specimens and confirm all positive screens. There must be a chain of custody from the time specimens are collected through testing and storage.

The laboratory will transmit all positive drug test results to a medical review officer (MRO) retained by the Company who will offer individuals with positive results a reasonable opportunity to rebut or explain the results. Individuals with positive test results may also ask the MRO to have their split specimen sent to another federally certified laboratory to be tested at the applicant's or employee's own expense. Such requests must be made within 72 hours of notice of test results. If the second facility fails to find any evidence of drug use in the split specimen, the company will consider both samples in making its determination.

An employee who adulterates, attempts to adulterate, substitutes a testing specimen, or otherwise manipulates or attempts to manipulate the testing process will be subject to discipline, up to and including termination to the extent permitted by applicable law or collective bargaining agreement.

Consequences

Applicants who refuse to cooperate in a drug test or who test positive will not be hired and will not be allowed to reapply/retest for 6 months.

Employees who test positive for illegal drugs or alcohol, or are otherwise found in violation of this Policy, may, at the sole discretion of the Company, be referred to the Employee Assistance Program (EAP) through a mandatory referral. Such referral to the EAP due to a positive drug or alcohol test shall be initiated by the Company's Human Resource department. Where the employee's behavior leading to the positive drug/alcohol test or violation of this Policy: (1) has not been the result of gross misconduct; (2) the employee's participation in the mandatory EAP does not create any ongoing safety issues or concerns; and (3) the employee readily agrees to participate in the EAP, the Company will (at its sole discretion) generally make efforts to allow the employee to participate in the EAP.

An employee who has been employed with the Company for more than six (6) months who tests positive under this Policy who has (a) not committed acts of gross misconduct; (b) not previously entered into a Last Chance Agreement, and (c) fully admits to violating this Policy may avoid termination (at the Company's discretion) by executing a Last Chance Agreement that is acceptable to the Company. The terms of the Last Chance Agreement will require participation in the mandatory EAP and other terms and conditions as appropriate. Nothing in any Last Chance Agreement or this Policy in any way creates an employment contract or otherwise alters the employee's status as an at-will employee. An employee referred to the EAP following a positive test will not be permitted to return to work until he/she successfully completes the mandatory EAP program or a medically supervised rehabilitation program approved by the Company. The approved program must determine that the employee may safely return to work and has negative results on a return-to-duty illegal drug and/or alcohol test. This can be done through a urine and or blood test. Follow-up tests may occur for the period the Company determines is necessary, will be unannounced, and may occur at any time for a time-period management considers reasonable. If the employee fails the follow-up test, he/she will be terminated.

Employees will be paid for time spent in alcohol or drug testing and then suspended pending the results of the drug or alcohol test. After the results of the test are received, a date and time will be scheduled to discuss the results of the test; this meeting may include a member of management, a union representative (if requested), and HR.

Employees who refuse to cooperate in required tests or who use, possess, buy, sell, manufacture or dispense an illegal drug in violation of this policy will be subject to disciplinary actions, up to and including discharge. At the discretion of the Company and subject to any applicable collective bargaining agreement, the Company reserves the right to suspend and employee pending the results of the drug/alcohol test. If the employee refuses to be tested, yet the company believes he or she is impaired, under no circumstances will the employee be allowed to drive himself or herself home.

Employees terminated for violation of this policy, and who have not been provided a Last Chance Agreement, will not be eligible for rehire.

Confidentiality

Information and records relating to positive test results, drug and alcohol dependencies, and legitimate medical explanations provided to the MRO will be kept confidential to the extent required by law and maintained in secure files separate from normal personnel files. Such records and information may be disclosed among managers and supervisors on a need-to-know basis and may also be disclosed when relevant to a grievance, charge, claim or other legal proceeding initiated by or on behalf of an employee or applicant.

Inspections

The Company reserves the right to inspect all portions of its premises for drugs, alcohol or other contraband; affected employees may have union representation involved in this process. Client requirements also may dictate what, when, and where inspections may occur. All employees, contract

employees and visitors may be asked to cooperate in inspections of their persons, work areas and property that might conceal a drug, alcohol or other contraband. Employees who possess such contraband or refuse to cooperate in such inspections are subject to appropriate discipline, up to and including discharge.

Crimes Involving Drugs

The Company prohibits all employees from manufacturing, distributing, dispensing, possessing or using an illegal drug in or on company premises or while conducting company business. JE Dunn Construction employees are also prohibited from misusing legally prescribed or over-the-counter (OTC) drugs. Law enforcement personnel may be notified, as appropriate, when criminal activity is suspected.

The Company does not desire to intrude into the private lives of its employees but recognizes that employees' off-the-job involvement with drugs and alcohol may have an impact on the workplace. Therefore, the Company reserves the right to take appropriate disciplinary action for drug use, sale or distribution while off company premises. All employees who are convicted of, plead guilty to or are sentenced for a crime involving an illegal drug are required to report the conviction, plea or sentence to HR within five days. Failure to comply may result in termination. Cooperation in complying may result in suspension without pay to allow management to review the nature of the charges and the employee's past record with the Company.

Definitions

"Employee" for the purposes of this policy, includes those individuals performing work for JE Dunn in a full time, part time, temporary, consultant or intern capacity.

"Company premises" includes all buildings, offices, facilities, grounds, parking lots, lockers, jobsite and vehicles owned, leased or managed by JE Dunn Construction or any site on which the company is conducting business.

"Illegal drug" means a substance whose use or possession is controlled by federal law but that is not being used or possessed under the supervision of a licensed health care professional. (Controlled substances are listed in Schedules I-V of 21 C.F.R. Part 1308.)

"Controlled Substances (Illegal Drug) Testing" refers to a rapid 10 panel drug screen test that is administered by a JE Dunn authorized clinic. This might vary depending on specific client requirements.

"Refuse to cooperate" means to obstruct the collection or testing process; to submit an altered, adulterated or substitute sample; to fail to show up for a scheduled test; to refuse to complete the requested drug testing forms; or to fail to promptly provide specimen(s) for testing when directed to do so, without a valid medical basis for the failure. Employees who leave the scene of an accident without justifiable explanation prior to submission to drug and alcohol testing will also be considered to have refused to cooperate and will automatically be subject to discharge.

"Under the influence of alcohol" means an alcohol concentration equal to or greater than .04, or actions, appearance, speech or bodily odors that reasonably cause a supervisor to conclude that an employee is impaired because of alcohol use.

"Under the influence of drugs" means a confirmed positive test result for illegal drug use per this policy. In addition, it means the misuse of legal drugs (prescription and possibly OTC) when there is not a valid prescription from a physician for the lawful use of a drug in the course of medical treatment (containers must include the patient's name, the name of the substance, quantity/amount to be taken and the period of authorization).

"Therapeutic drug" means any substance including any prescription drug, prescribed for the individual consuming it by a licensed medical practitioner, or any over-the-counter drug used by the employee for its intended purpose that is legal under federal and state law.

"Illegal drug" means any drug or controlled substance that is unlawful or controlled by federal, state, or local laws, regulations, or judicial decisions, including amphetamines, marijuana, cocaine, opiates, and phencyclidine. For purposes of this Policy, use of an illegal drug shall have the same meaning as use of "controlled substance," and the terms may be used interchangeably.

Disclaimer Statement: This is the Company's general policy. To the extent state and local law provide additional employee rights and/or benefits, JE Dunn Construction intends to comply with state and local law. Please consult your local Human Resources Representative with any questions.

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Drug and Alcohol Policy

Purpose

In compliance with the Drug-Free Workplace Act of 1988, JE Dunn Construction Company, "the Company" has a longstanding commitment to provide a safe, quality-oriented and productive work environment. Alcohol and drug abuse pose a threat to the health and safety of the Company employees and to the security of the company's equipment and facilities. For these reasons, the Company is committed to the elimination of drug and alcohol use and abuse in the workplace.

Scope

This policy applies to all employees and all applicants for employment of the Company. The Safety and human resource (HR) department is responsible for policy administration.

Employee Assistance Program

The Company will assist and support employees who voluntarily seek help for drug or alcohol problems before becoming subject to discipline or termination under this or other Company policies. Such employees will be allowed to use accrued paid time off, placed on leaves of absence, referred to treatment providers and otherwise accommodated as required by law. Employees may be required to document that they are successfully following prescribed treatment and to take and pass follow-up tests if they hold jobs that are safety-sensitive or require driving, or if they have violated this policy previously. While the Company will always consider the EAP as an option for employees who test positive under this Policy, the EAP is not intended to replace the normal disciplinary process.

Employees should report to work fit for duty and free of any adverse effects of illegal drugs or alcohol. This policy does not prohibit employees from the lawful use and possession of prescribed medications. Employees must, however, consult with their doctors about the medications' effect on their fitness for duty and ability to work safely, and they must promptly disclose any work restrictions to their supervisor.

Work Rules

1. Whenever employees are working, are operating any Company vehicle, are present on the Company premises or are conducting company-related work offsite, they are prohibited from:
    a. Using, possessing, buying, selling, manufacturing or dispensing an illegal drug (to include possession of drug paraphernalia).
    b. Being under the influence of alcohol or an illegal drug as defined in this policy.

c. Possessing or consuming alcohol.

2. There may be circumstances in which alcohol is served at Company events or gatherings. If that is the case, then employees may consume alcohol only to the extent it does not lead to impairment of performance or otherwise violate the law. Employees are expected to consume alcohol responsibly and represent the Company appropriately.
3. The presence of any detectable amount of any illegal drug, illegal controlled substance in an employee's body system, while performing company business or while in a company facility, is prohibited. Alcohol is only allowed at company sponsored events.
4. The Company will also not allow employees to perform their duties while taking prescribed drugs that adversely affect their ability to safely and effectively perform their job duties. Employees taking a prescribed medication must carry it in a container labeled by a licensed pharmacist or be prepared to produce the container if asked.
5. Any illegal drugs or drug paraphernalia will be turned over to an appropriate law enforcement agency and may result in criminal prosecution.

Required Testing

Consistent with applicable laws and subject to any applicable collective bargaining agreement, the Company reserves the right under this Policy to require employees to undergo testing for alcohol and/or drugs as described below. All testing will be on Company time and at the Company's expense. Circumstances which could warrant testing for alcohol and/or drugs are as follows:

A. Pre-employment

Applicants being considered for hire must pass a drug test post-offer pre-employment drug testing, unless covered by a collective bargaining agreement that contradicts this Policy or provides more stringent requirements. Refusal to submit to testing will result in disqualification of further employment consideration. Candidate is responsible for providing transportation to the designated testing facility.

B. Reasonable suspicion

Employees are subject to testing based on (but not limited to) observations by at least two members of management, when practical, of apparent workplace use, possession or impairment. HR should be consulted before sending an employee for testing. Management must use the facts and circumstances, including the following, to document specific observations and behaviors that create a reasonable suspicion that an employee is under the influence of illegal drugs or alcohol. Examples include:

- Odors (smell of alcohol, body odor or urine).
- Movements (unsteady, fidgety, dizzy).
- Eyes (dilated, constricted or watery eyes, or involuntary eye movements).
- Face (flushed, sweating, confused or blank look).
- Speech (slurred, slow, distracted mid-thought, inability to verbalize thoughts).
- Emotions (argumentative, agitated, irritable, drowsy).
- Actions (yawning, twitching).

- Inactions (sleeping, unconscious, no reaction to questions).

When reasonable suspicion testing is warranted, both management and HR/Safety, when possible, should meet with the employee to explain the observations and the requirement to undergo a drug and/or alcohol test as soon as reasonably possible. Refusal by an employee will be treated as a positive drug test result and could result in immediate termination of employment.

Under no circumstances will the employee be allowed to drive himself or herself to the testing facility. Another employee must transport the employee or arrange for alternative transportation to the testing facility.

C. *Post-accident*

Employees are subject to testing when they cause or contribute to accidents that seriously damage a JE Dunn vehicle, machinery, equipment or property or that result in an injury to themselves or another employee requiring offsite medical attention. A circumstance that constitutes probable belief will be presumed to arise in any instance involving a work-related accident or injury in which an employee who was operating a motorized vehicle (including, but not limited to, forklifts, pickup trucks, cranes/hoists, aerial/man-lifts, or ATV's) is found to be responsible for causing the accident. In any of these instances, the investigation and subsequent testing should take place as soon as possible, and preferably within two hours following the accident, if not sooner. Refusal by an employee will be treated as a positive drug test result and could result in immediate termination of employment.

Under no circumstances will the employee be allowed to drive himself or herself to the testing facility. Another employee must transport the employee or arrange for alternative transportation to the testing facility.

D. To remain in compliance with Federal D.O.T. standards and the regulations of any other governing Federal or State agency.

E. To meet lawful contractual requirements of a project owner, project insurance requirements, or the lawful provisions of a collective bargaining agreement.

Therapeutic Drugs

This policy does not prohibit the use of a therapeutic drug unless such therapeutic drug affects the employee's capacity to properly perform essential job duties or creates a danger to him/her or to others in the work place. "Therapeutic drugs" include legally obtained prescription drugs, controlled substances, and over-the-counter drugs used in accordance with the employee's related prescription and/or directions. Therapeutic drugs do not include any Schedule 1 drugs as so designated under the Federal Controlled Substances Act.

Any employee whose use of any therapeutic drug(s) may affect his/her capacity to properly and safely perform job duties or may create a danger to himself/herself or to others in the work place should report the therapeutic drug use to his/her supervisor. The Company will address the matter as confidentially as practical under the circumstances. An employee may be allowed to continue to work, even though under

the influence of a therapeutic drug, if the Company has determined, after consultation, that the employee does not pose a threat to his/her own safety or health or the safety or health of other employees, and the employee is able to perform the essential functions of his/her position with or without a reasonable accommodation while using the therapeutic drug. Otherwise, the employee may be required to take a leave of absence in accordance with company policy or comply with other appropriate action determined by the Company.

Collection and Testing Procedures

Alcohol Testing: Employees subject to alcohol testing due to reasonable suspicion or client requirements, will be transported to a JE Dunn-designated facility and directed to provide breath specimens. Breath specimens will be tested by trained technicians using federally approved breath alcohol testing devices capable of producing printed results that identify the employee. If an employee's breath alcohol concentration is .04 or more, a second breath specimen will be tested approximately 20 minutes later. The results of the second test will be determinative. Alcohol tests may, however, be a breath, blood or saliva test, at the company's discretion. For purposes of this policy, test results generated by law enforcement or medical providers may be considered by the company as work rule violations.

Controlled Substances (Illegal Drug) Testing: Employees subject to drug testing will be transported to a JE Dunn-designated facility and directed to provide specimens. All specimens collected for purposes of a drug screen under this policy will be handled using strict chain of custody procedures which are outlined below. They are designed to insure the integrity of the specimen from the time of collection through the performance of all requested tests. They are also designed to document the details of the specimen collection, identification, transportation, receipt of, and custody of that specimen.

Specimens submitted under the chain of custody protocol will be collected and processed as follows:

a) The employee who submits to a drug screen must produce some type of valid photo identification, (i.e., driver's license).

b) Normally, a non-observed collection procedure will be used. The sample will be checked for temperature and PH content to ensure its validity.

c) Precautions will be taken using a double seal, tamperproof container and chain of custody documentation that accompany the sample through collection, transportation, testing, and storage. These precautions will help assure the test results are accurate and are returned on the correct individual.

A urine sample will be taken for the purposes of a 10-panel drug test. However, a blood sample may be taken, where consistent with applicable law, if an employee is injured and a urine sample is not available. At its option and consistent with state laws, the Company may also seek saliva or blood testing of employees to determine possible impairment due to marijuana. Drug testing may also be performed consistent with any procedures approved and recognized by the U.S.D.O.T.

Results that indicate a "positive dilute" will be treated as a positive result of drugs or alcohol. Results of a test that indicate a "negative dilute" or are otherwise inconclusive, the Company reserves the right under

this Policy to require the employee to undergo a follow up test or be retested for alcohol and/or drugs as described herein. A second test may be an observed test. All rights, remedies and procedures under this Policy also apply to any follow up test or retest required by the Company. This mandatory testing will be at the Company's expense.

The cutoff levels for all controlled substances established by the Department of Health and Human Services ("DHHS") will be used for establishing a positive test for initial and confirmatory testing.

Applicants and employees subject to drug testing should use a JE Dunn-designated testing facility and directed to provide urine specimens. Applicants and employees may provide specimens in private unless they appear to be submitting altered, adulterated or substitute specimens. If the initial test indicates a "negative dilute" result, subsequent testing would be observed.

Collected specimens will be sent to a certified laboratory and tested for evidence of marijuana, cocaine, opiates, amphetamines, PCP, benzodiazepines, methadone, methaqualone and propoxyphene use. (Where indicated, specimens may be tested for other illegal drugs.) The laboratory will screen all specimens and confirm all positive screens. There must be a chain of custody from the time specimens are collected through testing and storage.

The laboratory will transmit all positive drug test results to a medical review officer (MRO) retained by the Company who will offer individuals with positive results a reasonable opportunity to rebut or explain the results. Individuals with positive test results may also ask the MRO to have their split specimen sent to another federally certified laboratory to be tested at the applicant's or employee's own expense. Such requests must be made within 72 hours of notice of test results. If the second facility fails to find any evidence of drug use in the split specimen, the company will consider both samples in making its determination.

An employee who adulterates, attempts to adulterate, substitutes a testing specimen, or otherwise manipulates or attempts to manipulate the testing process will be subject to discipline, up to and including termination to the extent permitted by applicable law or collective bargaining agreement.

Consequences

Applicants who refuse to cooperate in a drug test or who test positive will not be hired and will not be allowed to reapply/retest for 6 months.

Employees who test positive for illegal drugs or alcohol, or are otherwise found in violation of this Policy, may, at the sole discretion of the Company, be referred to the Employee Assistance Program (EAP) through a mandatory referral. Such referral to the EAP due to a positive drug or alcohol test shall be initiated by the Company's Human Resource department. Where the employee's behavior leading to the positive drug/alcohol test or violation of this Policy: (1) has not been the result of gross misconduct; (2) the employee's participation in the mandatory EAP does not create any ongoing safety issues or concerns; and (3) the employee readily agrees to participate in the EAP, the Company will (at its sole discretion) generally make efforts to allow the employee to participate in the EAP.

An employee who has been employed with the Company for more than six (6) months who tests positive under this Policy who has (a) not committed acts of gross misconduct; (b) not previously entered into a Last Chance Agreement, and (c) fully admits to violating this Policy may avoid termination (at the Company's discretion) by executing a Last Chance Agreement that is acceptable to the Company. The terms of the Last Chance Agreement will require participation in the mandatory EAP and other terms and conditions as appropriate. Nothing in any Last Chance Agreement or this Policy in any way creates an employment contract or otherwise alters the employee's status as an at-will employee. An employee referred to the EAP following a positive test will not be permitted to return to work until he/she successfully completes the mandatory EAP program or a medically supervised rehabilitation program approved by the Company. The approved program must determine that the employee may safely return to work and has negative results on a return-to-duty illegal drug and/or alcohol test. This can be done through a urine and or blood test. Follow-up tests may occur for the period the Company determines is necessary, will be unannounced, and may occur at any time for a time-period management considers reasonable. If the employee fails the follow-up test, he/she will be terminated.

Employees will be paid for time spent in alcohol or drug testing and then suspended pending the results of the drug or alcohol test. After the results of the test are received, a date and time will be scheduled to discuss the results of the test; this meeting may include a member of management, a union representative (if requested), and HR.

Employees who refuse to cooperate in required tests or who use, possess, buy, sell, manufacture or dispense an illegal drug in violation of this policy will be subject to disciplinary actions, up to and including discharge. At the discretion of the Company and subject to any applicable collective bargaining agreement, the Company reserves the right to suspend and employee pending the results of the drug/alcohol test. If the employee refuses to be tested, yet the company believes he or she is impaired, under no circumstances will the employee be allowed to drive himself or herself home.

Employees terminated for violation of this policy, and who have not been provided a Last Chance Agreement, will not be eligible for rehire.

Confidentiality

Information and records relating to positive test results, drug and alcohol dependencies, and legitimate medical explanations provided to the MRO will be kept confidential to the extent required by law and maintained in secure files separate from normal personnel files. Such records and information may be disclosed among managers and supervisors on a need-to-know basis and may also be disclosed when relevant to a grievance, charge, claim or other legal proceeding initiated by or on behalf of an employee or applicant.

Inspections

The Company reserves the right to inspect all portions of its premises for drugs, alcohol or other contraband; affected employees may have union representation involved in this process. Client requirements also may dictate what, when, and where inspections may occur. All employees, contract

employees and visitors may be asked to cooperate in inspections of their persons, work areas and property that might conceal a drug, alcohol or other contraband. Employees who possess such contraband or refuse to cooperate in such inspections are subject to appropriate discipline, up to and including discharge.

Crimes Involving Drugs

The Company prohibits all employees from manufacturing, distributing, dispensing, possessing or using an illegal drug in or on company premises or while conducting company business. JE Dunn Construction employees are also prohibited from misusing legally prescribed or over-the-counter (OTC) drugs. Law enforcement personnel may be notified, as appropriate, when criminal activity is suspected.

The Company does not desire to intrude into the private lives of its employees but recognizes that employees' off-the-job involvement with drugs and alcohol may have an impact on the workplace. Therefore, the Company reserves the right to take appropriate disciplinary action for drug use, sale or distribution while off company premises. All employees who are convicted of, plead guilty to or are sentenced for a crime involving an illegal drug are required to report the conviction, plea or sentence to HR within five days. Failure to comply may result in termination. Cooperation in complying may result in suspension without pay to allow management to review the nature of the charges and the employee's past record with the Company.

Definitions

"Employee" for the purposes of this policy, includes those individuals performing work for JE Dunn in a full time, part time, temporary, consultant or intern capacity.

"Company premises" includes all buildings, offices, facilities, grounds, parking lots, lockers, jobsite and vehicles owned, leased or managed by JE Dunn Construction or any site on which the company is conducting business.

"Illegal drug" means a substance whose use or possession is controlled by federal law but that is not being used or possessed under the supervision of a licensed health care professional. (Controlled substances are listed in Schedules I-V of 21 C.F.R. Part 1308.)

"Controlled Substances (Illegal Drug) Testing" refers to a rapid 10 panel drug screen test that is administered by a JE Dunn authorized clinic. This might vary depending on specific client requirements.

"Refuse to cooperate" means to obstruct the collection or testing process; to submit an altered, adulterated or substitute sample; to fail to show up for a scheduled test; to refuse to complete the requested drug testing forms; or to fail to promptly provide specimen(s) for testing when directed to do so, without a valid medical basis for the failure. Employees who leave the scene of an accident without justifiable explanation prior to submission to drug and alcohol testing will also be considered to have refused to cooperate and will automatically be subject to discharge.

"Under the influence of alcohol" means an alcohol concentration equal to or greater than .04, or actions, appearance, speech or bodily odors that reasonably cause a supervisor to conclude that an employee is impaired because of alcohol use.

"Under the influence of drugs" means a confirmed positive test result for illegal drug use per this policy. In addition, it means the misuse of legal drugs (prescription and possibly OTC) when there is not a valid prescription from a physician for the lawful use of a drug in the course of medical treatment (containers must include the patient's name, the name of the substance, quantity/amount to be taken and the period of authorization).

"Therapeutic drug" means any substance including any prescription drug, prescribed for the individual consuming it by a licensed medical practitioner, or any over-the-counter drug used by the employee for its intended purpose that is legal under federal and state law.

"Illegal drug" means any drug or controlled substance that is unlawful or controlled by federal, state, or local laws, regulations, or judicial decisions, including amphetamines, marijuana, cocaine, opiates, and phencyclidine. For purposes of this Policy, use of an illegal drug shall have the same meaning as use of "controlled substance," and the terms may be used interchangeably.

Disclaimer Statement: This is the Company's general policy. To the extent state and local law provide additional employee rights and/or benefits, JE Dunn Construction intends to comply with state and local law. Please consult your local Human Resources Representative with any questions.

SAFETY & HEALTH MANUAL

Section 09: Enforcement Policy

Ted Stough
Senior Safety Specialist

Jump to Section

Policy Statement

The purpose of this policy is to outline specific enforcement procedures when an employee is found in violation of a safety standard, policy, or procedure outlined in this manual.

Issues that are considered minor in nature should be handled as a teaching/coaching moment to improve the overall safety culture of the organization.

ALL safety issues likely to result in serious injury or death be should addressed immediately.

General Requirements

It is the **employee's** responsibility to work safely in accordance with procedures outlined in this manual.

It is the **supervisor's** responsibility to ensure all workers are trained and equipment to perform their work safely in accordance with procedures outlined in this manual. Employees that fail to perform work in accordance with our standards shall be re-trained or disciplined in accordance with the procedures out.

Safety Violations

Level 1 Safety Violation

Level 1 safety violations Include, but is not limited to the following:

1. Violation of less than life-threatening rules or regulations
2. Breach of a written safety and health requirement that places people or property in an at-risk condition
3. Failure to use proper documentation per JE Dunn or project requirements
4. Improper use equipment or machinery
5. Use of equipment or machinery in an unsafe condition.
6. PPE infraction (other than serious)

Level 1 Safety Violation Enforcement Procedures

A three-step enforcement program consisting of a **verbal warning, written warning, and suspension and/or termination** for Level 1 Safety Violations. All violations, regardless of verbal or written, will be documented within the project safety folder. Workers under the supervision of field supervisors that continue to violate safety and health procedures may result in both employee and supervisor write-ups.

Verbal Reprimand

When an employee is found violating a safety policy or procedure, it is important that the supervisor states the issue to the employee, shows the employee what steps need to be taken to correct the issue and get assurances from the employee that this issue will not happen again. The supervisor should make it clear to the individual that this is a documented verbal reprimand. The employee will be given a written reprimand if it happens again.

Written Reprimand

If an employee is in violation of any policy or procedure in this manual for the second time, the employee will receive a written reprimand

The employee shall be required to re-attend project safety orientation training and/or safety training specific to the unsafe act

The reprimand should state the nature of the violation and what the resulting actions will be if the employee violates the program the third time.

Final Reprimand

Upon the final reprimand of a JE Dunn employee, the supervisor will terminate the employee or suspend the employee for a minimum of 14 calendar days. The severity of the penalty shall be adequate for the violation.

Upon final reprimand of a Trade Partner employee, they will be removed from the project site and all JE Dunn projects for a minimum of 1-year.

Following a suspension for safety violations, if a JE Dunn employee is found violating any safety policy or procedure, it will result in permanent termination.

Level 2 Safety Violation: Gross Misconduct

Level 2 Safety Violations include, but are not limited to the following:

1. Non-compliance safety violation which could or does result in life threatening conditions
2. Acts of sabotage, vandalism or threats against personnel or property
3. Initiation of horseplay or harassment that results in personal injury or physical confrontation
4. Fighting, violence or threats of violence to other employees or personnel on site
5. Failure to adhere to the Harassment Policy and Guidelines.

Annexes

Forms and Permits

Safety Violation Notification

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
8/2021	Language was changed in the Level 1 Safety Violation section slightly to be less specific and more general when describing types of violations.

Level 2 Safety: Violation Enforcement Procedures

Episodes of gross misconduct by a JE Dunn employee for any reason will result in immediate and permanent termination.

Episodes of gross misconduct by a Trade Partner employee will result in immediate and permanent removal from all JE Dunn projects.

SAFETY VIOLATION NOTIFICATION

The following individual was observed in violation of the JE Dunn Construction Company safety policy. Serious or repeat safety violations may require disciplinary action, up to and including suspension or discharge of worker and/or his responsible Foreman.

☐ **Verbal Reprimand** ☐ **Written Reprimand** ☐ **Final Reprimand** ☐ **Gross Midconduct**

*Date Violation Occurred: *Project Name:

*Worker's Name: Last four digits of SSN# (if available):

*Company Name: Trade:

*Foreman #1's Name: Foreman #2's Name (if app.):

*Superintendent #1's Name: Superintendent #2's Name (if app.):

☐ **Unsafe Act** ☐ **Unsafe Condition**

*Detailed explanation of the unsafe act or condition:

*Explanation of agreed upon corrective action, including type of training to be completed by violating company's Supervisors:

*Issued By: *Title:

The Worker's name will be kept on record as violating the JE Dunn Construction Company safety policy. Additional violations or egregious unsafe acts may require the Worker and/or Foreman to be removed from all JE Dunn Construction Company jobsites for a minimum of 90 days.

Worker's Signature: Date:

Copies of this completed form as well as training and any other corrective documents must be sent to your JE Dunn Regional Safety Department.

*Denotes a required field

SAFETY & HEALTH MANUAL

Section 10: Employee Training and Education

Jerry Sanchez
Safety Manager

Jump to Section

Intent Statement

The intent of this section is to clearly outline the training standards for the safety and health program for all JE Dunn employees and Trade Partners personnel. To ensure a successful safety program, constant reinforcement of the program through training and the recording of training completion.

General Requirements

Operation's Responsibilities

Ensuring that all workers attend the safety orientation, and all workers receive task specific safety training as required.

Foremen's Responsibilities

Verifying those workers have training and are proficient at the tasks they are required to perform.

Safety Professionals

Safety Professionals will facilitate and manage the safety training program for their locations. They will do the following:

1. Assist and provide training as required
2. Oversee safety training records requirements
3. Conduct safety training audits (e.g., equipment certifications, competent persons, qualified persons, licenses, etc.)

Re-training is required when the individual shows a lack of proficiency, or understanding, to the subject matter. JE Dunn Supervision may request re-training to protect the individual, employer, and any interested party. Re-training is at the expense of Trade Partner.

JE Dunn and Trade Partner Safety Orientation

Orientation

1. Project teams should provide an instructor-led orientation. If this is not possible, the JE Dunn Orientation Video may be used.
2. Project teams will use the Template - Site Specific Safety Orientation to develop instructor led orientation.
3. Operations (Superintendents, PM) should be involved in conducting orientation.
4. Before any worker starts work on a project site, they shall attend the project specific safety orientation which at a minimum requires.
5. At a minimum, Safety Orientation will include the following:
   a. Personal Protection Equipment
   b. Job Safety Analysis
   c. Toolbox Talks
   d. Near Misses
   e. Incident Reporting
   f. Ladders
   g. Scaffolding
   h. Overhead Protection
   i. Electrical
   j. Confined Spaces
   k. Fire Protection
   l. Lock Out / Tag Out
   m.Excavation
   n. Mobile Elevating Work Platforms
   o. Tools & Equipment
   p. Housekeeping
   q. Permits/Checklists
   r. Hazardous Communication
   s. Emergency Action Plan
   t. Site Specific Hazards
   u. Disciplinary Program
   v. Stop Work Authority
6. JE Dunn will manage an orientation roster that will include employees' printed name, signature, orientation date and sticker ID number/badge.
7. Contact your assigned safety professional to assist in the development of a site-specific safety orientation and summary.
8. New JE Dunn employees shall be initially assigned to work with a mentor, i.e. experienced employee until he/she can show that they understand the assigned task and can perform the task in a safe manner.
9. New JE Dunn employees shall be given a green hard hat stickers identifying them as a new member of the team for their first 90 day. (See Section 22: PPE for more specifics)

Annexes

Forms and Permits

Site Specific Safety Orientation Summary & Acknowledgement
Template - Site Specific Safety Orientation

Functional Manager

Nate Mock
Safety Director

Change History

Original Published Date: April 7th 2017

Date	Description
8/23/2021	Added requirements that Safety Professionals should conduct training audits and oversee the record process.
8/23/2021	A change was made to allow project teams to use the safety orientation video or develop a project specific orientation using a PowerPoint template with specific topics outlined.
8/23/2021	JE Dunn Core employee training requirements were outlined, and JE Dunn Core Training Matrix was added.
8/23/2021	The process for maintain training records for JE Dunn employees and Trade Partner Personnel was better defined.
8/23/2021	A Safety Orientation PowerPoint template was created.
3/2023	JE Dunn Core Safety Training Requirement- Trade Partner Training- Removed- OSHA 10 Hour card is preferred but not required was removed.
3/2023	JE Dunn Core Safety Training Requirement- Supplemental Training Requirement- Add- 12. Competent Person was added.

JE Dunn Core Safety Training Requirements

Operations (PM, Superintendents, Foreman & Project/Field Engineers) Training

JE Dunn Core Safety Training in accordance with the Training Matrix includes the following:

1. START/SCEW
2. SULU
3. Frontline Supervisor
4. First Aid/CPR/AED
5. OSHA 30 Hour Hazard Recognition
6. Silica Competent
7. Minimum of eight hours of safety training per year

JE Dunn Safety Training Matrix

JE Dunn Safety Training Matrix

	Course Title	Project Supervision			Project Management		
		T1 & T2	FE1 & FE2	SUPs - ALL	PE1 & PE2	PM's - ALL	GM's - ALL
CORE	SCEW/START	X	X	X	X	X	X
	SULU	X	X	X	X	X	X
	OSHA 30	X	X	X	X	X	X
	FA/CPR/AED	X	X	X	X	X	X
	Silica - Competent Person	X	X	X	X	X	X
	Frontline	X	X	X			
MISC	Continuing Education	8 Hrs Annually	8 Hrs Annually	8 Hrs Annually	8 Hrs Annually	8 Hrs Annually	8 Hrs Annually
	Cranes & Pesonnel Hoists	X	X	X	X	X	
	Rigging - Qualified	X	X	X			
	Signal Person	X	X				
	Asbestos Awareness	X	X	X	X	X	X
	Lead Awareness	X	X	X	X	X	X
	GHS - Haz Com	X	X	X	X	X	X

Trade Partner Training

1. Task and equipment specific training are accomplished and current.
2. Certification and qualification training are accomplished and current (i.e., crane, forklift, rigging, hand signals, etc.).
3. Training records shall be submitted to JE Dunn on a regular basis and prior to employee exposure. Training records shall include at a minimum:
   a. instructor name
   b. date
   c. criteria
   d. employee signature
   e. duration of training (ex. 2 hours).
4. JE Dunn will ensure and verify compliance with these requirements.

Supplemental Training Requirements

A worker may be required to obtain supplemental training or certification before being allowed to perform a task or use a piece of equipment. Workers shall not be allowed to perform work activities or utilize equipment before the appropriate training and/or licensing is obtained. Tasks requiring proof of training or accompanied by a valid license (notification via letterhead, electronic database, or card) include, but not limited to:

1. Crane signaling
2. Crane operator (*NCCCO or equivalent required)
3. Rigging
4. Respirator
5. Aerial work platform / Scissor lifts (*must be readily accessible and on site)
6. Forklift (*required to have a license / certification on them)
7. Confined space
8. Powder actuated tools
9. Lead awareness
10. Asbestos awareness
11. Silica awareness
12. Competent Person

Competent Person Training

Required but not limited to the following areas:

1. Silica
2. Scaffold
3. Excavation
4. Electrical
5. Steel erection
6. Precast
7. Lockout/Tagout
8. Horizontal formwork
9. Fall protection
10. Utilization of any type of specialty equipment

Records

1. JE Dunn training sign in rosters will be used and shall include at a minimum:
   a. instructor name
   b. date
   c. criteria
   d. employee signature
   e. duration of training (ex. 2 hours).
2. JE Dunn Safety training and certifications will be logged and tracked through LMS.
3. Trade Partner will maintain their employees' safety training records, certifications, and qualifications.
4. JE Dunn will verify Trade Partners' training records, certifications, and qualifications.
5. Employee training records shall be electronically archived and retained for 11 years following date employee left the company.

SITE SPECIFIC SAFETY ORIENTATION SUMMARY & ACKNOWLEDGEMENT

Project Name: _____

Presented by: _____ **Mobile Number:** _____

JE Dunn requirements to be discussed:

General Requirements:

- ☐ 100% Hard Hat required at all times.
- ☐ 100% Safety Glasses with rigid side shields, required at all times. Full Face Shield when cutting/grinding.
- ☐ 100% Hand Protection: Proper gloves to be worn while working on site.
- ☐ 100% Use of the Floor Hole Permit program
- ☐ 100% Hi- Vis Safety Clothing (Vests or Shirts)
- ☐ 100% Fall Protection over 6'at all times.

Proper Work Attire:

- ☐ **Clothing**: We do not allow shorts, tanks tops, or tennis shoes on the job site.
- ☐ **Work Boots**: Sturdy, heavy-duty hard soled work boots are required.

Enforcement Program:

- ☐ A 2-step enforcement policy for **Fall Protection Violations:**
    1. Written warning and your office notified. Retraining required.
    2. Removal from the job site- Ineligible to work for the duration of the project.
- ☐ A 3-step enforcement policy for all other **General Safety Violations**:
    1. Written Verbal warning
    2. You will be written up and your office notified
    3. Removal from the job site- Ineligible to work for the duration of the project

Incident & Near Miss Reporting Procedures:

- ☐ Report ALL incidents and near misses IMMEDIATELY to JE Dunn.

Job Safety Analysis, Daily Crew Huddle:

- ☐ Copies must be submitted to JE Dunn prior to the scope of work starting.
- ☐ Must be reviewed and documented with each crew member.

Toolbox Talks:

- ☐ Toolbox talks must be performed weekly.
- ☐ Copies of the Tool Box Talk and attendance roster must be submitted to JE Dunn.

Emergency Procedures:

- ☐ Severe Weather/Tornado:
- ☐ FIRE, or Threat:
- ☐ Medical:

Cranes / Rigging / Signal Persons:

- ☐ Annual Inspections required.
- ☐ Qualified Riggers must be identified.
- ☐ All rigging must be inspected prior to each lift.
- ☐ Trained Signal Persons must be identified.
- ☐ Preplan routes to avoid hoisting over workers.
- ☐ Taglines are required on all loads no exceptions.

Boom, Aerial and Scissor Lifts:

- ☐ Only trained and qualified workers will be allowed to operate lifts.
- ☐ All scissor lifts must have pothole protectors.
- ☐ Training cards must be provided to JE Dunn prior to operating a lift.

Hot Work Permits:

- ☐ Must be completed prior to work starting.
- ☐ Permit can be obtained through JE Dunn.
- ☐ A 30-minute Fire Watch is required post hot work activity.

Fire Protection:

- ☐ 20lb ABC Fire Extinguishers are required in all common and hot work areas.
- ☐ Monthly fire extinguisher inspections must be performed and documented.

Lockout / Tag out Procedures:

- ☐ Ensure that the machine or equipment is stopped and isolated from all potential hazardous energy sources and locked and tagged out.
- ☐ Lockout/Tagout requires a LOTO permit.

Hazard Communication:

- ☐ Safety Manuals and SDS Sheets must be submitted to JE Dunn and maintained by each employer.
- ☐ A written Exposure Control Plan is required when exposure to Silica meets the standard requirements.

Confined Space Entry:

- ☐ No entry allowed into confined space w/o a pre-work meeting to discuss required safe entry procedures.
- ☐ Permits are required.

Working Around Utility Lines:

- ☐ Make sure locates are made before you dig.
- ☐ Watch for overhead lines.
- ☐ **We cannot work closer than 20' to any overhead power.**

Trenches and Excavations:

- ☐ Excavation Checklist must be completed/submitted to the safety department prior to any excavation.
- ☐ All excavation's 5' and deeper will be sloped, benched, or shored.

Scaffolding Safety:

- ☐ The competent person is responsible for the scaffold erection and dismantles.
- ☐ A scaffold tagging system has been implemented and must be utilized. Green, Yellow, Or Red

Electrical Safety:

- ☐ GFCI protection is required at all times on the job site.
- ☐ GFCI's must be inspected regularly.
- ☐ Extension cords and tools must be inspected prior to each use.

Hand Tools and Equipment:

- ☐ All tools need to be checked daily for wear, and damage.
- ☐ Any damaged tool needs to be taken out of service and repaired, or replaced.

Barrier Tape:

- ☐ The proper use of Red Danger tape and Yellow Caution tape in the work areas.

Overhead Protection:

- ☐ Working over the top of other workers is prohibited.
- ☐ Warning signs, and or barricades are required.
- ☐ An overhead protection plan must be submitted.

Housekeeping:

- ☐ Maintain good housekeeping at all times. Pick-up as you go.
- ☐ Cords shall be protected and kept out of aisles, walkways, and paths of egress.

Owner Requirements:

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

Public Safety/Property Protection:

- ☐ Only authorized persons shall be allowed on the job site.

Vehicular Traffic Control:

- ☐ Park in designated areas only.
- ☐ Violators could be towed at owner's expense.

Job Site Speed Limit is:

Jobsite Transportation:

- ☐ All Golf Carts, Gators, ATVs, etc. need to have a seat, and seat belt for every passenger.
- ☐ There is no riding in the bed of pickup trucks.

Recognition and elimination of unsafe acts and/or conditions:

- ☐ Is everyone's job.
- ☐ Your Personal Commitment towards safety is needed. If you don't know – **ASK!**
- ☐ Near miss reporting is encouraged.
- ☐ Reporting safety matters is part of your responsibilities.

Additional Comments/Topics Covered:

Site Specific Hazards:

JE Dunn considers no phase of its operation of greater importance than that of accident prevention. The success of our safety program requires the combined efforts of management, employees and Trade Partners. It is very important that we have a team effort in order to maintain the safest operation in the construction industry. The following addresses site specific hazards identified on this project:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

SITE SPECIFIC SAFETY ORIENTATION SUMMARY & ACKNOWLEDGEMENT

Acknowledgement Form:

Name (first, middle, last): _____ **Sticker #:** _____

Home Address: _____

_____

Home Phone: _____ Last 4 digits of your Social Security #: _____

Name of Emergency Contact: _____ Contact's Phone Number: _____

Your Company's Name: _____

You're Trade: _____

Today's Date: _____ Date of Birth: _____

CISAP ID Number: _____ Date of Drug Test: _____

OSHA Training: 10 HR ID Number: _____ 30 HR ID Number: _____

Have you ever been trained in First Aid/CPR? ☐ Yes ☐ No

If yes, date of last training: _____

Please indicate if you have received training in any of the following topics:

- ☐ Ladders
- ☐ Fall Protection
- ☐ Confine Space
- ☐ Hand Signals for Cranes
- ☐ Rigging
- ☐ Silica
- ☐ Scissor Lift
- ☐ Aerial Lift
- ☐ Scaffolding
- ☐ Excavations/ Trenching
- ☐ Forklift
- ☐ Other:

If you have an injury on this job site you must report the injury to JE Dunn immediately.

Employee Signature: _____ Date of Orientation: _____

DISCLAIMER:
The intent of this orientation is to communicate the basic safety expectations of the project and should not be considered a form of relief from federal OSHA compliance and/or your contractual obligations. It is also not intended to guarantee, insure, or warrant a risk free environment or the safety of your materials, tools, or equipment on the project.

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Orientation Notes

Purpose: Provide a standardized safety orientation for all project sites that cover minimum requirements as stated in the JE Dunn Safety & Health Manual and OSHA directives.

Notes:

- **Slides are minimum requirement for safety orientation**
- **Project sites may need to include additional slides per site/owner requirements**
- **Reference notes section for additional information for slides**
- **Orientation is focused on awareness of safety requirements ID'd in JE Dunn's SHM & OSHA directives**
- **Pre-Install meetings need to cover more in-depth details specific to scope (i.e., permits, checklists, etc.)**
- **Replace current pictures with site specific pictures, if available**

Version 2, 24 Feb 2022

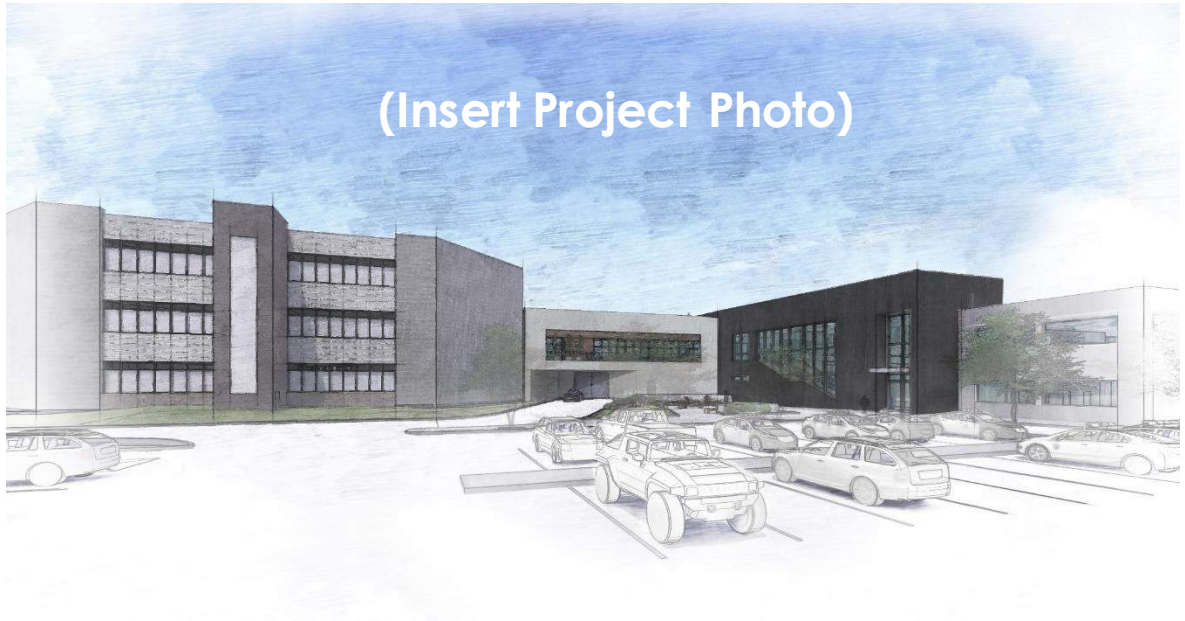
SAFETY ORIENTATION

(Insert Project Name Here)

JE DUNN CONSTRUCTION

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

(Insert Project Name)
JE Dunn Team



(Team names, title)
XXXX, Sr. Project Manager

(Contact #)
XXX.XXX.XXXX

AGENDA

INJURY FREE WORKPLACE
STOP WORK AUTHORITY
GENERAL SAFETY
SILICA AWARENESS
PERMITS/CHECKLISTS
HAZCOM
SITE SPECIFIC HAZARDS
EMERGENCY ACTION PLAN
SPEAK UP & LISTEN UP
COVID-19
DISCIPLINARY PROGRAM

Note: Reference JE Dunn Safety& Health Manual for more detailed information.

100% Injury Free Workplace
Achieving Zero Harm & Zero Incidents

INJURY FREE WORKPLACE

"Our safety culture is a reflection of a shared commitment by management and employees toward ensuring the safety of the work environment. Among the several core values that JE Dunn adheres to, safety is crucial within our company operations and it's something that's important to all JE Dunn employees at every level."

Gordon Lansford, President & CEO

- Personal Safety Responsibilities
  - Protect Self
  - Protect Team
  - Protect Project
- Foremen Must Led Safety
- Speak Up & Listen Up
- Risk Tolerance / Behaviors
- Identify & Eliminate Hazards
- Mitigate Risk

STOP WORK AUTHORITY

GENERAL SAFETY

- Personal Protective Equipment (PPE)
- Additional PPE
- Daily Requirements
- Job Safety Analysis (JSA)
- Toolbox Talks
- Near Miss Reporting
- Material Handling
- Fall Protection
- Ladder Use
- Scaffolding
- Controlled Access Zones
- Overhead Protection
- Floor Hole Covers
- Electrical
- Confined Spaces
- Fire Protection
- Lock Out / Tag Out
- Excavation
- Mobile Elevating Work Platforms (MEWP)
- Forklifts
- Cranes
- Equipment Movement
- Hand Tools & Equipment
- Housekeeping & Material Storage

GENERAL SAFETY

PPE
Minimum Requirements:

- Hard Hat – Required at All Times
- Safety Glasses – ANSI Z87.1 Standard
  - Prescription – Z87.1 + side shields
- Hand Protection – ANSI Level A4 (minimum)
- Hi-Vis Safety Vest or Shirt
- Work Boots – Sturdy & Hard Soled

Always Worn on Job Site!

GENERAL SAFETY

Additional PPE
As Required:

- Arm Protection – Kevlar Sleeves
- Specialty Gloves – Welding, Chemical, etc.
- Impact Resistant Face Shields
- Sealed Eye Wear
- Hearing Protection

GENERAL SAFETY

Daily Requirements

Prior to Work Start

- Stretch & Flex
- Complete DETAILED Job Safety Analysis
- Focus: Safety, Quality, and Production

GENERAL SAFETY

Job Safety Analysis

JOB SAFETY ANALYSIS

JE DUNN CONSTRUCTION

DUNN safety
EVERYONE. EVERYWHERE. ALL THE TIME.

DATE:	TIME:	
PROJECT:	TASK/ACTIVITY:	LOCATION:

WEATHER IMPACTS:
- ☐ High Winds
- ☐ Heat
- ☐ Lightning
- ☐ Cold
- ☐ Snow/Ice
- ☐ Rain

COMPANY NAME:	TRADE CREW PERFORMING WORK:	FOREMAN OR SUPERVISOR:

SPECIALIZED PERSONAL PROTECTIVE EQUIPMENT AND/OR PERMITS:

☐ Fall Protection	☐ Eye/Face Protection	☐ Hand Protection	☐ Hearing Protection	☐ Respirator Protection	☐ Reflective Vest
☐ Critical Lift Plan	☐ Hot Work Permit	☐ Excavation Permit	☐ Confined Space Permit	☐ Lock-out/Tag-out Permit	☐ Kevlar Sleeves
☐ Eye Wash	☐ Barricades	☐ Signage	☐ MSDS	☐ GFCI	

COMPLETED BY:	REVIEWED BY:	APPROVED BY:

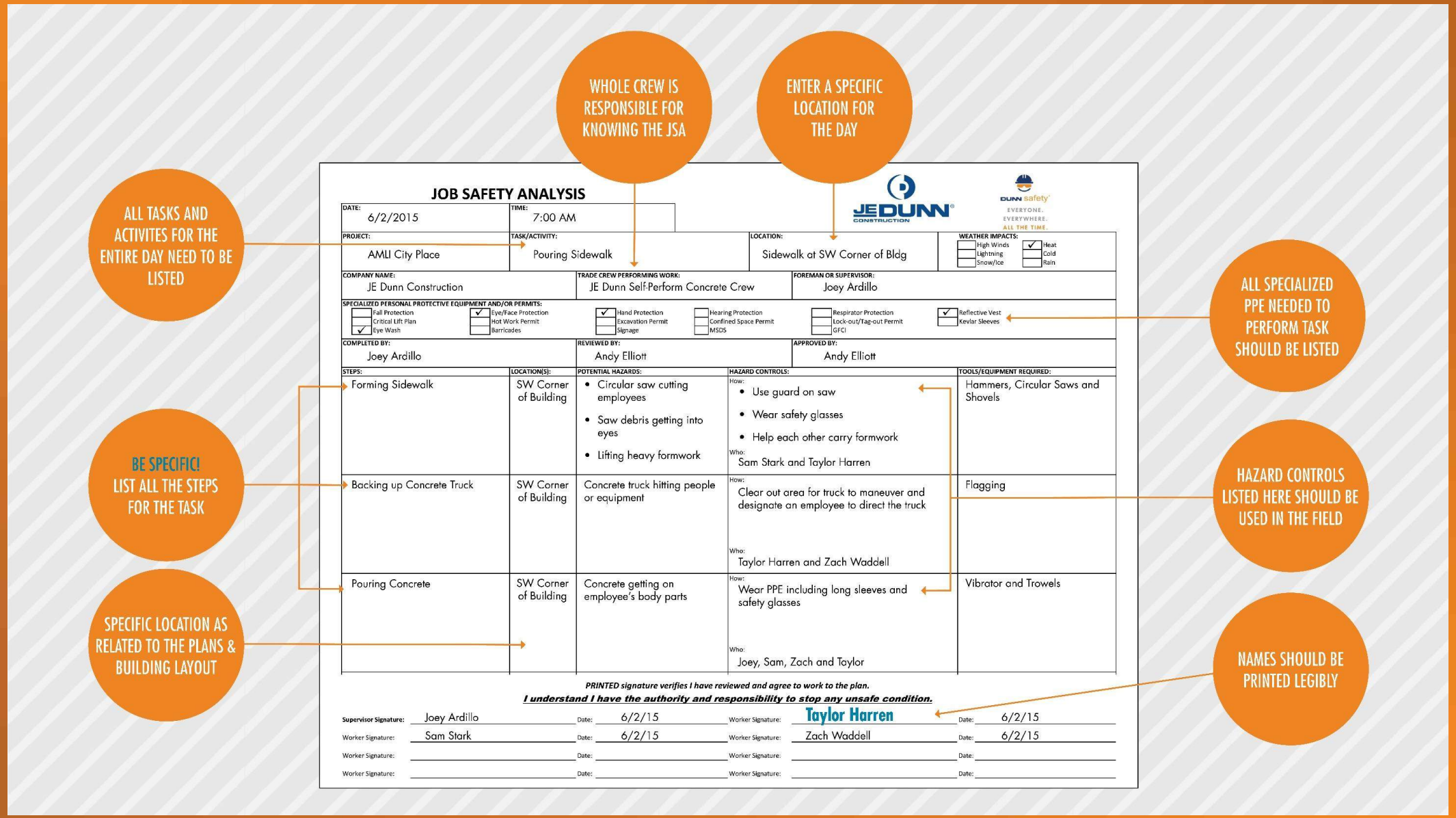
STEPS:	LOCATION(S):	POTENTIAL HAZARDS:	HAZARD CONTROLS:	TOOLS/EQUIPMENT REQUIRED:
			How: Who:	
			How: Who:	

Note: Majority of injury investigations determine that the JSA was not adequately filled out and did not capture condition changes.

GENERAL SAFETY

Job Safety Analysis

What good looks like...



GENERAL SAFETY

DUNN safety
EVERYONE. EVERYWHERE. ALL THE TIME.

TOOLBOX TOPICS

TOPIC: (PFAS) Personal Fall Arrest System

Location: Date:
Trainer: Translator:

THE ABC's of a Personal Fall Arrest System (PFAS)

A - ANCHOR
Anchorage means a secure point of attachment (structure) for the fall arrest system.

B - BODY SUPPORT
Full body harnesses provide a connection point on the worker for the personal fall arrest system.

C - CONNECTORS
Connectors are devices used to connect the workers full body harness to the anchorage system. (e.g. Shock absorbing lanyard, self-retracting lifeline, etc.).

D - DESCENT / RESCUE
Rescue and retrieval of a fallen worker is a required component of any fall protection program.

Personal Fall Protection System:
OSHA 1926, Subpart M, JE Dunn Safety manual section 36 (100% after 6 feet)

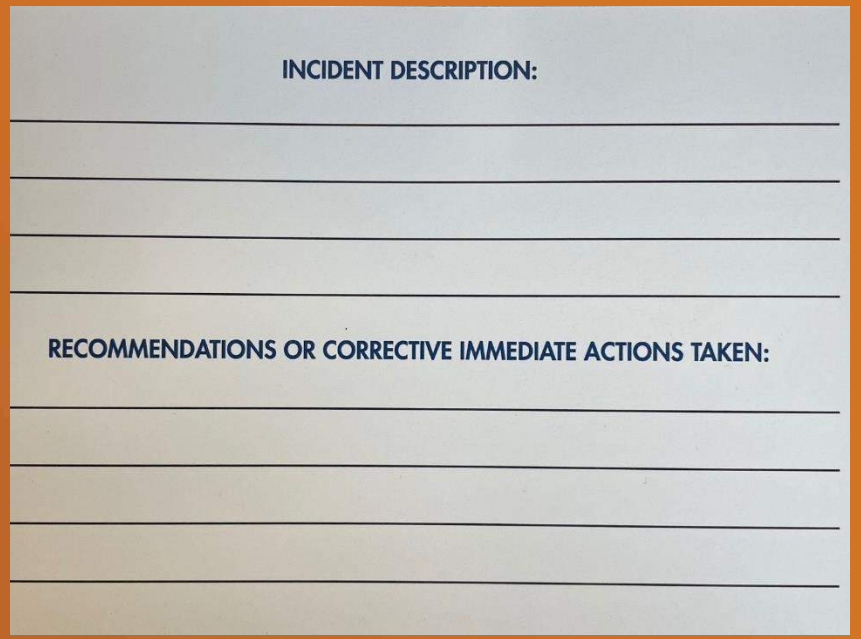
Know your PFAS;

- Keep it cleaned and maintained
- Inspect all components for deficiencies
- Store it properly (keep off ground and out of weather)
- Use proper anchor points (5,000) per person
- Use all fastener locations in anchor points
- Don't secure or anchor to unapproved locations or materials
- Do not share anchor points designed for one person
- All systems must stay within manufacturer specifications
- Post and communicate warning lines for fall hazards, 15 feet from fall
- Wear it correctly, not loose or too tight, follow manufacturer suggestions
- Do not modify fall protection components from any stage of a PFAS.
- Know your lanyard length, know your fall distance. Never allow yourself to be able to fall more than 6 feet with your PFAS (calculate your fall distance)
- Concrete anchors, Roof anchors, Rat Lines, temporary and permanent fall anchor points must meet manufacturer specifications and be engineered to meet requirements

Toolbox Talks

- Weekly Requirement
- Relevant to Project Hazards & Tasks
- Raise Awareness of Safety Hazards
- Identify Unsafe Acts and Conditions

GENERAL SAFETY



Near Miss Reporting

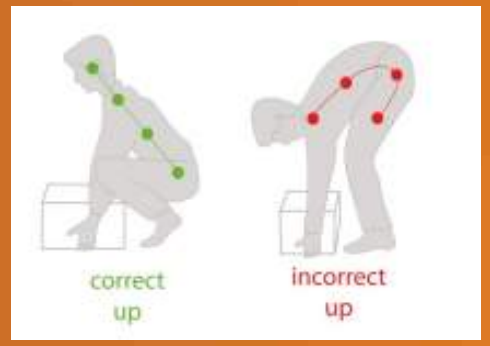
An unplanned event that did not cause injury or damage but could have…

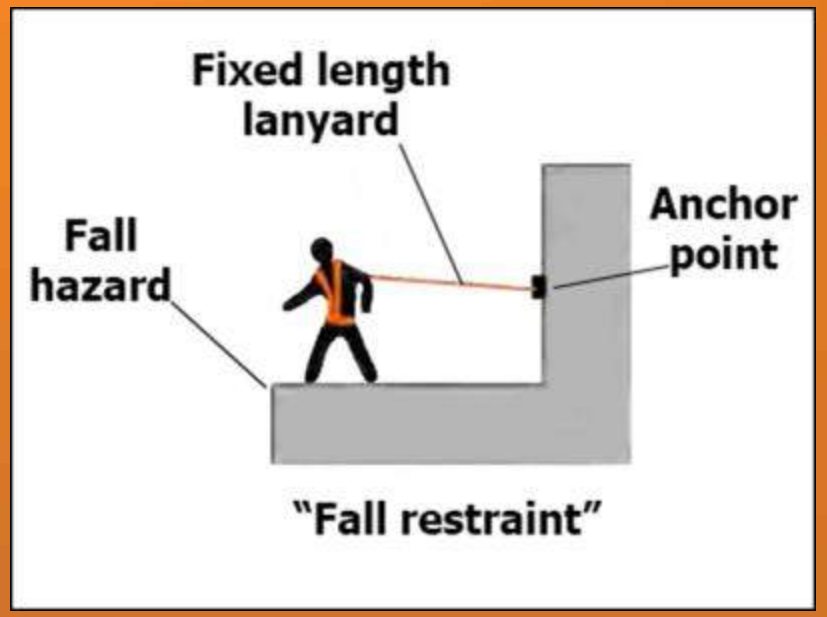
- Report any Near Miss
- Recommend Corrective Actions
- Take Immediate Actions
- **Turn In** to JE Dunn

GENERAL SAFETY

Material Handling

- Mechanical Means
- 2-Person Lift (> 50-lbs or Awkward)
- Individual Lifts (< 50-lbs and Not Awkward)
  - Stay in the Green Zone
  - Keep Object Close to Body
  - Use Legs/Hips…Not Back
  - Do Not Twist





Fall Protection

Restraint & Personal Fall Arrest Systems (PFAS)

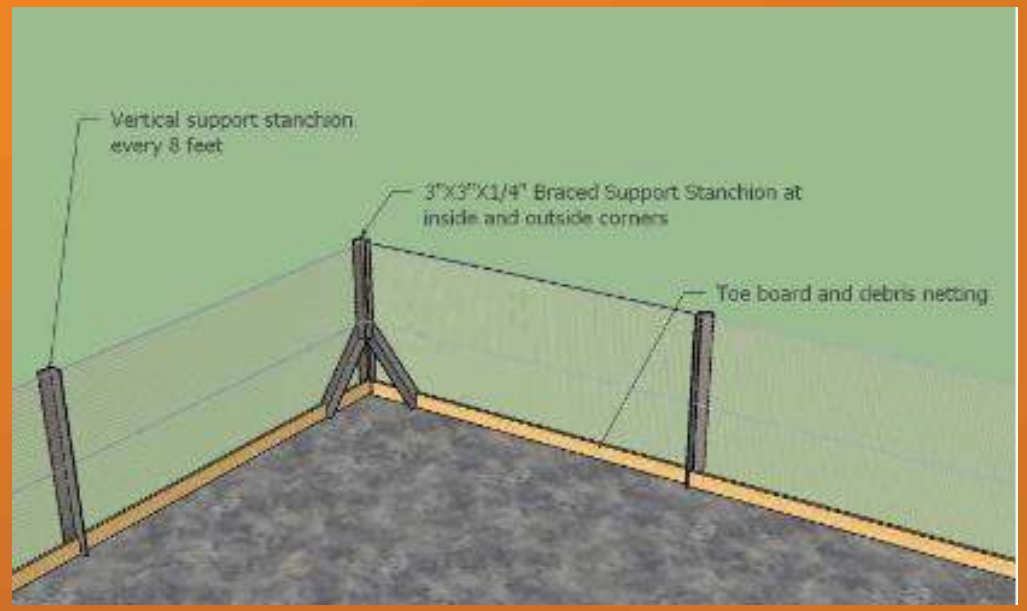
- Restraint Keeps Workers from the Fall Hazard
- PFAS Protects Worker in the Event of a Fall
  - ABC of PFAS
    - A – Anchor
    - B – Body Support
    - C – Connectors
  - Know Fall Clearance Requirements
  - Understand Swing Fall Hazards
  - Develop a Rescue Plan
- 100% Tie-Off in Boom Lifts
- Inspect Systems Daily Prior to Use

JE Dunn Policy: 100% Fall protection is required when on a walking or working surface (vertical or horizontal surface) **6 feet** or more above a lower level, **regardless of the trade at work** or the task being performed.

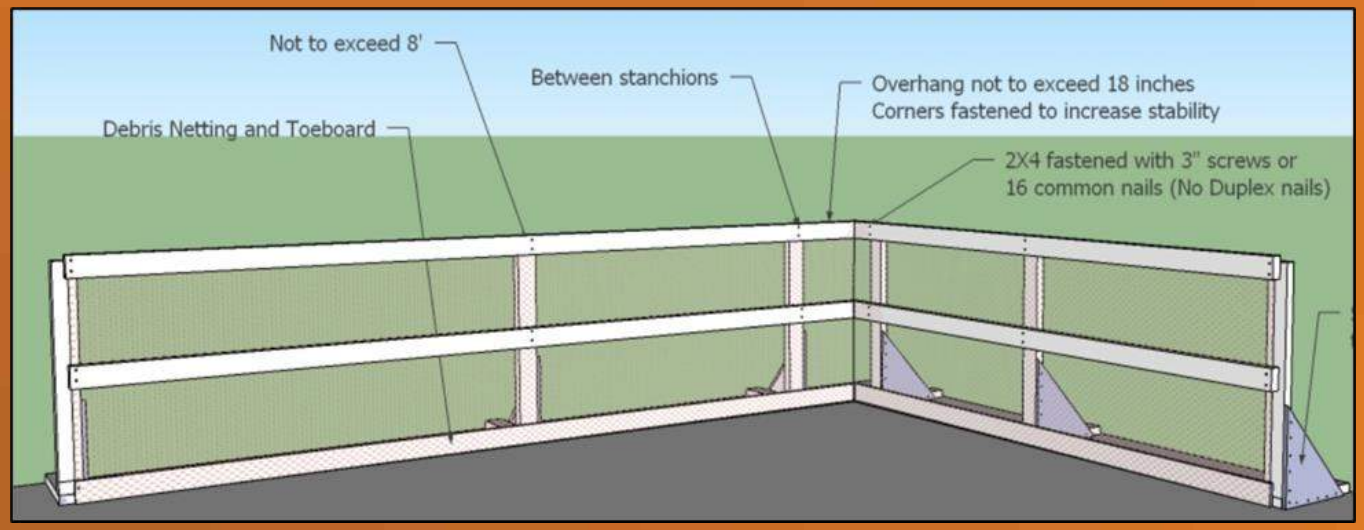
EVERY PERSON ON THIS SITE HAS THE AUTHORITY AND RESPONSIBILITY TO STOP ANY UNSAFE ACT OR CONDITION

Fall Protection (cont.)

Guardrails



- Top Edge Height 42-in +/- 3-in
  - 200-lbs of Force
- Mid-Rail Height at Least 21-in
  - 150-lbs of Force
- DO NOT use Guardrails as Anchorage Points or for Hoisting



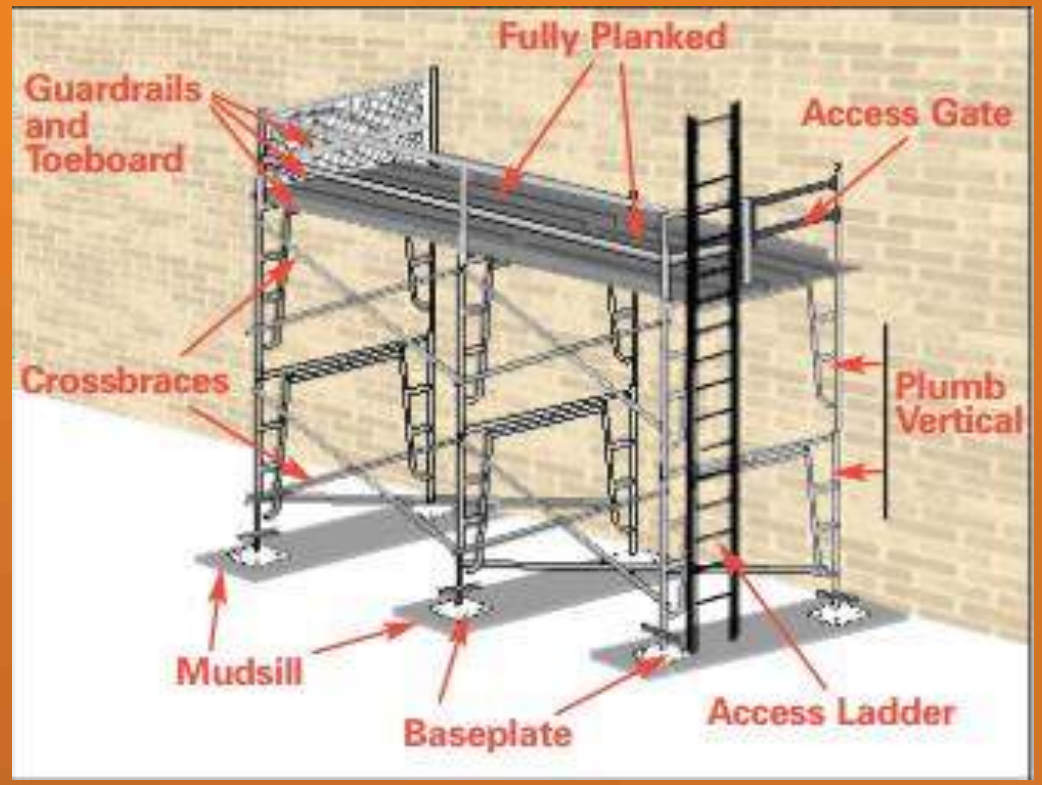
GENERAL SAFETY

Ladder Use

- Ladders Last Policy
- Extension Ladders Not to Exceed 24-ft
  - Sides Rails 36-in Above Working Surface
  - PFAS Required Near Openings
    - Distance <= 1.5 X Ladder Height
  - Pitch 1:4
  - Work Between Rails
  - 3-points of Contact
  - DO NOT Carry Tools or Materials
- Stepladders
  - Use as Designed
  - DO NOT use Top Two Steps
- Job Built Ladder Requirements

EVERY PERSON ON THIS SITE HAS THE AUTHORITY AND RESPONSIBILITY TO
STOP ANY UNSAFE ACT OR CONDITION

GENERAL SAFETY



Scaffolding

- Competent Person for Erection/Dismantle
- PFAS Required for Erection/Dismantle Over 6-ft Height
- Support 4x Max Load
- Designed by Qualified Person
- Engineered Scaffolding >125-ft High
- Engineered for enclosures.
- Daily Inspections
- Ladder Access Required for 2-ft High Scaffold

GENERAL SAFETY

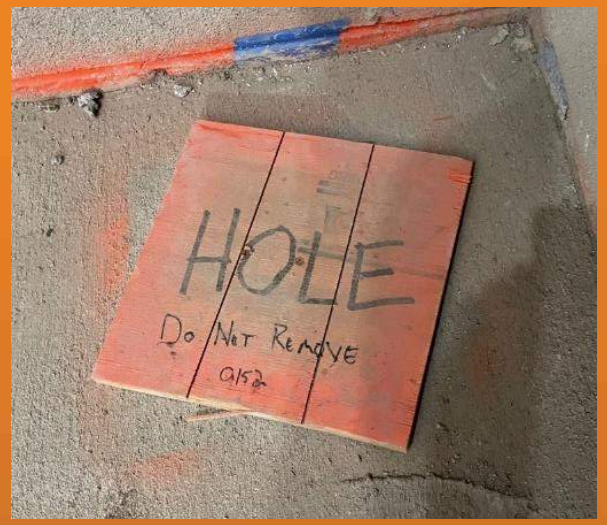
Control Access Zones

- Areas that Pose an Immediate Danger to Life or Health
- Proper Signage on All Sides
  - Include Company Name
  - Include Contact Number
- Barricades & Tape
  - Fencing Panels or Orange Fencing
  - High Strength Fiber Tape
  - Post “Danger" Signage

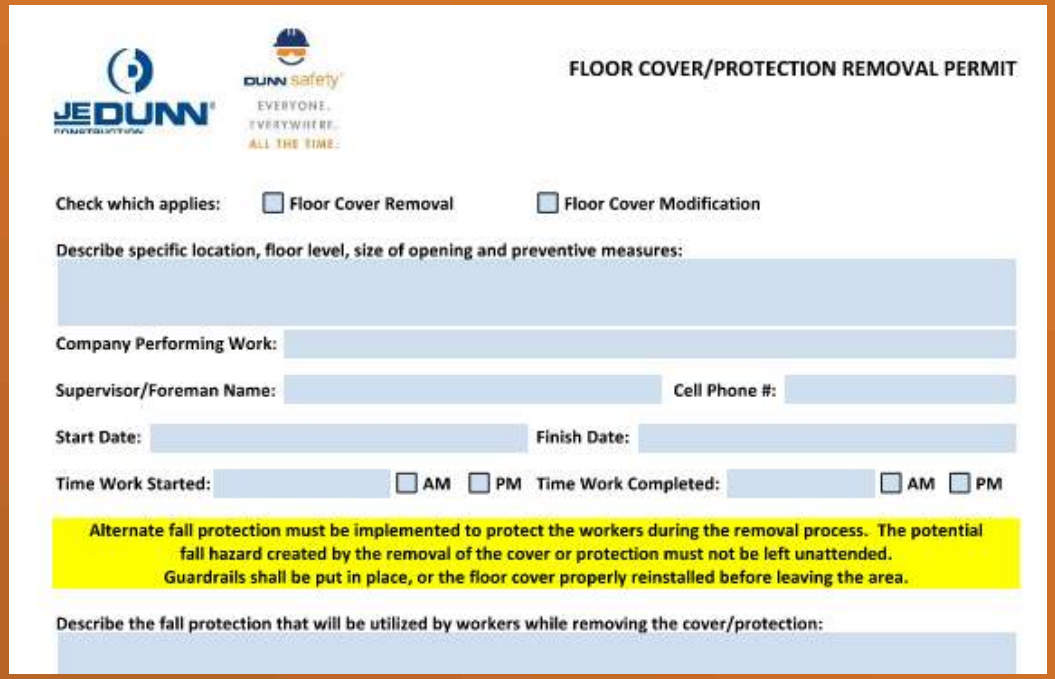
Overhead Protection

- No Materials within 10-ft of Exterior Edge
- No Materials within 6-ft of Interior Edge
- Establish Control Access Zone (CAZ) for Fall Zone Area
- Tool Tethering

Floor Covers



- Floor Hole (> 1-in & < 12-in)
  - Cover Required
  - ¾ Exterior Grade Plywood
  - 2x Weight of Employee
  - Hi-Vis Marking
- Floor Opening (> 12-in)
  - *Refer. JE Dunn Safety & Health Manual, Section 37*
- Floor Hole Cover Permit Required for Removal



JE DUNN CONSTRUCTION

DUNN safety EVERYONE. EVERYWHERE. ALL THE TIME.

FLOOR COVER/PROTECTION REMOVAL PERMIT

Check which applies: ☐ Floor Cover Removal ☐ Floor Cover Modification

Describe specific location, floor level, size of opening and preventive measures:

Company Performing Work:

Supervisor/Foreman Name: Cell Phone #:

Start Date: Finish Date:

Time Work Started: ☐ AM ☐ PM Time Work Completed: ☐ AM ☐ PM

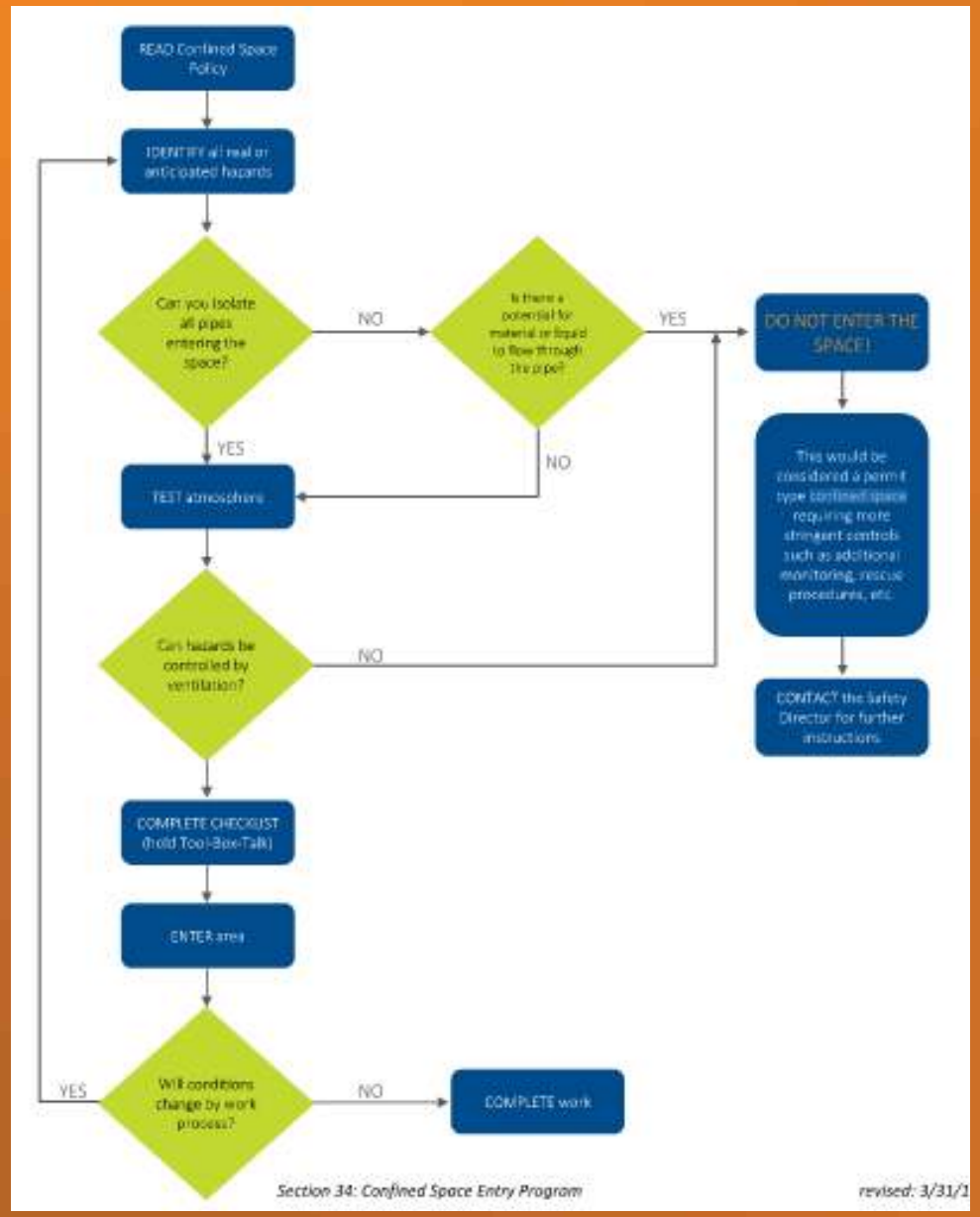
Alternate fall protection must be implemented to protect the workers during the removal process. The potential fall hazard created by the removal of the cover or protection must not be left unattended. Guardrails shall be put in place, or the floor cover properly reinstalled before leaving the area.

Describe the fall protection that will be utilized by workers while removing the cover/protection:

GENERAL SAFETY

Electrical

- Daily Inspections of Electrical Cords & Tools
- Ground Fault Circuit Interrupter (GFCI)
- Portable GFCI
- Inspect Electrical Tools Daily
- Electrical Cords:
  - Grounds or Double Insulated
  - Elevated (DO NOT Use Conductive Materials)
  - 3-Wire Grounded – Heavy Duty
  - 14-gauge or Greater
  - No Strains or Cuts



Confined Spaces

- Confined Space
  - Employee can Bodily Enter It
  - Limited Means for Entry
  - Not Designed for Continuous Occupancy
- Permit-Required Confined Space
  - Hazardous Atmosphere
  - Engulfment
  - Trapped or Asphyxiated
  - Contains any other Serious Safety or Health Hazard
- Competent Person

GENERAL SAFETY

A		Ordinary Combustibles	Wood, Paper, Cloth, Etc.
B		Flammable Liquids	Grease, Oil, Paint, Solvents
C		Live Electrical Equipment	Electrical Panel, Motor, Wiring, Etc.
D		Combustible Metal	Magnesium, Aluminum, Etc.
K		Commercial Cooking Equipment	Cooking Oils, Animal Fats, Vegetable Oils

Fire Protection

- Extinguishers:
  - Annual/Monthly Inspections
  - 2A Rating or Greater
  - 20 BC for Flammable/Combustible Storage
  - 20 BC for Fueling Areas; 25-ft to 75-ft
- Flammable/Combustible Storage
  - Area: "Flammable – No Smoking/Open Flame within 50-ft"
  - 25-gals or Less Outside of Approved Storage Cabinet
  - Cabinets: "Flammable – Keep Fire Away"
  - Fuel storage barricaded with concrete barriers.
- Self-Closing Lid Containers

Lock Out /Tag Out

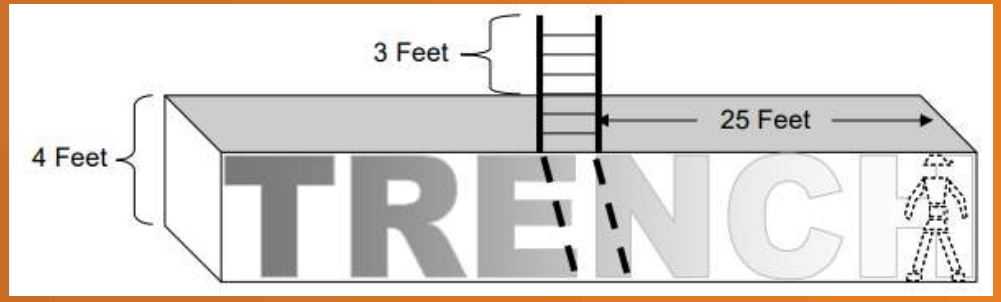
Energized Source – Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy – residual or stored.

- Authorized/Affected Employee Training
- Established Policy & Procedures
- Lockout
- Tagout
- DO NOT Start Energized LOTO Equipment
- DO NOT Remove LOTO from Source

GENERAL SAFETY

Excavation

- Protective System for 5-ft or Greater
- Ladders Required for 4-ft or Greater
- Spoils 2-ft from Edge
- Barricades for Visibility
- Competent Person - Excavation Checklist
- Soil Testing
- Excavation > 20-ft deep must be Engineered



Mechanical Elevated Work Platforms

- Operator Manual with Lift
- Daily Inspections – Documentation
- Operator Training
- Workplace Inspections
- Ground Conditions
- No Standing on Rails
- 100% Tie-Off on Aerial Lifts
- No Hoisting Material from Aerial Lifts without Manufacturers Approval
- No Modification without Manufacturer's Approval

GENERAL SAFETY

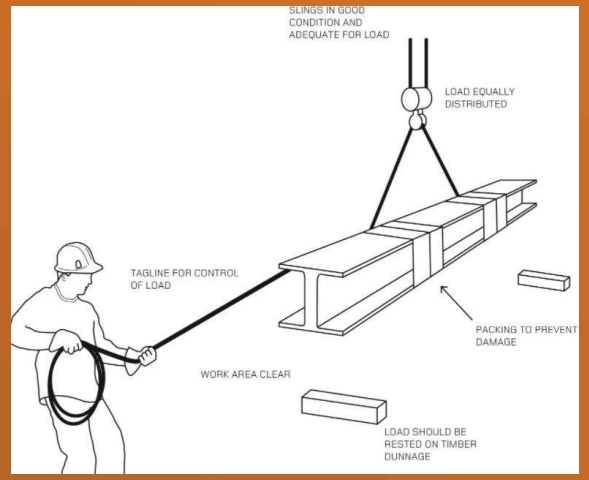
Forklifts

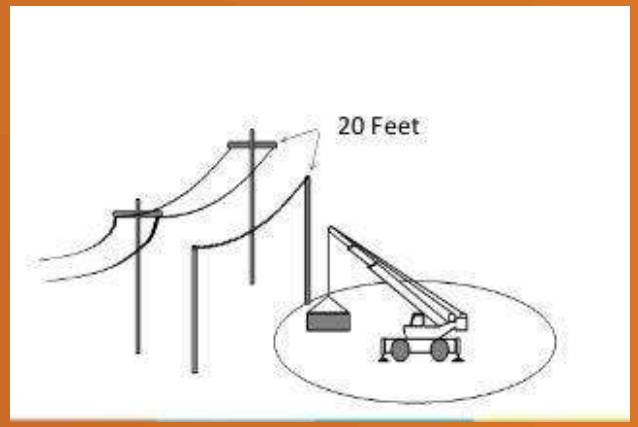
- Certified Operators
- Daily Documented Inspections
- > 50-ft Secure Load to Forks/Mast
- Free Rigging Off Forks – Approved Lifting Device + Positive Connection & Latch
- 100% Seat Belts Use

GENERAL SAFETY

Cranes

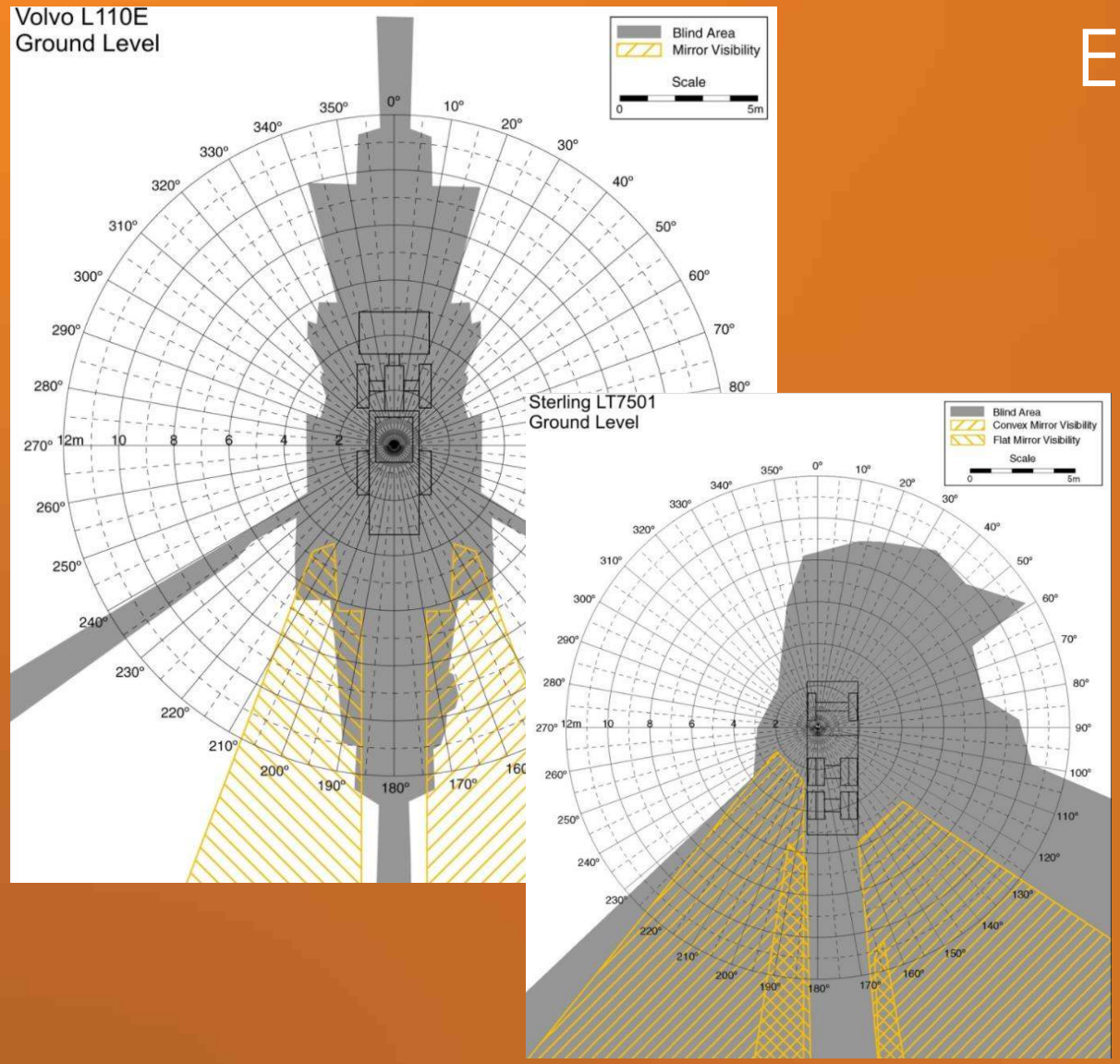
- Certified & Evaluated Operators
- Qualified Riggers & Signalers
- Daily Rigging Inspections
- Submitted/Approved Lift Plan Required
- Swing Radius Controls
- 20-ft Distance from Power Lines
- Taglines Used





EVERY PERSON ON THIS SITE HAS THE AUTHORITY AND RESPONSIBILITY TO
STOP ANY UNSAFE ACT OR CONDITION

GENERAL SAFETY



Equipment Movement

- Spotters Requirements:
  - Obstructed Vision
  - Confined Areas
  - 2 Means of Communication
  - Other Hazards
- Near Heavy Equipment
  - Assume Operator Does not See You
  - Make Eye Contact with Operator
  - Receive Operator's Verbal/Gesture Prior to Movement
- Load/Unload Checklist

Struck By or Caught In-Between, Are Two of the Leading Cause of Injuries and Fatalities on Construction Sites

Hand Tools & Equipment

- Good Condition, Inspected & Maintained
- Manufacturer Guards/T-Handles
- Grounded or Double Insulated
- Attachments
- Cords Free of Cuts, Nicks, Damage
- Powder Actuated Tools – Proof of Training
- Right Tool for the Job
- Impact Resistant Face Shield

GENERAL SAFETY

House Keeping & Material Storage

- Materials on Wheels Devise or Dunnage
- Cords & Hoses Overhead
- Remove Trash Regularly
- Nothing Hits the Floor
- Cleared Access/Egress Points

EVERY PERSON ON THIS SITE HAS THE AUTHORITY AND RESPONSIBILITY TO
STOP ANY UNSAFE ACT OR CONDITION

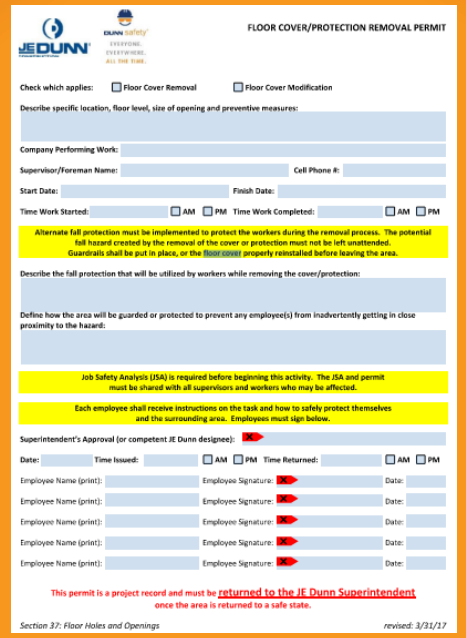
SILICA AWARENESS

Watch 'Silica Awareness Training Video English' | Microsoft Stream

OSHA's Definition (in part): *"Respirable crystalline silica"* means quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device …

PERMITS/CHECKLISTS

Floor Covers



FLOOR COVER/PROTECTION REMOVAL PERMIT

Check which applies: ☐ Floor Cover Removal ☐ Floor Cover Modification

Describe specific location, floor level, size of opening and preventive measures:

Company Performing Work:

Supervisor/Foreman Name: Cell Phone #:

Start Date: Finish Date:

Time Work Started: ☐ AM ☐ PM Time Work Completed: ☐ AM ☐ PM

Alternate fall protection must be implemented to protect the workers during the removal process. The potential fall hazard created by the removal of the cover or protection must not be left unattended. Guardrails shall be put in place, or the floor cover properly reinstalled before leaving the area.

Describe the fall protection that will be utilized by workers while removing the cover/protection:

Define how the area will be guarded or protected to prevent any employee(s) from inadvertently getting in close proximity to the hazard:

Job Safety Analysis (JSA) is required before beginning this activity. The JSA and permit must be shared with all supervisors and workers who may be affected.

Each employee shall receive instructions on the task and how to safely protect themselves and the surrounding area. Employees must sign below.

Superintendent's Approval (or competent JE Dunn designee): X

Date: Time Issued: ☐ AM ☐ PM Time Returned: ☐ AM ☐ PM

Employee Name (print): Employee Signature: X Date:

Employee Name (print): Employee Signature: X Date:

Employee Name (print): Employee Signature: X Date:

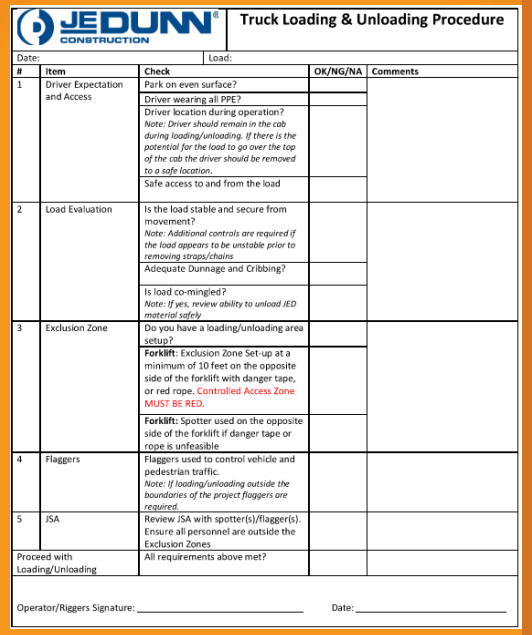
Employee Name (print): Employee Signature: X Date:

Employee Name (print): Employee Signature: X Date:

This permit is a project record and must be returned to the JE Dunn Superintendent once the area is returned to a safe state.

Section 37: Floor Holes and Openings *revised: 3/31/17*

Load/Unload



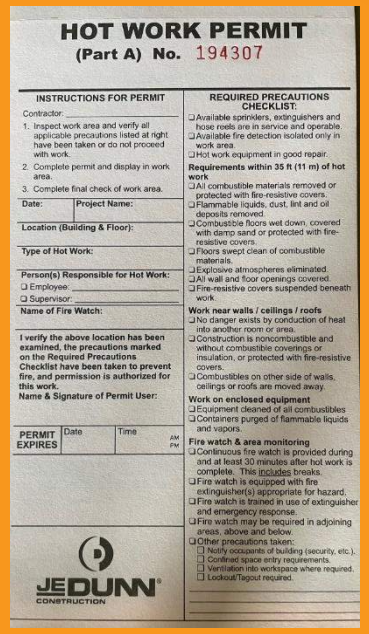
JE DUNN CONSTRUCTION — Truck Loading & Unloading Procedure

Date: Load:

#	Item	Check	OK/NG/NA	Comments
1	Driver Expectation and Access	Park on even surface?		
		Driver wearing all PPE?		
		Driver location during operation? *Note: Driver should remain in the cab during loading/unloading. If there is the potential for the load to go over the top of the cab the driver should be removed to a safe location.*		
		Safe access to and from the load		
2	Load Evaluation	Is the load stable and secure from movement? *Note: Additional controls are required if the load appears to be unstable prior to removing straps/chains*		
		Adequate Dunnage and Cribbing?		
		Is load co-mingled? *Note: If yes, review ability to unload JED material safely*		
3	Exclusion Zone	Do you have a loading/unloading area setup?		
		Forklift: Exclusion Zone Set-up at a minimum of 10 feet on the opposite side of the forklift with danger tape, or red rope. Controlled Access Zone MUST BE RED.		
		Forklift: Spotter used on the opposite side of the forklift if danger tape or rope is unfeasible		
4	Flaggers	Flaggers used to control vehicle and pedestrian traffic. *Note: If loading/unloading outside the boundaries of the project flaggers are required.*		
5	JSA	Review JSA with spotter(s)/flagger(s). Ensure all personnel are outside the Exclusion Zones		
Proceed with Loading/Unloading		All requirements above met?		

Operator/Riggers Signature: _____ Date: _____

Hot Work



HOT WORK PERMIT
(Part A) No. 194307

INSTRUCTIONS FOR PERMIT

Contractor: _____

1. Inspect work area and verify all applicable precautions listed at right have been taken or do not proceed with work.
2. Complete permit and display in work area.
3. Complete final check of work area.

Date: Project Name:

Location (Building & Floor):

Type of Hot Work:

Person(s) Responsible for Hot Work:
❑ Employee: _____
❑ Supervisor: _____

Name of Fire Watch:

I verify the above location has been examined, the precautions marked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.
Name & Signature of Permit User:

PERMIT EXPIRES Date Time AM PM

JE DUNN CONSTRUCTION

REQUIRED PRECAUTIONS CHECKLIST:

❑ Available sprinklers, extinguishers and hose reels are in service and operable.
❑ Available fire detection isolated only in work area
❑ Hot work equipment in good repair.

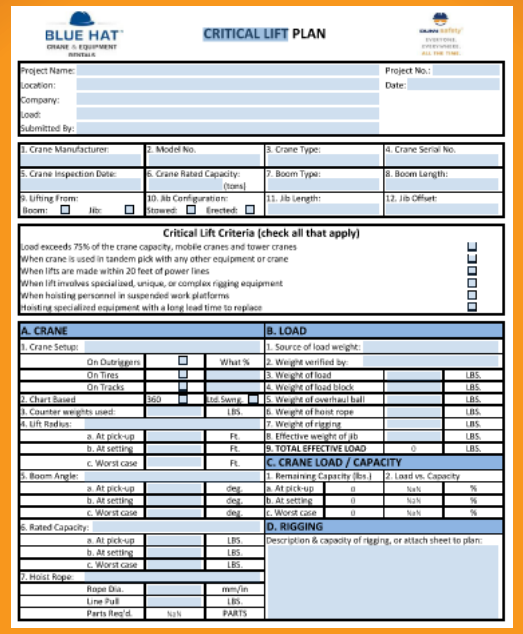
Requirements within 35 ft (11 m) of hot work
❑ All combustible materials removed or protected with fire-resistive covers.
❑ Flammable liquids, dust, lint and oil deposits removed.
❑ Combustible floors wet down, covered with damp sand or protected with fire-resistive covers.
❑ Floors swept clean of combustible materials.
❑ Explosive atmospheres eliminated.
❑ All wall and floor openings covered.
❑ Fire-resistive covers suspended beneath work.

Work near walls / ceilings / roofs
❑ No danger exists by conduction of heat into another room or area.
❑ Construction is noncombustible and without combustible coverings or insulation, or protected with fire-resistive covers.
❑ Combustibles on other side of walls, ceilings or roofs are moved away.

Work on enclosed equipment
❑ Equipment cleaned of all combustibles
❑ Containers purged of flammable liquids and vapors.

Fire watch & area monitoring
❑ Continuous fire watch is provided during and at least 30 minutes after hot work is complete. This includes breaks.
❑ Fire watch is equipped with fire extinguisher(s) appropriate for hazard.
❑ Fire watch is trained in use of extinguisher and emergency response.
❑ Fire watch may be required in adjoining areas, above and below.
❑ Other precautions taken:
☐ Notify occupants of building (security, etc.).
☐ Confined space entry requirements.
☐ Ventilation into workspace where required.
☐ Lockout/Tagout required.

Critical Lift



BLUE HAT CRANE & EQUIPMENT RENTALS — CRITICAL LIFT PLAN

Project Name: Project No.:
Location: Date:
Company:
Load:
Submitted By:

1. Crane Manufacturer:	2. Model No.	3. Crane Type:	4. Crane Serial No.
5. Crane Inspection Date:	6. Crane Rated Capacity: (tons)	7. Boom Type:	8. Boom Length:
9. Lifting From: Boom: ☐ Jib: ☐	10. Jib Configuration: Stowed: ☐ Erected: ☐	11. Jib Length:	12. Jib Offset:

Critical Lift Criteria (check all that apply)

Load exceeds 75% of the crane capacity, mobile cranes and tower cranes	☐
When crane is used in tandem pick with any other equipment or crane	☐
When lifts are made within 20 feet of power lines	☐
When lift involves specialized, unique, or complex rigging equipment	☐
When hoisting personnel in suspended work platforms	☐
Hoisting specialized equipment with a long lead time to replace	☐

A. CRANE

1. Crane Setup:			
On Outriggers	☐	What %	
On Tires	☐		
On Tracks	☐		
2. Chart Based	360 ☐	360 Swing ☐	
3. Counter weights used:		LBS.	
4. Lift Radius:			
a. At pick-up		Ft.	
b. At setting		Ft.	
c. Worst case		Ft.	
5. Boom Angle:			
a. At pick-up		deg.	
b. At setting		deg.	
c. Worst case		deg.	
6. Rated Capacity:			
a. At pick-up		LBS.	
b. At setting		LBS.	
c. Worst case		LBS.	
7. Hoist Rope:			
Rope Dia.		mm/in	
Line Pull		LBS.	
Parts Req'd.	N/A	PARTS	

B. LOAD

1. Source of load weight:			
2. Weight verified by:			
3. Weight of load			LBS.
4. Weight of load block			LBS.
5. Weight of overhaul ball			LBS.
6. Weight of hoist rope			LBS.
7. Weight of rigging			LBS.
8. Effective weight of jib			LBS.
9. TOTAL EFFECTIVE LOAD	0		LBS.

C. CRANE LOAD / CAPACITY

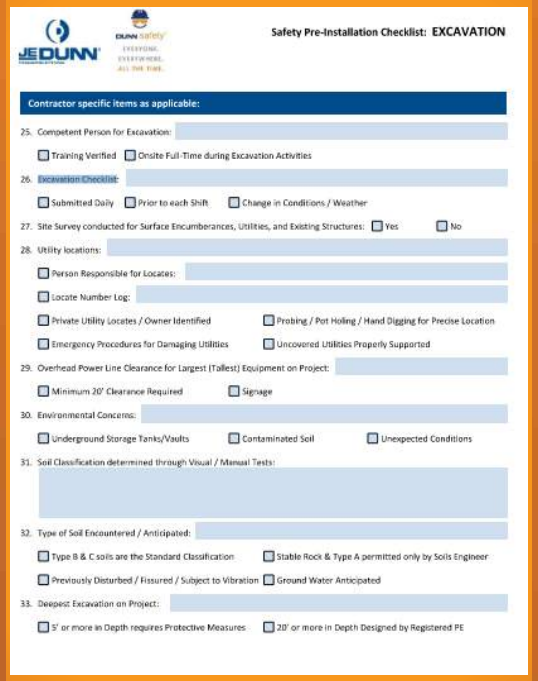
1. Remaining Capacity (lbs.)		2. Load vs. Capacity	
a. At pick-up	0	N/A%	%
b. At setting	0	N/A%	%
c. Worst case	0	N/A%	%

D. RIGGING

Description & capacity of rigging, or attach sheet to plan:

PERMITS/CHECKLISTS

Excavation

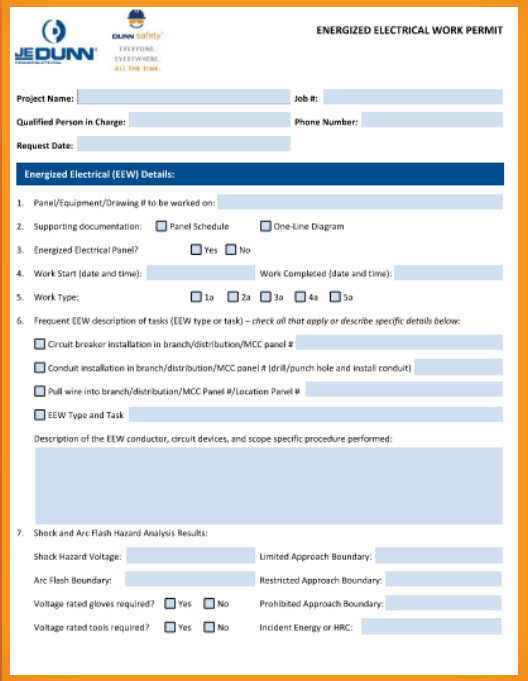


Safety Pre-Installation Checklist: EXCAVATION

Contractor specific items as applicable:

25. Competent Person for Excavation:
    - ☐ Training Verified ☐ Onsite Full-Time during Excavation Activities
26. Excavation Checklist:
    - ☐ Submitted Daily ☐ Prior to each Shift ☐ Change in Conditions / Weather
27. Site Survey conducted for Surface Encumberances, Utilities, and Existing Structures: ☐ Yes ☐ No
28. Utility locations:
    - ☐ Person Responsible for Locates:
    - ☐ Locate Number Log:
    - ☐ Private Utility Locates / Owner Identified ☐ Probing / Pot Holing / Hand Digging for Precise Location
    - ☐ Emergency Procedures for Damaging Utilities ☐ Uncovered Utilities Properly Supported
29. Overhead Power Line Clearance for Largest (Tallest) Equipment on Project:
    - ☐ Minimum 20' Clearance Required ☐ Signage
30. Environmental Concerns:
    - ☐ Underground Storage Tanks/Vaults ☐ Contaminated Soil ☐ Unexpected Conditions
31. Soil Classification determined through Visual / Manual Tests:
32. Type of Soil Encountered / Anticipated:
    - ☐ Type B & C soils are the Standard Classification ☐ Stable Rock & Type A permitted only by Soils Engineer
    - ☐ Previously Disturbed / Fissured / Subject to Vibration ☐ Ground Water Anticipated
33. Deepest Excavation on Project:
    - ☐ 5' or more in Depth requires Protective Measures ☐ 20' or more in Depth Designed by Registered PE

Energized Electrical Work



ENERGIZED ELECTRICAL WORK PERMIT

Project Name: Job #:

Qualified Person in Charge: Phone Number:

Request Date:

Energized Electrical (EEW) Details:

1. Panel/Equipment/Drawing # to be worked on:
2. Supporting documentation: ☐ Panel Schedule ☐ One-Line Diagram
3. Energized Electrical Panel? ☐ Yes ☐ No
4. Work Start (date and time): Work Completed (date and time):
5. Work Type: ☐ 1a ☐ 2a ☐ 3a ☐ 4a ☐ 5a
6. Frequent EEW description of tasks (EEW type or task) – *check all that apply or describe specific details below:*
   - ☐ Circuit breaker installation in branch/distribution/MCC panel #
   - ☐ Conduit installation in branch/distribution/MCC panel # (drill/punch hole and install conduit)
   - ☐ Pull wire into branch/distribution/MCC Panel #/Location Panel #
   - ☐ EEW Type and Task

   Description of the EEW conductor, circuit devices, and scope specific procedure performed:
7. Shock and Arc Flash Hazard Analysis Results:

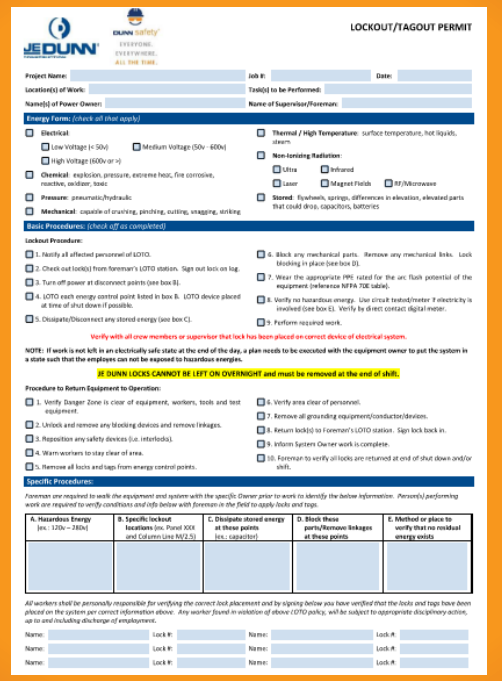
   Shock Hazard Voltage: Limited Approach Boundary:

   Arc Flash Boundary: Restricted Approach Boundary:

   Voltage rated gloves required? ☐ Yes ☐ No Prohibited Approach Boundary:

   Voltage rated tools required? ☐ Yes ☐ No Incident Energy or HRC:

LOTO



LOCKOUT/TAGOUT PERMIT

Project Name: Job #: Date:

Location(s) of Work: Task(s) to be Performed:

Name(s) of Power Owner: Name of Supervisor/Foreman:

Energy Form: *(check all that apply)*

- ☐ **Electrical**: ☐ Low Voltage (< 50v) ☐ Medium Voltage (50v - 600v) ☐ High Voltage (600v or >)
- ☐ **Chemical**: explosion, pressure, extreme heat, fire corrosive, reactive, oxidizer, toxic
- ☐ **Pressure**: pneumatic/hydraulic
- ☐ **Mechanical**: capable of crushing, pinching, cutting, snagging, striking
- ☐ **Thermal / High Temperature**: surface temperature, hot liquids, steam
- ☐ **Non-Ionizing Radiation**: ☐ Ultra ☐ Infrared ☐ Laser ☐ Magnet Fields ☐ RF/Microwave
- ☐ **Stored**: flywheels, springs, differences in elevation, elevated parts that could drop, capacitors, batteries

Basic Procedures: *(check off as completed)*

Lockout Procedure:

1. ☐ Notify all affected personnel of LOTO.
2. ☐ Check out lock(s) from foreman's LOTO station. Sign out lock on log.
3. ☐ Turn off power at disconnect points (see box B).
4. ☐ LOTO each energy control point listed in box B. LOTO device placed at time of shut down if possible.
5. ☐ Dissipate/Disconnect any stored energy (see box C).
6. ☐ Block any mechanical parts. Remove any mechanical links. Lock blocking in place (see box D).
7. ☐ Wear the appropriate PPE rated for the arc flash potential of the equipment (reference NFPA 70E table).
8. ☐ Verify no hazardous energy. Use circuit tested/meter if electricity is involved (see box E). Verify by direct contact digital meter.
9. ☐ Perform required work.

Verify with all crew members or supervisor that lock has been placed on correct device of electrical system.

NOTE: If work is not left in an electrically safe state at the end of the day, a plan needs to be executed with the equipment owner to put the system in a state such that the employee can not be exposed to hazardous energies.

JE DUNN LOCKS CANNOT BE LEFT ON OVERNIGHT and must be removed at the end of shift.

Procedure to Return Equipment to Operation:

1. ☐ Verify Danger Zone is clear of equipment, workers, tools and test equipment.
2. ☐ Unlock and remove any blocking devices and remove linkages.
3. ☐ Reposition any safety devices (i.e. interlocks).
4. ☐ Warn workers to stay clear of area.
5. ☐ Remove all locks and tags from energy control points.
6. ☐ Verify area clear of personnel.
7. ☐ Remove all grounding equipment/conductor/devices.
8. ☐ Return lock(s) to Foreman's LOTO station. Sign lock back in.
9. ☐ Inform System Owner work is complete.
10. ☐ Foreman to verify all locks are returned at end of shut down and/or shift.

Specific Procedures:

Foreman are required to walk the equipment and system with the specific Owner prior to work to identify the below information. Person(s) performing work are required to verify conditions and info below with foreman in the field to apply locks and tags.

A. Hazardous Energy (ex.: 120v – 280v)	B. Specific lockout locations (ex. Panel XXX and Column Line M/2.5)	C. Dissipate stored energy at these points (ex.: capacitor)	D. Block these parts/Remove linkages at these points	E. Method or place to verify that no residual energy exists

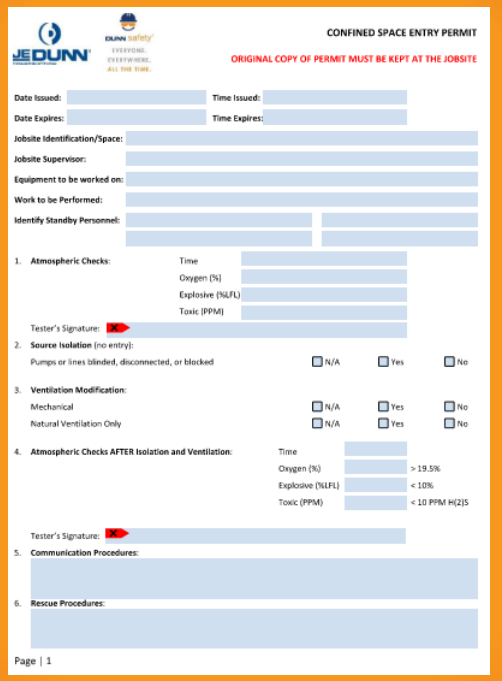
All workers shall be personally responsible for verifying the correct lock placement and by signing below you have verified that the locks and tags have been placed on the system per correct information above. Any worker found in violation of above LOTO policy, will be subject to appropriate disciplinary action, up to and including discharge of employment.

Name: Lock #: Name: Lock #:

Name: Lock #: Name: Lock #:

Name: Lock #: Name: Lock #:

Confined Space



CONFINED SPACE ENTRY PERMIT

ORIGINAL COPY OF PERMIT MUST BE KEPT AT THE JOBSITE

Date Issued: Time Issued:

Date Expires: Time Expires:

Jobsite Identification/Space:

Jobsite Supervisor:

Equipment to be worked on:

Work to be Performed:

Identify Standby Personnel:

1. **Atmospheric Checks**: Time / Oxygen (%) / Explosive (%LFL) / Toxic (PPM)

   Tester's Signature: X
2. **Source Isolation** (no entry):

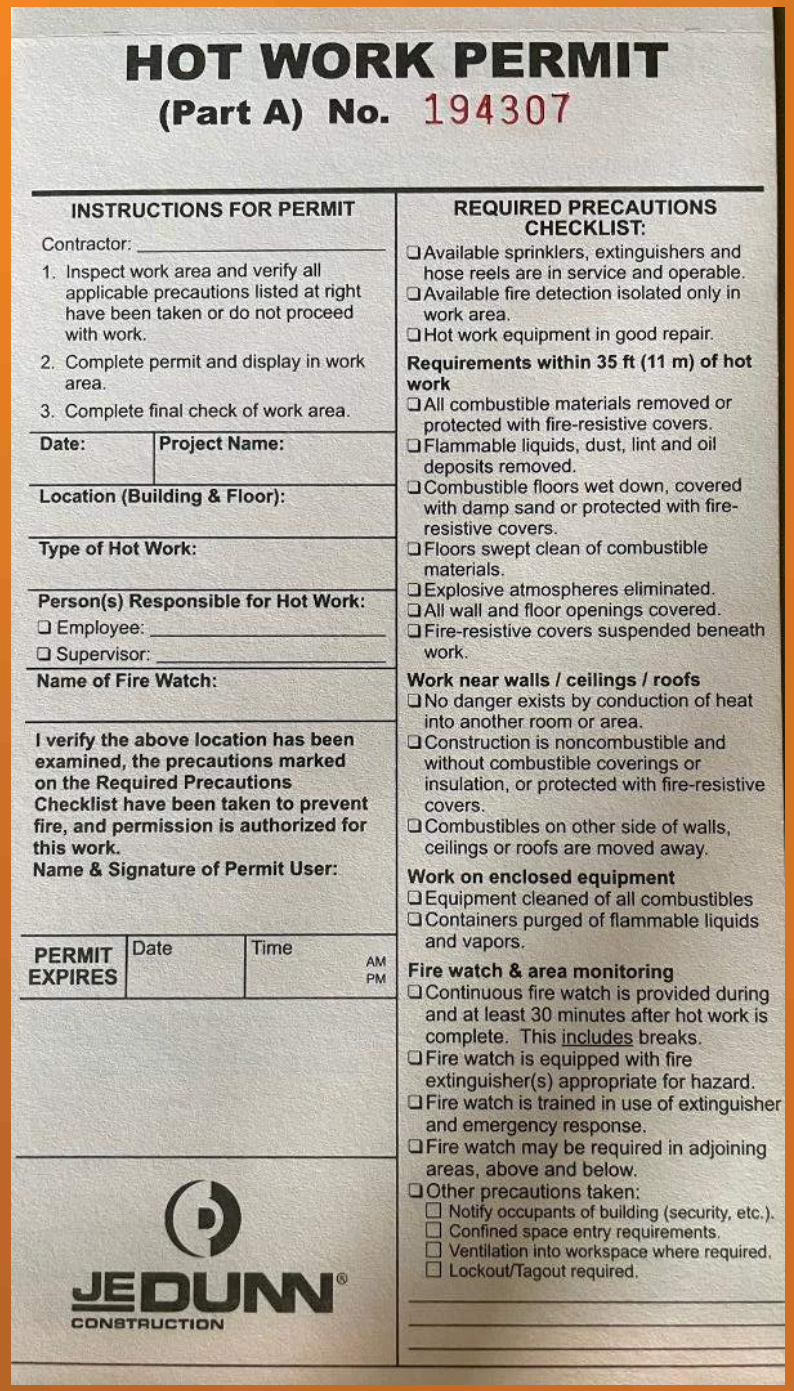
   Pumps or lines blinded, disconnected, or blocked ☐ N/A ☐ Yes ☐ No
3. **Ventilation Modification**:

   Mechanical ☐ N/A ☐ Yes ☐ No

   Natural Ventilation Only ☐ N/A ☐ Yes ☐ No
4. **Atmospheric Checks AFTER Isolation and Ventilation**: Time / Oxygen (%) > 19.5% / Explosive (%LFL) < 10% / Toxic (PPM) < 10 PPM H(2)S

   Tester's Signature: X
5. **Communication Procedures**:
6. **Rescue Procedures**:

Page | 1



HOT WORK PERMIT
(Part A) No. 194307

INSTRUCTIONS FOR PERMIT

Contractor: _____

1. Inspect work area and verify all applicable precautions listed at right have been taken or do not proceed with work.
2. Complete permit and display in work area.
3. Complete final check of work area.

Date:	Project Name:

Location (Building & Floor):

Type of Hot Work:

Person(s) Responsible for Hot Work:

❑ Employee: _____

❑ Supervisor: _____

Name of Fire Watch:

I verify the above location has been examined, the precautions marked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for this work.
Name & Signature of Permit User:

PERMIT EXPIRES	Date	Time AM PM

JE DUNN® CONSTRUCTION

REQUIRED PRECAUTIONS CHECKLIST:

❑ Available sprinklers, extinguishers and hose reels are in service and operable.
❑ Available fire detection isolated only in work area.
❑ Hot work equipment in good repair.

Requirements within 35 ft (11 m) of hot work

❑ All combustible materials removed or protected with fire-resistive covers.
❑ Flammable liquids, dust, lint and oil deposits removed.
❑ Combustible floors wet down, covered with damp sand or protected with fire-resistive covers.
❑ Floors swept clean of combustible materials.
❑ Explosive atmospheres eliminated.
❑ All wall and floor openings covered.
❑ Fire-resistive covers suspended beneath work.

Work near walls / ceilings / roofs

❑ No danger exists by conduction of heat into another room or area.
❑ Construction is noncombustible and without combustible coverings or insulation, or protected with fire-resistive covers.
❑ Combustibles on other side of walls, ceilings or roofs are moved away.

Work on enclosed equipment

❑ Equipment cleaned of all combustibles
❑ Containers purged of flammable liquids and vapors.

Fire watch & area monitoring

❑ Continuous fire watch is provided during and at least 30 minutes after hot work is complete. This includes breaks.
❑ Fire watch is equipped with fire extinguisher(s) appropriate for hazard.
❑ Fire watch is trained in use of extinguisher and emergency response.
❑ Fire watch may be required in adjoining areas, above and below.
❑ Other precautions taken:
- ☐ Notify occupants of building (security, etc.).
- ☐ Confined space entry requirements.
- ☐ Ventilation into workspace where required.
- ☐ Lockout/Tagout required.

HOT WORK

- Trade Partner Fills Out
- “N/A” nonapplicable items
- JE Dunn Superintendent Reviews/Initials
- Turn in Part A to JE Dunn
- Post Part B at Worksite

HAZARDOUS COMMUNICATON

- Each Trade Partner
  - Hazardous Communication Program
  - Safety Data Sheet
- Proper Labeling
- SDS Availability

Safety Data Sheets (Sections)

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information

44

HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder	**Corrosion**	**Exploding Bomb**
• Gases Under Pressure	• Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle	**Environment** (Non-Mandatory)	**Skull and Crossbones**
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

SITE SPECIFIC HAZARDS

- (List specific hazards with additional informational slides for Lead, Asbestos, etc.)

EMERGENCY ACTION PLAN

KNOW:

- Emergency Notification – 3 Horn Blasts
- Emergency Numbers
- Project Address
- Site Access/Egress
- Fire Extinguisher Locations
- AED Location
- First Aid Cabinet
- CPR/AED Certified Workers
- Shelter Locations

PLAN CONTENT:

- Medical Emergency
- Severe Weather
- Fire
- Hostile Intruder
- Bomb Threat
- Natural Disasters
- National C/ERP Policy

EMERGENCY ACTION PLAN

Incident Reporting

- Call 911 for All Emergencies
- Report Emergency Incident to JE Dunn Site Superintendent/Safety Professional
- Immediately Report Non-Emergency Incidents to JE Dunn Site Superintendent/Safety Professional Regardless of Severity
- Type of Incidents: Injury, Property Damage, Environmental Spills, and Fire
- Assist with Investigation and Eliminate Reoccurrence

EMERGENCY ACTION PLAN
Site Specific

(EXAMPLE)

- *Evacuation – 3 consecutive blasts of air horn*
  - *Primary Assembly Point (input)*
  - *Secondary Assemble Point (input)*
- *Tornado – 1 blast of air horn*
  - *Shelter Location (input)*
- *Accountability Procedures*
- *Lightning – Group Text Message*
  - *Warning 10 Miles*
  - *Warning 8 Miles*
  - *Action **6 Miles, Seek Shelter (Site Specific)***
- *High Winds (>35 mph)*
  - *Secure materials always (plywood, insulation board, plastic, etc.)*
  - *Each trade partner must protect workers, materials, & equipment*

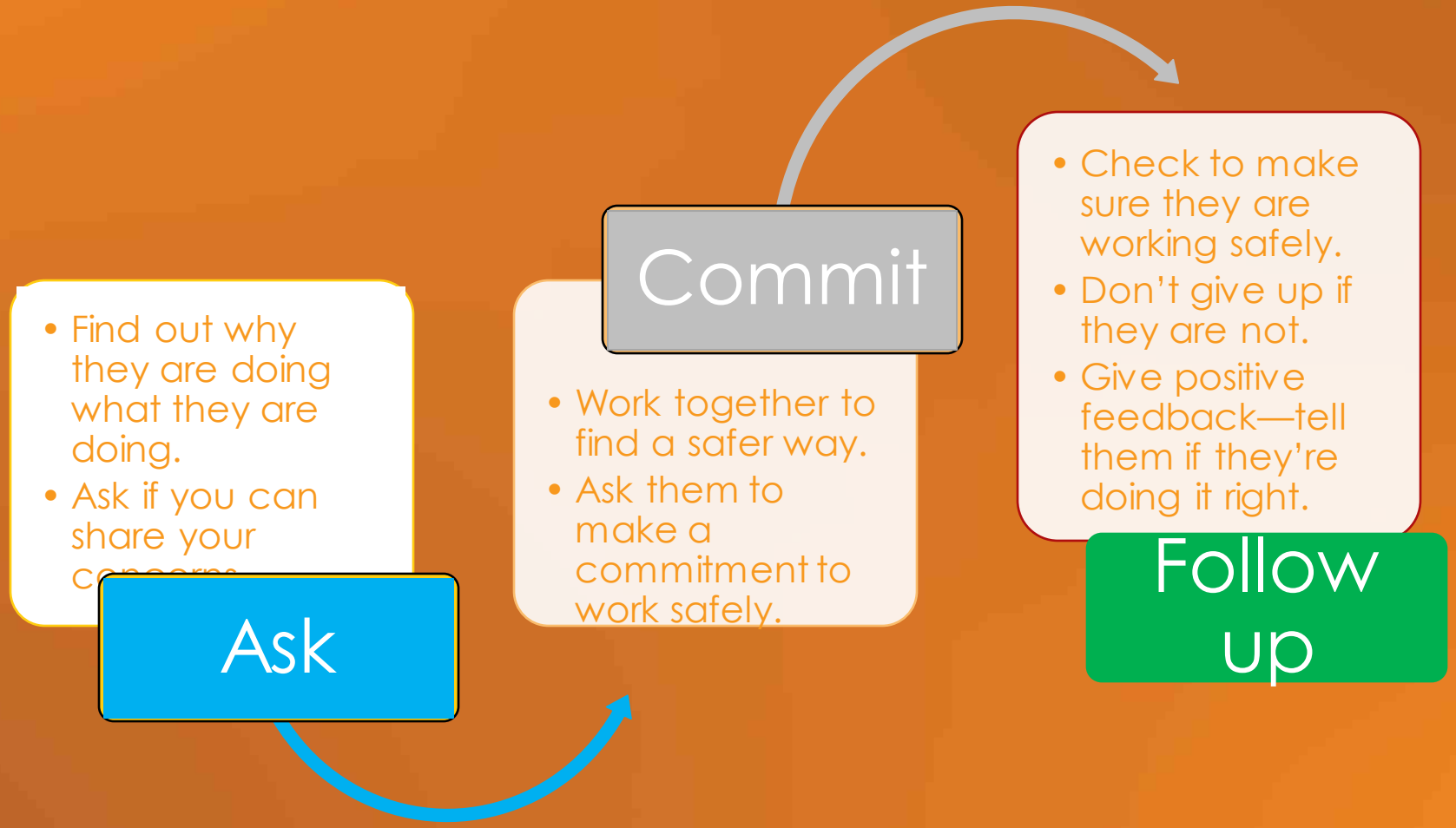
EMERGENCY ACTION PLAN
Egress, Shelters, & Assembly

(Insert Site Egress and Evac Map, Shelters, etc.)

SPEAK UP & LISTEN UP

Speak Up

SPEAK UP
Three Step Process



SPEAK UP & LISTEN UP

Listen Up

LISTEN UP
Two Step Process

Listen

- Focus on the message.
- Get to the facts.
- Ask questions if needed.

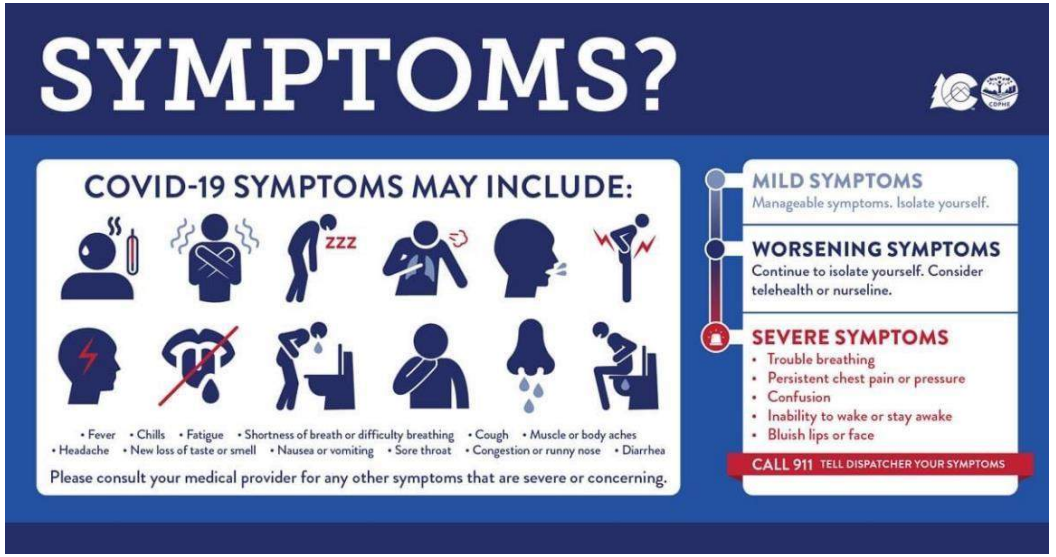
ATTITUDES:
Appreciation, Respect

Commit

- Agree on a safer way.
- Make the commitment.
- Follow it up.

COVID -19

(Input site specific requirements)



DISCIPLINARY PROGRAM

- **Minor Safety Issues:** These issues should be handled as teaching/coaching opportunities. If minor safety issues are not being addressed by the individual, then they should be considered Level 1 Safety Violations.

- **Level 1 Safety Violations: Non-Life Threatening**
  - Verbal Reprimand
  - Written Reprimand
  - Final Reprimand - Minimum one year suspension from all JE Dunn projects.

- **Level 2 Safety Violations: Life Threatening**
  - After Action Review
  - Gross Misconduct - Permanent removal for Trade Partner employees from JE Dunn projects.

Questions, Comments, or Concerns?

SAFETY & HEALTH MANUAL

Section 11: Safety Incentive and Employee Recognition


Jack Brazil
National Safety Director

Contact your local Safety Representative for more information.

https://jedunn.sharepoint.com/sites/Safety/SitePages/Meet-The-National-Safety-Team.aspx

Meet The National Safety Team

jedunn.sharepoint.com

Meet The National Safety Team

Tammy Tinsley
Executive Administrative Assistant

Safety Leadership

James Robles
Safety Director

South Central Region

David Hulse
Safety Director

Midwest Region

Nate Mock
Safety Director

West Region

Marques Lowe
Safety Director

East Region

Adam Allison
Senior Safety Manager

Healthcare Region

Aaron Babusa-Lucas
Safety Manager

Blue Hat

Specializations

Tammy Tinsley
Senior Administrative Assistant

SAFETY & HEALTH MANUAL

Section 12: Inspections

Bruce Lamach
Senior Safety Manager

Jump to Section

Intent Statement

The intent of this section is to establish the minimum inspection guidelines for all JE Dunn projects. This process will help recognize safe behaviors, correct unsafe work conditions and practices.

Definitions

Leadership Safety Walks

Used to demonstrate a visible commitment to safety. Leadership will engage craft/trade workers and assess the overall safety culture of the project.

Project Safety Walks / Inspections

Used to demonstrate active involvement and participation. The individuals should be assessing situations and communicating solutions or best practices to ensure that compliance is being met.

General Requirements

Documentation

The groups will positively reinforce safe behaviors, recognize, and eliminate all unsafe work practices and conditions that are observed. The findings will be reviewed with the project team and documented in BIM 360 Field.

Executive Leadership (CEO to Business Unit Leader)

Monthly Project Safety Walk/Inspection will be conducted and includes a member from the safety department.

Project Executive

Monthly Leadership Safety Walk/Inspection will be conducted on each project independently or in conjunction with a monthly Leadership Safety Walk.

Senior Project Leadership (SPM, PM Superintendent)

Weekly Safety Observation Walks/Inspection will be conducted on the project.

Front Line Supervisors (Foreman, Project Engineer, Field Engineer)

Daily safety observations/inspections will be conducted on the project.

Trade / Craft Employees

Daily inspections will be conducted of personal protective equipment, tools and equipment associated with their work activities. All Personal Protective Equipment will be inspected daily PRIOR to use. Any defect is to rejected; and the defective item shall not be used. Tag it "UNSAFE – DO NOT USE" and remove it from service.

Trade Partner

1. Trade Partner senior leadership will conduct monthly Safety Observation/Inspection Walks on the project. This includes Project Manager, Superintendent, or Safety Professional.
2. Daily Supervisor Safety Observation/Inspection will be conducted on their scope of work.
3. Trade Partner employees will conduct daily inspections of personal protective equipment, tools and equipment associated with their work activities All Personal Protective Equipment will be inspected daily PRIOR to use. Any defect is to rejected; and the defective item shall not be used. Tag it "UNSAFE – DO NOT USE" and remove it from service.

Safety Department

1. Daily/Weekly safety observation/inspection will be conducted on assigned project.
2. Monthly inspection – Safety professionals are required to perform a minimum of one BIM 360 observation for their assigned projects.

OSHA Inspections

1. Operations to contact regional safety department. Ask the OSHA Compliance Safety and Health Officer (CSHO) to wait for Safety Director and / or Safety Manager to arrive.
2. Safety Leadership should be present when OSHA CSHO conducts their opening.
3. Conduct inspection. Safety leadership to escort the OSHA CSHO.
4. Take the same photographs / video, from the same angle / perspective; that the OSHA CSHO takes. Keep notes on observations and corrective actions. Make sure any unsafe conditions are corrected immediately and photograph the correction as well as the discrepancy.
5. Complete OSHA Post Inspection Report

Annexes

Forms and Permits

OSHA Post Inspection Report

Functional Manager

James Robles
National Safety Director

Change History

Date	Description
09/09/2021	Header: Change Last Revised date to 09SEP2021 and added "**DRAFT**" after Administrative.
09/09/2021	Part B Definitions, Para. 2 Project Safety Walk/Inspection. Last sentence, added: "There should be a dual purpose.....or overlooked".
09/09/2021	Part C General Requirements, Para. 1, added: "When performing Project Team Safety Walks..... expedited for correction and closure."
09/09/2021	Part C General Requirements, Para. 4, added: "At least one walk per week will include a member from the safety department."
09/09/2021	Part C General Requirements, Para. 5, added: "At least one walk per week will include a member from the safety department."
09/09/2021	Part C General Requirements, Para. 6, added: "All Personal Protective Equipment, especially PFAS.....tagged and removed from service."
09/09/2021	Part C General Requirements, Para. 7, Sub Para. c) added: "All Personal Protective Equipment, especially PFAS.....tagged and removed from service."
09/09/2021	Part C General Requirements, Para. 8, added: "When performing a Safety Professional Job Safety Walk.....document format set up for that job."
09/09/2021	OSHA Inspections, Para. 1, added: "Ask the OSHA CSHO to wait.....reason for their visit and what they want to expect."
09/09/2021	OSHA Inspections, Para. 2, added: "Escort the OSHA CSHO where they need to go to inspect.....unless an area is unsafe to enter."

OSHA Post Inspection Report

Project Name: **Project Number:**

Date of Inspection:

PRE-INSPECTION:

1. Who did the OSHA Inspector first contact at the jobsite?

   Name: Title:

2. Did the OSHA Inspector show his/her credentials? Yes ☐ No ☐
3. Did you get copies of the OSHA Inspector's credentials or business card and attach them to this report?

   Yes ☐ No ☐

   If credentials or business card are not attached, explain why:

4. OSHA Inspector's Name: (list all if more than one)

5. Was the JE Dunn Regional Office contacted? Yes ☐ No ☐ Who:
6. Was the JE Dunn Safety Department contacted? Yes ☐ No ☐ Who:

OPENING CONFERENCE:

1. List who was present during the Opening Conference:

   Employee Name: Company Name: Position:

2. What was the purpose of the visit as explained by the OSHA Inspector?

3. Was there a complaint filed? Yes ☐ No ☐

4. Did you get a copy of the complaint? Yes ☐ No ☐

   If yes, attach a copy to this report. If no, ask the OSHA Inspector for a copy.

5. Was there a search warrant served? Yes ☐ No ☐

   If yes, attach the search warrant to this report.

6. Did the OSHA Inspector request to review records? Yes ☐ No ☐

   List what was requested and what was reviewed. If items were requested and were not reviewed, explain why:

Requested:	Reviewed:	Comments:
	Yes ☐ No ☐	
	Yes ☐ No ☐	
	Yes ☐ No ☐	
	Yes ☐ No ☐	
	Yes ☐ No ☐	
	Yes ☐ No ☐	
	Yes ☐ No ☐	
	Yes ☐ No ☐	

7. Were employees selected to be interviewed with the OSHA Inspector during the Opening Conference?

   Yes ☐ No ☐

   Explain how the employee(s) were selected:

8. List employees selected, their employer, and trade/craft represented:

   Employee Name: Company Name: Trade/Craft:

9. Other comments that should be noted as being discussed during the Opening Conference:

THE INSPECTION:

1. List who was present during the inspection process:

   Employee Name: Company Name: Position:

2. Were pictures taken? Yes ☐ No ☐
3. Were any portions of the jobsite shut down? Yes ☐ No ☐

   If so, describe the area, why it was shut down, and for how long:

4. List any employees that were talked to by the OSHA Inspector:

   Employee Name: Company Name: Employee Name: Company Name:

NOTE: YOU ARE NOT ALLOWED TO ASK THE EMPLOYEES WHAT THEY DISCUSSED WITH THE OSHA INSPECTOR.

5. Other comments that should be noted as being discussed during the inspection:

CLOSING CONFERENCE:

1. List who was present during the Closing Conference:

   Employee Name: Company Name: Position:

2. Were alleged violations of standards discussed? Yes ☐ No ☐

   If yes, list alleged violations:

3. Did the OSHA Inspector give any indication of future OSHA inspections (required or otherwise)?

   Yes ☐ No ☐

   If yes, list the comments from the OSHA Inspector:

4. Other comments that should be noted as being discussed during the Closing Conference:

SIGNATURES & DISTRIBUTION OF REPORT:

Project Manager Signature _____ Date _____

Project Superintendent Signature _____ Date _____

Cc: Project File:
Regional Office:
Safety Representative:

SAFETY & HEALTH MANUAL

Section 13: Job Safety Analysis (JSA)

Marco Martinez
Safety Director

Jump to Section

Intent Statement

This program is designed to provide guidance on establishing an effective Job Safety Analysis (JSA).

Job Safety Analysis (JSA) is a proactive technique that focuses on job tasks to identify hazards before they occur. It focuses on the relationship between the worker and the task or activity, tools/materials, and the work environment. After identification of potential hazards, steps can be taken to eliminate or reduce the exposure to an acceptable risk level before the activity or task starts.

General Requirements

Project Executive and General Requirements

Ask questions to gauge whether the JE Dunn team is putting the required emphasis on JSAs
Stop and address any unsafe conditions

Superintendent

Ensure all JE Dunn team members and Trade Partners are trained on the JSA process
Review/approve all JSAs
Attend at least one JSA meeting per week
Coach anyone running a JSA meeting to ensure they have the tools and skills to facilitate a quality JSA meeting
Stop and address any unsafe conditions

Project Managers, Project Engineers, Field Engineers and IPS team members

Attend at least one JSA meeting per week
Coach anyone running a JSA meeting to ensure they have the tools and skills to facilitate a quality JSA meeting
Stop and address any unsafe conditions

Foreman

Facilitate daily JSA meetings with their crew(s)
Ensure their crews have the tools and equipment necessary to complete all tasks safety utilizing the identified hazard controls
Ensure their crews have the proper training to perform all work in a safe manner
Stop and address any unsafe conditions

Trade/Craft Workers

Ensure that all tasks are being completed in a safe manner and per the hazard controls identified in the JSA
Talk with the Foreman about any tasks involving hazards that may not have been discussed in the JSA prior to beginning the task
Actively participate in the daily JSA meeting
Ask questions if you do not understand all the tasks, hazards and controls discussed in the JSA meeting
Inform your Foreman if you do not have the proper tools/equipment necessary to complete all tasks in a safe manner and per the hazard controls identified in the JSA meeting
Stop and address any unsafe conditions

Job Safety Analysis Process

A JSA is a tool used to improve job safety through:

Identifying the hazards or potential hazards associated with each step of a task/activity.
Identifying effective control measures to prevent or eliminate exposure.

Identify the task or work activity to be analyzed

More than one JSA may be required for a single task. One member of the crews' responsibilities may be more hazardous than the other. Consequently, that process may be required to be rolled out and controls identified. Break the job into successive steps.
Describe concisely what is being done. List the steps/activities, processes and tools needed to perform the task.
Identify the foreseeable potential hazards for each step/activity.

Identify the hazards and controls

Ultimately the best solution would be to eliminate the hazard. Find an effective way to eliminate the hazards and prevent a potential accident. The next best solution would be to find a better way to do the job. Start with the end result of the task and look for processes that are not only the safest, but the most economical and practical.

Annexes

Forms and Permits

Job Safety Analysis (JSA) Forms

Functional Manager

James Robles
National Safety Director

Change History

Date	Description
8/9/2021	Updated Section to Match New Manual Format

Identify the planned protective measures to include appropriate protective devices and/or equipment as needed.
Provide any training needed to perform the task/activity safely.

Conduct a short, very interactive, JSA meeting every morning. Workers should be telling the Foreman what the dangers are and how they can be prevented. This meeting can also be held at the gang box or work area for the day to avoid affecting production. After meeting completion, each worker must sign the JSA form acknowledging his/her attendance of this meeting.

The completed JSA shall be signed by the author, submitted, reviewed, and approved by the Superintendent or his designee daily.

Trade Partner shall provide JE Dunn copies of the JSA during the scope pre-task/phase (pre-install) meeting. If their JSA form does not meet the above standards, then provide them a copy of the JE Dunn JSA form to use.

You must complete a new JSA daily for each task even if the task/activity is the same from day-to-day. While the task/activity may remain the same, conditions such as weather, crew changes, new materials and other Trade Partners entering your work area may differ.

Worker JSA Training

Each Project shall provide JSA training to each new employee in the orientation process.

Before a task is started, the JSA shall be reviewed with the crew to ensure the affected workers are aware of the potential hazard and protective measures/controls described within the activity analysis. Worker's training shall include the following concerns of the task:

What can go wrong?
What are the consequences?
What is the worst that could happen?
How could it happen?
What are other contributing factors?
How likely is it that the hazard will occur?

The process shall be reviewed, updated and retraining shall occur when:

Immediately following any accident or near miss
When a safety violation is observed by a JE Dunn supervisor
Whenever the process, equipment, conditions, or environment change
When a new crew member is added.

JOB SAFETY ANALYSIS

DATE:	TIME:		
PROJECT:	TASK/ACTIVITY:	LOCATION:	WEATHER IMPACTS: ☐ High Winds ☐ Heat ☐ Lightning ☐ Cold ☐ Snow/Ice ☐ Rain
COMPANY NAME:	TRADE CREW PERFORMING WORK:	FOREMAN OR SUPERVISOR:	

SPECIALIZED PERSONAL PROTECTIVE EQUIPMENT AND/OR PERMITS:

☐ Fall Protection ☐ Eye/Face Protection ☐ Hand Protection ☐ Hearing Protection ☐ Respirator Protection ☐ Reflective Vest

☐ Critical Lift Plan ☐ Hot Work Permit ☐ Excavation Permit ☐ Confined Space Permit ☐ Lock-out/Tag-out Permit ☐ Kevlar Sleeves

☐ Eye Wash ☐ Barricades ☐ Signage ☐ MSDS ☐ GFCI

COMPLETED BY:	REVIEWED BY:	APPROVED BY:

STEPS:	LOCATION(S):	POTENTIAL HAZARDS:	HAZARD CONTROLS:	TOOLS/EQUIPMENT REQUIRED:
			How: Who:	
			How: Who:	
			How: Who:	
			How: Who:	

STEPS:	LOCATION(S):	POTENTIAL HAZARDS:	HAZARD CONTROLS:	TOOLS/EQUIPMENT REQUIRED:
			How: Who:	
			How: Who:	
			How: Who:	

PRINTED signature verifies I have reviewed and agree to work to the plan.

<u>I understand I have the authority and responsibility to stop any unsafe condition.</u>

Supervisor Signature: ______________________ Date: ______________ Worker Signature: ______________________ Date: ______________

Worker Signature: ______________________ Date: ______________ Worker Signature: ______________________ Date: ______________

Worker Signature: ______________________ Date: ______________ Worker Signature: ______________________ Date: ______________

Worker Signature: ______________________ Date: ______________ Worker Signature: ______________________ Date: ______________

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Worker Signature: ______________________ Date: ______________ Worker Signature: ______________________ Date: ______________

Worker Signature: ______________________ Date: ______________ Worker Signature: ______________________ Date: ______________

SAFETY & HEALTH MANUAL

Section 14: Employee Health Hazards and Prevention

Mark Bleuze
Senior Safety Specialist

Jump to Section

Annexes

Forms and Plans

Hepatitis B Vaccine Declination Form
Hearing Conservation Log
Silica Exposure Control Plan
Silica OSHA Medical Form - Written Medical Report for Employee
Silica OSHA Medical Form - Written Medical Opinion for Employer
Silica OSHA Medical Form - Authorization for Crystalline Silica Opinion to Employer

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
9/10/2021	Reviewed Section

Blood Borne Pathogens

Intent Statement

This program's purpose is to eliminate and/or minimize employee occupational exposure to blood, other body fluids, and other potentially infectious materials. It is the policy of the company to protect employees who could be exposed, as part of their assigned duties, to human blood or other potentially infectious materials (OPIM) that may contain blood borne pathogens, infectious microorganisms that are present in human blood and can cause disease in humans.

The safety department is responsible for annually reviewing this program and its effectiveness, and for updating this program as needed.

Definitions

Blood – human blood, human blood components, and products made from human blood

Blood borne Pathogens – infectious microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV) commonly known as AIDS.

Contaminated – the presence of blood or other potentially infectious materials on an item or surface

Exposure Incident – a specific incident in which an eye, mouth, other mucous membrane, skin, comes in contact with blood or other potentially infectious materials resulting from the performance of an employee's duties

Hand Washing Facilities – a facility providing an adequate supply of running potable water, soap, and single use towelettes or hot air-drying machines

Occupational Exposure – reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of employees' duties

Other Potentially Infectious Materials (OPIM) - human bodily fluids contaminated with blood and all bodily fluids where it is difficult or impossible to differentiate between body fluids. Includes, but is not limited to, blood cultures, organs, and other tissues.

Personal Protective Equipment – specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes not intended to function as protection against a hazard are not considered to be personal protective equipment.

Source Individual – any individual, living or dead, whose blood or other potentially infectious materials may be a source of occupational exposure to an employee

Universal Precautions – an approach to infection control; Per the concepts of Universal Precautions, all human blood and certain body fluids are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens

Work Practice Controls – controls that reduce the likelihood of exposure by altering the way a task is performed (i.e. wearing protective equipment)

Engineering Controls – controls (e.g., sharp disposal containers, self-sheathing needles, or other equipment) that may isolate or remove blood borne pathogens from the workplace

General Requirements

Exposure determinations shall be made without regards to the use of personal protective equipment. All personnel exposed to blood borne pathogens must be tested after an incident.

Exposure in the construction industry is expected to be limited to emergency situations involving job related injuries. Employees should review the blood borne pathogen program.

All employees involved in a situation where it is reasonably anticipated that exposure to infectious materials is likely are required to wear PPE. PPE items are in the first-aid kit.

Employees shall be furnished with readily accessible hand washing facilities when feasible.

All exposure incidents shall be reported, investigated, and documented. When an employee incurs an exposure incident, it shall be reported immediately to the company's safety department.

Following a report of an exposure incident, the exposed employee shall immediately receive a confidential medical evaluation and follow up.

Exposure Determination

Employees covered by this policy include:
- Designated first-aid personnel
- Designated emergency response individuals

Exposure determinations shall be made without regards to the use of personal protective equipment. All personnel exposed to blood borne pathogens must be tested after an incident.

Exposure in the construction industry is expected to be limited to emergency situations involving job related injuries. Employees should review the blood borne pathogen program.

Work Practice Controls

Employees who may be exposed to blood borne pathogens are required to implement "**universal precautions**" or "**body substance isolation**". Control measures will be implemented in accordance with the requirements set forth during employee training in "work practice controls", whereby steps are taken by the employee and the company that shall reduce the likelihood of exposure to potentially infectious materials by altering the way tests are performed. All exposure cases without regards to the use of PPE must be tested.

All employees assigned as a designated first-aid person, infirmary personnel, and other emergency response personnel will be provided training in how to recognize and control blood borne exposure. Work practice controls, as outlined in this section, will be furnished to all affected employees and each employee will be trained in their use with updated implementation training to be given annually. The Safety Director will maintain all training records.

Hepatitis B vaccinations are available to all employees who have occupational exposure as defined in this control program. The employee may elect to have vaccine administered any time after initial assignment. Employees who decline the vaccine will be asked to sign a statement to that effect; however, he or she may decide to accept the vaccination at a later date. In addition, all employees who have an exposure incident are entitled to a post-exposure evaluation and follow-up with a licensed healthcare professional (i.e., doctor or nurse). Vaccines, post exposure evaluations, and follow-ups will be provided at the company's expense. All medical records will remain confidential.

Immediately following the removal of PPE, the employee is required to wash their hands and other potentially exposed skin with antiseptic hand wash or towelettes. The employee shall then wash their hands with soap and water as soon as possible thereafter.

Work surfaces and equipment that are contaminated with blood or OPIM shall be disinfected with an appropriate cleaner.

Control Procedures

Assess the Workplace Environment:

Employees shall be trained to look for signs or labels that indicate the presence of infectious materials that are or may become present during work operations. If the worker suspects there may be infectious materials present, they should contact their supervisor who will in turn call the Safety Director for guidance.

In cases where we are performing work within a business or industry where there is a possibility of encountering this issue, a meeting shall be held with the building occupant's internal infection

control person to discuss the possible exposure.

Use of Personal Protective Equipment (PPE)

1. All employees involved in a situation where it is reasonably anticipated that exposure to infectious materials is likely are required to wear PPE. PPE items are in the first-aid kit.
2. PPE will be considered appropriate only if it does not permit blood or OPIM to contact the employee or the employee's clothing.
3. Contaminated PPE shall be placed in a bag or container marked with the universal biohazard label and disposed of at the proper biohazard disposal facility.
4. Immediately following the removal of PPE all employees are required to wash their hands and any other potentially exposed skin with antiseptic hand cleaner or towelettes. As soon as possible thereafter the employees shall wash the same areas with soap and water.
5. Work surfaces or equipment that is contaminated with blood or other OPIM shall be disinfected with an appropriate cleaner.

Hand Washing Facilities

Employees shall be furnished with readily accessible hand washing facilities when feasible.

When hand washing facilities are not readily accessible to the employee, antiseptic towelettes provided in the first-aid kit should be utilized. Should the use of antiseptic towelettes be necessary, employee shall wash hands with soap and running water as soon as feasible.

All employees must, without exception, wash hands and any other infected skin with soap and water, or flush mucous membranes with water immediately or as soon as feasible following contact of such body areas with blood or OPIM's.

Post Exposure and Follow-up

All exposure incidents shall be reported, investigated, and documented. When an employee incurs an exposure incident, it shall be reported immediately to the company's safety department.

Following a report of an exposure incident, the exposed employee shall immediately receive a confidential medical evaluation and follow-up, including at least the following elements:

1. Documentation of the route of exposure, and the circumstances under which the exposure incident occurred.
2. Identification and documentation of the source individual.
3. The source individual's blood shall be tested as soon as feasible, after consent is obtained in order to determine HBV and HIV infectivity. When law does not require the source individual's consent, the source individual's blood, if available, shall be tested and the results documented.
4. Results of the source individual's testing shall be made available to the exposed employee, and the employee shall be informed of applicable laws and regulations concerning disclosure of the identity and infectious status of the source individual.

Collection and testing of blood for HBV and HIV serological status will comply with the following:

1. The exposed employee's blood shall be collected as soon as feasible and tested after consent is obtained. The employee will be offered the option of having his/her blood collected for testing of the employee's HIV/HBV serological status. The blood sample will be preserved for up to 90 days to allow the employee to decide if the blood should be tested for HIV serological status.
2. All employees who incur an exposure incident will be offered post-exposure evaluation and follow-up in accordance with the OSHA standard. All post exposure follow-ups will be performed by a local designated medical center.

Trainings

All employees with occupational exposure are required to be trained in requirements set forth in **CFR 1910.1030 Blood borne pathogens**. The training program will consist of the following elements:
1. An accessible copy of the regulatory text of OSHA 1910.1030 and explanation of its contents.
2. A copy of the blood borne pathogen program and hazard control plan.
3. A general explanation of the epidemiology and symptoms of blood borne disease.
4. An explanation of the modes of transmission of blood borne disease.
5. A description of the hazard control plan.
6. Information on how to recognize a potential hazard.
7. An explanation of the use and limitations of the methods required to control exposure including engineering controls, work practices and personal protective equipment.
8. Information on the types, proper uses, location, removal, handling, decontamination, and disposal of personal protective equipment.
9. Information on the benefits, use and availability of the Hepatitis B vaccine.
10. Appropriate action to take and persons to contact in the event of an emergency involving medical follow-up.
11. Information on post-exposure evaluation and follow-up that is required to be provided following an exposure incident.
12. An opportunity for interactive questions and answers with the person conducting the training session.
13. An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.

Record Keeping

The company shall maintain records of all exposure incidents, including the names of the source individual(s).

Vaccinations

Vaccinations shall be provided at no cost to the exposed employee. Employees that decline treatment shall sign and date the Declination Statement.

Cold Stress Prevention

Intent Statement

The intent of this section is to control employee risks associated with extreme cold or work in cold environments.

Definitions

Hypothermia - a rapid loss of body temperature and causes the body to lose capability to warm itself or control temperature at the necessary rate

Cold Water Immersion - when a person would be immersed in water causing them to become rapidly cold and shock the body, for cases of cold water immersion should be treated the same as hypothermia, frost bite, trench foot

Frost Bite - where the body loses circulation because of extreme cold and causes the area to freeze resulting in eventual death of the skin cells

Trench Foot - caused by the skin being constantly wet or shoes containing moisture, this could result in bacterial infection or similar type

Chilblains - caused from rapid temperature changes, this gives irritation to the skin in a rash or reddening, and can kill the skin cells if not controlled by slowly adapting to temperatures

General Requirements

All workers shall receive training and awareness of cold stress risks, types and symptoms and methods to prevent an overexposure.

Cold weather work should discontinue for the person if symptoms of cold stress are noticed. Person should be taken to a warm area for treatment.

Work should be scheduled to avoid periods where extreme wind chill and temperatures exist.

Appropriate and suitable clothing should be worn and communicated before the conditions exist.

By using personal protective equipment, such as layered body wear, facial coverings, appropriate gloves, etc., these controls will help reduce an occurrence of an incident to being over-exposed.
1. Hands should be covered when temperatures are below 0 degrees F.
2. Caps, hoods, and hard hats with liners that fit the style and protective equipment should be planned for and used.
3. Carefully evaluate the outdoor work and determine suitable measures for controlling employee risk.

Cold stress disorders are associated with excessive exposure to cold working conditions and can present serious, even life-threatening effects on individuals. For example:

Frostbite occurs when there is actual freezing of the body tissues, normally when temperatures are below freezing. The injury can result from overexposure to cold wind (wind chill) from prolonged exposure to cold temperatures, or from skin contact with an object whose temperature is below freezing.

Symptoms: Skin may start with a prickling or tingling sensation and progresses into numbness with cold with superficial redness of the skin. First aid treatment is required.

When working alone, ensure you have a means for frequent communication with another employee. (every 30 minutes at a minimum)

Fatigue Management

Intent Statement

JE Dunn Construction is developing a Fatigue Management standard that will be completed by October 1, 2022. Currently, fatigue management is a collaborative process between Operations and the safety department on a project specific basis.

Hearing Conservation

Intent Statement

The intent of this section is to provide a Hearing Conservation Program designed to prevent noise induced hearing loss.

Definitions

Noise - sound consists of pressure changes in a medium (usually air), caused by vibration or turbulence. These pressure changes produce waves emanating away from the turbulent or vibrating source. Exposure to high levels of noise causes hearing loss and may cause other harmful health effects as well. The extent of damage depends primarily on the intensity of the noise and the duration of the exposure.

Noise-induced hearing loss - can be temporary or permanent, temporary hearing loss results from short-term exposures to noise, with normal hearing returning after period of rest. Generally, prolonged exposure to high noise levels over a period of time gradually causes permanent damage.

General Requirements

Supervisor responsibilities:
1. Use engineering and administrative controls to limit employee exposure
2. Provide adequate hearing protection for employees
3. Post signs and warnings in all high noise areas
4. Conduct noise surveys annually or when new equipment is needed
5. Conduct annual hearing test for all employees
6. Conduct hearing conservation training for all new employees
7. Conduct annual hearing conservation training for all employees

Employee responsibilities:
1. Use company-issue approved hearing protection in designated high noise areas
2. Request new hearing protection when needed
3. Exercise proper care of issued hearing protection

Procedures

Noise Monitoring

1. Monitoring for noise exposure levels will be conducted by Regional Safety Department. It is the responsibility of the individual departments to notify Regional Safety Director when there is a possible need for monitoring. Monitoring will be performed with the use of sound level meters and personal dosimeters at the discretion of Regional Safety Director.

2. Monitoring will also be conducted whenever there is a change in equipment, process, or controls that affect the noise levels. This includes the addition or removal of machinery, alteration in building structure, or substitution of new equipment in place of that previously used. The responsible supervisor must inform Regional Safety Director when these types of changes are instituted.

Employee Training

1. Affected employees will be required to attend training concerning the proper usage and wearing of hearing protection. The training will be conducted by Regional Safety Department, or a designated representative.

2. Training shall consist of the following components:
- How noise affects hearing and hearing loss
- Review of the OSHA hearing protection standard
- Explanation of audiometric testing
- Rules and procedures
- Locations within company property where hearing protection is required; and
- How to use and care for hearing protectors

3. Training records will be maintained by Regional Safety Department (see Annexes).

Hearing Protection
Management, supervisors, and employees shall properly wear the prescribed hearing protection while working in any area or location that is designated as a high noise area.

1. Hearing protection will be provided at no cost to employees who perform tasks designated as having a high noise exposure and replaced as necessary. It is the supervisor's responsibility to require employees to wear hearing protection when noise levels reach or exceed 85 dBA. Those employees will have the opportunity to choose from at least two different types of hearing protection (ear plugs and earmuffs).

2. Personal headsets, earbuds, portable radios, or similar devices are not approved for hearing protection and are not permitted on jobsites.

3. Signage is required in areas that necessitate hearing protection. It is the responsibility of the Superintendent to provide signage to the appropriate areas.

4. Preformed earplugs and earmuffs should be washed periodically and stored in a clean area. Foam inserts should be discarded after each use. Hands should be washed before handling preformed earplugs and foam inserts to prevent contaminants from being placed in the ear.

5. Superintendent will keep a log of the areas or job tasks designated as requiring hearing protection, as well as the personnel affected by this Hearing Conservation Program (see Annexes).

6. Hearing protection shall be outlined in each Trade Partners written safety plan.

7. Exposing employer is responsible for measuring, monitoring, and controlling those work areas where hearing protection may be required. This includes any surveys performed by a qualified person.

8. Responsible Trade Partners shall supply adequate hearing protection for its employees.

Audiograms/Hearing Tests

1. Employees subject to the Hearing Conservation Program who have time-weighted average (TWA) noise exposures of 85 dBA or greater for an eight (8) hour work shift will be required to have both a baseline and annual audiogram. The audiograms will be provided by the JE Dunn Construction Company and conducted by Designated Clinic of JE Dunn Construction Company's choosing with no cost to the employee.

2. The baseline audiogram will be given to an employee within one (1) month of employment with JE Dunn Construction Company and before any exposure to high noise levels. Annual audiograms will be performed within one year from the date of the previous audiogram. It is the responsibility of the individual and Regional Safety Department to schedule the annual audiogram.

3. If an annual audiogram shows that an employee has suffered a standard threshold shift, the employee will be retested within thirty (30) days of the annual audiogram. If the retest confirms the occurrence of a standard threshold shift, the employee will be notified in writing within twenty-one (21) days of the confirmation. Employees who do experience a standard threshold shift will be refitted with hearing protection and provided more training on the effects of noise.

Heat Illness Prevention

Intent Statement

The intent of this section is to control and eliminate incidents related to heat illness.

Definitions

Acclimatization - temporary adaption of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.

Heat illness - a serious medical condition resulting from the body's inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke

Environmental risk factors for heat illness - working conditions that create the possibility of heat illness, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees

Personal risk factors for heat illness - such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to heat

Shade - blockage of direct sunlight

Temperature - degrees in Fahrenheit obtainable by using a thermometer or mobile phone apps

General Requirements

Provision of Water
Employees shall have access to potable drinking water in appropriate quantities located in areas where employees are working. Projects must have a plan to replenish water in quantities sufficient based on current heat and weather conditions.

Access to Shade
Shade shall be present when the temperature exceeds 80 degrees Fahrenheit. When the outdoor temperature in the work area exceeds 80 degrees Fahrenheit, one or more areas with shade should be accessible. The amount of shade present shall be at least enough to accommodate employees on recovery or rest periods, so that they can sit in a normal posture fully in the shade without having to be in physical contact with each other. The shade shall be located as close as possible to the work area. Subject to the same specifications, the amount of shade present during meal periods shall be at least enough to accommodate the number of employees on the meal period who remain on site.

Shade shall be available when the temperature does not exceed 80 degrees Fahrenheit. When the outdoor temperature in the work area does not exceed 80 degrees Fahrenheit employers shall either provide shade or provide timely access to shade upon an employee's request.

Employees shall be allowed and encouraged to take preventative cool-down rest in the shade when they feel the need to do so to protect themselves from overheating. Such access to shade shall be permitted always. An individual employee who takes a preventative cool-down rest; a) shall be monitored and asked if he or she is experiencing symptoms of heat illness, b) shall be encouraged to remain in the shade, and c) shall not be ordered back to work until any signs or symptoms of heat illness have abated, but in no event, less than 5 minutes in addition to the time needed to access the shade.

If an employee exhibits signs or reports symptoms of heat illness while taking a preventative cool-down rest or during a preventative cool-down rest period, the employer shall provide appropriate first aid or emergency response.

Monitoring Weather

Operations will monitor the weather and communicate extended weather forecast. Weather forecasts can be checked with the aid of the internet (http://www.nws.noaa.gov/), via cell phone application or contacting the designated person in charge of safety.

A thermometer will be used at the jobsite to monitor for sudden increases in temperature and to ensure that once the temperature exceeds 80 degrees Fahrenheit, shade structures (when applicable) will be opened and made available to the workers. In addition, once the temperatures reach 95 degrees F, additional preventive measures such as the high-heat procedures will be implemented.

Other devices, such as: handheld smart phones with Osha heat app, handheld anemometers with temperature capabilities, or other typical types of thermometers, including WBGT devices may be utilized to follow weather conditions.

Supervisors will communicate weather conditions, including any changes that may affect the worker.

High-Heat Procedures

Ensuring that effective communication by voice, observation, or electronic means is maintained so that employees at the work site can contact a supervisor when necessary

Observing employees for alertness and signs or symptoms of heat illness

Supervisors will monitor their people throughout the day

No employee will work alone (buddy system)

Pre-shift meetings and thorough JSA's before the commencement of work should assist to review conditions, including high-heat procedures. Encourage employees to drink plenty of water and remind employees of their right to take a cool-down rest when necessary.

Emergency Response Procedures

The employer shall implement effective emergency response procedures including:
Operations will ensure that an effective communication system is in place to provide prompt reporting and response to heat illness or injuries.

Responding to signs and symptoms of possible heat illness, including but not limited to first aid measures and how emergency medical services:

- If a supervisor observes, or any employee reports, any signs or symptoms of heat illness in any employee, the supervisor shall take immediate action commensurate with the severity of the illness.
- If the signs or symptoms area indicators of severe heat illness (such as, but not limited to, decreased level of consciousness, staggering, vomiting, disorientation, irrational behavior, or convulsions), the employer must implement emergency response procedures.
- An employee exhibiting signs or symptoms of heat illness shall be monitored and shall not be left alone or sent home without being offered on-site first aid or being provided with emergency medical services in accordance with the employer's procedures.

Acclimatization

All employees shall be closely observed by a supervisor or designee during a heat wave. For purposes of this section only, "heat wave" means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days. An employee who has been newly assigned to a high-heat area shall be closely observed by a supervisor or designee for the first 14 days of the employee's employment.

Employee and Supervisor Training

Employees will be provided the following training prior to being assigned to supervise other workers. Supervisory and Non-Supervisory personnel will be trained on the heat illness prevention procedures, including their responsibilities as a supervisor. In addition, topics will include but not be limited to; provisions for water, shade, cool-down rest periods, first aid, and employee's rights under the standard without retaliation. Other topics and approach to training include:

1. When temperature is expected to exceed 80 degrees F, short toolbox or re-focus meetings will be held to reinforce the importance of heat illness prevention.
2. Environmental and personal risk factors for heat illness as well as the added effects of physical labor, clothing and PPE must be taken into consideration to control risks.
3. Importance of continuing to hydrate before and after the work shift.
4. Employer procedures for complying with the requirements of this standard.
5. Importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot.
6. Importance of acclimatization.
7. Different types of heat illness and the common signs and symptoms.
8. Importance of immediately reporting, through the proper chain of command, any signs of heat illness in themselves or co-workers.
9. Employer's procedures for responding to signs and symptoms of heat illness, including how emergency medical services will be provided should they become necessary.
10. Employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider.
11. Employer's procedures for ensuring that, in the event of emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders. These procedures shall include designating a person to be available to ensure that emergency procedures are invoked when appropriate.
12. Employee responsibilities, such as: preparing for the work environment, causes of heat illness, and prompt notification process.

Lead and Asbestos

Intent Statement

The intent of this section is to outline responsibilities and practices to protect employees, Trade Partners, and others from the release of toxic substances such as airborne asbestos fibers, lead-containing materials, PCB's, contaminated soils, and others during demolition, renovation, and/or new construction-related activities and to comply with all applicable rules and regulations set forth by the local, state, and federal government authorities.

Definitions

Asbestos - includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered

Asbestos-Containing Material (ACM) - any material containing more than one percent asbestos

Class I asbestos work - activities involving the removal of TSI and surfacing ACM and PACM

Class II asbestos work - activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics

Class III asbestos work - repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed

Class IV asbestos work - maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities

Demolition - the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products

Disturbance - activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small

amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Employee exposure - exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment

Fiber - a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1

Intact - that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix

Presumed Asbestos Containing Material (PACM) - thermal system insulation and surfacing material found in buildings constructed no later than 1980

Regulated area - an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

Removal - all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations

Renovation - the modifying of any existing structure, or portion thereof

Repair - overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates

Surfacing material - material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes)

Surfacing ACM - surfacing material which contains more than 1% asbestos

Thermal system insulation (TSI) - ACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain. It is thermal system insulation which contains more than 1% asbestos.

Action level - employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m3) calculated as an 8-hour time-weighted average (TWA)

Lead - metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

Permissible Exposure Limit (PEL) - employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m3) averaged over an 8-hour period

General Requirements

JE Dunn does not and will not perform asbestos, lead, or hazardous contaminant abatement related activities under any circumstances.

Under normal circumstances, JE Dunn will not contract directly with a licensed abatement or hazardous waste company, transporter or dumping facility. This policy will not be deviated from without written permission from the Risk Management Officer.

Building Owners Responsibilities:

1. Prior to any demolition or renovation activities, the building owner is responsible for conducting an inspection for asbestos, lead, and other hazardous substances in the affected portion of the building.
2. The owner must notify JE Dunn of the presence, location, and quantity of hazardous substances in the building.
3. Notification shall be in writing and must be accompanied by an environmental survey from a 3rd party.
4. If hazardous substance abatement is conducted under the direction of the owner, JE Dunn will not allow work to commence until the owner provides JE Dunn notice that the hazardous materials have been abated and the building no longer poses a threat to our workers. In the case of asbestos or other hazardous materials found in the air, a clean air report should be included.
5. The owner must also notify the local governing bodies, as well as state agencies, if hazardous materials are found and the local or state regulations require reporting.

Project Manager Responsibilities:

1. Prior to any demolition or renovation activities, the project manager shall obtain from the building or facility owner a copy of the environmental survey identifying the presence, location, and quantity of hazardous substances in the affected area of the building.
2. The project manager shall provide a copy of the environmental survey to the Superintendent and Trade Partners prior to the start of any demolition or renovation activities.
3. The project manager shall also review local codes and ensure that we are in compliance with any permitting or notification requirements of that locale. The Regional Safety Department may provide assistance in contacting area agencies that are Authority Having Jurisdiction (AHJ).

Superintendent Responsibilities:

1. Prior to any demolition or renovation activities, the superintendents shall review the environmental survey and become familiar with the location, type, and quantity of hazardous substances in all work areas.
2. The environmental survey shall be posted and made available to all workers on site.
3. The results of the survey must be communicated to all JE Dunn field labor, Trade Partner personnel, and any other affected party prior to the start of work.
4. The superintendent shall ensure that all employees working on site have sufficient hazardous substance awareness training. The Regional Safety Department shall be contacted to determine the length and scope of the training required. Documentation of

such training shall be kept on file and made available for review upon request.

Abatement Trade Partners Responsibilities:

1. The Trade Partner shall submit a written hazardous material removal plan that shall include, at a minimum: a description of the enclosure system, the equipment used, procedures to be used for abatement, physical description of work area, approximate amount of ACM to be abated, protection of existing HVAC, personnel hygiene procedures, PPE types, air monitoring plan (when required), transportation and disposal of hazardous wastes.

Building Inspections/surveys

All buildings (regardless of age) shall be inspected for asbestos, lead, and other hazardous substances prior to any demolition or renovation activities.

No building shall be considered exempt from the required environmental inspection based on age or date of last renovation. Hazardous materials may not have been removed during previous renovations and some products used during the construction of new buildings could contain hazardous materials.

If during construction activities a suspect material is discovered that was not part of the original inspection, work must be stopped immediately. The area will be cordoned off until an inspection of the material can be completed by a qualified 3rd party inspector.

Individuals engaged in the sampling of suspected asbestos containing material must meet minimum federal and state training requirements including (but not limited to) the possession of a valid Asbestos Inspector License. The same requirements apply to those performing lead containing material inspections.

If the inspection of the building indicates the presence of hazardous materials and these materials will be disturbed due to the demolition or renovation activities, then they shall be removed by a licensed hazardous materials abatement Trade Partner specifically trained to remove those hazardous materials.

Emergency Procedures

Every effort will be made to identify the presence and location of all hazardous materials prior to demolition or renovation activities minimizing the chance of accidental disturbance. Upon identification or accidental release of hazardous materials or the accidental release should occur, these steps should be followed immediately:
1. Stop work immediately, and vacate the area
2. Notify supervision of the disturbance
3. The supervisor shall notify the Regional Safety Director
4. Isolate the area to prevent entry by others
5. Post danger signs to inform other personnel of hazard
6. Shut off or temporarily modify the air handling system to prevent the distribution of airborne hazardous materials to other areas
7. Do not attempt to clean up debris
8. Suspect material must be evaluated/tested immediately
9. Do not re-enter the area until tests are confirmed and show air contaminants are completely removed or limited to acceptable levels as outlined in the applicable OSHA regulation (1926.1101 for Asbestos, 1926.62 for lead).
10.Employees will wash hands and face if lead materials are contracted

Training

All workers shall be trained on the hazards associated with asbestos, lead, or other hazardous materials and the procedures for safely working around those hazardous materials without endangering themselves, their coworkers, or other building occupants even if the hazardous material was already removed and we are in receipt of a clean building report.

The training will include, as applicable:

1. Adverse health effects of asbestos, lead, silica, or other hazardous materials
2. The types, properties and uses of asbestos, lead, silica, or other hazardous materials
3. The hazards of asbestos fibers, lead, or other hazardous materials inhalation and ingestion
4. Locations, signs of damage and deterioration of asbestos-containing materials, lead, or other hazardous materials
5. Types of activities which could release asbestos fibers, lead, or other hazardous materials
6. The proper response to a hazardous material release episode

The superintendent shall receive proof of training from all workers prior to the start of work. Documentation of such training shall be kept on file and made available for review upon request.

Training records for abatement Trade Partner employees shall be provided to the site superintendent and/or project manager prior to the work commencing. The level of training will be determined by the activities being performed on-site and types of protective methods the abatement Trade Partner will be instituting.

Asbestos

Accountability
JE Dunn supervision shall be deemed to exercise general supervisory authority over the work covered by the asbestos standard, even though JE Dunn is not qualified to serve as the asbestos "competent person" as defined by OSHA. As supervisor of the entire project, JE Dunn shall ascertain whether the asbestos Trade Partner is in compliance with this standard and shall require such Trade Partner to come into compliance with this standard when necessary.

Regulated Areas
1. All Class I, II and III asbestos work shall be conducted within regulated areas. The different classifications are detailed in the OSHA regulation, however for the purposes of JE Dunn, all ACM is to be treated as Class I.
2. Daily, JE Dunn shall inspect employees working adjacent to regulated areas established by any Trade Partner on a multi-employer worksite. The inspection should ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos Trade Partner to assure that asbestos fibers do not migrate to adjacent areas.
3. Demarcation. The regulated area shall be demarcated with signage and physical barriers in a manner that minimizes the number of persons within the area and protects persons outside the

area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed. Signs shall comply with the OSHA standard for each location and type of protective methods.
4. Access. Access to regulated areas shall be limited to authorized person(s) only. JE Dunn supervisors shall help maintain and monitor this access.
5. Exposure Assessment should be completed by the abatement Trade Partner. This can be completed through empirical data (past records of tests) from the Trade Partner if the employees have been trained in the OSHA standard requirements. If empirical data is not used, an Initial Exposure Assessment must be completed by the abatement Trade Partner through air sampling of workers performing asbestos abatement at the site.

Methods of Compliance
Engineering controls and work practices that are required to be followed by all abatement Trade Partners, unless deemed infeasible or create a greater hazard:
1. Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing ACM and PACM
2. Wet methods, or wetting agents, to control employee exposures during asbestos handling, mixing, removal, cutting, application, and cleanup, except where the abatement Trade Partner demonstrates that the use of wet methods is infeasible due to the creation of electrical hazards, equipment malfunction, and in roofing where a greater hazard may be created
3. Prompt clean-up and disposal of wastes and debris contaminated with asbestos in leak-tight containers (Exception – In roofing, intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift)
4. Local exhaust ventilation equipped with HEPA filter dust collection systems
5. Enclosure or isolation of processes producing asbestos dust with a negative air machine with HEPA filter. This includes HVAC systems isolated in the regulated area by sealing with a double layer of 6 mil plastic or the equivalent
6. Use of protective clothing for workers involved in abatement or cleanup activities.
7. Wherever the feasible engineering and work practice controls described above are not sufficient to reduce employee exposure to or below the permissible exposure limit, the abatement Trade Partner shall use them to reduce employee exposure to the lowest levels attainable. They shall then supplement them using respiratory protection that complies with the requirements of the OSHA regulation.

Prohibited acts that will not be allowed for asbestos work:
1. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air
2. Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air
3. Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM
4. Employee rotation as a means of reducing employee exposure to asbestos
5. Cutting, abrading, or breaking the ACM or PACM shall be prohibited unless the abatement Trade Partner can demonstrate that methods less likely to result in asbestos fiber release are not feasible
6. Eating, drinking, smoking, etc. are forbidden in regulated areas
7. Waste disposal. Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing designated for disposal shall be collected and disposed of in sealed, labeled, impermeable bags or other
closed, labeled, impermeable containers. Disposal needs to conform to the local, state, and federal regulations; in any case, it may not be placed in dumpsters used for general construction debris.

Lead

Lead Assessment
1. Once it has been determined that lead is present in the workplace (either through a pre-construction environmental survey or through the discovery of lead during construction activities), the Superintendent will delay and/or cease operations on the project until an evaluation has been made by a 3rd party to determine the exposure limit to construction personnel.
2. Abatement contractor must conduct air sampling of their personnel to ensure no worker is exposed to hazardous levels of lead. Where the air sampling or assessment shows concentrations of lead at or above the action level, the abatement contractor must utilize protective methods (PPE, respirators, air filtration, etc.) to maintain a safe level of airborne lead concentrations that limit the exposure to lead to below the PEL.

Protective Methods must be employed by the abatement contractor. JE Dunn supervision should ensure that these are being addressed by the contractor:
1. Appropriate respiratory protection in accordance with the OSHA regulation
2. Appropriate PPE and equipment
3. Change areas for employees to change clothing/PPE
4. Hand washing facilities
5. Biological monitoring through blood sampling
6. Training as required by OSHA to address hazard communication, protection methods, transportation and disposal, housekeeping, containment, etc.

Written Abatement Plan

This plan must be submitted to the site superintendent and project manager for review prior to commencement of work. The plan should:
1. Address the protective methods listed above and include copies of licenses and training certifications
2. A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices
3. Air monitoring data which documents the source of lead emissions
4. A description of arrangements made among Trade Partners on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance
5. Method for frequent and regular inspections of job sites, materials, and equipment to be made by a competent person

Housekeeping	1. All surfaces shall be maintained as free as practicable of accumulations of lead. Clean-up of floors and other surfaces where lead accumulates shall be done by HEPA filtered vacuuming or other methods that minimize the likelihood of lead becoming airborne. 2. Never use compressed air to clean any surface, unless there is a ventilation system designed to capture airborne contaminants.

Silica

Intent Statement	JE Dunn will take reasonable steps and precautions to eliminate potential hazards of airborne silica in the workplace. The purpose and intent of this section is to minimize exposure and risks associated with respirable crystalline silica through training and awareness, use of engineering and work practice controls, and following the silica standard as outlined in 29 CFR 1926.
Definitions	**Action Level (AL)** - a concentration of airborne respirable crystalline silica of 25 ug/m3, calculated as an 8- hour Time Weighted Average **Air Monitoring Data** - the measurements taken to assess employee exposure to respirable crystalline silica **Competent Person** - a designated individual who is capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them. The competent person must have the knowledge and ability necessary to fulfill the responsibilities set forth in the Written Exposure Control Plan. **Employee Exposure** - the exposure to airborne respirable silica that would occur if the employee were not using a respirator **High-Efficiency Particulate Air (HEPA) Filter** - a filter that is at least 99.97% efficient in removing monodispersed particles of 0.3 micrometers in diameter **Objective data** - information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of materials, control methods, work practices, and environmental conditions in the employer's current operation. **Permissible Exposure Limit (PEL)** - a concentration of airborne respirable crystalline silica of 50 ug/m3, calculated as an 8-hour Time Weighted Average **Physician or other licensed health care professional (PLHCP)** - an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by this paragraph (h) of this section **Regulated Area** - an area, demarcated by the employer, where an employee's exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the Permissible Exposure Limit **Respirable Crystalline Silica (Silica)** - quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable particle-size selective samplers **Respiratory Protection** - when the use of respirators is required by this rule, a respiratory program shall be instituted in accordance with governing standards. Respirators protect the user by the removal of contaminants from the breathing air. Respirators of this type include particulate respirators, which filter out airborne particles, and air-purifying respirators with cartridges/canisters which filter out chemicals and gases. Other respirators protect by supplying clean respirable air from another source. Respirators of this type include self-contained breathing apparatus, which include their own air supply.
General Requirements	Controlling Employer Responsibilities: 1. Ensure all common areas at the worksite (e.g., roadways, walkways, etc.) are maintained to minimize exposure to silica dust. 2. Ensure employers, including trade partners (when required) have a written exposure control plan to manage the work. 3. Discuss means for mitigation and elimination to include operation of water integrated systems and source of water, dustless equipment, ventilation, and other engineering/administrative controls. 4. Ensure proper coordination between trade partners to minimize exposure to dust at the site. Trade Partner Employer Responsibilities: 1. Ensure that the Trade Partner Exposure Control Plan is fully and properly implemented. 2. Ensure that the worksite has a competent person present at all times of the work. The trade partner's written plan shall define who the competent person is for employer. 3. Provisions for water are defined and communicated in advance, in writing, with the controlling employer. Note, if the trade partner is not the controlling employer. 4. Ensure that materials and equipment selected for the project are optimal for work conditions and employee training is fully and properly implemented. 5. A copy of the Exposure Control Plan shall be present on this project site and made readily

available for examination and copying, upon request.

6. Ensure that supervisors and employees are trained in the proper use of engineering controls, administration controls, and work practices as defined in their plan and/or table 1, if applicable.

7. Review and evaluate the effectiveness of the Exposure Control Plan at least annually and update it as necessary.

Supervisor Responsibilities:

1. Provide adequate training and instruction to employees on the implementation of the Exposure Control Plan.

2. Ensure all employees know who the designated competent person is for their related scope of work.

3. Plan, select and implement the appropriate control measures to mitigate dust exposure.

4. Ensure that employees using respirators have been properly trained and fit-tested, and that the results of all related tests are recorded and provided in a timely manner, when requested.

5. Ensure that control methods, including engineering controls, and respirators are properly maintained. Provide regular inspections of the work area.

6. Ensure work is conducted in a manner that minimizes and adequately controls the risk to employees and others. This includes, ensuring employees use the available engineering controls and implement good work practices.

7. Ensure the exposure control plan has been effectively communicated to employees, controlling employer and any other relevant parties working near the work location.

8. Enforce the Exposure Control Plan and ensure it is fully and properly implemented.

9. Inspect the work area regularly.

Employee Responsibilities:

1. Read, understand, and comply with the control methods set out in the Exposure Control Plan.

2. Complete training provided by employer.

3. Perform work tasks/activities in accordance to the plan and safe work practices defined by the employer.

4. Stop work if the plan is not fully and properly implemented.

5. Use the appropriate equipment (including attachments), PPE – respiratory protection and management techniques for housekeeping.

6. Report to the Supervisor any unsafe condition/act or changes in the work.

7. Report to the supervisor any equipment or tool defect.

What is Silica and Where does it come from?

1. Crystalline silica is an important industrial material used in the construction industry.

2. Quartz, the most common form of silica, is a component of: sand, rock, concrete, brick, block and mortar. Refer to SDS information for percent of content.

3. Silica dust is hazardous when very small ("respirable") particles are inhaled. These respirable dust particles can penetrate deep into the lungs and bring about disabling and sometimes fatal conditions, including: cancer, lung effects, immune effects and kidney effects.

4. Employees may be exposed to silica at the worksite when cutting, sawing, drilling, chipping, operating crushing machines, mixing concrete and mortar, sweeping, and during demo etc.

Six Requirements for implementing an effective silica exposure control plan

1. REQUIREMENT ONE: Each employer shall provide a written exposure control plan that, at a minimum, contains the following elements:
   - A description of the workplace tasks that involve exposure to silica.
   - The protective steps used to limit employee exposure for each task. JE Dunn will follow Table 1 outlined in the annex below or perform a risk assessment for tasks not defined in the table.
   - The housekeeping measures being taken.
   - Procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed and the level of exposure.

*Employees should have access to the plan at any time.

**Employer will review and evaluate the plan for effectiveness at least annually and update it as necessary.

2. REQUIREMENT TWO: Must designate a competent person to fully and properly implement the written exposure control plan.
3. REQUIREMENT THREE: Restrict housekeeping practices that increase silica exposure.
   - No dry brushing or sweeping, unless methods such as wet sweeping and HEPA-filtered vacuuming are not feasible. Use of sweeping compound is a way to keep respirable dust down to reasonable levels.
   - Prohibit the use of compressed air to clean surfaces or clothing, unless compressed air is used with a ventilation system that can effectively capture the dust cloud or no other cleaning method is feasible.

4. REQUIREMENT FOUR: Medical surveillance and exams
   - A physician or (PHLCP) at no cost to employee will be offered to employees who will need to wear a respirator for 30 or more days per year.
   - Medical exams will include Initial (Baseline), Periodic, and Specialist referrals:

- Initial (Baseline) Within 30 days after initial assignment or when it becomes known that a person will need to wear a respirator for more than 30 days in a year.
- Exam includes, but is not limited to: Medical work history focused on silica exposure, physical, chest X-ray, pulmonary function test, latent tuberculosis test and other tests deemed appropriate by PHLCP.
- Periodic means every 3 years (or more if PHLCP requires) - Exam includes, same as initial exam (minus tuberculosis test)
- Referral to Specialist must be done within 30 days after receiving the (PHLCP's written opinion) - If the PHLCP's written medical opinion indicates an employee should be examined by a specialist, the employer must make available a medical examination by a specialist.

5. REQUIREMENT FIVE: Training
   - Training is required of each worker who will be exposed to hazards of respirable crystalline silica. This is part of the hazard communication standard and we consider this training Silica Awareness Training.
   - Competent person training to those designated by employer and who meet the criteria outlined.
   - Respiratory protection training: Respiratory evaluations, fit testing, and respiratory protection training must be done prior to exposures requiring the use of a respirator.

6. REQUIREMENT SIX: Maintain proper recordkeeping of air monitoring data, objective data, and medical surveillance records.

*All equipment, materials and labor defined in the exposure control plan is required of JE Dunn and trade partners.

Soft Tissue Injury Prevention

Intent Statement

The intent of this section is to provide methods to reduce soft tissue injuries in the workplace.

General Prevention Methods

Stretch and Flex

1. Warming up and stretching the neck and head, shoulders, back, arms, wrists, hands, fingers, and feet can prevent repetitive stress injury, or even relieve sore muscles and tendons.

2. All Trade Partners, (including all tiered Trade Partners), should participate in a daily stretch and flex program to minimize occupational related sprains and/or strains at the beginning of each day's work. Mid-day stretch and flex based upon work environment and specific activities may be deemed necessary.

To prevent Muscular Skeletal Disorder (MSD) and Cumulative Trauma Disorder (CTD) injuries, all trade partners shall have a process in place that, at a minimum, includes the following items:

1. Awareness/Education: All employees assigned to the project, should be provided training, that is designed to increase awareness and understanding of risk factors that may lead to MSD/CTD injuries, and how proper ergonomics can prevent such injuries.

2. Risk Factor Assessment and Mitigation: An MSD/CTD risk factor assessment and mitigation plan can be a method to prevent risks for all job tasks, tools used, work procedures, workstations, and equipment operation where exposure may exist. Since the number one cause of MSD/CTD injuries are related to manual material handling, special emphasis shall be placed on the reduction of manual handling of material, equipment, and tools. This comes with good pre-planning to reduce risk and exposure.

3. JE Dunn's pre-planning shall be considered part of MSD/CTD prevention. Logistic planning to include laydown, material handling & storage areas, constructability, and risk planning (start strong meeting) can reduce and limit multiple handling of materials and advocates innovative methods for employees to work in neutral positions. All efforts shall be made to bring materials and equipment on pallets and adequate carts for storage as well as movement and workstations set up in elevated position with debris bins present for excess scrap disposal. Moreover, pre-install meetings tie this industry best practice using a nothing hits the ground approach.

Hexavalent Chromium

Intent Statement

JE Dunn will take reasonable steps and precautions to eliminate potential hazards of airborne hexavalent chromium in the workplace. The purpose and intent of this section is to minimize exposure and risks associated with welding stainless steel through training and awareness, use of engineering and work practice controls, and following the Chromium (VI) standard as outlined in 29 CFR 1926.1126.

Definitions

Action level - a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 µg/m3) calculated as an 8-hour time-weighted average (TWA).

Chromium (VI) [hexavalent chromium or Cr(VI)] - chromium with a valence of positive six, in any form and in any compound.

Emergency - any occurrence that results, or is likely to result, in an uncontrolled release of chromium (VI). If an incidental release of chromium (VI) can be controlled at the time of release by employees in the immediate release area, or by maintenance personnel, it is not an emergency.

Employee exposure - the exposure to airborne chromium (VI) that would occur if the employee were not using a respirator.

High-efficiency particulate air [HEPA] filter - a filter that is at least 99.97 percent efficient in removing mono-dispersed particles of 0.3 micrometers in diameter or larger.

Historical monitoring data - data from chromium (VI) monitoring conducted prior to May 30, 2006, obtained during work operations conducted under workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Objective data - information such as air monitoring data from industry-wide surveys or calculations based on the composition or chemical and physical properties of a substance demonstrating the employee exposure to chromium (VI) associated with a particular product or material or a specific process, operation, or activity. The data must reflect workplace conditions closely resembling the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

Physician or other licensed health care professional [PLHCP] - an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by paragraph (k) of this section.

General Requirements

Employer Responsibilities:

1. Determine the 8-hour TWA exposure for each employee exposed to chromium (VI).

2. Perform initial monitoring to determine the 8-hour TWA exposure for each employee on the basis of a sufficient number of personal breathing zone air samples to accurately characterize full shift exposure on each shift, for each job classification, in each work area. Where an employer does representative sampling instead of sampling all employees in order to meet this requirement, the employer shall sample the employee(s) expected to have the highest chromium (VI) exposures.

3. If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

4. If monitoring reveals employee exposures to be above the PEL, the employer shall perform periodic monitoring at least every three months.

5. Perform additional monitoring when there has been any change in the production process, raw materials, equipment, personnel, work practices, or control methods that may result in new or additional exposures to chromium (VI), or when the employer has any reason to believe that new or additional exposures have occurred.

6. Performance-oriented option. Determine the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data, historical monitoring data, or objective data sufficient to accurately characterize employee exposure to chromium (VI).

7. PPE – Provide appropriate PPE and clothing to protect from skin and eye contact.

8. Clean, launder, and repair all protective clothing and equipment.

9. Prohibit the removal of chromium (VI) from protective clothing and equipment by blowing, shaking, or any other means that disperse chromium (VI) into the air.

10. Prohibit employees from eating, drinking, smoking, chewing tobacco or gum in areas where skin or eye contact with chromium (VI) occurs.

11. Make medical surveillance available at no cost to the employee(s), and at a reasonable time and place.

12. The employer shall provide a medical examination:
- Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months
- Annually
- Within 30 days after a PLHCP's written medical opinion recommends an additional examination
- Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure
- Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI)
- At the termination of employment, unless the last examination was less than six months prior to the date of termination.

Supervisor Responsibilities:

1. Use engineering and work practice controls to reduce and maintain employee exposure to chromium (VI) to or below the PEL unless it can demonstrated that such controls are not feasible. Wherever feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, use them to reduce employee exposure to the lowest levels achievable, and supplement them by the use of appropriate respiratory protection.

2. Employees are not allowed to rotate to different jobs to achieve compliance with the PEL.

3. Employee Notification

4. Within 5 workdays after making an exposure determination, the employer shall individually notify each affected employee in writing of the results of that determination or post the results in an appropriate location accessible to all affected employees.

5. Whenever the exposure determination indicates that employee exposure is above the PEL, the employer shall describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

HEARING CONSERVATION TRAINING LOG

Training Date:

Topic:

Training Conducted By:

Employee Name (Print)	Employee Signature	Job Title

"I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B Virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine at no charge to myself. However, I decline the Hepatitis B vaccine at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me."

Signed:_____

Date:_____

Date plan established and implemented:

1. Tasks that may involve exposure to Silica dust include, but are not limited to:

☐ Sand Blasting	☐ Tuck Pointing	☐ Masonry Cutting	☐ Surface Griding
☐ Concrete Mixing	☐ Walk-Behind Saw	☐ Sweeping	☐ Chipping/Jackhammering
☐ Mortar Mixing	☐ Abrasive Drilling	☐ Demolition	☐ Blasting
☐ Sawing	☐ Rock/Stone Cutting	☐ Tunneling	☐ Earth Moving (backhoe)
☐ Other:		☐ Other:	

2. Describe all **engineering controls, work practices, and respiratory protection** that will be used to limit employee exposure to Silica dust for each task (refer to Table 1). *If the task is not defined inside of Table 1, a risk assessment of the task and activity must be carried out. Contact your local safety professional for tasks that may involve an exposure to Silica dust outside of Table 1.*

3. Describe **cleaning and housekeeping measures** that will be used to limit employee exposure to Silica dust. Include requirements for respirator use. *Dry sweeping, dry brushing, and use of compressed air are not allowed (unless compressed air is part of a ventilation system that captures dust).*

   ☐ Wet sweeping will be used

   ☐ Hepa-Filter vacuum system will be used

   ☐ Sweeping compound will be used to limit exposure of airborne crystalline silica dust

4. Describe procedures to **restrict employee access**.

   ☐ Post signs at entrances: DANGER – RESPIRABLE CRYSTALLINE SILICA. MAY CAUSE CANCER. CAUSES DAMAGE TO LUNGS. WEAR RESPIRATORY PROTECTION IN THIS AREA. AUTHORIZED PERSONNEL ONLY.

   ☐ Erect barricading to restrict access

   ☐ Brief/Tell employees on site when scheduling high-exposure tasks and intention for mitigating exposure to respirable crystalline silica. Employee control is:

5. **Competent Person** responsible for implementing this plan (name and phone number):

AUTHORIZATION FOR CRYSTALLINE SILICA OPINION TO EMPLOYER

This medical examination for exposure to crystalline silica could reveal a medical condition that results in recommendations for (1) limitations on respirator use, (2) limitations on exposure to crystalline silica, or (3) examination by a specialist in pulmonary disease or occupational medicine. Recommended limitations on respirator use will be included in the written opinion to the employer. If you want your employer to know about limitations on crystalline silica exposure or recommendations for a specialist examination, you will need to give authorization for the written opinion to the employer to include one or both of those recommendations.

I hereby authorize the opinion to the employer to contain the following information, if relevant (please check all that apply):

☐ Recommendations for limitations on crystalline silica exposure

☐ Recommendation for a specialist examination

OR

☐ I do not authorize the opinion to the employer to contain anything other than recommended limitations on respirator use.

Please read and initial:

___ I understand that if I do not authorize my employer to receive the recommendation for specialist examination, the employer will not be responsible for arranging and covering costs of a specialist examination.

_____
Name (printed)

_____ _____
Signature Date

[FR Doc. 2016–04800 Filed 3–24–16; 8:45 am]
BILLING CODE 4510–26–C

WRITTEN MEDICAL OPINION FOR EMPLOYER

EMPLOYER: _____

EMPLOYEE NAME: _____ **DATE OF EXAMINATION:** _____

TYPE OF EXAMINATION:
[ ] Initial examination [ ] Periodic examination [ ] Specialist examination
[ ] Other: _____

USE OF RESPIRATOR:
[ ] No limitations on respirator use
[ ] Recommended limitations on use of respirator:_____

Dates for recommended limitations, if applicable: _____ to _____
MM/DD/YYYY MM/DD/YYYY

The employee has provided written authorization for disclosure of the following to the employer (if applicable):

[ ] This employee should be examined by an American Board Certified Specialist in Pulmonary Disease or Occupational Medicine
[ ] Recommended limitations on exposure to respirable crystalline silica:_____
_____

Dates for exposure limitations noted above: _____ to _____
MM/DD/YYYY MM/DD/YYYY

NEXT PERIODIC EVALUATION: [ ] 3 years [ ] Other: _____
MM/DD/YYYY

Examining Provider: _____ Date: _____
(signature)
Provider Name: _____ Provider's specialty:_____

Office Address: _____ Office Phone: _____

[ ] I attest that the results have been explained to the employee.

The following is required to be checked by the Physician or other Licensed Health Care Professional (PLHCP):
[ ] I attest that this medical examination has met the requirements of the medical surveillance section of the OSHA Respirable Crystalline Silica standard (§ 1910.1053(h) or 1926.1153(h)).

WRITTEN MEDICAL REPORT FOR EMPLOYEE

EMPLOYEE NAME: _____ **DATE OF EXAMINATION:** _____

TYPE OF EXAMINATION:

[ ] Initial examination [ ] Periodic examination [ ] Specialist examination

[ ] Other: _____

RESULTS OF MEDICAL EXAMINATION:

Physical Examination –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Chest X-Ray –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Breathing Test (Spirometry) –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Test for Tuberculosis –	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed
Other:_____	[ ] Normal	[ ] Abnormal (see below)	[ ] Not performed

Results reported as abnormal: _____

_____

[ ] Your health may be at increased risk from exposure to respirable crystalline silica due to the following:

_____

RECOMMENDATIONS:

[ ] No limitations on respirator use

[ ] Recommended limitations on use of respirator: _____

[ ] Recommended limitations on exposure to respirable crystalline silica: _____

_____

Dates for recommended limitations, if applicable: _____ to _____
MM/DD/YYYY MM/DD/YYYY

[ ] I recommend that you be examined by a Board Certified Specialist in Pulmonary Disease or Occupational Medicine

[ ] Other recommendations*:

_____

_____

Your next periodic examination for silica exposure should be in: [ ] 3 years [ ] Other: _____
MM/DD/YYYY

Examining Provider: _____ Date: _____
(signature)

Provider Name: _____

Office Address: _____ Office Phone: _____

*These findings may not be related to respirable crystalline silica exposure or may not be work-related, and therefore may not be covered by the employer. These findings may necessitate follow-up and treatment by your personal physician.

Respirable Crystalline Silica standard (§ 1910.1053 or 1926.1153)

SAFETY & HEALTH MANUAL

Section 15: Aerial and Scissor Lifts (MEWP's)

Norman Sunderman
Senior Safety Specialist

Jump to Section

Policy Statement

This intent of this policy is to establish the general requirements, safe operating procedures and training of aerial lifts and scissor lift platforms.

Definitions

Aerial lift

Any vehicle – mounted device, telescoping or articulating, or both, which is used to position personnel

Protective Shroud

A protective shield or cover to avoid inadvertent engagement with the control device

Scissor lift

Type of lift, including those with platforms that extend beyond the equipment's wheelbase (Scissor lifts fall under OSHA Subpart L provisions)

General Requirements

1. Equipment under the control and custody of JE Dunn will not be permitted to be used by anyone other than JE Dunn personnel, unless granted approval from the project Superintendent or designated Supervisor and a release of liability for use of equipment waiver is signed by the person(s) or company requesting its use.
2. The operator's manual and ANSI standard must be maintained and stored on the lift in a waterproof container.
3.
4. Daily inspections, for safe operability and safety of personnel, of the lift must be documented before use.
5. To avoid "Entrapment" hazards and inadvertent engagement with the controls, the following control measures should be observed:
6. Plan the work at heights that involve trapping risks: a) Identify the range of work, b) Travel path, best selection of MEWP (e.g., type of telescopic boom, articulated boom, or vertical lifts, and use spotters in tight, complex, or low light areas)
7. If a secondary guarding/anti-crushing device is available from the manufacturer's / suppliers, then it must be used.
8. Operators and riders must receive basic training in the correct category of MEWP and be familiarized with the equipment (i.e., controls, characteristics, safety devices, decals, and emergency rescue systems).
9. Never lean over guardrails. Use caution when placing hands on the guardrail to avoid pinch points.
10. Repeatedly scan the area in front and above the platform in the direction of movement and consider any over-run that may occur.
11. All MEWPs shall be equipped with travel alarms per manufactures requirements.
12. Move at speeds that always allow full control of the lift (MEWP) (low speeds).
13. Only trained and authorized personnel are allowed to operate and/or occupy the MEWP.

Training

1. Operators must receive training regarding inspection, operation, and application along with the recognition of general hazards associated with the operation of the lift.
2. Make sure there is another person available on-site who is not working on the machine qualified to use emergency controls and know who that person is.
3. Operators must have training on the specific model he/she intends to operate. Training should include the purpose and function of all controls, safety devices and operating characteristics of that specific model elevated work platform.
4. Retraining shall take place every three years, whenever an incident occurs with the lift and/or when an employee lacks an understanding or proficiency in the subject matter.

Work Area Inspection

1. An inspection of the workplace must be conducted to identify overhead hazards (structural and utility interferences), surface hazards (i.e., holes, bumps, uneven surfaces, drop-offs, obstructions, mud, debris, and inadequate ground/floor support).
2. Floor holes, floor openings and drop-offs shall be adequately covered, protected, and guarded. Stop blocks installed along the drop off to prevent the operator from driving into the hazard are required. For example, two 2x4's stacked on top of each other and secured to the floor with tap cons (or equivalent) is an accepted practice.
3. A structural engineer shall verify the loading capacity of an elevated deck/floor, or roof, before a lift is placed in that area. This document should be made readily available for review on site.

Machine Inspection

1. Prior to use, all lifts must be inspected per the manufacturer's recommendations.
   a. Frequent.
   b. Annual.
   c. Pre-Start/Daily.
   d. Workplace.
2. Any deficiencies must be corrected before the machine is put into service. If a machine is taken out of service due to deficiencies, the equipment must be locked out or tagged out and removed from the site. This pre-use equipment inspection form shall be kept with the machine and always be available for inspection during operation.

Annexes

Inspections and Checklists

Equipment Inspection Form - Arial and Scissor Lifts
Release of liability for use of equipment waiver

Functional Manager


David Hulse
Safety Director


Greg Jobe
Senior Safety Manager

Change History

Original Published Date: April 7th 2017

Date	Description
09/01/21	The operator's manual and ANSI standard must be maintained and stored on the lift in a waterproof container.
09/01/21	All MEWPs shall be equipped with travel alarms.
09/01/21	Make sure there is another person available on-site who is not working on the machine qualified to use emergency controls and know who that person is.
09/01/21	Prior to use, all lifts must be inspected per the manufacturer's recommendations. Frequent, Annual, Pre-Start/Daily, Workplace.
09/01/21	**Aerial lift and scissor lift operations must be shut down when wind conditions exceed the manufacturer's operating limits.** NOTE: Aerial boom lifts identified by the manufacturer for indoor use only may have an allowable wind speed rating of zero, meaning they are designed to be used in conditions where there is no wind at all.
09/01/21	When working outside the confines of the guardrail, the lift shall not be used as an anchor point, unless the machine is rated for outside the lift tie-off.
09/01/21	Retractables and/or fall restraint shall be used only.
09/01/21	Having a written rescue plan in place that provides detailed instruction and procedures for safe and prompt retrieval.
09/01/21	Personnel left suspended following a fall-arrest situation.
09/01/21	Personnel stranded on the work platform of a snagged and/or malfunctioning aerial Boom lift.

3. Scissor lifts must be equipped with functional pothole protectors.

Safe Operating Procedures

1. No equipment attachments/modifications are allowed without the manufacturer's approval.
2. An aerial lift or scissor lift must never be used as a crane or for material handling unless approved for that use by the manufacturer.
3. Safety devices and interlocks shall not be bypassed.
4. Emergency stops must be engaged when equipment is not in motion.
5. Trash, excess material, and tools shall be removed from the lift frequently.
6. Aerial lift and scissor lift operations must be shut down when wind conditions exceed the manufacturer's operating limits.
7. When working outside the confines of the guardrail, the lift shall not be used as an anchor point, unless the machine is rated for outside the lift tie-off.
8. Cords and hoses shall never be secured to the rails of a lift unless they incorporate a break-away method to disconnect the cord or hose should it become snagged on equipment or structures.
9. Temporary barricades are required around lifts when they present an overhead hazard to surrounding areas or when exposed to vehicular traffic.

Tipping Hazards

1. Ground conditions must be adequate to support the equipment.
2. Allowable slope and grade conditions must not be exceeded.
3. Maximum working and/or occupancy loads must not be exceeded.
4. Wheel chocks shall be installed before using an aerial lift on an incline.
5. Never load an aerial lift or scissor lift onto the bed of a vehicle from an inclined position.

Fall Hazards

1. JE Dunn's policy requires 100% tie off in aerial lifts (i.e., articulating platforms, etc.).
2. When working inside of a scissor lift with properly maintained guardrails, 100% tie-off is not required unless the manufacturer recommends it or if the project requires it.
3. Retractable's and/or fall restraint shall be used only.
4. Having a written rescue plan in place that provides detailed instruction and procedures for safe and prompt retrieval.
   a. Personnel left suspended following a fall-arrest situation.
   b. Personnel stranded on the work platform of a snagged and/or malfunctioning aerial lifts.
5. All gates and rails must be secured in the proper position.'
6. Using steps, planks, or standing on guardrails to increase reach is prohibited. Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket.

Electrocution Hazard

Safe clearance must be maintained from all electrical lines per the table below.

Minimum Safe Approach Distances

Voltage Range (phase to phase)	Minimum Safe Approach Distance (feet/meters)
0 to 50KV	10 (3)
Over 50KV to 200KV	15 (5)
Over 200KV to 250KV	20 (6)
Over 350KV to 500KV	25 (8)
Over 500KV to 750KV	35 (11)
Over 750KV to 1000KV	45 (14)

JE DUNN CONSTRUCTION Logistics

Weekly Report for Daily Inspection: AERIAL / SCISSOR LIFTS

Project: Job Number: Today's Date:

Equipment Number: Hours:

Dates of Inspection: (from) (to) Inspected By:

Aerial Lift Type (pick one): ◯ Scissor Lift ◯ Boom Lift ◉ Snorkel Lift

Daily Checks (by category)	Mon		Tues		Wed		Thurs		Fri		Sat		Sun	
	D	OK	D	OK	D	OK	D	OK	D	OK	D	OK	D	OK
Operational Controls:														
Emergency Stop and Brakes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Auxiliary Operation Controls	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Basket Operation Controls	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Horn	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Control Labels Legible	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Foot Controls (if applicable)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Operator's Manual	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Boom:														
Hydraulic Hoses	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Extension Chains/Pivot Pins	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cylinders and Pin Locks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Articulated Joints	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Basket:														
Gate, Security Chain or Bar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Guardrails, Anchorage Points	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fire Extinguisher	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Base:														
Hoses, Belts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Electrical Components	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fuel	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hydraulic Oil	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Engine Oil	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Turret	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Warning Labels	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tires, Wheels, Lug Nuts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Back-Up Alarm/Motion Alarms	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Stabilizers/Pothole Protection	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ground or floor hazards covered or removed from travel path?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Is pathway clear of overhead obstructions or power lines?	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(ALL BOXES must be checked either Deficient or OK)

Deficient Comments:

Verified by Superintendent (print name):

RELEASE, WAIVER AND INDEMNITY AGREEMENT

For Use of J.E. Dunn Construction Company's Equipment

In consideration for **J.E. Dunn Construction Company** ("**J.E. Dunn**") allowing _____ _____ ("**Grantee**") to use and operate the following equipment free of charge:

_____

_____

_____

("Equipment")

on the _____ ("Project") located at _____, Grantee agrees to the following:

To the fullest extent permitted by law, Grantee, on behalf of itself, its contractors, suppliers, consultants and employees, hereby releases and forever discharges J.E. Dunn, its officers, directors, employees, subcontractors and vendors, and each of them, of and from any and every claim, demand, action or right of action, of whatever kind or nature, either in law or equity, resulting or arising from Grantee's use of the Equipment, even if caused by the negligent acts or omissions of J.E. Dunn, its officers, directors, employees, subcontractors and vendors.

To the fullest extent permitted by law, Grantee, on behalf of itself, its subcontractors, suppliers, consultants, employees and subsequent users and owners of the Equipment, waives all immunities, defenses or protections from J.E. Dunn, its officers, directors, employees, subcontractors and vendors to the extent a claim by Grantee or its subcontractors, suppliers, employees is covered by insurance including, but not limited to, worker's compensation.

To the fullest extent permitted by law, Grantee shall defend, indemnify and hold harmless J.E. Dunn, its officers, directors, employees, contractors and vendors from and against all claims, demands, actions, damages, losses, liability and expenses, including but not limited to attorney's fees, arising out of or resulting from Grantee's use of the Equipment regardless of whether or not such claim, demand, action, damage, loss or expense is caused in part by a party indemnified hereunder.

J.E. DUNN MAKES NO WARRANTY, EXPRESS OR IMPLIED, WHETHER OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR USE OR OTHERWISE ASSOCIATED WITH THE EQUIPMENT. Grantee understands that J.E. Dunn also makes no representation regarding the condition or use of the Equipment. Grantee takes the Equipment "as is," recognizes and accepts any and all risks associated with the use thereof and is responsible for evaluating and inspecting the Equipment for any use Grantee intends to use the Equipment.

Grantee acknowledges the Equipment will not be available at all times for its use and shall only have the use of the Equipment at J.E. Dunn's convenience.

The Grantee's right to use the Equipment terminates with the end of the Project. However, the releases, waivers and obligations contained in this Agreement shall remain in force after the end of the Project.

This Agreement contains the ENTIRE AGREEMENT between the parties hereto, and the terms of this release are contractual and not a mere recital. If any portion of this Agreement should be found to be unenforceable, it is agreed that the remaining provisions shall remain in full force and effect

Grantee further states that it has read this Release and Indemnity Agreement and knows the contents hereof and is authorized to sign the same as my free act.

This Release and Indemnity Agreement executed this _____ day of _____, 20____.

_____

Signature: _____

Printed Name: _____

Title: _____

SAFETY & HEALTH MANUAL

Section 16: Cranes, Hoisting, and Rigging

Mark Henkel
Senior Safety Specialist

Jump to Section

Policy Statement

The intent of this policy is to outline the crane and rigging equipment requirements required on all JE Dunn projects. This policy applies to all contractors, trade partners and vendors who perform work on JE Dunn projects.

For more specific requirements regarding cranes, personnel hoists, and related equipment, please refer to the JE Dunn National Hoisting Policy.

JE Dunn National Hoisting Policy

jedunn.sharepoint.com

New for 2020No changes for 2020Policy Key HighlightsThird party hoisting equipment and personnel are subject to our policy All employees and trade partners supplying hoisting equipment are required to read the JED Hoisting policy and complete the...

Definitions

Operator

Crane operators must be certified by an accredited crane operator testing organization (NCCO, OECP, NCCCER). Required Operators Evaluations must be completed prior to operating the crane.

Qualified Rigger

One who has a recognized degree, certificate or by knowledge, training and experience has successfully demonstrated the ability to solve/resolve problems related to rigging.

Signal Person

Signal Persons must be qualified in accordance with current ASME and OSHA regulations. The Signal Person is responsible for:

1. Ensuring proper hand signals and radio communications are provided to the Operator.
2. Ensuring constant communication with the Operator and may not have any other responsibilities when providing hand or radio communication to the Operator.
3. Stopping any hoisting operation when hand signals or radio communication becomes unclear, or an unsafe situation arises.

Assembly Director

Assembly/disassembly must be directed by an individual who qualifies as both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons. The competent person is referred to as the A/D director.

Crane Riggers and Signal Persons

Roles & Responsibilities

1. A qualified JE Dunn Superintendent, Safety Professional, or Trade Forman will be designated to review and retain certifications, as well as the administration of training, exams, and field assessments.
2. A qualified Trade Partner may be allowed to administer JE Dunn's Rigger & Signal Person - Approval Process assessments as defined below for their employees or sub-tier personnel with the prior approval from JE Dunn's superintendent.

Certification Requirements

1. All personnel involved in either rigging loads or signaling a crane must be certified in both.
2. Trade Partners must submit written documentation to the appropriate Dunn project supervisor identifying those individuals that meet all Signal Person requirements outlined in 29 CFR 1926.1428 and have passed a written and practical exam as a Qualified Rigger. Such documentation must be submitted prior to personnel being allowed to rig or signal loads on JE Dunn project sites.

Rigger & Signal Person - Approval Process

After JE Dunn has received the appropriate certification documentation, those individuals must view JE Dunn's Supplemental Rigging & Signaling Expectation training video and Q&A session.

Rigger Designation

After successfully completing the training video, a gray riggers vest and/or high viz hardhat cap will be given that designates the person as someone that can both rig and signal loads on that specific project.

Annexes

Plans and References

Critical Lift Plan
Critical Lift Plan Instructions
Calculating a Load
Chain Sling Capacities
Rigging & Signal Q&A Acknowledgement
Shackle Capacities
Sling Angle Effect on Capacities
Wedge Sockets
Wire Rope Clip Installation
Wire Rope Sling Capacities

Functional Manager

Aaron Babusa-Lucas
Senior Safety Manager

Change History

Date	Description
08/08/21	Format Conversion
08/09/21	Moved opening statement to end of section
08/09/21	Changed Policy statement
08/09/21	Added definitions of Operator, Signal Person and Assembly Director
08/09/21	Added a Crane segment prior to the rigging segment, addressing 9 crane subjects. Subjects added are: Cranes, work zone, use of personnel platforms, hoisting over public right-of-way, multiple cranes on a single project, critical lifts, critical lift plan, equipment with a hoisting capacity of 2,000lbs or less, and lightning,
08/09/21	Made corrections under Rigging General Requirements to items 1 and 2, deleted item 3, corrected items 4, 5 and 6, added items 7 and 8, moved items 10 and 11 to the "Specific Requirements section which changed the last item number to number 10
08/09/21	Added "Specific Requirements" segment. Moved the following items from general rigging requirements to " Specific Requirements" segment: c, d, d, e, f, g, h, and i
08/09/21	Added additional wording to item 1 under the "Inspections" segment
3/2023	The Crane Riggers & Signal Persons section was added.

Signaling	1. JE Dunn reserves the right to limit what personnel will be allowed to signal cranes. 2. Tower Crane operators will be provided with a list of approved Signal Persons. 3. Crane operators are required to refuse to pick up any load from an unapproved Signal Person, individual lacking the apparel designating "Rigger", or a person that has demonstrated they are unable to signal/communicate properly.
Critical and Complex Lifts	Additional consideration must be given when a lift is deemed critical or is complex in nature. All personnel involved in the lift; must possess the skills, knowledge, and experience to successfully execute the lift safely. All individuals associated with the lift shall participate in the Critical Lift Planning as defined by this policy.

Cranes

General Conditions	1. When a crane arrives on site, a current annual inspection must be provided to the designated member of the project supervision team, prior to beginning operation on site. 2. Daily inspection - A competent person must conduct an inspection of equipment prior to each shift and be documented. The inspection must consist of observation for apparent deficiencies. Inspections must be provided to the designated member of the project supervision team. 3. A mandatory meeting will be conducted prior to the erection, dismantle and initial hoisting operation of any crane on site. (Refer to the hoisting policy manual for meeting requirements) 4. Equipment must not be assembled or used unless ground conditions are firm, drained and graded to a sufficient extent so that in conjunction with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met. 5. The manufacturer's procedures and prohibitions must be complied with when assembling and disassembling equipment. 6. Before beginning any crane operation, determine if any part of the equipment, load line or load (including rigging and lifting accessories), if operated up to the equipment's maximum working radius in the work zone, could get closer than 20 feet to a power line. If so, one of the following options must be performed: a. Deenergize and ground power line. Confirm from the utility owner/operator that the power line has been deenergized and visibly grounded at the worksite. b. Obtain a 20 foot clearance. Ensure that no part of the equipment, load line or load gets closer than 20 feet to the power line. c. Determine the line's voltage and minimum approach distance permitted. Determine if any part of the equipment, load line or load, while operating up to the equipment's maximum working radius in the work zone, could get closer than the minimum approach distance of the power line permitted. If so, then the employer must ensure that no part of the equipment, load line, or load (including rigging and lifting accessories), gets closer to the line than the minimum approach distance. 7. The swing radius of mobile cranes must be marked with either danger tape or red flagging. Outriggers may be utilized to mark the swing radius of the crane housing with counterweights when in the confines of the outriggers. If the swing radius of the crane housing with the counterweights extends past the outriggers, then the swing radius must be marked utilizing an adequate method that encompasses the housing and counterweights.
Use of Personnel Platforms	1. The use of equipment to hoist personnel is prohibited except where the employer can demonstrate that the erection, use and dismantling by conventional means of reaching the work area, would be more hazardous or is not possible because of structural design of worksite conditions. Critical lift procedures are to be followed when personnel platforms are used. 2. If a personnel platform is to be used, the following requirements shall apply: a. The platform must be approved for personnel and properly attached to the hoist line. (Refer to OSHA Standard 1926.1431 (a)(b)(e – n) for platform criteria) b. Personnel on platform shall be in constant communication with the crane operator by radio. 3. The crane used to hoist personnel must meet the following requirements: a. The load (with the platform loaded, including the hook, load line and rigging) must not exceed 50 percent of the rated capacity of the crane at the applicable configuration b. The crane must be equipped with an anti-two-block device and a hook equipped with a locking latch that eliminates the throat opening. c. The crane shall be within 1 percent level. 4. Personnel involved in the hoisting operation must: a. Attend a pre-lift meeting to review requirements. b. Wear a safety harness and applicable lanyard or SRL that is attached to the platform. c. Keep all parts of their bodies inside the platform while hoisting. d. Platform shall not be used during winds more than 20 mph. e. The Superintendent and Job Safety Manager shall establish an emergency landing zone and ensure it is properly marked and understood by job site personnel. f. If an individual being hoisted in not an employee of JE Dunn Construction, such person shall sign the appropriate liability waiver prior to the hoisting activity. g. AA trial lift with the unoccupied platform loaded at least to the anticipated lift weight must be performed immediately before each shift. h. The trial lift must be performed from the ground to the location at which the platform will be positioned. Where there is more than one location to be reached, either individual trial lifts are to be performed to each location or the platform can be moved sequentially to each location. The method used is to be the same as the method that will be used to hoist the personnel.
Hoisting Over Occupied Buildings/Public Right-Of Way	1. The Project Management Team must ensure safety measures are taken to keep personnel or those of the general public out of harms-way and enforce those safety measures, when hoisting over or near a building/area that are occupied. 2. When hoisting activities are in close proximity to buildings or areas that are either occupied or have the potential to be occupied the Project Management Team must implement the following measures at a minimum: a. Establish restricted "No Fly" zones that set boundaries where loads cannot be hoisted without approval. b. Prior to performing activities in a restricted zone, a safety work plan must be

developed that ensures safe operations.
   c. The safety work plan must describe in detail on how loads will be prevented from being hoisted over occupied buildings or areas.
   d. All riggers, signal persons and crane operators must be notified about any restricted zone on the project.
   e. Crane operators are not allowed to hoist a load in a restricted zone without approval from a JE Dunn superintendent.
3. The Project Management Team shall collaborate with the Owner of a building before hoisting over that building when jointly occupied by JE Dunn Employees, Trade Partners, and the Owner. A written safe work plan will be developed to ensure the safety of JE Dunn employees, trade partners, owner employees and the public. Safety precautions may include; evacuation of personnel inside of the building, defined exclusion zones, means of communication to inform personnel inside of the building, provisions of overhead protection (if applicable), etc.
4. In cases where it is necessary to swing any load over a neighboring structure that is not under the Project footprint, the Project Management Team shall obtain permission from the Owner. The Project supervision team shall collaborate with the owner in making a written safe work plan to ensure the safety of JE Dunn employees, trade partners, owner employees and the public.
5. If hoisting over an occupied building is necessary when employed by a 3rd party, the Project Management Team is to inform the appropriate Blue Hat Crane Manager and follow the guidelines of the 3rd Party Contractor.
6. In addition to a safety work plan, anytime a load is flow over any occupied building/area the lift will be considered critical and require a critical lift plan.
7. No load shall be hoisted over an active street, roadway, sidewalk, or covered sidewalk unless a safety work plan has been developed. At a minimum the safety work plan must address the following:
   a. Traffic control devices and signage used.
   b. Location flaggers halt pedestrians and traffic
   c. Barricades and warnings used to keep pedestrians out of the danger zone.

Multiple Cranes on a Single Project

1. When operating more than one crane on a single project, the Superintendent shall develop a site plan to establish rules and guidelines designed to prevent contact and to ensure a safe operating environment. The plan shall include but is not limited to:
   a. Outlining designated work zones for each tower crane to include any mobile crane working in the operating radius of the tower crane.
   b. Method of identifying crane work zones.
   c. Operational guidelines for each crane.
   d. Communication guidelines between Crane Operators and ground.
   e. Communication guidelines between Crane Operators.
2. When two or more Tower Cranes/Mobile Cranes are in operation within the swing radius of each other, the following criteria will be followed:
   a. The Operators must have clearly defined work zones of operation to avoid crane-to-crane contact.
   b. In regard to tower cranes, the lower tower crane may be operated without an operator in the seat of the taller crane, provided the hook on the taller crane is raised and the trolley is retracted in accordance with the Tower Crane Manufacturer's requirements.
   c. If the taller crane in the swing radius is in operation, the lower crane or cranes must have an operator in the seat.
   d. Each crane operator shall have at least two (2) radios; one on a primary designated channel for cab to ground communications and the second one, on a designated private channel, to be used for cab-to-cab communication.

Critical Lifts

A critical lift plan shall be developed prior to making a lift when at least one or more of the following criteria is present:

1. When the lift exceeds 75 percent of the crane capacity based on its configuration at the time of the lift. This applies to mobile cranes and tower cranes. (No more than 95%)
2. When any crane is used in tandem with any other piece of equipment/crane to perform a lift.
3. When lifts are made within 20 feet of power lines.
4. When lifting over occupied buildings
5. When lifts are made involving specialized, unique, or complex rigging equipment.
6. When hoisting personnel in suspended work platforms.
7. Long lead time/ high value equipment

Critical Lift Plan

The critical lift plan shall address at minimum:

1. The crane lift radius for all points of the lift and protective measures.
2. Crane capacity base on the actual configuration
3. The total gross weight applied to the crane, including rigging load and all chart deductions prescribed by the manufacturer
4. An evaluation of the crane set-up area to include:
   a. Above ground and underground hazards to avoid
   b. Clear area required for crane
   c. Suitable ground bearing capacity and requirements for outrigger pads or stabilizer
   d. Proximity to slopes and excavations
   e. Identify the work zone and control of vehicle and pedestrian traffic
5. Establish rigging type and configuration
6. Establish a communication plan from signal person to operator
7. Establish an emergency landing zone
8. Provide plan for preventing access to the hoisting zone by unauthorized personnel
9. Provide 3D sketch to verify feasibility and eliminate interference issues with existing obstacles
10. For Mobile cranes: see "Third Party Critical Lift Procedures" under Section 8

Equipment with a Hoisting Capacity of 2,000lbs or Less

1. Manufacturer's instructions, recommendations, limitations, and specifications must be followed.
2. An inspection must be conducted before each shift and documented.
3. The equipment must have either an anti-two-block device or be designed so that in the event of a two-block situation, no damage or load failure will occur.
4. The equipment shall not be used to hoist personnel.
5. The employer must train each operator prior to operating the equipment.
6. The employer must train each signal person in the proper use of signals applicable to the use to the equipment.

Lightning

1. When conditions are such that lightning is detected within a 10-mile radius of a project, all crane and hoisting operations shall cease for a period of 30 minutes.
2. Detection can be by lightning meter or by counting the seconds between lightning observation and the sound of thunder. Then divide that number by five, which gives you an estimate of the distance in miles. Example: 15 seconds between flash and sound divided by five equals three miles away.
3. If lightning is not observed within the 30-minute period, hoisting operations may resume. If lightning is observed within the 30-minute period, wait time for resuming work will start over, allowing 30 minutes between subsequent lightning observations prior to resuming work.

Note: During a lightning storm, the Operator should stay in the cab for his or her safety.

Wind

1. Manufacturer's recommendations must be followed when operating in windy conditions. No crane or hoist shall be operated in wind speeds that exceed 35 mph.
2. Crane operations shall be halted whenever the wind velocity endangers load handling for operating staff or others on the project.
3. If the Crane Operator determines the wind velocity to be an endangerment, the Operator has the authority to halt operations.

Crane Crisis Response Protocol

Operators/Drivers/On-site Supervisors

1. Notify EMS, local/onsite Safety Manager
2. Secure/freeze incident site and (if possible) make safe any hazards for response services and employees
3. Isolate witnesses and begin taking statements (Safety/Superintendent)

Superintendent/On-Site Supervisors

1. Inform Henry Volante, Michael Palendat, Aaron Babusa-Lucas
   a. Call, Voicemail, & Text

Hoisting Personnel Policy

National Hoisting Policy - Click Here

Rigging

General Requirements

Riggers must be designated and qualified in accordance with current ASME and OSHA regulations in the type and scope of their work.

1. Rigging equipment shall have permanently affixed and legible identification markings as prescribed by the manufacturer that indicates the recommended safe working load for types of hitches and number of sling legs.
2. Rigging equipment must not be shock loaded or loaded in excess of its recommended safe working load as prescribed on the identification markings by the manufacturer.
3. Rigging equipment shall not be shortened with knots or bolts or other makeshift devices
4. Rigging equipment shall be padded or protected from the sharp turns and edges.
5. Rigging equipment shall not be pulled from under a load when the load is resting on the sling.
6. Tag lines shall be used on every item or material being hoisted unless their use creates an unsafe condition. The only exception is concrete buckets being utilized for placement purposes.
7. Hooks used in the connection between the hoist line and personnel platforms, overhaul ball assemblies, lower load blocks, bridle legs, or other attachment assemblies or components must be:
   a. A type that can be closed and locked, eliminating the throat opening.
   b. Closed and locked when attached.
8. Due to quality control concerns, rigging equipment manufactured in China is not allowed to be used on JE Dunn projects.
9. All employees shall be kept clear of loads about to be lifted and of suspended loads.
10. All loads must be secured prior to being hoisted. Debris or any other unsecured items must be removed.
11. Loads must have a clear land zone available in place prior to being hoisted. Pulling loads between floors of a building or other structures is not allowed.

Specific Requirements

1. Special designed hooks, clamps or other special rigging devices shall be marked with the maximum safe working load and be proof loaded to 125% of rated load.
2. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
3. Sling legs shall not be kinked.
4. Slings used in a basket hitch shall have the loads balanced to prevent slippage.
5. Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees.
6. When utilizing four individual single legged slings to rig a load, the total capacity of rigging shall be figured by only using three legs.
7. Rigging at angles greater than 30 degrees is prohibited unless approved by the qualified rigger.

Inspections

1. Rigging equipment including fastenings devices and attachments shall be inspected daily before first use and as necessary during use for damage or defects by a competent person.
2. Any rigging that does not meet the minimum requirements of this manual shall be tagged

and removed from service. If the rigging device is rendered not usable or not repairable, the equipment shall be cut in half before discarding in the trash.
3. Additional inspection criteria for chain slings are required.

Synthetic Slings

1. Synthetic web slings shall be immediately removed from service if any of the following conditions are present:
   a. Snags, punctures, tears, or cuts
   b. Broken or worn stitches
   c. Melting or charring of any part of the sling surface
   d. Acid or caustic burns
   e. When synthetic web slings are used, the following precautions shall be taken:
      a. Nylon, polyester, and polypropylene web slings shall not be used where fumes, vapors, sprays, mists, or liquids of acids or phenolic are present
      b. Synthetic web slings of polyester and nylon shall not be used at temperatures in excess of 180 deg. F (82.2 deg. C). Polypropylene web slings shall not be used at temperatures in excess of 200 deg. F (93.33 deg. C).

Wire Rope Slings

1. Wire rope shall not be used if:
   a. In any length of eight diameters, the total number of visible broken wires exceeds 10 percent of the total number of wires
   b. If there are more than 5 visible broken wires in one strand of a lay length or 10 broken wires in any part of the rope in one lay length
   c. If the rope shows other signs of excessive wear, corrosion, or defect.
2. Protruding ends of strands in splices on slings and bridles shall be covered or blunted.
3. Wire rope shall not be secured by knots.
4. Except for eye splices in the ends of wires and for endless rope slings, each wire rope used in hoisting or lowering, or in pulling loads, shall consist of one continuous piece without knot or splice.
5. Eyes in wire rope bridles, slings, or bull wires shall not be formed by wire rope clips or knots.

Chain Slings

1. Only alloy type chain slings shall be used for hoisting a load. Load or log chains or any chain without a tag identifying its capacity as a hoisting chain shall not be used.
2. Employers must not use alloy steel-chain slings with loads in excess of the rated capacities (i.e., working load limits) indicated on the sling by permanently affixed and legible identification markings prescribed by the manufacturer.
3. In addition to the inspection required, a thorough periodic inspection of alloy steel chain slings shall be made on a regular basis, based on frequency of sling use, severity of service conditions, and nature of lifts being made. Such inspections shall in no event be at intervals greater than once every 12 months. A record of the most recent month in which each alloy steel chain sling was thoroughly inspected shall be maintained and made available for examination.
4. Conditions to look for are:
   a. Bent or twisted or deformed links
   b. Cracked links
   c. Gouges, chips, or cuts
   d. Small dents, peen marks, and bright polished surfaces which usually indicate fatigue
   e. Severe corrosion, pitting resulting in material loss
   f. Links wear at the point of link contact.
5. Whenever wear at any point of any chain link exceeds that shown in the table below, the assembly shall be removed from service.
6. Chains not meeting the inspection requirements of this section shall be tagged and removed from service.
7. Never weld on chain slings.

End Attachments

1. Welding of end attachments, except covers to thimbles, shall be performed prior to the assembly of the sling.
2. All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The employer shall retain a certificate of proof test and make it available for examination.
3. Employers must not use shackles with loads in excess of the rated capacities (i.e., working load limits) indicated on the shackle.

Wire Rope Clips

1. When U-bolt wire rope clips are used to form eyes in wire rope, table below shall be used to determine the number and spacing of clips.
2. When used for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope (never saddle a dead horse).
3. The forming of eyes in slings with wire rope clips is prohibited.

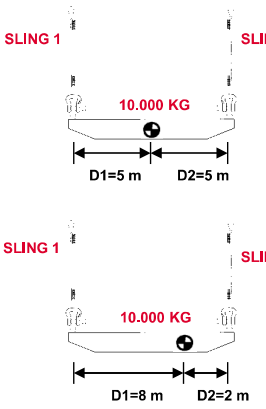
Maximum Allowable Wear at Any Point of Link

Chain Size (inches)	Maximum Allowable Wear (inch)
1/4	3/64
3/8	5/64
1/2	7/64
5/8	9/64
3/4	5/32
7/8	11/64
1	3/16
1-1/8	7/32
1-1/4	1/4
1-3/8	9/32
1-1/2	5/16

1-3/4	11/32

Rigging Information

CENTER OF GRAVITY AND SLING LOADING



WHEN LIFTING VERTICALLY, THE LOAD WILL BE SHARED EQUALLY IF THE CENTER OF GRAVITY IS PLACED EQUALLY BETWEEN THE PICK POINTS.IF THE WEIGHT OF LOAD IS 10.000 KG, THEN EACH SLING WILL HAVE A LOAD OF 5.000KG AND EACH SHACKLE AND EYEBOLT WILL ALSO HAVE A LOAD OF 5.000 KG.

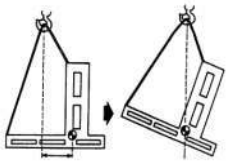
WHEN THE CENTER OF GRAVITY IS NOT EQUALLY SPACED BETWEEN THE PICK POINTS, THE SLINGS AND FITTINGS WILL NOT CARRY AN EQUAL SHARE OF THE LOAD.THE SLING CONNECTED TO THE PICK POINT CLOSEST TO THE CENTER OF GRAVITY WILL CARRY THE GREATEST SHARE OF THE LOAD.

SLING 2 IS CLOSEST TO COG. IT WILL HAVE THE GREATEST SHARE OF THE LOAD.

SLING 2 : 10.000 X 8 / (8 + 2) = 8.000 KG
SLING 1 : 10.000 X 2 / (8 + 2) = 2.000 KG

LOAD STABILITY AND THE CENTER OF GRAVITY

CONNECTION TO THE LOAD MUST BE MADE ABOVE THE CENTER OF GRAVITY. IF NOT, THE LOAD IS UNSTABLE AND WILL SHIFT. KEEP DISTANCE FROM COG TO SLING AS LARGE AS POSSIBLE.

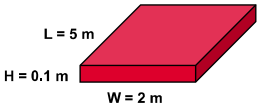


CALCULATE WEIGHT

9

EXAMPLE - FLATS

WEIGHT = L X W X H X UNIT WEIGHT



IF STEEL: UNIT WEIGHT = 7.85 t/m³
WEIGHT = 5 m X 2 m X 0.1 m X 7,85 t/m³ =7,85 t

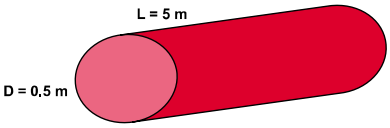
IF ALUMINUM: UNIT WEIGHT = 2.64 t/m³
WEIGHT = 5 m X 2 m X 0.1 m X 2.64 t/m³ = 2.64 t

IF CONCRETE: UNIT WEIGHT = 2.40 t/m³
WEIGHT = 5 m X 2 m X 0.1 m X 2.40 t/m³ = 2.40 t

CALCULATE WEIGHT

EXAMPLE - SOLID CYLINDER

$$\text{WEIGHT} = \frac{3.14 \times D^2}{4} \times L \times \text{UNIT WEIGHT}$$



IF STEEL: UNIT WEIGHT = 7.85 t/m³
WEIGHT = $\frac{3.14 \times 0.5^2}{4}$ X 5 m X 7.85 t/m³ =7.70 t

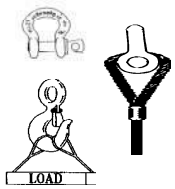
IF CONCRETE: UNIT WEIGHT = 2.40 t/m³
WEIGHT = $\frac{3.14 \times 0.5^2}{4}$ X 5 m X 2.40 t/m³ =2.35 t

HITCHES

10

WIRE ROPE, CHAIN AND SYNTHETIC SLINGS

WIRE ROPE SLINGS AND CONNECTIONS TO FITTINGS



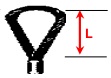
USE A THIMBLE TO PROTECT SLING AND TO INCREASE D/d RATIO.

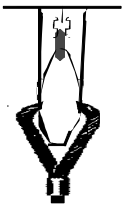
NEVER PLACE EYE OVER A FITTING WITH A SMALLER DIAMETER OR WIDTH THAN THE ROPE'S DIAMETER.

WIRE ROPE SLINGS AND CONNECTIONS TO FITTINGS

NEVER PLACE A SLING EYE GREATER THAN ONE HALF THE NATURAL LENGTH OF THE EYE(L).

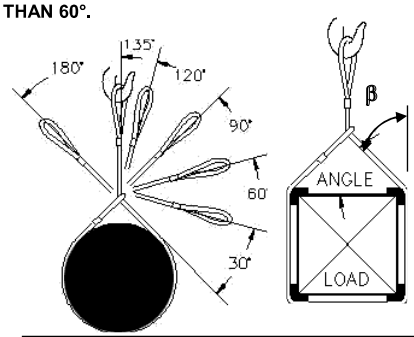
1/3(L) FOR SYNTHETICS.





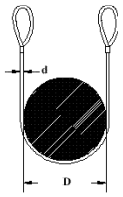
CHOKER HITCHES

A CHOKER HITCH HAS 80% OF THE CAPACITY OF A SINGLE LEG ONLY IF THE CORNERS ARE SOFTENED AND THE VERTICAL SLING ANGLE β IS SMALLER THAN 60°.
USE BLOCKS TO PREVENT ANGLES GREATER THAN 60°.



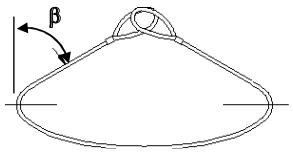
ANGLE OF CHOKE	SLING RATED LOAD PERCENTAGE OF SINGLE LEG SLING CAPACITY
120° - 180°	80%
90° - 119°	65%
60° - 89°	55%
30° - 59°	40%

BASKET HITCH



A BASKET HITCH HAS TWICE THE CAPACITY OF A SINGLE LEG ONLY IF THE D/d RATIO ≥ 25/1 AND LEGS OF SLING ARE VERTICAL.

AT OTHER ANGLES, SEE TABLE.



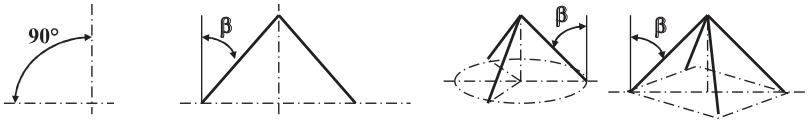
ANGLE β	PERCENTAGE OF SINGLE LEG CAPACITY
0	200%
30	170%
45	140%
60	100%

Calculating a Load
Section 16: Cranes, Hoisting and Rigging *revised: 3/31/17*

Rigging Information

CHAIN SLING CAPACITIES (t) - GRADE 8/80 IN ACCORDANCE EN 818-4

13



CHAIN SIZE MM	VERTICAL (SINGLE LEG) t	TWO LEG SLINGS 0° < β ≤ 45° t	TWO LEG SLINGS 45° < β ≤ 60° t	THREE & FOUR LEG SLINGS 0° < β ≤ 45° t	THREE & FOUR LEG SLINGS 45° < β ≤ 60° t	CHOKER t
6	1.12	1.60	1.12	2.36	1.70	0.90
7	1.50	2.12	1.50	3.15	2.24	1.20
8	2.00	2.80	2.00	4.25	3.00	1.60
10	3.15	4.25	3.15	6.70	4.75	2.50
13	5.30	7.50	5.30	11.20	8.00	4.25
16	8.00	11.20	8.00	17.00	11.80	6.40
19	11.20	16.00	11.20	23.60	17.00	9.00
22	15.00	21.20	15.00	31.50	22.40	12.00
26	21.20	30.00	21.20	45.00	31.50	17.00
32	31.50	45.00	31.50	67.00	47.50	25.20

INSPECTION OF CHAIN SLINGS

ALL SLINGS AND ATTACHMENTS SHALL BE VISUALLY INSPECTED BY THE PERSON HANDLING THE SLING EACH DAY THEY ARE USED. IN ADDITION, A PERIODIC INSPECTION SHALL BE PERFORMED BY A DESIGNATED PERSON, AT LEAST ANNUALLY, AND SHALL INCLUDE A RECORD OF THE INSPECTION.

INSPECTION CRITERIA

WEAR
NICKS, CRACKS, BREAKS
GOUGES, STRETCH, BENDS
WELD SPLATTER
EXCESSIVE TEMPERATURE
THROAT OPENING OF HOOK

CHAIN LINKS

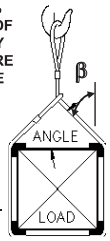
REMOVE SLING FROM SERVICE IF LINKS ARE WORN EXCESSIVELY (MORE THAN 10% OR REFER TO MANUFACTURER'S INFORMATION), SHARP TRANSVERSE NICKS AND GOUGES SHOULD BE ROUNDED OUT BY GRINDING (DO NOT EXCEED WEAR ALLOWANCE). CHAIN LINKS AND ATTACHMENTS SHOULD HINGE FREELY TO ADJACENT LINKS.

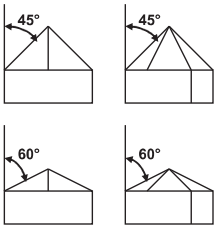
IDENTIFICATION

CHAIN SLINGS SHALL HAVE PERMANENTLY AFFIXED IDENTIFICATION STATING: SIZE, GRADE, RATED LOAD, VERTICAL SLING ANGLE, NAME OF MANUFACTURER AND CE (EN818-4)

A CHOKER HAS 80% OF THE CAPACITY OF A SINGLE LEG ONLY IF THE CORNERS ARE SOFTENED AND THE VERTICAL ANGLE β IS SMALLER THAN 60°.

USE BLOCKS TO PREVENT ANGLES GREATER THAN 60°.



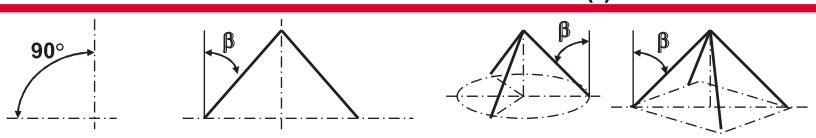


TRIPLE LEG SLINGS HAVE 50% MORE CAPACITY THAN DOUBLE LEG ONLY IF THE CENTER OF GRAVITY IS IN THE CENTER OF CONNECTION POINT AND THE LEGS ARE ADJUSTED PROPERLY. (EQUAL SHARE OF THE LOAD)

QUAD LEG SLINGS OFFER IMPROVED STABILITY BUT DO NOT PROVIDE INCREASED LIFTING CAPACITY.

CHAIN SLING CAPACITIES (t) - GRADE 10/100

14



CHAIN SIZE MM	VERTICAL (SINGLE LEG) t	TWO LEG SLINGS 0° < β ≤ 45° t	TWO LEG SLINGS 45° < β ≤ 60° t	THREE & FOUR LEG SLINGS 0° < β ≤ 45° t	THREE & FOUR LEG SLINGS 45° < β ≤ 60° t	CHOKER t
6	1.40	2.00	1.40	3.00	2.12	1.12
7	2.00	2.80	2.00	4.20	3.00	1.60
8	2.50	3.55	2.50	5.30	3.75	2.00
10	4.00	5.60	4.00	8.00	6.00	3.20
13	6.70	9.50	6.70	14.00	10.00	5.35
16	10.00	14.00	10.00	21.20	15.00	8.00
19	14.00	20.00	14.00	30.00	21.00	11.20
22	18.75	26.50	18.75	39.40	28.00	15.00
26	26.50	37.00	26.50	55.50	40.00	21.20
32	40.00	56.00	40.00	85.00	60.00	32.50

INSPECTION OF CHAIN SLINGS

ALL SLINGS AND ATTACHMENTS SHALL BE VISUALLY INSPECTED BY THE PERSON HANDLING THE SLING EACH DAY THEY ARE USED. IN ADDITION, A PERIODIC INSPECTION SHALL BE PERFORMED BY A DESIGNATED PERSON, AT LEAST ANNUALLY, AND SHALL INCLUDE A RECORD OF THE INSPECTION.

INSPECTION CRITERIA

WEAR
NICKS, CRACKS, BREAKS
GOUGES, STRETCH, BENDS
WELD SPLATTER
EXCESSIVE TEMPERATURE
THROAT OPENING OF HOOK

CHAIN LINKS

REMOVE SLING FROM SERVICE IF LINKS ARE WORN EXCESSIVELY (MORE THAN 10% OR REFER TO MANUFACTURER'S INFORMATION), SHARP TRANSVERSE NICKS AND GOUGES SHOULD BE ROUNDED OUT BY GRINDING (DO NOT EXCEED WEAR ALLOWANCE). CHAIN LINKS AND ATTACHMENTS SHOULD HINGE FREELY TO ADJACENT LINKS.

IDENTIFICATION

CHAIN SLINGS SHALL HAVE PERMANENTLY AFFIXED IDENTIFICATION STATING: SIZE, GRADE, RATED LOAD, VERTICAL SLING ANGLE, NAME OF MANUFACTURER AND CE (EN818-4)

A CHOKER HAS 80% OF THE CAPACITY OF A SINGLE LEG ONLY IF THE CORNERS ARE SOFTENED AND THE VERTICAL ANGLE β IS SMALLER THAN 60°.

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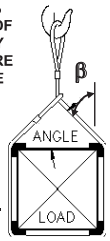

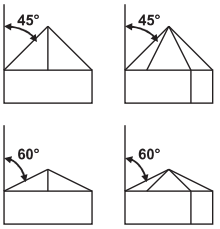

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QUAD LEG SLINGS OFFER IMPROVED STABILITY BUT DO NOT PROVIDE INCREASED LIFTING CAPACITY.

CRITICAL LIFT PLAN INSTRUCTIONS

Title Section:

Project Name: Name of overall project, i.e. AMLI, KU School of Business, Seaton Hall

Project Number: JED or BHC project number

Location: Examples are Kansas City, MO or Nashville, TN

Date: Day Critical Lift Plan is filled out

Company: Contractor or Subcontractor in charge of the proposed lift, may or may not be J. E. Dunn Construction Co.

Load: Description of piece to be hoisted, i.e. Precast Double-tee, Rooftop AHU, Steel Truss

Submitted By: Person filling out Critical Lift Plan and company if different from above company

1. Crane Manufacturer: Company that manufactured the crane used, i.e. Grove, Linkbelt, Tadano
2. Model No: Model of crane, i.e. AFT-130, GMK-5275, RT-880E, LC-400
3. Crane Type: Crawler, All-Terrain, Rough-Terrain, Tower Crane
4. Crane Serial No: From name plate on crane
5. Crane Inspection Date: Date of Annual Inspection, this is required to be on the machine at all times
6. Crane Rated Capacity: Base capacity of crane, i.e. 150 tons, 275 tons, 80 tons
7. Boom Type: Lattice, Hydraulic, Tower jib
8. Boom Length: Boom length/configuration used during the lift in question
9. Lifting From: Select where the lift is being made
10. Jib Configuration: Mobile cranes, select one if jib is on the crane, no selection if no jib is on the machine. Tower cranes, disregard
11. Jib Length: Length of jib, if on the crane. Disregard if no jib is on crane
12. Jib Offset: Offset angle of installed jib, if on the crane. Disregard if no jib is on crane

Critical Lift Criteria

Check any items that apply to this lift.

A. CRANE

1. Crane Setup: Check the box that applies. If crane is on outriggers, fill in the percentage of outrigger extension.

2. Check the load chart / operating area that applies, 360 degrees or limited swing over rear of hydraulic crane or over the front of blocked crawlers.
3. Counter weights used: Insert the total weight of counter weights installed on the crane during the lift.
4. Lift Radius:
    a. Insert the radius from which the lift is started.
    b. Insert the radius at the point of placing the lift.
    c. Insert the worst case, this may be at some point between hoisting and placing.
5. Boom Angle:
    a. Insert the boom angle at which the lift is started.
    b. Insert the boom angle at placement.
    c. Insert the boom angle which represents the worst case during the lift.
6. Rated Capacity:
    a. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the starting point of the lift.
    b. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the placing point of the lift.
    c. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the worst point of the lift, this may be somewhere in between starting and placing.
7. Hoist Rope:
    a. Rope Dia: Fill in the size / diameter of the crane's hoist rope used.
    b. Line Pull: From crane information, fill in the available line pull, one part, for the hoist rope.
    c. Parts Req'd: Number of parts of hoist rope required in reeving to hoist the load. Total weight including all rigging load, divided by the available line pull.

B. LOAD

1. Source of load weight: This would commonly be from the manufacturer of the piece to be hoisted, can also be from bill of ladings or calculations of unit weight and volume.
2. Weight verified by: More than one check should be used to confirm the load weight. The last resort can be the operator aids of the crane (ask the operator immediately after hoisting, before continuing the lift).
3. Weight of Load: Insert the weight of the item to be hoisted from sources above.
4. Weight of load block: From the crane operator, fill in the weight of the load block on the crane, even if the lift is not made with this block.
5. Weight of overhaul ball: From the crane operator, fill in the weight of the overhaul ball on the crane, even if the lift is not made with the ball.
6. Weight of hoist rope: Estimate the length of hoist rope, all lines, below the boom point. Multiply by the unit weight of the rope, and insert here. The operator or the crane owner should know this unit weight.
7. Weight of rigging: Insert the total weight of all rigging, including spreader bars, rolling blocks, shackles, wire rope and synthetic slings.

8. Effective weight of jib: Any jib on the crane, installed or stowed has an effective weight which must be considered as part of the load. The load chart information sheets on the crane will give the jib deductions to insert in this.
9. TOTAL EFFECTIVE LOAD: This is the sum of B3 through B8, including all items that affect the load recognized by the crane.

C. CRANE LOAD / CAPACITY

1. Remaining Capacity: Rated Capacity (A6) of the crane at location minus the Total Effective Load (B9).
2. Load vs. Capacity: The Total Effective Load (B9) divided by the Rated Capacity (A6) at location.

D. RIGGING

Include a description/sketch or attachment of rigging including sizes, capacities, length, and loading of all rigging hardware utilized for the lift. This may include spreader bars, rolling blocks, shackles, slings (wire and synthetic) as well as any "below the hook" lifting devices. This may be from the Lift Director or Certified Rigger, but must be included as part of the Critical Lift Plan.

E. JOBSITE – CRANE PLACEMENT

1. Setup Area:
    a. Clear: Check to see the area is clear of obstacles, materials, or debris which prohibits crane from setting up where needed. The crane must be able to set up within manufacturer's tolerance for level.
    b. Stable: Check to see if the ground conditions are "firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support" are met.
2. Mats Required: When job conditions and ground bearing loads (from outriggers of tracks) dictate, additional supporting materials, i.e. blocking, cribbing, mats, marsh mats, or other supporting materials may become necessary. Check, if this condition exists, that these are properly used.
3. Electrical Hazards: Survey the area to determine if electrical hazards exist. Check Yes or No
    a. Approach Distance: If the answer to 3. Is yes, determine the minimum approach distance prescribed in OSHA 29 CRF 1926.1408 Table A, or the J. E. Dunn Hoisting Policy Manual section III.
    b. Control Method: Examples are Dedicated Spotter, Demarcation Boundaries (painted on ground, line of stanchions, or flagging), Proximity Warning Devices, or Swing Limiting Device on the crane.
4. Proximity to slopes: Specifically downward so as to compromise ground support conditions. If this condition exists, geo-tech engineering support may be required to insure sliding or shearing failure will not take place.

5. Underground Issues: Crane setup area must be checked to identify underground (hidden) vaults, voids, piping or utility structures which would likely not support the crane. Should any exist in the area, they must be clearly marked for the crane to avoid.

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

This section is to be filled out at the pre-lift meeting. Date, time, weather conditions, and wind speed are to be noted for the time of hoisting operations.

1. Critical Lift Plan Reviewed – Has this plan been reviewed with the key personnel at this pre-lift meeting?
2. 3D Lift Plan Reviewed – Have the sketches, 3D of 2D been reviewed during the pre-lift meeting?
3. Pre-shift Inspection Complete – Has the crane operator performed the required pre-shift inspection of the crane.
4. Annual Inspection on Crane – By common practice, a copy of this is kept on the crane. Make sure this inspection is current. If this is not available, contact the crane owner and obtain a copy before proceeding with any hoisting.
5. Counter weights on crane – Verify that the counter weights installed on the crane match or exceed the counter weights used to develop the lift plan.
6. Outriggers Deployed – Check to see that all outriggers are extended to match the lift plan and the weight of the machine is supported on outriggers, not on tires.
7. Ground Conditions Stable – Verify ground conditions providing support for the crane are adequate. Look for cracking around outriggers or tracks, settlement of mats/blocking, and proper drainage.
8. Matting properly Installed per Plan – Verify mat installation matches or exceeds the requirements of the Lift Plan.
9. Crane Level to Required Tolerance – Verify that the crane is set up level to manufacturer tolerances.
10. Underground Hazards Avoided – Verify underground hazards identified, and marked in section D. have been avoided.
11. Proximity to Downward Slopes – Verify distance to downward slopes identified in section D. is met or exceeded.
12. Electrical hazards Identified - Verify electrical hazards identified, and marked in section D. have been avoided, and control method has been implemented.
13. Tail Swing Clear – Check for obstructions to tail swing on crane, eliminate any found.
14. Boom Clearance Checked – If boom obstructions exist, a good way to check is with an empty hook, prior to commencing the lift, using an additional spotter to check the boom.
15. Head Room Checked – Verify rigging used does not exceed the vertical distance between the load and the A2B weight attached to the boom tip.
16. Swing Barrier Installed – Verify the swing barrier protecting access into the counter weight swing area is installed.

17. Hoisting Area Access Controlled – Check that access is prevented into areas under the entire path of the load.
18. Emergency “Drop Zone” Identified – Identify places the load can be landed, if the lift must be stopped for any reason.
19. Tag Lines Used – Check tag lines (proper length) are connected to the load.
20. Signal Method Used – Decide which signal method will be used for the lift.
21. Signal Person Identified – Designate the person to signal the crane operator.
22. Safety Spotter Identified – Identify the person or persons dedicated to spotting, regarding electrical hazards, clearances, or any questionable area.
23. Rigging Inspected – Visually inspect all rigging components, prior to use.
24. Rigging Installation Checked – Visually check that all rigging components are properly installed as tension is applied by the crane.

Special Instructions: Any special conditions or instructions for the crew should be noted here.

Pre-Lift Meeting Attendees: All personnel attending the pre-lift meeting should be listed. Key personnel (Lift Director – in charge of lift, Rigger, Crane Operator, Site Safety Manager, and Project Superintendent) must sign.

BLUE HAT
CRANE & EQUIPMENT
RENTALS

CRITICAL LIFT PLAN

DUNN safety
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Project Name:	Project No.:
Location:	Date:
Company:	
Load:	
Submitted By:	

1. Crane Manufacturer:	2. Model No.	3. Crane Type:	4. Crane Serial No.
5. Crane Inspection Date:	6. Crane Rated Capacity: (tons)	7. Boom Type:	8. Boom Length:
9. Lifting From: Boom: ☐ Jib: ☐	10. Jib Configuration: Stowed: ☐ Erected: ☐	11. Jib Length:	12. Jib Offset:

Critical Lift Criteria (check all that apply)

Load exceeds 75% of the crane capacity, mobile cranes and tower cranes	☐
When crane is used in tandem pick with any other equipment or crane	☐
When lifts are made within 20 feet of power lines	☐
When lift involves specialized, unique, or complex rigging equipment	☐
When hoisting personnel in suspended work platforms	☐
Hoisting specialized equipment with a long lead time to replace	☐

A. CRANE

1. Crane Setup:		
On Outriggers	☐	What %
On Tires	☐	0%
On Tracks	☐	0%
2. Chart Based	360 ☐	Ltd.Swng. ☐
3. Counter weights used:		LBS.
4. Lift Radius:		
a. At pick-up		Ft.
b. At setting		Ft.
c. Worst case		Ft.
5. Boom Angle:		
a. At pick-up		deg.
b. At setting		deg.
c. Worst case		deg.
6. Rated Capacity:		
a. At pick-up		LBS.
b. At setting		LBS.
c. Worst case		LBS.
7. Hoist Rope:		
Rope Dia.		mm/in
Line Pull		LBS.
Parts Req'd.	NaN	PARTS

B. LOAD

1. Source of load weight:		
2. Weight verified by:		
3. Weight of load		LBS.
4. Weight of load block		LBS.
5. Weight of overhaul ball		LBS.
6. Weight of hoist rope		LBS.
7. Weight of rigging		LBS.
8. Effective weight of jib		LBS.
9. TOTAL EFFECTIVE LOAD	0	LBS.

C. CRANE LOAD / CAPACITY

	1. Remaining Capacity (lbs.)	2. Load vs. Capacity	
a. At pick-up	0	NaN	%
b. At setting	0	NaN	%
c. Worst case	0	NaN	%

D. RIGGING

Description & capacity of rigging, or attach sheet to plan:

E. JOB SITE - CRANE PLACEMENT

1. Setup Area:	Clear	Yes ☐	No ☐	4. Proximity to slopes:		Yes ☐	No ☐
	Stable (firm)	Yes ☐	No ☐		Distance:		Ft.
2. Mats Required:		Yes ☐	No ☐	5. Underground Issues:		Yes ☐	No ☐
3. Electrical Hazards:		Yes ☐	No ☐		Loc. Marked:	Yes ☐	No ☐
a. Approach Distance:			Ft.				
b. Control Method:							

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

Date of Lift:			Time of Lift:			
Weather:	Sunny ☐	Overcast ☐	Rain ☐	Lightning ☐		
Wind Speed:		Measured ☐	Estimated ☐	Maximum Allowable:		MPH

(check)		(check)	
1 ☐	Critical Lift Plan Reviewed	13 ☐	Tail Swing Clear
2 ☐	3D Lift Plan Reviewed	14 ☐	Boom Clearance Checked
3 ☐	Pre-shift Inspection Complete	15 ☐	Head Room Checked
4 ☐	Annual Inspection on Crane	16 ☐	Swing Barrier Installed
5 ☐	Counter weights on Crane	17 ☐	Hoisting Area Access Controlled
6 ☐	Outriggers Deployed	18 ☐	Emergency "Drop Zone" Identified
7 ☐	Ground Conditions Stable	19 ☐	Tag Lines Used
8 ☐	Matting Properly Installed per Plan	20 ☐	Signal Method Used
9 ☐	Crane Level to Required Tolerance	21 ☐	Signal Person Identified
10 ☐	Underground Hazards Avoided	22 ☐	Safety Spotter Identified
11 ☐	Proximity to Downward Slopes	23 ☐	Rigging Inspected
12 ☐	Electrical Hazards Identified	24 ☐	Rigging Installation Checked

Special Notes:

1. **3D Lift Plan, or 2D Plan and Elevation Sketches must be included and attached as part of this Plan.**
2. Multiple (tandem) Crane Lifts require a separate plan for each crane.
3. Any change in the crane configuration, placement, rigging, or lifting scheme requires a new Critical Lift Plan developed and submitted.
4. Repetitive lifts require one Critical Lift Plan based upon the most extreme condition.

Special Instructions:

Pre-Lift Meeting Attendees:	Print	Signature
Lift Director		
Craft Foreman		
Certified Rigger		
Crane Operator		
Site Safety Manager		
Site Superintendent		
Additional		

CRITICAL LIFT PLAN

Project Name:	Project No.:
Location:	Date:
Company:	
Load:	
Submitted By:	

1. Crane Manufacturer:	2. Model No.	3. Crane Type:	4. Crane Serial No.
5. Crane Inspection Date:	6. Crane Rated Capacity: (tons)	7. Boom Type:	8. Boom Length:
9. Lifting From: Boom: ☐ Jib: ☐	10. Jib Configuration: Stowed: ☐ Erected: ☐	11. Jib Length:	12. Jib Offset:

Critical Lift Criteria (check all that apply)

Load exceeds 75% of the crane capacity, mobile cranes and tower cranes	☐
When crane is used in tandem pick with any other equipment or crane	☐
When lifts are made within 20 feet of power lines	☐
When lift involves specialized, unique, or complex rigging equipment	☐
When hoisting personnel in suspended work platforms	☐
Hoisting specialized equipment with a long lead time to replace	☐

A. CRANE

1. Crane Setup:		
On Outriggers	☐	What %
On Tires	☐	0%
On Tracks	☐	0%
2. Chart Based	360 ☐	Ltd.Swng. ☐
3. Counter weights used:		LBS.
4. Lift Radius:		
a. At pick-up		Ft.
b. At setting		Ft.
c. Worst case		Ft.
5. Boom Angle:		
a. At pick-up		deg.
b. At setting		deg.
c. Worst case		deg.
6. Rated Capacity:		
a. At pick-up		LBS.
b. At setting		LBS.
c. Worst case		LBS.
7. Hoist Rope:		
Rope Dia.		mm/in
Line Pull		LBS.
Parts Req'd.	NaN	PARTS

B. LOAD

1. Source of load weight:		
2. Weight verified by:		
3. Weight of load		LBS.
4. Weight of load block		LBS.
5. Weight of overhaul ball		LBS.
6. Weight of hoist rope		LBS.
7. Weight of rigging		LBS.
8. Effective weight of jib		LBS.
9. TOTAL EFFECTIVE LOAD	0	LBS.

C. CRANE LOAD / CAPACITY

	1. Remaining Capacity (lbs.)	2. Load vs. Capacity	
a. At pick-up	0	NaN	%
b. At setting	0	NaN	%
c. Worst case	0	NaN	%

D. RIGGING

Description & capacity of rigging, or attach sheet to plan:

E. JOB SITE - CRANE PLACEMENT

1. Setup Area:	Clear	Yes ☐	No ☐	4. Proximity to slopes:		Yes ☐	No ☐
	Stable (firm)	Yes ☐	No ☐		Distance:		Ft.
2. Mats Required:		Yes ☐	No ☐	5. Underground Issues:		Yes ☐	No ☐
3. Electrical Hazards:		Yes ☐	No ☐		Loc. Marked:	Yes ☐	No ☐
a. Approach Distance:			Ft.				
b. Control Method:							

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

Date of Lift:			Time of Lift:			
Weather:	Sunny ☐	Overcast ☐	Rain ☐	Lightning ☐		
Wind Speed:		Measured ☐	Estimated ☐	Maximum Allowable:		MPH

(check)		(check)	
1 ☐	Critical Lift Plan Reviewed	13 ☐	Tail Swing Clear
2 ☐	3D Lift Plan Reviewed	14 ☐	Boom Clearance Checked
3 ☐	Pre-shift Inspection Complete	15 ☐	Head Room Checked
4 ☐	Annual Inspection on Crane	16 ☐	Swing Barrier Installed
5 ☐	Counter weights on Crane	17 ☐	Hoisting Area Access Controlled
6 ☐	Outriggers Deployed	18 ☐	Emergency "Drop Zone" Identified
7 ☐	Ground Conditions Stable	19 ☐	Tag Lines Used
8 ☐	Matting Properly Installed per Plan	20 ☐	Signal Method Used
9 ☐	Crane Level to Required Tolerance	21 ☐	Signal Person Identified
10 ☐	Underground Hazards Avoided	22 ☐	Safety Spotter Identified
11 ☐	Proximity to Downward Slopes	23 ☐	Rigging Inspected
12 ☐	Electrical Hazards Identified	24 ☐	Rigging Installation Checked

Special Notes:

1. **3D Lift Plan, or 2D Plan and Elevation Sketches must be included and attached as part of this Plan.**
2. Multiple (tandem) Crane Lifts require a separate plan for each crane.
3. Any change in the crane configuration, placement, rigging, or lifting scheme requires a new Critical Lift Plan developed and submitted.
4. Repetitive lifts require one Critical Lift Plan based upon the most extreme condition.

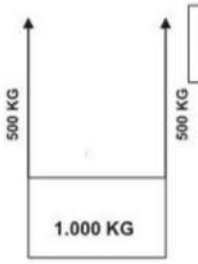
Special Instructions:

Pre-Lift Meeting Attendees:	Print	Signature
Lift Director		
Craft Foreman		
Certified Rigger		
Crane Operator		
Site Safety Manager		
Site Superintendent		
Additional		

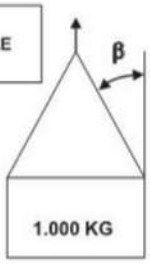
SHACKLES (ALL TYPES) --Weldless Construction --Forged Alloy Steel		
Stock Diameter (Inches)	**Inside Width at Pin (Inches)**	**Max. Safe Working Load - Single Vertical Pull (Pounds)**
3/16	3/8	665
1/4	15/32	1,000
5/16	17/32	1,500
3/8	21/32	2,000
7/16	23/32	3,000
1/2	13/16	4,000
5/8	1-1/16	6,500
3/4	1-1/4	9,500
7/8	1-7/16	13,000
1	1-11/16	17,000
1-1/8	1-13/16	19,000
1-1/4	2-1/32	24,000
1-3/8	2-1/4	27,000
1-1/2	2-3/8	34,000
1-3/4	2-7/8	50,000
2	3-3/4	70,000
2-1/2	4-1/8	100,000
3	5	150,000
3-1/2	5-3/4	200,000
4	6-1/2	260,000

SLING ANGLES

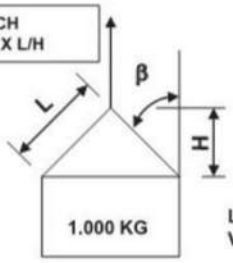
8



LOAD =
500 X LOAD ANGLE FACTOR



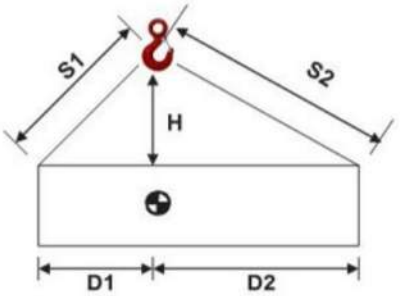
LOAD IN EACH SLING = 500 X L/H



VERTICAL SLING ANGLE β	LOAD ANGLE FACTOR = L/H
0°	1.00
30°	1.16 (1.2)
45°	1.41 (1.4)
60°	2.00 (2.0)

LOAD ON EACH LEG OF SLING =
VERTICAL LOAD X LOAD ANGLE FACTOR

UNEQUAL LEGS



LOAD ON SLING CALCULATED

TENSION 1= LOAD X D2 X S1/H(D1 + D2)
TENSION 2= LOAD X D1 X S2/H(D1 + D2)

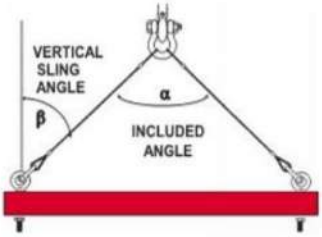
SLING LENGTH FOR DESIRED ANGLE

VERTICAL ANGLE	LENGTH FACTOR	L/H
60 DEGREES	1.15	2
50 DEGREES	1.31	1.55
45 DEGREES	1.41	1.4
40 DEGREES	1.55	1.3
35 DEGREES	1.74	1.21
30 DEGREES	2	1.16

LENGTH = D X (LENGTH FACTOR)

(D = DISTANCE PICK-UP POINT → C.O.G.)

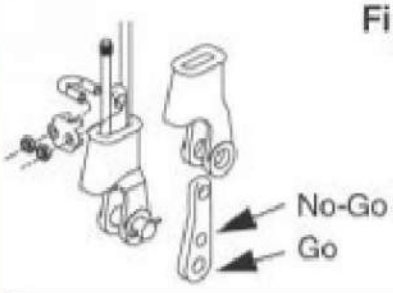
VERTICAL SLING ANGLE = 1/2 INCLUDED ANGLE

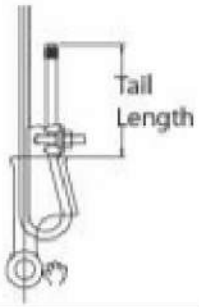


Crosby WEDGE SOCKETS

6

Figure 1





Tail Length	
Standard 6 to 8 strand wire rope	Rotation Resistant Wire Rope
A minimum of 6 rope diameter, but not less than 150mm.	A minimum of 20 rope diameters, but not less than 150mm.

Figure 2

WRONG

ASSEMBLY SAFETY

- USE ONLY WITH STANDARD 6 TO 8 STRAND WIRE ROPE OF DESIGNATED SIZE. FOR INTERMEDIATE SIZE ROPE, USE NEXT LARGER SIZE SOCKET. TAIL LENGTH OF DEAD END AS PER FIGURE 1.
- ALIGN LIVE END OF ROPE, WITH CENTER OF PIN. (SEE FIGURE 1)
- SECURE DEAD END SECTION OF ROPE. (SEE FIGURE 1)
- DO NOT ATTACH DEAD END TO LIVE END. (SEE FIGURE 2)
- USE A HAMMER TO SEAT WEDGE AND ROPE AS DEEP INTO SOCKET AS POSSIBLE BEFORE APPLYING FIRST LOAD.
- REFER TO FIGURE 1 FOR ASSEMBLY OF Crosby TERMINATOR WEDGE SOCKET.
- DEAD END SHOULD ALSO BE WELDED, BRAZED OR SEIZED BEFORE INSERTING.

OPERATING SAFETY

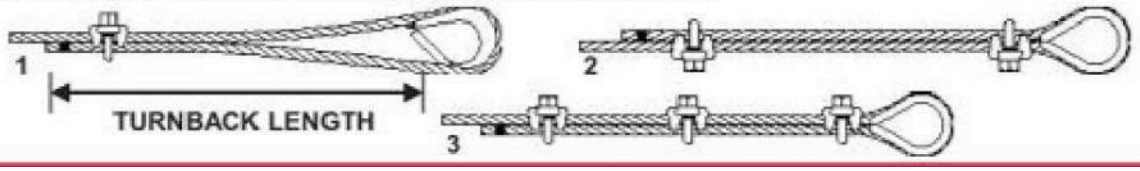
- APPLY FIRST LOAD TO FULLY SEAT THE WEDGE AND WIRE ROPE IN THE SOCKET. THIS LOAD SHOULD BE OF EQUAL OR GREATER WEIGHT THAN LOADS EXPECTED IN USE.
- EFFICIENCY RATING OF THE WEDGE SOCKET TERMINATION IS BASED UPON THE CATALOG BREAKING STRENGTH OF WIRE ROPE. THE EFFICIENCY OF A PROPERLY ASSEMBLED WEDGE SOCKET IS 80%.

Crosby Europe

WIRE ROPE CLIPS

SIZE		EFFICIENCY	NUMBER OF CLIPS	TURNBACK LENGTH MM	TORQUE Nm
INCH	MM				
1/8	3 - 4	80%	2	85	6.1
3/16	5	80%	2	95	10.2
1/4	6 - 7	80%	2	120	20.3
5/16	8	80%	2	133	40.7
3/8	9 - 10	80%	2	165	61
7/16	11	80%	2	178	88
1/2	12 - 13	80%	3	292	88
9/16	14 - 15	80%	3	305	129
5/8	16	80%	3	305	129
3/4	18 - 20	80%	4	460	176
7/8	22	80%	4	480	305
1	24 - 26	90%	5	660	305

- APPLY U-BOLT OVER DEAD END OF THE WIRE ROPE, LIVE END OF THE ROPE RESTS IN THE SADDLE; NEVER SADDLE A DEAD HORSE!
- USE THE RECOMMENDED NUMBER OF CLIPS AND APPLY THE RECOMMENDED TORQUE AS SPECIFIED IN THE TABLE.
- A TERMINATION IS ONLY FINISHED WHEN IT HAS BEEN LOADED AT THE REQUIRED WLL AND THE NUTS HAVE BEEN RETORQUED A SECOND TIME.



Rigging Information

INSPECTION OF HARDWARE

DEFORMATION
REMOVE FROM SERVICE IF ANY SIGNIFICANT DEFORMATION. CHECK THROAT OPENING OF HOOKS.

WEAR
REMOVE FROM SERVICE IF EXCESSIVE WEAR. WEAR IS EXCESSIVE IF:
- MORE THAN 5% WEAR IN THROAT OR EYE OF HOOK AND OTHER CRITICAL AREAS OF HARDWARE.
- MORE THAN 10% WEAR IN OTHER AREAS.

CRACKS, NICKS, GOUGES
REMOVE FROM SERVICE IF CRACKS,NICKS, OR GOUGES ARE DETECTED.

MODIFICATION
DO NOT WELD, DO NOT SUBSTITUTE SHACKLES PINS OR OTHER COMPONENTS, DO NOT HEAT, BEND OR MODIFY IN ANY MANNER.

PROPER FUNCTION
IMPROPERLY INSTALLED HARDWARE OR MALFUNCTION IS CAUSE FOR REMOVAL. CHECK FOR LATCHES, SWIVEL BEARINGS, LOCKING DEVICES, AND INSTALLATION OF WIRE ROPE CLIPS AND WEDGE SOCKETS.

INSPECTION OF WIRE ROPE SLINGS

11

ALL SLINGS AND ATTACHMENTS SHALL BE VISUALLY INSPECTED BY THE PERSON HANDLING THE SLING EACH DAY THEY ARE USED. IN ADDITION, A PERIODIC INSPECTION SHALL BE PERFORMED BY A COMPETENT PERSON, AT LEAST ONCE EVERY 6 MONTHS (OR PER LEGAL REQUIREMENTS) AND SHALL INCLUDE A RECORD OF THE INSPECTION.

INSPECTION CRITERIA

KINKING	CORE PROTRUSION
CRUSHING	CORROSION
UNSTRANDING	BROKEN OR CUT
BIRDCAGING	STRANDS
STRAND DISPLACEMENT	BROKEN WIRES

BROKEN WIRES
REFER TO THE APPLICABLE STANDARDS SUCH AS ISO 4309 WITH SPECIFIC DISCARD CRITERIA AND GUIDANCE REGARDING THE NUMBER OF BROKEN WIRES.

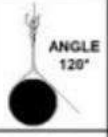
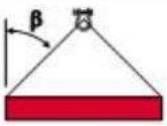
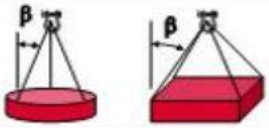
DISTORTION OF WIRE ROPE
REMOVE FROM SERVICE WIRE ROPE SLINGS THAT HAVE ANY DAMAGE RESULTING IN DISTORTION OF THE WIRE ROPE STRUCTURE SUCH AS KINKING, CRUSHING, UNSTRANDING, BIRD CAGING, STRAND DISPLACEMENT OR CORE PROTRUSION.

Remember - *"When buying Crosby, you're buying more than product, you're buying Quality."*

WIRE ROPE SLING CAPACITIES (t) (refer to standard EN13414-1)

12

WORKING LOAD LIMITS FOR SLINGS USING STEEL CORED ROPE OF CLASSES 6X19, 6X36 AND 8X36 AND HAVING FERRULE-SECURED EYE TERMINATIONS TENSILE STRENGTH 1770 kN/mm² DESIGN FACTOR 5 / 1

WIRE ROPE SIZE		Crosby Q&T CARB. SHACKLE MIN. SHACKLE SIZE FOR A D/d >1 AT LOAD CONNECTION						
MM	MBL (kN)	SHACKLE SIZE (INCH)	VERTICAL (SINGLE LEG) t	CHOKER t	TWO LEG SLINGS 0° < β ≤ 45° t	TWO LEG SLINGS 45° < β ≤ 60° t	THREE AND FOUR LEG SLINGS 0° < β ≤ 45° t	THREE AND FOUR LEG SLINGS 45° < β ≤ 60° t
8	40.3	3/8	0.75	0.60	1.05	0.75	1.55	1.10
10	63.0	7/16	1.15	0.92	1.60	1.15	2.40	1.70
12	90.7	1/2	1.70	1.36	2.30	1.70	3.55	2.50
13	106	5/8	2.00	1.60	2.80	2.00	4.15	3.00
14	124	5/8	2.25	1.80	3.15	2.25	4.80	3.40
16	161	3/4	3.00	2.40	4.20	3.00	6.30	4.50
18	204	7/8	3.70	2.96	5.20	3.70	7.80	5.65
20	252	7/8	4.60	3.68	6.50	4.60	9.80	6.90
22	305	1	5.65	4.52	7.80	5.65	11.80	8.40
24	363	1-1/8	6.70	5.36	9.40	6.70	14.00	10.00
26	426	1-1/8	7.80	6.24	11.00	7.80	16.50	11.50
28	494	1-1/4	9.00	7.20	12.50	9.00	19.00	13.50
32	645	1-3/8	11.80	9.44	16.50	11.80	25.00	17.50
36	817	1-1/2	15.00	12.00	21.00	15.00	31.50	22.50

RATED CAPACITIES (t) BASED ON PIN DIAMETER OR HOOK NO LARGER THAN THE NATURAL EYE WIDTH (1/2 X EYE LENGTH) OR LESS THAN THE NOMINAL SLING DIAMETER. TURNBACK EFFICIENCY: k = 0,9 FLEMISH EYE TERMINATION OFFERS A HIGHER EFFICIENCY

REFER TO EN 13414-1 FOR FULL DETAILS
VERTICAL SLING ANGLES GREATER THAN 60° ARE NOT RECOMMENDED!

SAFETY & HEALTH MANUAL

Section 17: Forklifts and Powered Industrial Trucks

Mark Henkel
Senior Safety Specialist

Jump to Section

Policy Statement

This policy applies to all contractors, Trade Partners and vendors who perform work on JE Dunn projects.

Definitions

Qualified Person

Individual that possesses the knowledge, skill and ability either through training or experience to operate equipment included in this policy. They must also successfully demonstrate their practical skills to operate the equipment smoothly and safely.

Powered Industrial Vehicle

includes but is not limited to fork vehicles, tractors with forks, platform lift vehicles, motorized hand vehicles, and any other specialized industrial vehicle powered by electric motors or internal combustion engines

General Requirements

Superintendent Responsibilities

1. Ensure that employees assigned to operate powered industrial vehicles are trained and qualified as outlined in this program.
2. Ensure powered industrial vehicles are inspected prior to each use as outlined in this Program.

Trade Partner Responsibilities

To provide JE Dunn the training and inspection certifications for each operator and machine that is outlined in this program prior to the operation of a powered industrial vehicle on a JE Dunn project.

Operator Responsibilities

Adheres to all operating requirements that have been identified in this program.

Ensure that his/her certification is current prior to any operation of a powered industrial vehicle on a JE Dunn project.

Operator Training

Only trained and authorized operators are permitted to operate powered industrial vehicles on JE Dunn projects. Operators must show proof of training. Powered industrial vehicle operators must be trained in accordance with the manufacturer's recommendations and OSHA Standards.

Operator training and operator certifications are required at a minimum of every three years. Operators will be required to retrain under the following conditions:

1. The operator has been observed operating a powdered industrial vehicle in an unsafe manner.
2. The operator has been involved in an accident or near miss incident.
3. The operator is assigned to operate a different vehicle type.
4. Conditions in the workplace change in a manner that could affect the safe operation of the vehicle.

Operating Procedures

Only trained and authorized operators are permitted to operate powered industrial vehicles. Operators are required to:

1. Inspect the forklift daily and document prior to each use.
2. Wear safety belts when operating the machine.
3. Keep arms and legs inside the cab or ROPS at all times.
4. Do not allow workers to ride on the forklift or load.
5. Operate the machine at a safe speed that is suitable to the conditions.
6. Follow the manufacturer's recommendations on the vehicles capacity.
7. Do not allow workers to stand or pass under the elevated portion of the forklift, whether loaded or empty.
8. Ensure the stability of their load.
9. Drive a loaded forklift with the load on the uphill side whenever possible.
10. Travel in reverse if load obstructs forward view.
11. Travel with forks tilted back and raised only enough to see the right-side mirror of the fork lift.
12. Never turn a vehicle sideways on a ramp or steep incline.
13. Never transport compressed gas cylinders without the proper cage that secure and support the cylinders.
14. Maintain a safe distance from all overhead obstructions.
15. Avoid sudden starts and stops to prevent the load from shifting or coming displaced.
16. Never raise or lower a load while traveling.
17. Use spotters when operators view is obstructed or in congested areas.
18. Always shut the engine off while refueling.
19. Maintain a safe breaking distance from other powered industrial vehicles.
20. Sound the horn when approaching intersections, blind spots or dangerous locations.
21. Compensate for shifts in the center of gravity of the machine and maintain machine stability at all times.
22. Be cautious of pedestrians, they have the right of away.
23. Horseplay is strictly prohibited.
24. Never leave a loaded vehicle running or unattended.
25. When the vehicle is in the parked or unattended position insure that the forks tips are on

Annexes

Inspections and Checklists

Equipment Inspection Form – Large Equipment

Functional Manager

Aaron Babusa-Lucas
Senior Safety Manager

Change History

Original Published Date:

Date	Description
08/24/21	Replaced item 1 under Operator Training. Added new statement and 4 additional items and added the word forklift in the statement referring to operator retraining
08/24/21	"Under Operators are required to" segment, items 1,3, and 5 were reworded. Items 2 and 26 are new items
08/24/21	Added "Use of Attachments" segment. Moved the second sentence under for/jib attachments to "Use of Attachment" segment and reworded. Reworded items 2 and 4 under "use of attachments" segment and added item 3.
08/24/21	Under Annexes – a note was made to add the current forklift and large equipment inspection forms

the ground, parking break is set, and the engine is in the off position with the key removed.

26. Maintain proper distance from overhead power lines in accordance the table below.

Minimum Safety Approach Distance

Voltage Range (phase to phase)	Minimum Safe Approach Distance (feet/meters)
0 to 50KV	10 (3)
Over 50KV to 200KV	15 (5)
Over 200KV to 250KV	20 (6)
Over 350KV to 500KV	25 (8)
Over 500KV to 750KV	35 (11)
Over 750KV to 1000KV	45 (14)

Special Conditions

Lifting Hooks

A "Lift Hook" device is required when conducting lifting operations under the forks. Rigging (slings, chains, chokers and the like) shall not be directly attached to the forks or tines; also, known as "Free Rigging".

Fork/Jib Attachments

Jib attachments on forks may only be used after a risk assessment has been performed involving Operations and Safety.

Use of Attachments

The use of attachments greatly affects the dynamics of a forklift. When an attachment is utilized, the following guidelines apply:

- Job Safety Analysis (JSA) must be completed
- The attachment safety instructions must be reviewed with the crew and operator
- The attachment load chart must be strictly adhered to.

Personnel Platforms

It is strictly prohibited that a powered industrial vehicle is used as a personnel lift unless approved by the lift manufacturer.

When a personnel platform is utilized, the following guidelines apply:

1. Job Safety Analysis (JSA) must be completed
2. Makeshift devices will not be allowed on site
3. The platform safety instructions must be reviewed with the crew and operator
4. Platforms must be inspected before use
5. The platform must have a positive connection to secure it to the forklift per the manufacturer's recommendations
6. Workers in the platform must wear and utilize fall protection
7. Workers in the platform are prohibited from tying off to adjacent structures
8. All gates and rails must be secured in the proper position
9. The worker's feet must stay on the floor of the platform when in use
10. Using steps, planks or standing on guardrails to increase reach is prohibited
11. The platform must have permanent labeling to indicate the platform's weight and rated load capacity or maximum intended load.

JE DUNN CONSTRUCTION Logistics

Weekly Report for Daily Inspection:
LARGE EQUIPMENT

Project: Job Number: Today's Date:

Equipment Number: Hours:

Dates of Inspection: (from) (to) Inspected By:

Aerial Lift Type (pick one): ◉ 76-Skid Loaders ○ 74-Forklifts ○ 70-Mini Excavators ○ 73-Reach Forklifts ○ 70-Backhoe

Daily Checks (by category)	Mon		Tues		Wed		Thurs		Fri		Sat		Sun	
	D	OK	D	OK	D	OK	D	OK	D	OK	D	OK	D	OK
Lubrication/Engine:														
Check all Fluid Levels	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Check all Grease Points	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Belts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Radiator Hoses	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Safety Devices:														
Back-Up Alarm/Horn	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Beacon light	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Decals, Triangle	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Operator Access, Steps	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Guards/Covers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fire Extinguisher	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Operator's Manual	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Seatbelt	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Electrical:														
Switches	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Connections	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cables	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Interlocks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Brakes:														
Park Brake	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Operating Brakes	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hydraulic System:														
Lines	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Connections/Couplers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Limit Switches	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Boom/Carriage/Mast:														
Wear Pads	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Rollers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Couplers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Chains	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Wire Rope/Hooks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Tires/Tracks	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Forks/Fork Bar	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(ALL BOXES must be checked either Deficient or OK)

Deficient Comments:

Verified by Superintendent (print name):

SAFETY & HEALTH MANUAL

Section 18: Hand and Power Tools


Jake Jenkins
Senior Safety Specialist

Jump to Section

Policy Statement

The intent of this policy is to outline proper equipment safeguards and safe operating procedures while using hand and power tools.

General Requirements

1. All tools, whether personal or company owned, must be kept in good condition, inspected before use, and maintained.
2. Worn or damaged equipment must be tagged "Out of Service" and replaced immediately.
3. Where conditions warrant, tethers/tool lanyards shall be used to prevent hand or power tools from inadvertently falling to work areas below.
4. Manufacturer guards and T-handles will not be removed during use.
5. Rotating belts, pulleys, shafts, etc. on all equipment shall be guarded to prevent contact either by the worker or by objects carried or worn by the worker.

Electric Tools

1. Electric tools must be grounded or double insulated.
2. Power cords must be free of cuts, nicks, or damage.
3. Ground fault circuit interruption must be provided if the tool is connected to temporary power which will include an extension cord plugged into permanent power.
4. Tools must be disconnected before changing attachments or making repairs.

Gasoline Tools

1. Fuel powered tools must be shut down before refueling.
2. Adequate ventilation must be provided when operating in closed areas.
3. It is not recommended to use gasoline powered tools indoors or in any area where ventilation is restricted. If gas powered tools must be used indoors, carbon monoxide levels must be monitored.

Portable Circular Saws

1. Portable circular saws must be equipped with properly functioning guards above and below the base plate or shoe.
2. The base or shoe of the saw shall be adjusted for the thickness of the material being cut.

Table or Bench Saws

1. Upper blade guards and non-kickback attachments must be provided and used.
2. A push stick is required when ripping.
3. Blade height shall be properly adjusted when cutting and retracted when not in use.
4. Belt/pulley guards shall be installed and maintained.

Right-Angle Grinders

1. 180-degree guards must be installed and utilized.
2. Wheels must be inspected regularly, and defective wheels replaced immediately.
3. Wheels must match and rated RPM of the tool.

Pneumatic Tools

1. Air supply lines must be protected, and all connections secured to prevent accidental separation.
2. Hoses may not be used to raise or lower tools.
3. Air hoses with an inside diameter of ½ inch or greater must be equipped with a flow control safety device attached at the source to reduce pressure if the hose fails.

Powder-Actuated Tools

1. Only trained employees can operate powder-actuated tools. Proof of training is required.
2. Hearing and eye protection is mandatory.
3. Loaded tools shall not be left unattended.
4. Unfired cartridges must be disposed of per the manufacturer's recommendations.

Hand Tools

1. Hand tools must be kept in good condition. Worn or broken tools such as hammers with loose handles, chisels with mushroomed heads, saws with teeth not set, shovels with splintered or split handles, etc. must be repaired or replaced.
2. No homemade tools are allowed.

Functional Managers


Bryan Novitski
Senior Safety Manager


David Hulse
Safety Director

Change History

Date	Description
8/30/2021	No changes were made to the previous section.

SAFETY & HEALTH MANUAL

Section 19: Ladders and Stairways


Matt Ogle
Senior Safety Manager

Jump to Section

Policy Statement

The intent of this policy is to define general information on ladders and stairways and how to inspect and care for each.

Ladder Last

Ladders Last reflects the belief that ladders should be the last choice in accessing work areas and tasks. This is accomplished by identifying other means of access and or elevated work platforms that better protect workers.

Ladders Last Requirements

1. Permanent stairs shall be designed, released for fabrication and installation, at the earliest available time, to safely access areas of the project.
2. A stairway shall always be the preferred method to access the work area over ladders.
3. The JE Dunn and Trade Partner supervision shall plan and implement methods in which ladder use is the last means for workers to access their tasks.
4. Project leadership teams will promote and educate workers to always look for ladder alternatives first.

General Requirements

1. A stairway or ladder must be provided for all personnel access points with a vertical break in elevation of 19 inches or more.
2. Any manufactured ladder on a JE Dunn project will be at a minimum a Type 1A.

Stairs, Pans and Landings

1. Employees are not allowed to walk on pan stairs or platforms which have not been poured unless wood filler or other solid material is fitted to the top edge of each pan and platform.
2. Incomplete stairs (including stairs without pans filled) shall be barricaded at the top and bottom of the landings to prevent use.
3. Jobsite trailer stair platforms shall not be more than 1 1/2" from under the swing of an access door.
4. Stairs shall be installed between 30 degrees and 50 degrees from horizontal.

Stairway Handrails and Guardrails

1. Handrails (30"-37" above tread) must be provided on all open sides of stairs with 4 or more risers or rising more than 30 inches, whichever is less.
2. Guardrails (42" top rail 21" mid rail) must be installed to protect landings.

Ladder Inspection and Maintenance

1. Ladders should be inspected by a competent person prior to use. Damaged ladders shall be tagged "Do not use" and removed from service until they are repaired.
2. Rungs should be kept clean to prevent slips.

General Ladder Safety

1. Side rails must extend at least 36 inches above the landing surface and the ladder must be secured to prevent movement.
2. Ladders must be placed on a substantial base with a clear access at the top and bottom.
3. Ladders should be pitched at 1 foot out from the support structure for every 4 feet of ladder height.
4. Workers must face the ladder and maintain three points of contact when climbing/descending.
5. A hand line must be available at each access ladder to hoist tools or materials.
6. Ladders should not be placed in front of doors unless the door is locked or blocked.
7. When utilizing a ladder near an interior or exterior opening, personal fall protection must be utilized when the distance is less than or equal to 1.5 times the height of the ladder.
8. Guardrails protecting ladder landings shall be provided with a gate or offset so that a person cannot walk directly into the ladder way opening.
9. Aluminum ladders are prohibited.
10. Ladders shall only be used as they were designed.

Step Ladders

1. Center your body on the ladder and keep belt buckle between the rails while maintaining a firm grip.
2. Don't overreach, lean to one side or try to move the ladder while you are on it.
3. Don't exceed the maximum load capacity of a ladder.
4. Do not stand on the top step or brace of a step ladder.
5. Do not straddle a ladder and sit on the top or pail shelf.
6. Do not use a stepladder unless the ladder is completely open with the spreaders locked.
7. Don't climb on the back of a ladder.
8. Don't permit more than one person on a single sided step ladder.
9. Three legged stepladders shall be used only as they were intended and shall not be used for general use (where a four-legged stepladder can be used.)

Extension Ladders

1. Extension ladders shall not be used as the primary point of access or egress.
2. Get help with handling heavy ladders.
3. Secure the ladder or have another person hold the ladder while you are working on it.

Annexes

Forms and Permits

Single Cleat Ladder Design
Double Cleat Ladder Design

Functional Manager


Nate Mock
Safety Director

Change History

Date	Description
8/9/2021	Ladders Last section was added
8/9/2021	Jobsite trailer stair platforms shall not be more than 1 1/2" from under the swing of an access door was added.
8/9/2021	Three legged stepladders shall be used only as they were intended and shall not be used for general use (where a four-legged stepladder can be used) was added in the Stepladder Section.
8/9/2021	Specialty ladder section was added

4. Center your body on the ladder and keep belt buckle between the rails while maintaining a firm grip.
5. Don't overreach, lean to one side or try to move the ladder while you are on it.
6. Don't exceed the maximum load capacity of a ladder.
7. Extension ladders will not exceed 24' of extended length.
8. Extension ladder sections are not to be separated and used individually.

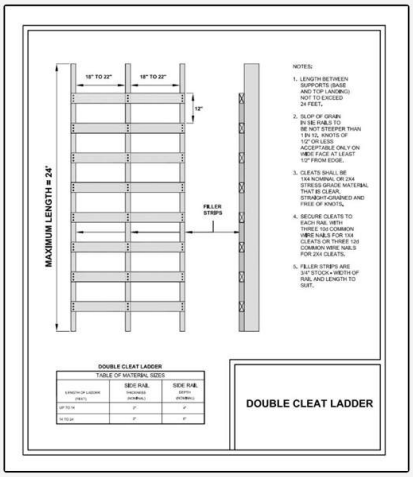
Special Purpose Ladder

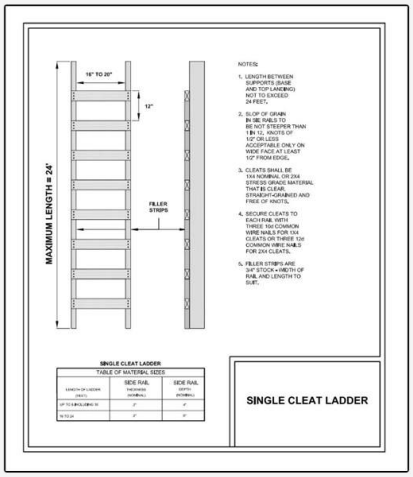
1. All non-standard (step/extension) ladders must be approved by JE Dunn prior to use.

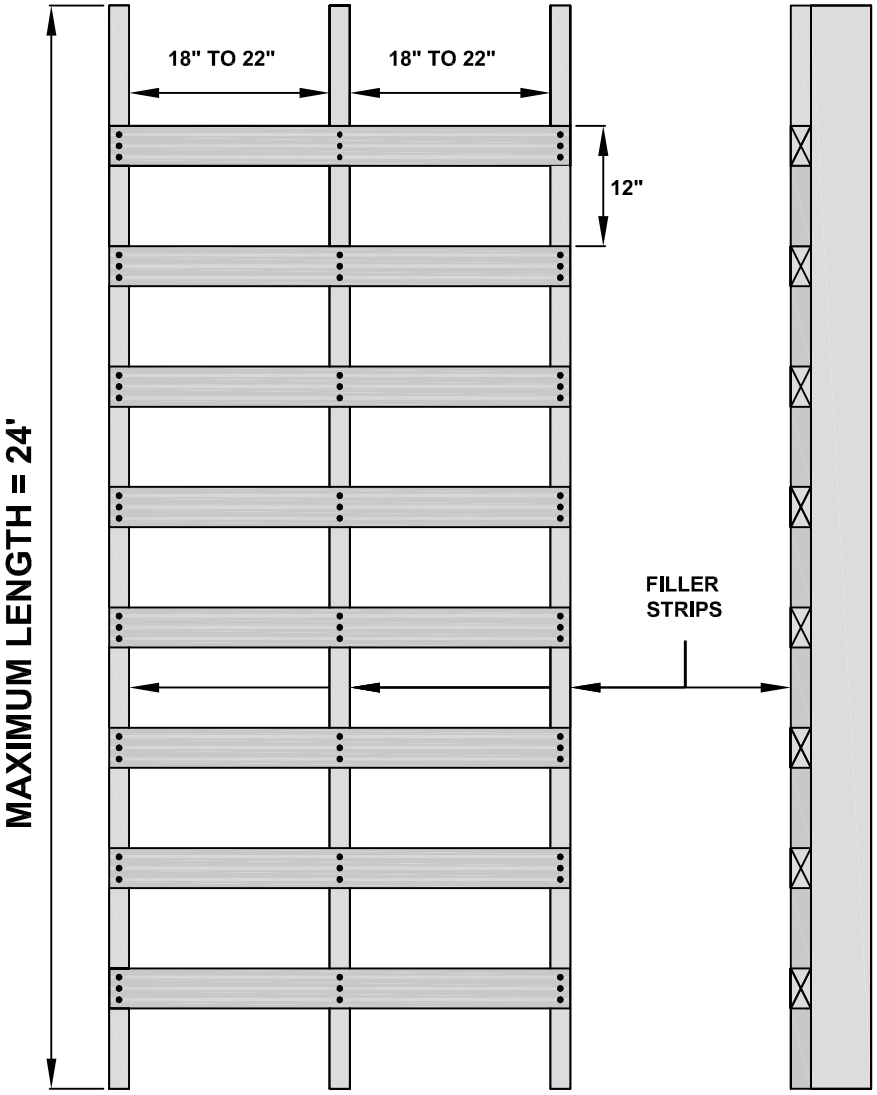
Job Built Ladders

1. Job built ladders shall be the last option to access levels.
2. Job built ladders shall be approved by JE Dunn.
3. Single-cleat and Double-cleat ladders must not exceed 24 feet in working length.
4. The width of a single-cleat should be between 16 and 20 inches. The width of a double-cleat should be between 18 and 22 inches.
5. Cleats should be continuous and extend the full width of double cleat ladders. Cleats must be parallel and evenly spaced from the ladder's base to the top bearing point. Spacing must measure 12 inches between the top edges of each cleat. There should be no cleats on side rails that extend above the landing surface.
6. Extra cleats should be cut and nailed to the side rail of the ladder as a quick replacement for cleats that become worn or broken.
7. Cleat board should be free of knots, holes, checks or splits.
8. When job built ladders are installed where there is an exposure to an interior or exterior unprotected shaft or opening, a side rail shall be installed along the exposed side of the ladder.
9. Single-headed nails as specified on drawing shall be used to construct ladder.

Job Built Ladder- Design







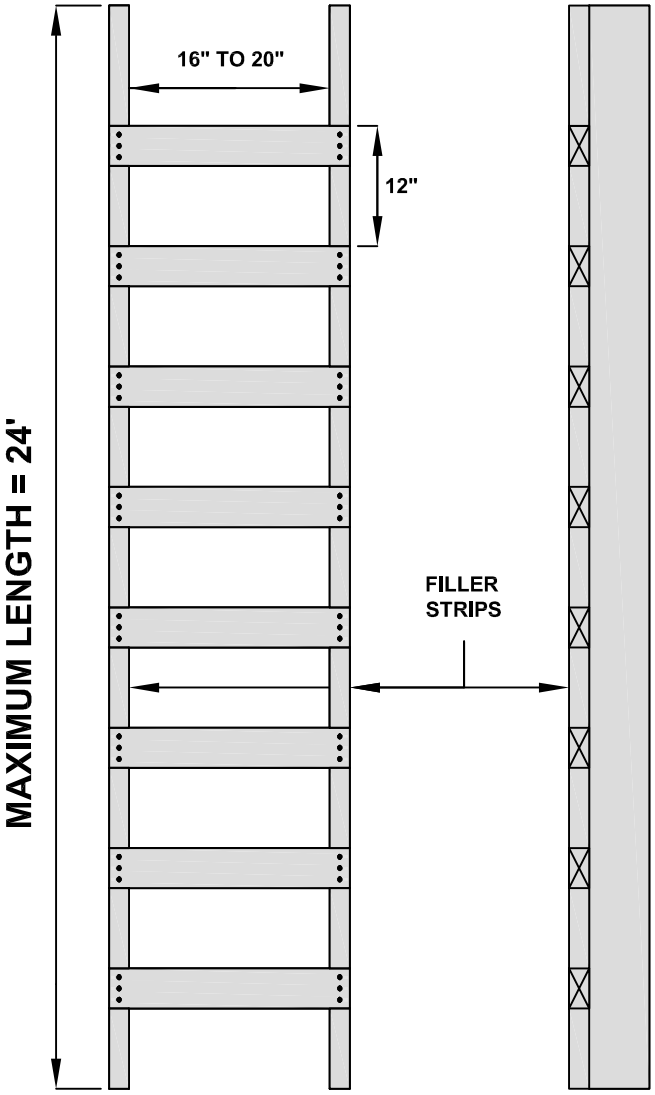
NOTES:

1. LENGTH BETWEEN SUPPORTS (BASE AND TOP LANDING) NOT TO EXCEED 24 FEET.
2. SLOP OF GRAIN IN SIE RAILS TO BE NOT STEEPER THAN 1 IN 12. KNOTS OF 1/2" OR LESS ACCEPTABLE ONLY ON WIDE FACE AT LEAST 1/2" FROM EDGE.
3. CLEATS SHALL BE 1X4 NOMINAL OR 2X4 STRESS GRADE MATERIAL THAT IS CLEAR, STRAIGHT-GRAINED AND FREE OF KNOTS.
4. SECURE CLEATS TO EACH RAIL WITH THREE 10d COMMON WIRE NAILS FOR 1X4 CLEATS OR THREE 12d COMMON WIRE NAILS FOR 2X4 CLEATS.
5. FILLER STRIPS ARE 3/4" STOCK - WIDTH OF RAIL AND LENGTH TO SUIT.

DOUBLE CLEAT LADDER

TABLE OF MATERIAL SIZES		
LENGTH OF LADDER (FEET)	SIDE RAIL THICKNESS (NOMINAL)	SIDE RAIL DEPTH (NOMINAL)
UP TO 12	2"	4"
12 TO 24	2"	6"

DOUBLE CLEAT LADDER



NOTES:

1. LENGTH BETWEEN SUPPORTS (BASE AND TOP LANDING) NOT TO EXCEED 24 FEET.

2. SLOP OF GRAIN IN SIE RAILS TO BE NOT STEEPER THAN 1 IN 12. KNOTS OF 1/2" OR LESS ACCEPTABLE ONLY ON WIDE FACE AT LEAST 1/2" FROM EDGE.

3. CLEATS SHALL BE 1X4 NOMINAL OR 2X4 STRESS GRADE MATERIAL THAT IS CLEAR, STRAIGHT-GRAINED AND FREE OF KNOTS.

4. SECURE CLEATS TO EACH RAIL WITH THREE 10d COMMON WIRE NAILS FOR 1X4 CLEATS OR THREE 12d COMMON WIRE NAILS FOR 2X4 CLEATS.

5. FILLER STRIPS ARE 3/4" STOCK - WIDTH OF RAIL AND LENGTH TO SUIT.

SINGLE CLEAT LADDER

TABLE OF MATERIAL SIZES		
LENGTH OF LADDER (FEET)	SIDE RAIL THICKNESS (NOMINAL)	SIDE RAIL DEPTH (NOMINAL)
UP TO & INCLUDING 16	2"	4"
16 TO 24	2"	6"

SINGLE CLEAT LADDER

SAFETY & HEALTH MANUAL

Section 20: Laser Safety


Jake Jenkins
Senior Safety Specialist

Jump to Section

Policy Statement

The intent of this policy is to provide guidance and protection to workers exposed to lasers on construction projects.

General Requirements

At a minimum the use and inspection of lasers, both rotating and stationary, shall comply with OSHA, ANSI, and the manufacturer's recommendations and requirements.

Laser beam or reflected beam can cause injuries to the eyes and skin during use. No laser beam will be directed at any worker. Associated hazards such as electrical, noise, fire, and health should be considered. Lasers must not be left unattended during operation and managed by a competent person.

The owner's manual shall be kept with the equipment at all times and shall be produced upon request.

Laser users shall be trained and certified for the class of laser he or she is using. Proof of qualification shall be maintained on the user and shall be produced upon request.

Where class II or more powerful lasers are used, appropriate laser warning placards shall be conspicuously posted on the equipment, and laser warning signs shall be posted in the area where the beam reaches/affects.

Where a certain model or class laser requires the use of a specific eye protection for protection against direct or reflected laser light, this operation shall be conducted only in an area where access is restricted to only the user(s) or shall be done off-hours.

Lasers must not be left unattended during operation. Beam shutters or caps will be utilized, or the laser turned off when laser transmission is not actually required.

A warning sign must be attached to equipment and in conspicuous locations indicating the potential eye hazard associated with the laser and warning against looking into the primary beam or reflections.

All potential electrical hazards must be safeguarded, and procedures used.

Functional Manager


Bryan Novitski
Senior Safety Manager


David Hulse
Safety Director

Change History

Date	Description
8/2021	No changes made to previous section

SAFETY & HEALTH MANUAL

Section 21: Personnel Hoists

Martin Guerrero
Senior Safety Specialist

Jump to Section

Policy Statement

This policy will provide guidelines on procedures when utilizing a personnel hoist on your project.

General Requirements

Responsibilities:

1. The operator has primary responsibility to ensure safe operation of the personnel hoist.
2. Only trained personnel are allowed to operate hoists. Documentation of training shall be kept at the jobsite.
3. The Operator is responsible for stopping operation of hoist due to any unsafe situation such as load capacity, obstructions, weather or maintenance issues.
4. The Operator shall immediately notify the Superintendent regarding any issue with daily maintenance or inspections which may jeopardize the safe operation of the personnel hoist. In those cases, the equipment will be taken out of service. Corrective action must be taken prior to placing the unit back into service.
5. Roof hatches shall be closed when operating the hoist.
6. No loads shall be allowed to protrude outside the confines of the hoist car.
7. No one shall occupy the hoist car while personnel are on the roof of the car. The Hoist Operator will remain outside of the car during maintenance or applicable operational procedures.
8. Operators shall not remove or disable limit switches, interlocks, or any other safety device.
9. Operators shall not remove or disable the intended operation of any bridge plates.

Inspections

1. The Operator shall perform a daily inspection utilizing the Personnel Hoist Daily.
2. Inspection Report form (Appendix Q) prior to the operation of the hoist. The Operator shall also visually inspect the entire mast from top to bottom at least once daily.

Travel Limits and Gate Interlocks

1. Travel limits and car gate interlocks are required on all hoists.
2. Each floor designated a stopping point in the hoist system shall have door
3. Blue Hat Crane requires daily testing of the limit and interlock system. Personnel Hoist Operators are responsible for testing the travel limits and gate interlocks daily.
4. The manufacturer's manual includes a detailed procedure for checking the limits. If the limits or interlocks are out of adjustment (on company or third-party rental hoists), the Operator shall notify the Superintendent and cease operation of the hoist.
5. The Superintendent will in turn contact the Hoisting Support Technician for resolution for company-owned hoists. The Hoist Support Technician will place the unit back into operation once the repair is complete.

Communication System

1. Communication devices (call boxes) shall be installed on every floor that is designated a stopping point.
2. The Operator shall verify that the communication system is functioning properly prior to placing the unit in service at the start of each shift.

Floor Landing Gates

1. The Operator shall verify that the floor landing gates are functioning properly prior to placing the unit in service at the start of each shift.
2. Landing gates are to be installed no greater than 8 inches from the hoist gate.
3. Hoistway doors shall not be less than 6 foot 6 inches in height. They shall not have an opening into the hoist way of greater than three quarter of an inch.
4. Hoistway enclosures on the building side of the hoistway shall be enclosed full height of opening.
5. A vision panel may be installed in the door provided there is no opening larger than three quarters of an inch. The vision panel must be a minimum of 12"X12" and made up of fire-retardant material
6. Hoistway enclosures at full height must be installed a minimum of thirty inches from both sides of the landing door.
7. Landing gates shall be closed and latched by the operator prior to operating the hoist.

Landing Platform

1. Overhead protection shall be installed prior to the initial activation of the hoist.
2. The overhead protection shall cover the deck and stairs/ramp area in front and both sides of the hoistway (if decked).
3. The Operator shall inspect the landing platform including overhead protection, pit fencing or cage and handrails daily prior to placing the unit into service at the start of each shift.
4. The area above the floor landing gate to the ceiling is to be closed off at every level.
5. Bridge plates are to be installed in all cars prior to initial operation by Blue Hat Crane Technicians.

Hoisting Utilization

1. The hoist shall not be utilized as a work platform except during erection, inspections, and dismantling. Any deviation must be gained in writing from the National Hoisting Manager.
2. No attachments to the tower mast of any kind are authorized (i.e. – grout pump lines, etc.).

Annexes

Inspections and Checklists

Equipment Inspection Form – Personnel Hoists

Functional Manager

Aaron Babusa-Lucas
Senior Safety Manager

Change History

Date	Description

Erection / Dismantling / Climbing of Hoists	Nothing shall be erected or placed within three feet of the hoistway. Scaffolding, structures, or work platforms where workers pass that are located between three feet and eight feet from the hoistway shall have an enclosure. The enclosure will consist of a solid wall installed on the exposed end of the system to prevent materials from being placed into the hoistway.
Maintenance	1. Do not allow passenger operation if hoist is past due for inspection. 2. Base enclosure must remain locked. Only qualified service personnel shall access the base enclosure. 3. Operator is responsible for lubricating the hoist rack.

Weekly Report for Daily Inspection: PERSONNEL HOISTS

Project: Job Number: Region: Midwest

Equipment Number: Mfg. Serial Number:

Dates of Inspection: (from) (to) Inspected By:

Daily Checks	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Traveling Cable: (check as described in the Operations Manual)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wall Ties: (ties should be in proper position and fully seated on the supporting structure)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gates: (Gates should operate smoothly without jamming or sticking with proper actuation of the latches and interlock switches. Check mechanical interlocks as described in Operations Manual.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Buffers: (buffers for the car should be in place and vertically aligned)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hoistway: (visually inspect hoistway to see it is clear of obstructions)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Base Enclosure: (enclosure is locked and free of trash and debris)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tower Bolts & Connections: (visually inspect the tower bolts and connections)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Emergency Stops, Upper/Lower Limit Switches & Ramps: (check as described in the Operations Manual)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
(ALIMAK ONLY): Check condition and function of springs on all cable guides.	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(ALL BOXES must be marked accordingly: (**P**) Pass, (**R**) Repair Required, (**F**) Fail, or (**N/A**) Not Applicable)

Weekly Checks (perform on the first day worked each week)	
Lubrication: (perform lubrication as described in the Operations Manual)	N/A
Roof Top Hatch: (check as described in the Operations Manual)	N/A
Car Lamps: (verify that the lamp inside the car is illuminated)	N/A
Stop Switch: (verify that depressing the STOP switch stops the elevator when in motion)	N/A
Brake Check: (check as described in the Operations Manual)	N/A
Gate Electrical Interlocks: (check as described in the Operations Manual)	N/A

General Remarks:

Maintenance Record: (list all maintenance activities, component replacements and associated test results)

Name: Title: Date:

SAFETY & HEALTH MANUAL

Section 22: Personal Protective Equipment (PPE)

James Robles
National Safety Director

Jump to Section

Policy Statement

The intent of this policy is to establish minimum personal protective equipment requirements while on a project site.

General Requirements

Operations is responsible for ensuring that all personnel are trained, and the policy is strictly enforced and adhered to.

Operations is required to conduct a hazard assessment, with JE Dunn Safety, of the workplace and select the proper PPE to protect employees from the assessed hazards.

All personal protective equipment (PPE) used on site must be kept in good working condition.

Operations is required to conduct inspections of personal protective equipment, either personal or company owned, before use and removed from service if found defective or in an unsanitary condition.

All workers shall be trained in the proper selection, use and care of all PPE. Training shall include but is not limited to what PPE shall be worn, how it is to be worn, its use and limitations, and the proper care/maintenance of the PPE.

Employees will be retrained on the personal protective equipment that is required for the task or activity, if the employee demonstrates a lack of understanding or an inability to use the PPE properly, or there are significant changes in the workplace.

Employees shall wear the appropriate PPE supplied to them, at all times, while working within their assigned tasks. PPE shall be worn within all construction work areas.

All PPE must meet ANSI, OSHA, or NIOSH standards.

Head Protection

ANSI approved hardhats (or helmets) must be worn in conformance with the manufacturer's instructions.

The outside shell shall be free of paints, holes, cracks or cuts, and the inside suspension shall be in good working order.

A hardhat that accepts the welding hood must be worn by those needing such protection.

CRITERIA FOR WHAT COLOR HARDHAT IS PROVIDED TO JE DUNN EMPLOYEES:

WHITE: Non-supervisory personnel, trusted team member, knowledgeable of procedures:
- Trade Foreman 1
- Project Engineers
- Field Engineers
- Office Staff, including Project Coordinators

WHITE with GREEN STICKER: New to company, may or may not know safety procedures. The following new employees will wear a white hardhat with a green sticker for the 1st 90 days:
- Trade Foreman 1
- Hourly Trade employees
- Project Engineers
- Field Engineers
- Interns

BLUE: Supervisory Personnel, Leadership:
- Trade Foreman 2
- Project Manager 1 or equivalent and above
- Executive Leadership
- Superintendent

GREY: Visitors (not a JE Dunn employee)

Eye and Face Protection

Eye protection must be worn at all times. Safety glasses or ANSI Z87.1 rated prescription glasses with rigid side shields meeting ANSI Z87.1 are required.

If prescription glasses do not meet the ANSI Z87.1 standard, then oversized Z87.1 rated safety glasses with rigid side shields shall be worn over the prescription glasses.

Dark lens or dark tinted lens eye protection shall not be used in low light conditions.

Spoggles or goggles will be worn to protect against exposures where higher risk of airborne particulates may be present.

During activities that create flying particulates, sparks, or potential eye and/or face injuries, a

Annexes

Forms and Permits

Hand and Arm Protection Guide
PPE Poster

Functional Manager

James Robles
National Safety Director

Change History

Date	Description
8/24/2021 PG 299 RW	Policy Statement General Requirements **Operations** is required to conduct a hazard assessment, with Safety, of the workplace and select the proper PPE to protect employees from the assessed hazards. **Operations** is required to conduct inspections of Personal protective equipment, either personal or company owned, before use and removed from service if found defective or in an unsanitary condition. All workers shall be trained in the proper selection, use and care of all PPE. Training shall include but is not limited what PPE shall be worn, how it is to be worn, its use and limitations, and the proper care/maintenance of the PPE. Employees will be retrained on the personal protective equipment that is required for the task or activity, if the employee demonstrates a lack of understanding or an inability to use the PPE properly, or there are significant changes in the workplace.
8/24/21 PG 300 RW	Eye and Face Protection Eye protection must be worn at all times. Safety glasses or ANSI Z87.1 rated prescription glasses with rigid side shields meeting ANSI Z87.1 are required. Spoggles or goggles will be worn to protect against exposures where higher risk of airborne particulates may be present. During activities that create flying particulates, sparks, or potential eye and/or face injuries, a combination of safety glasses and face shield is required (i.e. grinding, cutting metal, chipping, drilling overhead, jackhammering, using compressed air, high pressure injection, placement boom handler, etc.). Hand and Arm Protection Appropriate hand protection must be selected and worn to protect against cuts or lacerations, abrasions, punctures, chemical burns, harmful chemicals, thermal burns, vibration, impact, and extreme temperatures.

combination of safety glasses and an ANSI Z87.1 rated face shield is required (i.e. grinding, cutting metal, chipping, drilling overhead, jackhammering, using compressed air, high pressure injection, placement boom handler, etc.).

Hand and Arm Protection

Appropriate hand protection must be selected and worn to protect against cuts or lacerations, abrasions, punctures, chemical burns, harmful chemicals, thermal burns, vibration, impact, and extreme temperatures. Considerations for selecting the appropriate type of hand protection are based around performance characteristics related to the task, conditions present, duration of use, and the hazards identified.

There are many types of gloves available in the market today to protect against a wide variety of hazards which makes the selection process challenging. To assist with the selection process, the "Hand and Arm Protection Guide" is available for reference. Note: These glove types can be ordered through our online Logistics Catalog.

- Appropriate gloves for the task are required to be worn by all employees while they are within the construction area on any JE Dunn project. The mandatory glove wearing policy applies equally to JE Dunn, Trade Partners, vendors, suppliers and other stakeholders associated with the project. Keep in mind, gloves should protect employee against the risk of injury. Consider cut, puncture, abrasion and tear as part of the assessment and selection of "appropriate" glove.
- JE Dunn and Trade Partner employees are required to wear gloves rated **ANSI Level A4 at a minimum.** Reference the Hand and Arm Protection Guide for the appropriate gloves for your task.
- The only exceptions will be:
  - Specialty gloves used for certain applications and exposures such as protection against chemicals
  - Job tasks that require a higher amount of dexterity and serious hazards are not present, then the task may be carried out without the use of ANSI Level A4 gloves, but in each of these instances, a hazard assessment and JSA shall clearly identify the risks that the employee will be exposed to without the use of ANSI Level A4 gloves.
  - If an employee needs to temporarily remove his/her glove(s) in the work area and this does not present any type of risk or exposure.
  - When operating equipment such as cranes, heavy earth-moving, dump trucks or other similar equipment where exposure to abrasions or cuts/lacerations are low. However, prior to exiting the seat, appropriate gloves will be expected to be worn.
- Gloves will be provided free of charge to JE Dunn personnel. Any gloves with impaired protective ability should be brought to the Supervisor then discarded and replaced. Furthermore, each employee is responsible for taking reasonable care of his/her protective equipment.
- Gloves should be inspected before each use to ensure they are not torn, punctured, or made ineffective in any way.
- Trade Partners will be expected to supply their staff and any sub-tier Trade Partner with appropriate gloves.

Hearing Protection

When it's not possible to reduce noise levels below the permissible exposure limit levels, hearing protection will be worn. When proper hearing protection is in use, noise reduction levels should be maintained below 85 dba per 8 hour work shift.

During certain activities that could affect hearing, protection will be required. Tasks include, but are not limited to:

- Grinding
- Chipping
- Scaling
- Cutting metal studs or track
- Cutting masonry/block saw
- Using air blowers
- Powder actuated tools
- Working near noise and other noise producing operations.

For most of construction related noise hazards, simple foam ear plugs (e.g. hearing protectors) are adequate for most tasks and will be made readily available onsite. If additional protection is needed, earmuffs worn with ear plugs can provide additional protection, and will be supplied for JE Dunn employees on a task specific, as needed basis. A sufficient supply of hearing protectors must be made available for the workers.

- All trade partners will be required to provide a sufficient supply of hearing protectors for their workers.
- All trade partners will be required to provide earmuffs for additional protection on an as needed basis.

Personal radios, headphones, ear buds or similar devices that limit the ability to hear are prohibited.

Hearing Tip: As a rule of thumb, if you have to raise your voice above a normal speaking level to be heard, the sounds around you are too loud and hearing protection is required.

Proper Clothing (Body Protection)

Shirts with sleeves shall be worn at all times (4" sleeve minimum).

Heavy-duty pants which cover the length of the leg to the boot top must be worn while on site. Free of excessive holes, rips, or tears.

Foot Protection:

- Employees must wear appropriate protective footwear for the work they are performing.
- Sturdy, heavy-duty, hard soled work boots with over the ankle support are required.

Rubber boots are required when working in concrete or water.
Note: Placing tape (or equivalent protective measure) over the boot is required to prevent wet concrete from entering the boot.

While recommended, a safety toe or reinforced toe box, i.e. steel toe or the equivalent type of safety boot is not mandatory except when site specific requirements mandate. Protective toe protection must be worn based on risk assessment.

Considerations for selecting the appropriate type of hand protection are based around performance characteristics related to the task, conditions present, duration of use, and the hazards identified.

Hand and Arm Protection

JE Dunn and Trade Partner employees are required to wear gloves rated ANSI Level Four or EN Level Four at a minimum. Reference the Hand and Arm Protection Guide for the appropriate gloves for your task.

The only exceptions will be:

Job tasks that require a higher amount of dexterity and serious hazards are not present, then the task may be carried out without the use of ANSI & EN Level Four gloves, but in each of these instances, a hazard assessment and JSA shall clearly identify the risks that the employee will be exposed to without the use of ANSI & EN Level Four gloves.

8/26/21

PG 301

RW

Hearing Protection

For most of construction related noise hazards, simple foam ear plugs (e.g. hearing protectors) are adequate for most tasks and will be made readily available onsite. If additional protection is needed, earmuffs worn with ear plugs can provide additional protection, and will be supplied for JE Dunn employees on a task specific, as needed basis. A sufficient supply of hearing protectors must be made available for the workers.

All trade partners will be required to provide a sufficient supply of hearing protectors for their workers.

All trade partners will be required to provide earmuffs for additional protection on an as needed basis.

Personal radios, iPods, or similar devices that limit the ability to hear are prohibited.

Hearing Tip: As a rule of thumb, if you have to raise your voice above a normal speaking level to be heard, the sounds around you are too loud and hearing protection is required.

Proper Clothing (Body Protection)

Foot Protection:

Rubber boots are required when working in concrete or water.

8/26/21

PG 302

RW

Note: Placing tape (or equivalent protective measure) over the boot is required to prevent wet concrete from entering the boot.

While recommended, a safety toe or reinforced toe box, i.e. steel toe or the equivalent type of safety boot is not mandatory except when site specific requirements mandate. Protective toe protection must be worn based on risk assessment.

Metatarsal guards shall be used during tasks with an increased risk of injury to the employees' toes and arches (i.e. demolition, using a jumping jack, using a post pounder)

Proper Clothing (Body Protection)

High Visibility Clothing

Metatarsal guards shall be used during tasks with an increased risk of injury to the employees' toes and arches (i.e. demolition, using a jumping jack, using a post pounder)

High-Visibility Clothing:

ANSI approved reflective/high-visibility vests shall be worn by all workers while on site for the duration of the project.

The only exceptions will be:

- Those that are actively involved with or are actively performing hot work (i.e. welding, brazing, soldering, grinding)
- ANSI approved High-visibility shirts
- Or approved by JE Dunn Safety.

Note: Shirts and vests that have lost the high visibility and reflective characteristics are prohibited and must be replaced.

When flagging or exposed to vehicle or mobile equipment traffic, DOT approved vests are required.

Specialty Clothing:

Working with welding, burning, cutting and grinding should include protections adequate to protect the person.

During the placement of concrete, protective clothing to avoid incidental skin contact is required.

Cut resistant sleeves or equivalent shall be worn when the conditions warrant additional protection beyond normal clothing where cut hazards exist to forearms. (i.e. workers performing hand demolition, or working in and with metal studs)

Respirators

See Respiratory Protection section for details.

8/26/21 PG 303 RW	Reflective/high-visibility vests shall be worn by all workers while on site for the duration of the project. The only exceptions will be: Those that are actively involved with or are actively performing hot work (i.e. welding, brazing, soldering, grinding) **Reflective**/high-visibility shirts (must include reflective striping) **Note: Shirts and vests that have lost the high visibility and reflective characteristics are prohibited and must be replaced.** When flagging or exposed to vehicle or mobile equipment traffic, DOT approved vests are required. Specialty Clothing Kevlar sleeves or equivalent shall be worn when the conditions warrant additional protection beyond normal clothing. (i.e. workers performing hand demolition, or working in and with metal studs)
9/2023	Proper Clothing- High Visibility Clothing- Add. ANSI Approved was added.
9/2023	Hardhat Section title changed to Head Protection.
9/2023	Head Protection- Add- Hardhats or Helmets was added
9/2023	Head Protection- the use of a green sticker replaced the use of green hardhats.

JE DUNN CONSTRUCTION

CHOOSE THE APPROPRIATE

HAND & ARM PROTECTION

CUT RESISTANT

MaxiCut Ultra

ANSI 3 / EN Cut 5 – cut resistant, thinner than most comparable gloves, ultimate dexterity, good grip, abrasion protection, extreme comfort, breathes well

APPLICATIONS:

- Electronics
- Finishing
- General Assembly and Construction
- Glass Cutting
- Logistics
- Painting
- Carpentry
- Sheet Metal Handling
- Warehousing
- Form Work

CONCRETE

Rubber (Latex) Coated

Crinkle finish offers good grip, abrasion protection, breathes well

APPLICATIONS:

- Bricks
- Concrete
- Glass
- Sheet Metal

GENERAL PURPOSE

Big Jake - Leather Palm

Cut 2, Puncture 4, sewn with Kevlar, good abrasion, heavy duty, puncture resistant

APPLICATIONS:

- Form Work
- General Labor
- Iron Work
- Material Handling
- Millwright
- Picking Up Small Objects
- Rebar
- Scaffolding
- Steel Work – Grinder/ Machinery
- Tools / Labor

Mechanics / Utility Glove

Thermal utility, scratch protection, padded back / knuckle

APPLICATIONS:

- Light Labor / Assembly Work
- Mechanics

Leather Glove

High abrasion resistance, heat protection, resists moisture – keystone thumb

APPLICATIONS:

- Carpentry
- Form Work
- General Labor
- Hand / Power Tools
- Light Grinding
- Material Handling
- Rigging
- Rebar
- Rotating Tool Use
- Scaffolding
- Soldering
- Structural Steel Assembly

CHEMICAL RESISTANT

Nitrile – Ansell Alphates

Good grip in wet and oily conditions, comfortable, flexible, chemical resistant

APPLICATIONS:

- Acids / Solvents
- Chemical Handling
- Cleaning Solvents
- Dye Agents
- Hazardous Liquids

Memphis - PVC Winter

Cut 1, Puncture 2, PVC, resistant to: abrasions, oil, acids, chemicals, caustics

APPLICATIONS:

- Cement And Mortar
- Grout
- Handling Dyes
- Masonry / Tile
- Plumbing

ARM PROTECTION

7 Gauge Dyneema®

CPPt2, CE3, sleeve, thumb slot, 18-inch length, Cool-to-touch. One of the most distinguisingh Dyneema characteristics is its cool-to-touch property.

FEATURES:

- Fibers inherent ability to dissipate body heat
- Moisture passes from inside of sleeve to the outside
- 18 inches long
- Longer wear time promotes greater protection
- 7-gauge Dyneema sleeve with thumb hole
- Achieves a CE cut score of 3 and a ANSI score of 2

PROTECT YOURSELF

REQUIRED PERSONAL PROTECTIVE EQUIPMENT ON THIS JOBSITE

HARD HAT
CASCO DE SEGURIDAD

SAFETY GLASSES
LENTES DE SEGURIDAD

HIGH VISIBILITY VEST/SHIRT
ROPA DE ALTA VISIBILIDAD

SHIRT
(MINIMUM 4" SLEEVES)
CAMISA CON MANGAS DE 4"

GLOVES
(WORK APPROPRIATE)
GUANTES

DUNN safety®

EVERYONE.
EVERYWHERE.
ALL THE TIME.

PANTS
PANTALONES

WORK BOOTS
BOTAS DE TRABAJO

JE DUNN® CONSTRUCTION

To the Employer: Answers to all questions in Part A - Section 1, and to question 9 in Part A - Section 2, DO NOT require a medical examination.

To the Employee: Can you read? ☐ Yes ☐ No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or Supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

Part A. Section 1: (*mandatory*)

The following information must be provided by every employee who has been selected to use any type of respirator:

Today's Date: Your Name: Your age:

Sex: ☐ Male ☐ Female Your Height: ft. in. Your Weight: lbs.

Your Job Title:

1. A phone number where you can be reached by the health care professional who reviews this questionnaire:

   (include the area code)

2. The best time to reach you at the above listed number:

3. Has your employer told you how to contact the health care professional who will review this questionnaire?

   ☐ Yes ☐ No

4. Check the type of respirator you will use (you can check more than one type):

   ☐ N, R, or P disposable respirator (filter-mask, non-cartridge type only)

   ☐ Other type (i.e. half- or full-facepiece type, powered-air purifying, supplied-air, self-contained breathing apparatus)

5. Have you worn a respirator? ☐ Yes ☐ No

   If yes, what type(s):

Part A. Section 2: (*mandatory*)

Questions 1-9 below must be answered by every employee who has been selected to use any type of respirator:

1. Do you currently **smoke tobacco** or have you smoke tobacco within the last 30 days? ☐ Yes ☐ No

2. Have you ever had any of the following **conditions**?

Seizures:	☐ Yes	☐ No	Diabetes (sugar disease):	☐ Yes	☐ No
Trouble smelling odors:	☐ Yes	☐ No	Claustrophobia:	☐ Yes	☐ No
Allergic reactions that interfere with your breathing:				☐ Yes	☐ No

3. Have you ever had any of the following **pulmonary or lung problems**?

Asbestosis:	☐ Yes	☐ No	Silicosis:	☐ Yes	☐ No
Asthma:	☐ Yes	☐ No	Pneumothorax (collapsed lung):	☐ Yes	☐ No
Chronic Bronchitis:	☐ Yes	☐ No	Lung Cancer:	☐ Yes	☐ No
Emphysema:	☐ Yes	☐ No	Broken Ribs:	☐ Yes	☐ No
Pneumonia:	☐ Yes	☐ No	Any chest injuries or surgeries:	☐ Yes	☐ No
Tuberculosis:	☐ Yes	☐ No	Any other lung problem(s):	☐ Yes	☐ No

4. Do you currently have any of the following **symptoms of pulmonary or lung illness**?

Shortness of breath:	☐ Yes	☐ No
Shortness of breath when walking fast on level ground or walking up a slight hill or incline:	☐ Yes	☐ No
Shortness of breath when walking with other people at an ordinary pace on level ground:	☐ Yes	☐ No
Have to stop for breath when walking at your own pace on level ground:	☐ Yes	☐ No
Shortness of breath when washing or dressing yourself:	☐ Yes	☐ No
Shortness of breath that interferes with your job:	☐ Yes	☐ No
Coughing that produces phlegm (thick sputum):	☐ Yes	☐ No
Coughing that wakes you early in the morning:	☐ Yes	☐ No
Coughing that occurs mostly when you are lying down:	☐ Yes	☐ No
Coughing up blood in the last 30 days:	☐ Yes	☐ No
Wheezing:	☐ Yes	☐ No
Wheezing that interferes with your job:	☐ Yes	☐ No
Chest pain when you breathe deeply:	☐ Yes	☐ No
Any other symptoms that you think may be related to lung problems:	☐ Yes	☐ No

5. Have you ever had any of the following **cardiovascular or heart problems**?

Heart Attack:	☐ Yes	☐ No	Angina:	☐ Yes	☐ No
Stroke:	☐ Yes	☐ No	Heart Failure:	☐ Yes	☐ No
High Blood Pressure:	☐ Yes	☐ No			
Swelling in your legs or feet (not caused by walking):				☐ Yes	☐ No
Heart arrhythmia (heart beating irregularly):				☐ Yes	☐ No
Any other heart problem(s) that you've been told about:				☐ Yes	☐ No

6. Have you ever had any of the following **cardiovascular or heart symptoms**?

Frequent pain or tightness in your chest:	☐ Yes	☐ No
Pain or tightness in your chest during physical activity:	☐ Yes	☐ No
Pain or tightness in your chest that interferes with your job:	☐ Yes	☐ No
In the past two years, have you noticed your heart skipping or missing a beat:	☐ Yes	☐ No
Heartburn or indigestion that is not related to eating:	☐ Yes	☐ No
Any other symptoms that you think may be related to heart or circulation problems:	☐ Yes	☐ No

7. Do you currently take **medication** for any of the following problems?

Breathing or lung problems:	☐ Yes	☐ No	Heart Trouble:	☐ Yes	☐ No
Blood Pressure:	☐ Yes	☐ No	Seizures (fits):	☐ Yes	☐ No

8. Have you ever used a respirator? ☐ Yes ☐ No *(If you answered No, skip to question 9)*

Eye irritation:	☐ Yes	☐ No	Skin allergies or rashes:	☐ Yes	☐ No
Anxiety:	☐ Yes	☐ No	General weakness or fatigue:	☐ Yes	☐ No
Any other problem(s) that interferes with your use of a respirator:				☐ Yes	☐ No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire?
   ☐ Yes ☐ No

Questions 10-15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.

10. Have you ever lost vision in either eye (temporarily or permanently)? ☐ Yes ☐ No

11. Do you currently have any of the following **vision problems**?

Wear contact lenses:	☐ Yes	☐ No	Wear glasses:	☐ Yes	☐ No
Color blind:	☐ Yes	☐ No	Other eye or vision problem(s):	☐ Yes	☐ No

12. Have you ever had any injury to your ears, including a broken ear drum? ☐ Yes ☐ No

13. Do you currently have any of the following **hearing problems**?

Difficulty hearing:	☐ Yes	☐ No	Wear a hearing aid:	☐ Yes	☐ No
Any other hearing or ear problem:	☐ Yes	☐ No			

14. Have you ever had a back injury? ☐ Yes ☐ No

15. Do you currently have any of the following **musculoskeletal problems**?

- Weakness in any of your arms, hands, legs, or feet: ☐ Yes ☐ No
- Back pain: ☐ Yes ☐ No
- Difficulty fully moving your arms and legs: ☐ Yes ☐ No
- Pain or stiffness when you lean forward or backward at the waist: ☐ Yes ☐ No
- Difficulty fully moving your head up or down: ☐ Yes ☐ No
- Difficulty fully moving your head side to side: ☐ Yes ☐ No
- Difficulty bending at your knees: ☐ Yes ☐ No
- Difficulty squatting to the ground: ☐ Yes ☐ No
- Climbing a flight of stairs or a ladder carrying more than 25 lbs: ☐ Yes ☐ No
- Any other muscle or skeletal problem that interferes with using a respirator: ☐ Yes ☐ No

Part B:

Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a high place that has lower than normal amounts of oxygen? ☐ Yes ☐ No

   If yes, do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions? ☐ Yes ☐ No

2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g. gases, fumes, or dust) or have you come into skin contact with hazardous chemicals? ☐ Yes ☐ No

   If yes, name the chemicals if you know them:

3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

Asbestos:	☐ Yes	☐ No	Silica (e.g. in sandblasting):	☐ Yes	☐ No
Tungsten/Cobalt:	☐ Yes	☐ No	Beryllium:	☐ Yes	☐ No
Aluminum:	☐ Yes	☐ No	Coal:	☐ Yes	☐ No
Iron:	☐ Yes	☐ No	Tin:	☐ Yes	☐ No
Dusty environments:	☐ Yes	☐ No	Other hazardous exposures:	☐ Yes	☐ No

   If yes, describe these exposures:

4. List any second jobs or side businesses you have:
5. List your previous occupation(s):
6. List your current and previous hobbies:
7. Have you ever been in the military service? ☐ Yes ☐ No

   If yes, were you exposed to biological or chemical agents (either in training or combat)? ☐ Yes ☐ No
8. Have you ever worked on a HAZMAT team? ☐ Yes ☐ No
9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications)? ☐ Yes ☐ No

   If yes, name the medications:

10. Will you be using any of the following items with your respirator(s)?

HEPA filters:	☐ Yes	☐ No	Canisters (i.e. gas masks):	☐ Yes	☐ No
Cartridges:	☐ Yes	☐ No			

11. How often are you expected to use the respirator(s)? *check yes or no for all answers that apply to you*

Escape only (no rescue):	☐ Yes	☐ No	Emergency rescue only:	☐ Yes	☐ No
Less than 5 hours per week:	☐ Yes	☐ No	Less than 2 hours per day:	☐ Yes	☐ No
2 to 4 hours per day:	☐ Yes	☐ No	Over 4 hours per day:	☐ Yes	☐ No

12. During the period you are using the respirator(s), is your work effort:

    Light (less than 200 kcal per hour): ☐ Yes ☐ No

    If yes, how long does this period last during the average shift: hrs. mins.

    Examples of a light work effort are sitting while writing, typing, drafting, or performing light assembly work; or standing while operating a drill press (1-3 lbs.) or controlling machines.

    Moderate (200-350 kcal per hour): ☐ Yes ☐ No

    If yes, how long does this period last during the average shift: hrs. mins.

    Examples of moderate work effort are sitting while nailing or filing; driving a truck or bus in urban traffic; standing while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; walking on a level surface about 2 mph or down a 5-degree grade about 3 mph; or pushing a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

    Heavy (above 350 kcal per hour): ☐ Yes ☐ No

    If yes, how long does this period last during the average shift: hrs. mins.

    Examples of heavy work are lifting a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; shoveling; standing while bricklaying or chipping castings; walking up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using the respirator? ☐ Yes ☐ No

    If yes, describe this protective clothing and/or equipment:

14. Will you be working under hot conditions (temperature exceeding 77 degrees F)? ☐ Yes ☐ No

15. Will you be working under humid conditions? ☐ Yes ☐ No

16. Describe the work you'll be doing while you're using the respirator(s):

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases):

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):

    Name of the **first toxic substance**:

    Estimated maximum exposure level per shift:

    Duration of exposure per shift:

    Name of the **second toxic substance**:

    Estimated maximum exposure level per shift:

    Duration of exposure per shift:

    Name of the **third toxic substance**:

    Estimated maximum exposure level per shift:

    Duration of exposure per shift:

    The name of any other toxic substance(s) that you'll be exposed to while using your respirator:

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security):

SAFETY & HEALTH MANUAL

Section 23: Respiratory Protection

Cory Willingham
Safety Manager

Jump to Section

Policy Statement

The intent of this respiratory policy is to specify a standard operating procedure to protect all construction site employees from respiratory hazards that may be encountered in the workplace.

Definitions

Air-purifying respirator - a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element

Assigned protection factor (APF) - the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section

Atmosphere-supplying respirator - a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units

Canister or cartridge - a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container

Filtering facepiece (dust mask) - a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium

Immediately dangerous to life or health (IDLH) - an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere

Oxygen deficient atmosphere - an atmosphere with an oxygen content below 19.5% by volume

Qualitative fit test (QLFT) - a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent

Quantitative fit test (QNFT) - an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator

Responsibilities

Operations is responsible for contacting the Program Administrator when respirator use is required.

The Regional Safety Director is the Respiratory Protection Program Administrator. The Program Administrator will develop written detailed instructions covering each of the basic elements in this program and is solely authorized to amend these instructions.

General Requirements

1. All respirators used on site must be kept in good working condition.
2. All employees required to wear a respirator will first be medically evaluated and fit tested in the specific brand, model, type, and size of the respirator to be used.
3. Training is required before employees are required to use respirators.
4. The respirator must be appropriate for the hazard present.

Medical Evaluations

1. A medical evaluation is mandatory to determine whether an employee is able to use a respirator.
2. Once workers have been medically evaluated and cleared for respirator use, they will be fit tested.
3. All medical questionnaires and examinations shall remain confidential and completed during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire is administered so that the employee understands its content. All employees are provided an opportunity to discuss the questionnaire and examination results with their physician or other licensed health care professional (PLHCP).
4. Once the examiner determines the eligibility of the employee to wear a respirator, the examiner will provide the company a written recommendation containing only the following information:
   a. Limitations on respirator use related to the medical condition of the employee or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator.
   b. The need, if any, for follow-up medical evaluations.
   c. A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

Respirator Selection

Respirators are to be used only where engineering controls of respiratory hazards are not feasible, while engineering controls are being installed, or in emergencies.

All respiratory equipment will be provided by the employer at no cost to the employee. No personal respiratory protection equipment will be allowed on site.

Respirators shall be selected based on the exposure by the Program Administrator.

Before selecting the respirator, the company must first assemble the necessary toxicological, safety, and other relevant information for each contaminant, including the following:

- General use conditions, including determination of contaminant(s)
- Physical, chemical, and toxicological properties of the contaminant(s)
- Odor threshold data, if applicable

Annexes

Forms and Permits

Medical Questionnaire
Voluntary Respirator Usage Notification

Functional Manager

James Robles
National Safety Director

Change History

Date	Description
8/31/2021	Grammar, Punctuation, Spelling changes

- Exposure limits (Time Weighted Averages (TWA) unless a ceiling limit exists for the compound)
- Eye irritation potential
- Any service life information available (for cartridges and canisters).

Under no circumstance shall an employee be allowed to enter a space that is considered to be IDLH (immediately dangerous to life or health). If you encounter a condition that has the potential of becoming IDLH, the safety department should be contacted immediately.

Fit Test Procedures

To provide the proper protection, respirators must fit properly. If a tight seal is not maintained between the respirator and employee's face, contaminated air will be drawn into the breathing zone of the worker rendering the respirator ineffective. Fit testing seeks to protect the employee against breathing contaminated ambient air and is one of the core provisions of our respirator program.

In general, fit testing may be either qualitative or quantitative. Qualitative Fit Testing (QLFT) involves the introduction of a gas, vapor, or aerosol test agent into an area around the head of the respirator user. If that user can detect the presence of the test agent through subjective means, such as odor, taste, or irritation, the respirator fit is inadequate.

In a Quantitative Respirator Fit Test (QNFT), the adequacy of respirator fit is assessed by measuring the amount of leakage into the respirator, either by generating a test aerosol as a test atmosphere, using ambient aerosol as a test agent, or using controlled negative pressure to measure the volumetric leak rate. Appropriate instrumentation is required to quantify respirator fit in QNFT.

Fit tested shall be conducted with the same make, model, style, and size of respirator that will be used whenever any of the following are encountered:

- Employees are required to use any respirator with a negative or positive pressure tight-fitting face piece.
- Whenever a different respirator face piece (size, style, model, or make) is used.
- At least annually.
- Whenever the employee physical conditions change that could affect respirator fit.
- Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery or an obvious change in body weight.
- When the employee notifies the company that the fit of the respirator is unacceptable. The employee will be retested with a different respirator face piece.

Employees must pass one of the following fit test types:

- QLFT (Only used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. May be used to test tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode).
- QNFT (May be used to fit test a tight-fitting half face piece respirator that must achieve a fit factor of 100 or greater OR a tight-fitting full face piece respirator that must achieve a fit factor of 500 or greater OR tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode).

Proper Use of Respirators

Once the respirator has been properly selected and fitted, its protection efficiency must be maintained by proper use.

The following checklist shall be used to ensure that proper use procedures include coverage of OSHA
requirements:

Face Piece Seal Protection:
Do not permit respirators with tight-fitting face pieces to be worn by employees who have any of the following:

- Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function
- Any condition that interferes with the face-to-face piece seal or valve function
- If an employee wears corrective glasses or goggles or other personal protective equipment, ensure that such equipment is worn in a manner that does not interfere with the seal of the face piece to the face of the user
- For all tight-fitting respirators, ensure that employees perform a user seal check each time they put on the respirator using the procedures recommended by the respirator manufacturer.

Continuing Respirator Effectiveness:

- Maintain surveillance of the work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, reevaluate the continued effectiveness of the respirator.
- Ensure that employees leave the respirator use area
- To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use
- If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece
- To replace the respirator or the filter, cartridge, or canister elements.

If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, replace or repair the respirator before allowing the employee to return to the work area.

Voluntary Use of a Respirator

Under certain circumstances OSHA allows voluntary use of filtering face piece commonly referred to as a particulate respirator (N95). Voluntary users of filtering face pieces are not required to undergo fit testing. Voluntarily users must ensure that they are not jeopardizing their health by wearing the respirator, it is clean, and it is not shared. Supervisors should provide the employee information concerning voluntary respiratory usage.

Maintenance and Care

To ensure continuing protection from respiratory protective devices, it is necessary to establish and implement proper maintenance and care procedures and schedules. A lax attitude toward maintenance and care will negate successful selection and fit because the devices will not deliver

Procedures

the assumed protection unless they are kept in good working order.

Respirators shall be provided that are clean, sanitary, and in good working order.

Disposal respirators should be used whenever possible.

If reusable respirators are used, they shall be cleaned and sanitized whenever:

- More than one employee uses the respirator
- After each use

Storage

Proper respirator storage must be done to ensure that the equipment is not subject to contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals.

Inspection

Respirators shall be inspected:

- Before first use
- After cleaning and disinfecting
- In accordance with manufacturer's recommendations.

Inspection criteria includes but is not limited to, elastomeric parts for pliability and signs of deterioration, the face piece, head straps, valves, connections, cartridges, canisters, or filters.

Respirators that fail an inspection must be discarded.

Training

The safety department shall ensure workers that utilize respirators are trained. The training shall include:

- Pre-use inspections
- Use of equipment
- Storage of the respirator
- Inspection of respirators

Record Keeping

Project teams are required to keep records. Those records include:

- Respiratory Program
- Fit Testing
- Medical Evaluation

VOLUNTARY RESPIRATOR USAGE NOTIFICATION

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to prove an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by the labor law standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on appropriate wear and use, maintenance, cleaning/care, and warnings regarding the respirators limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health, NIOSH, of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fume or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

5. Nuisance masks are not to be considered respirators and should be used only for nuisance dusts and debris. Nuisance masks are made up of single strap units which can be made available to protect against high dust conditions.

Name (print):_____

Signature:_____

Company:_____ Date:_____

SAFETY & HEALTH MANUAL

Section 24: Scaffolds

Matt Bell
Safety Specialist 1

Jump to Section

Policy Statement

The intent of this policy is to establish clear and consistent practices for the safe erection, inspection, maintenance, dismantling, and use of a scaffold system.

Definitions

1. **Boatswains' chair** - a single-point adjustable suspension scaffold consisting of a seat or sling designed to support one employee in a sitting position
2. **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
3. **Fabricated frame scaffold** - a scaffold consisting of a platform(s) supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members
4. **Mobile scaffold** - a powered or unpowered, portable, caster or wheel-mounted supported scaffold
5. **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 his/her ability to solve or resolve problems related to the subject matter, the work, or the project
6. **Scaffold** - Any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees, materials, or both
7. S**elf-contained adjustable scaffold** - a combination supported and suspension scaffold consisting of an adjustable platform(s) mounted on an independent supporting frame(s) not a part of the object being worked on, and which is equipped with a means to permit the raising and lowering of the platform(s). Such systems include rolling roof rigs, rolling outrigger systems, and some masons' adjustable supported scaffolds.
8. **Suspension scaffold** - one or more platforms suspended by ropes or other non-rigid means from an overhead structure(s)
9. **System scaffold** - A scaffold consisting of posts with fixed connection points that accept runners, bearers, and diagonals that can be interconnected at predetermined levels

Scaffold Erection

1. All scaffolds shall be erected or dismantled under the direct supervision of a designated competent person.
2. All scaffolds shall be capable of supporting, without failure, its own weight and at least four times the maximum intended load.
3. Scaffolds will be designed by a qualified person. The scaffold shall be constructed and loaded in accordance with that design. An Engineer must address non-typical loading due to wind, screens, winter protection, and netting.
4. The mixing of scaffold parts and components is prohibited unless physical dimensions and strength characteristics are equal, or unless approval has been given in writing by the manufactures or designed by an engineer.
5. Scaffolding greater than 125 feet high must be designed by a registered Professional Engineer.
6. Scaffold installers/dismantlers shall utilize fall protection when exposed to a fall of greater than six feet.

Inspection

1. A daily inspection of the scaffold is to be performed by the designated competent person prior to employees accessing the scaffold system.
2. The designated competent person shall determine whether the scaffold is safe to use. A scaffold tagging system shall be used to identify the stage of scaffold readiness.
   a. A green tag is attached by the competent person to scaffolds that are considered complete. This would include the installation of all structural components, tiebacks, decking and a guardrail system. A green tag would tell the user that the scaffold is safe to use.
   b. A yellow tag placed on a scaffold indicates the scaffold was constructed in a manner outside the norm to meet specific work conditions or requirements. All attempts should be made to restore a yellow tag to a green tag as soon as is practical. A yellow tag also informs the user of the hazards associated with the yellow tag and that a fall protection system may be required.
   c. A red tag indicates the scaffold is being dismantled, not yet completely erected, or for some reason not safe and shall not be used.
3. Scaffold tags shall be placed at access points or other highly visible locations and shall bear the date of the last inspection and the initials of the inspector.
4. Scaffolds that are not tagged or current on inspection shall not be used.
5. If there are any changes or alterations to conditions or the scaffold, the competent person shall re-inspect the scaffold and tag accordingly.
6. All Trade Partners are to provide their own inspections by a designated competent person, regardless of responsible erecting party.
7. All Trade Partners are to sign an indemnity release form and present for acceptance to the responsible scaffold contactor.
8. All employees are to be properly trained in the use of scaffolds, fall protection, and hazards associated with them prior to accessing the scaffold system.

Work Requirements

1. No scaffold shall be constructed within 10' of an electrical hazard without prior approval from the safety department.
2. Scaffolds covered with snow, ice, or other slippery material must be cleared prior to work being conducted.
3. Work on or from scaffolds is prohibited during severe weather (I.e. rain, sleet, lightning,

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
8/31/21	Edited Inspection section
8/31/21	Edited Work Requirements and Bracing and Tie-Backs sections
8/31/21	Revised Scaffold Access section
9/1/21	Edited Boatswains Chair section
9/1/21	Revised Suspension Scaffold section
9/1/21	Revised Mobile Scaffold section

	high winds, etc.) 4. Debris, material, and tools shall not be allowed to accumulate on platforms. 5. No type of makeshift devices, material, or equipment will be used to increase the working height of employees on scaffolds, including but not limited to the use of ladders, buckets, or CMU blocks. 6. Makeshift devices, equipment hoists, lifts, piping, etc., shall not be added to a scaffold without the scaffold manufacturer's approval.
Guardrails	1. Standard guardrails consisting of a top rail (39-42 inches), mid rail (21 inches) and toe boards (4 inches) shall be installed on all open sides of the scaffolding. 2. Cross bracing is not an acceptable substitute for a top rail and/or a mid-rail. 3. Guardrails must meet 200-pound force requirement.
Work Platform	1. Scaffolds will be fully planked or decked between the front uprights and the guardrail supports with spacing no greater than 1 inch around the uprights and between planks. 2. The front edge of all platforms will not be more than 14 inches from the face of the work unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used. 3. The maximum distance from the face for plastering and lathing operations will be 18 inches. 4. Each end of the plank or platform, unless cleated or otherwise restrained by hooks, shall extend over the center line of the support at least 6 inches but not more than 12 inches. 5. Planking overlap shall not be less than 12 inches unless planks are nailed together or restrained to prevent movement. 6. At corners, the angled planks used to bridge around the corner between the straight sides must be laid first (angled planks are set on the bearer under the planks of the perpendicular sides)
Bracing and Tie-Backs	1. Tie-backs must be engineered for scaffolding when screens are added. 2. All scaffolds that meet the 4:1 ratio (height to base) are required to be tied-off, braced, or supported by other means. 3. Tie-backs and braces must be installed: a. Vertically: a. Every 20 feet or less for scaffolds less than three feet wide b. Every 26 feet or less for scaffolds more than three feet wide. b. Horizontally: a. At each end, and again within 30 ft of each end b. At 25 foot intervals
Foundation	Supported scaffolds poles, legs, posts, frames, and uprights shall bear on base plates. Mud sills capable of supporting the load must be used unless there are other adequate firm foundations. Footings shall be level, sound, rigid, and capable of supporting scaffold without settling or displacement.
Scaffold Access	1. When scaffold platforms (of any type of scaffold) are more than 2 feet above or below a point of access, safe means of access will be provided (i.e. step, ramp, stair, etc.). 2. Direct access to or from another surface shall be used only when the scaffold is not more than 14 inches horizontally and not more than 24 inches vertically from the other surface. Other means may be allowed when approved by the safety department. 3. Cross braces will not be used as means of access or egress. 4. Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold used. 5. Extension ladders may be used for access and egress but must be approved for use with scaffolds a. Ladders must be secured at the top and the bottom to prevent movement. b. Ladders must extend 3 feet above the walking/working surface or landing c. Step ladders shall not be used to access scaffolds 6. When hook-on or attachable ladders are used, the maximum free climbing height shall be limited to 35 feet measured from the base of the scaffold. Alternate means such as a stair scaffold or ladder hatches shall be utilized when exceeding that height. 7. Hook-on ladders will be positioned no more than 24 inches from the ground and extend a minimum of 36 inches above the working surface or landing.
Counterweight	1. Counterweights will be made of a solid material. 2. Sand, gravel, and similar material will not be allowed as counterweights. 3. Counterweights, if used, will be secured by mechanical means to the outrigger beams to prevent accidental movement.
Scaffold Overhead Falling Object Protection	1. When employees are working on scaffolding and are exposed to work above, they shall be protected with one or more of the following means: a. Approved overhead protection installed on the scaffold b. Toe boards, vertical netting, on every open-sided floor above the scaffold c. Catch platforms or horizontal debris netting between the work above and the scaffold work platform d. Securing of material and/or equipment on the upper floors (good housekeeping) e. Staggering of work schedule to eliminate the exposure. 2. When employees are working on a scaffold and there is a potential of exposure below due to falling objects, one or more of the following means shall be implemented: a. Barricades and signage shall be set up to keep workers out of the area b. Extended toe boards and/or vertical netting shall be installed on the back of the scaffold c. A ground person shall be in place to direct traffic and/or personnel movement d. Approved overhead protection must be installed at access points e. Tool tethers/lanyards.
	1. Only properly trained employees shall be permitted to use this equipment.

Boatswains Chair

2. Equipment must be a manufactured system.
3. Equipment must be inspected by a competent person and documented daily before each use.
4. Must be used in conjunction with a personal fall arrest system connected to an independent anchorage point separate from the point being used to support or suspend platforms and capable of supporting at least 5,000 pounds.
5. Personal fall arrest systems shall consist of a full body harness, appropriate length rope and rope grab, with a lanyard not more than 3-feet in length.
6. Suspension ropes shall be protected from damage by heat or sharp edges.
7. The combined weight of the person as well as any tools and materials must be taken into consideration when looking at the overall weight capacity.
8. Written rescue/retrieval plan is required prior to use.

Suspension Scaffold

1. Suspension scaffold shall be installed per manufacturer's recommendations.
2. The combined weight of the person as well as any tools and materials must be taken into consideration when looking at the overall weight capacity.
3. Each employee working from a suspension scaffold shall be trained in the following:
   a. The suspension scaffold: type, make, model, manufacturers' instructions, OSHA requirements for suspended scaffolds
   b. Fall protection, PFAS, and the Fall Rescue/Retrieval Plan
   c. Falling object protection and tool tethers
4. Suspended scaffold shall be secured at both ends while employees are accessing or egressing the suspended scaffold; unless the suspended scaffold is lowered to the ground or is resting on a stable surface of the building.
   a. Employees shall be protected by a PFAS and a lifeline while accessing or egressing a suspended scaffold
5. Each employee working from a suspension scaffold shall be protected by both a personal fall arrest system and a guardrail system.
6. Personal fall arrest systems shall consist of a full body harness, appropriate length rope and rope grab, with a lanyard not more than 3-feet in length or a self-retractable lifeline.
7. Anchorage points used for attachment of personal fall arrest equipment shall be independent of any anchorage point being used to support or suspend platforms and capable of supporting at least 5,000 pounds.
8. Suspension wires and ropes shall be protected from damage by heat or sharp edges.
9. Two-point and multi-point suspension scaffolds shall be tied or otherwise secured to prevent movement.
10. All suspension scaffold support devices, such as outrigger beams, cornice hooks, parapet clamps, and similar devices, shall rest on surfaces capable of supporting at least four times the load imposed on them.
11. Suspension scaffold outrigger beams, when used, will be made of structural metal or equivalent strength material, and will be restrained to prevent movement.
12. Outrigger beams shall have stop bolts installed at each end of the beam.
13. Outrigger beams which are not stabilized by bolts or other direct connections to the floor or roof will be secured by tiebacks.
14. Outrigger tiebacks shall be installed perpendicular to the face of the building or at opposing angles to a structurally sound anchorage.
15. Suspension scaffolds require a rescue/retrieval plan prior to use.
16. Occupants must be fitted with suspension straps while on the scaffold.

Self-Contained Adjustable Scaffolding (SCAS)

1. Each employee working from a SCAS scaffold shall be trained in the following:
   a. The SCAS scaffold: type, make, model, manufacturers' instructions, OSHA requirements for scaffold type
   b. Fall protection, PFAS, and the Fall Rescue/Retrieval Plan
   c. Falling object protection and tool tethers
2. Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold.
3. Access ladder platforms shall be installed on all units where it is feasible to do so. A rest platform shall be provided every 35 feet (at a minimum).
4. Each employee working from a SCAS scaffold shall be protected by a guardrail system.
5. Employees shall only connect to approved anchor points on the scaffold system.
6. Anchorage points used for attachment of personal fall arrest equipment shall be independent of any anchorage point being used to support platforms and capable of supporting at least 5,000 pounds.
7. The combined weight of the person as well as any tools and materials must be taken into consideration when looking at the overall weight capacity.
8. Scaffold shall be tied back to a structural member of a building or designed by an engineer.
9. Ensure that outriggers and jacks are set up on, firm, properly graded and drained soil.
10. Outriggers and jacks shall bear on mud sills capable of supporting all implied loads.
11. Outriggers and jacks shall not be adjusted while tie backs are in place.
12. Only use manufacturer specified fasteners during assembly.
13. All guards and safety switches are in place and in good working order.
14. Follow all manufacturer's recommended wind restrictions.

Mobile Scaffolds

1. Scaffolds shall be braced by cross or horizontal braces to prevent racking or collapse.
2. The casters or wheels shall be locked to prevent movement while in use.
3. Personnel, tools, equipment, and supplies shall not be allowed on scaffolds while they are being moved from one location to another.
4. Mobile scaffolds are not allowed on stairs and must bear on baseplates.
5. Outriggers are to be used on mobile scaffolds per manufacturers' instructions.
6. Mobile scaffolds are to have guardrails for work platform and/or PFAS.

Special Considerations

During wintertime operations where scaffolds are tarped and heated the following hazards shall be addressed:

1. Scaffold tiebacks should be engineered to address additional loading due to wind.
2. Carbon monoxide must be continually monitored.
3. Additional housekeeping should be conducted to ensure that combustibles and debris is not allowed to accumulate around the heat source.
4. Tarps must be of the flame-retardant type.

SAFETY & HEALTH MANUAL

Section 25: Blasting


Peter Church
Senior Safety Manager

Jump to Section

Policy Statement

The intent of this policy is to provide guidelines when removing rock by drilling and blasting techniques. All blasting shall be performed in accordance with all Federal, State, and local regulations.

Definitions

Approved storage facility
A facility for the storage of explosive materials conforming to the requirements of the OSHA regulation and covered by a license or permit issued under authority of the Bureau of Alcohol, Tobacco, and Firearms

Blast area
The area in which explosives loading and blasting operations are being conducted

Blasting agent
A blasting agent is any material or mixture consisting of a fuel and oxidizer used for blasting, but not classified an explosive and in which none of the ingredients is classified as an explosive provided the furnished (mixed) product cannot be detonated with a No. 8 test blasting cap when confined. A common blasting agent presently in use is a mixture of ammonium nitrate (NH(4) NO(3)) and carbonaceous combustibles, such as fuel oil or coal, and may either be procured, premixed and packaged from explosives companies or mixed in the field.

Blasting cap
A metallic tube closed at one end, containing a charge of one or more detonating compounds, and designed for and capable of detonation from the sparks or flame from a safety fuse inserted and crimped into the open end

Detonating cord
A flexible cord containing a center core of high explosives which when detonated, will have sufficient strength to detonate other cap - sensitive explosives with which it is in contact

Stemming
A suitable inert incombustible material or device used to confine or separate explosives in a drill hole, or to cover explosives in mud-capping. Typically, this a rock gravel material

General Requirements

Project Manager Responsibilities

- Ensuring that the requirements of this policy are placed in the bid documents.
- Contacting the Risk Management Department to determine the amount of general liability coverage the blasting Trade Partner must provide. That amount will vary depending on the scope of work, location, and exposure.
- Submitting all required documentation, blasting plan, and insurance documents to the Regional Safety Department and Risk Management Department for approval prior to commencement of work.

Risk Management Responsibilities

- Ensuring that the blasting Trade Partner's insurance limits and policy meet or exceed the requirements of the company's insurance and policies.

Safety Department Responsibilities

- Reviewing the blasting plan with the superintendent and ensuring that all requirements are met.

Superintendent Responsibilities

- Ensuring all requirements of this section are strictly followed.
- Verifying that safe work practices are followed and ensure that prompt corrective action of unsafe acts or conditions are made.
- Performing a Pre-Installation Meeting with the blasting Trade Partner to ensure they understand the company's safety expectations in the execution of their work.
- Ensuring that the blasting Trade Partner maintains adequate documentation of when blasting agents arrive onsite, when they are removed, detonation times, seismic monitoring activities, and required notifications to authorities and adjacent property owners.
- Attend the blasting safety meeting held each day prior to blasting operations commencing.

The Blasting Trade Partner Responsibilities

- Providing a blasting plan detailing the proposed blasting operations.
- Maintaining and making the plan available to workers on site.
- Obtaining and maintaining all special permits and licensing for their scope.
- Performing work in accordance with the submitted plan and in compliance with all federal, state, and local laws and codes.
- Maintaining a general liability insurance policy with limits to be determined by the JE Dunn Risk Manager.
- The blaster-in-charge for the Blasting Trade Partner shall be in-charge of the blast site. The blaster-in-charge shall assume all responsibilities and perform all duties as required under OSHA regulations.

Blasting Trade Partner Personnel Qualifications

Blaster-In-Charge

- Employees who transport, store, handle, or use explosives or blasting agents must be at least 21 years of age.
- They must be able to give and understand written and verbal instructions.

Functional Manager


Marques Lowe
Safety Director

- They must be qualified through training, knowledge, and experience in transporting, storing, handling, and using explosives, and have a working knowledge of State and local laws and regulations that pertain to explosives.
- Blasters must hold a Federal, State, or local license or certificate, have proof of formal training attended within the last 5 years, or three recommendations from past employers or explosives manufacturers testifying to the blaster's knowledge and ability to perform in a safe manner the type of blasting that will be required.
- Attend the blasting safety meeting held each day prior to blasting operations commencing.

Blasting Plan

The blasting plan shall contain the following minimum components:

- General Objectives
- Proposed dates, times, and all locations of blasting
- A copy of the blasting permit obtained to conduct blasting on site from the required local and state governing bodies
- Rock Type and Characteristics as described from boring tests or other engineering data based on the site conditions
- Blaster-in-Charge must be identified and include written evidence of licensing, experience, and qualifications
- List of other personnel involved with blasting operations including their qualifications and responsibilities
- Copies of Permits, Licenses, Insurance Certificates
- Blast Procedures detailed in a sequence of events from drilling of blast holes to detonation of blasting agents
- Map or drawing of the project site with blasting zones shown
- JHA or Risk Evaluation of their scope(s) of work including drilling operations
- Calculations for scaled distance factor (SD) for their blasting operations to determine "safe" distances in relation to air blast and ground vibration
- List of equipment used for drilling and blasting operations
- Blasting Trade Partner safety & health manual.

The blasting Trade Partner shall provide site-specific details of the proposed blasting operations including the following for each separate blasting area:

- Method and equipment for transporting explosives and detonators
- Type and location of storage facilities
- Explosive type, quantities and safety data sheets
- Detonator type utilized
- Delay type, interval, and pattern
- Maximum drill hole depth and diameter
- Maximum charge per hole
- Maximum charge per delay
- Drill hole spacing, burden, and orientation
- Weather considerations (rain, lightning, cold temps, high winds, etc.) for discontinuing operations
- Coordination details of evacuating personnel to safe zone
- Blast area security
- Procedures for handling misfires and removing of blasting agents already loaded into holes
- Distance to nearest below-ground structures including existing buried utilities
- Methods of matting or covering of blast area to prevent fly rock
- A list of instrumentation which the Trade Partner proposes to use to monitor vibrations and air-blast overpressure levels along with documentation of most recent calibration
- Blast warning system procedures
- Emergency Action Plan
- Post-Blast documentation including seismic results and description of expected vs. actual blasting results
- Prohibition of sources of ignition near all blasting agents (smoking, welding, temporary heat, etc.)
- Dust control procedures for blasting and drilling operations.

Pre-Blast Notifications

The blasting Trade Partner shall be responsible for all required notifications. This includes, at a minimum:

- Regulatory agencies
- Law enforcement agencies
- Emergency services
- Onsite Trade Partner personnel

At least 30 days before initiation of blasting, the blasting Trade Partner or their agent shall notify, in writing, all residents, or owners of dwellings or other structures located within proximity of the permit area of upcoming ongoing blasting operations.

Resident/owner notifications shall include the following information:

- The blasting Trade Partner's name, address and telephone number
- That a pre-blast survey is available at no charge
- The purpose of the pre-blast survey
- The requests for a pre-blast survey must be made in writing and sent directly to the blasting Trade Partner
- A 24-hour notification of actual date and approximate time of blast is available before a blasting event.

Survey

Prior to the blasting Trade Partner mobilizing to the project site, the blasting Trade Partner shall complete a pre-blast survey of all structures and improvements of adjoining properties subject to effects from the blasting operations. This survey should be reviewed at the Pre-Installation Meeting held with the blasting Trade Partner and the owner/client, where applicable.

The survey shall include visual inspection of structures and improvements in addition to recording of existing interior and exterior conditions by means of photographs and/or video containing a date stamp. After completion of blasting.

A post-blast survey shall be performed to identify any changes to the adjacent properties. A descriptive narrative should accompany the pre-blast survey, explaining each image and how it relates to the permit area.

An updated survey of any additions, modifications, or renovations shall be performed by the

Trade Partner if requested by the resident or owner.

Daily Blast Safety Meeting

Before loading operations begin, the blaster-in-charge shall ensure that a safety meeting be held for all blasting Trade Partner's employees on site and attended by at least one Trade Partner Superintendent. Information regarding the hazards observed during the pre-blast inspection as well as pertinent safety instructions shall be given to the workers. The blaster-in-charge shall issue directives and supervision to all blasting Trade Partner's employees as to their responsibility and duties for the day.

This employee safety meeting shall be documented and all attendees must sign a roster that they understand the blasting operations for the day.

The meeting will discuss the blasting signals/warnings used that day, security procedures, review of the site EAP, and other relevant information.

Blast Site Security Procedures

The blast site shall be barricaded and/or designated as off-limits to personnel during loading operations. All access entry points onto the blast site shall be barricaded and monitored. Markers, barricades, signs, and/or barrier tape shall be used to designate the blast site. Entry into the blast site by unauthorized personnel shall be prohibited. Only the blaster-in-charge or his agent shall have the authority to grant permission for entry onto the blast site. Personnel monitoring access entry points must be in constant communication with the Blaster-In-Charge during blasting operations. **Job Safety Analysis (JSA) must be completed**.

Barricades and signage that prohibit access shall be placed at the maximum distance listed in the blasting plan that safely allows other personnel to be present on the site.

Barricades and devices should be of sufficient strength, height, and type to restrict access to other workers, owner's personnel, or members of the public and pedestrians.

Explosive Handling

Explosives should not be dropped, thrown, or slid at any time.

Detonators, primers, and other explosives shall be carried in separate containers when being transported.

Remove explosives from their original containers only as needed for immediate use.

Use only non-sparking tools or devices to open such containers.

Dispose of empty containers and packing in accordance with the manufacturer's recommendations.

Explosive Loading and Wiring

At no time, should excavation and drilling activities be within 50ft of any loading operations.

Do not drill in an area already blasted until examining remaining "bootlegs" (holes that do not detonate full depth) for unexploded charges.

Make boreholes ready for loading, and remove equipment and tools not used for loading from the area before delivering the explosives to the site.

While the holes are being loaded with explosives, exclude all personnel, other than those involved in the loading of boreholes, from the blast site.

Make boreholes large enough to permit loading of cartridges and explosives without forcing. Prime, load, tamp, and fire as promptly as possible with a minimum of exposure to personnel.

Tamp only with wooden or plastic tamping poles without exposed metal parts. Non-sparking metal connectors on jointed poles are permissible. Seat cartridges by even, steady pressure, and do not tamp primers.

Follow the manufacturer's recommendations in priming cartridges.

Make primers up only at the loading area and in quantities limited to the number required for a single round of blasting.

Stem all blast holes in open work with noncombustible material to the collar or to a point that will confine the charge.

Use an electric blasting machine to fire blasts using electronic detonators.

Fire blasts using nonelectric detonators with a blasting machine or starting device prescribed by the detonator manufacturer.

Do not remove the manufacturer's shunt from the cap leg wires until the cap has been connected to the lead lines or to another cap in preparation for the assembly of two or more caps into a single series.

Firing

Preparation. Before connecting the firing line to the power source, notify all personnel in the danger area of the blast and remove them to a safe area. Make satisfactory arrangements for evacuating the danger area and ensuring that no one enters the area before the blast.

Responsibility. The blaster must oversee the blasting machine or firing switch, and must connect the firing line to the firing device. The blaster must make all connections from the cap circuit back to the firing device, and the firing line must remain shorted until connected to the firing device immediately before firing.

Blasting Signal. Sound the following blasting signal on a clearly audible whistle, horn, or siren before each surface or underground blast:

- Blasting warning: A 1-minute series of long blasts 5 minutes before the blast signal
- Blast signal: A series of short blasts 1-minute before the shot
- All clear: A prolonged blast following inspection of the blast area

Posting Blasting Signals. Post blasting signals at all access points, and before each shot, post competent flag persons at all access points to the danger area.

Disconnecting. Immediately following the blast, disconnect the firing line from the firing power source or blasting machine and shunt it. Lock firing switches open.

Post Blast Inspections

Before the all-clear signal, the blaster must thoroughly inspect to determine if all charges have fired. The blaster must carefully check wires and search for unexploded charges.

The geology of the rock to identify:

- Mud seams
- Potential slide areas
- Voids
- Loose rocks

Methods for Monitoring/Measuring Seismic Readings

The use of seismographs at the nearest structures shall be used and monitored to ensure compliance with Federal, State, and local regulations.

If a blast round results in ground vibrations or air-blasts overpressures which exceed the blasting limit criteria, the Trade Partner shall, prior to detonating and subsequent rounds, revise the round design appropriately to reduce the vibrations and submit the revised round design to the engineer for approval prior to the continuation of blasting.

Blasting Containment Techniques

The blasting Trade Partner shall take all necessary steps and use all available blasting techniques to limit the adverse effects of fly rock, misfires, ground vibration, and air blast.

Blast mats, blast cans, overburden, and the like will be required for all blasting operations, unless the blasting Trade Partner can demonstrate that their use will not be required due to the lack of fly rock from the blasting operation. The blasting plan shall explain in detail how this will be achieved, either through the orientation of blasting holes, patterns, depth of charges, remoteness of site, and/or other factors.

Special Conditions

Weather – If a severe weather approaches, the handling or use of explosives shall be discontinued and all persons shall be moved to a place of safety until danger has passed. Determination of safe distance from the blasting area to the severe weather shall be made by the blasting Trade Partner with knowledge of their blasting agents, after referencing the project Emergency Action Plan for severe weather.

- A positive system to detect and measure the probability of lightning or massive static electrical discharges shall be used

Static - All parts of an electrical blasting circuit shall be effectively insulated or protected from grounds or short circuits and adequately separated from power source so as to prevent any possibility of electrical contact or entrance of stray current into the blast circuit.

Stray Radio Frequency – mobile transmitters shall not be energized near electrical caps or delays being handled or used. 2-way radios, cell phones, and the like communicating devices may only be used if deemed safe by the blaster in charge

All explosive storage requirements shall be in accordance with all Federal, State, and local regulations. All permits and licenses must be formally issued before storage shall be permitted. All unused explosives materials shall be removed from the project site at the end of shift unless authorization is given from the regional safety director.

Emergency Action Plan

The blasting Trade Partner shall develop an emergency action plan. The plan shall be communicated to all affected Trade Partners and maintained on site during all blasting operations.

At a minimum, the plan should include:

- Blasting Trade Partner contacts
- Local emergency contacts
- Ambulance
- Fire
- Police
- Address and phone number to the nearest medical facility
- Address and phone number to the nearest hospital

SAFETY & HEALTH MANUAL

Section 26: Demolition

Nick Marcella
Safety Manager

Jump to Section

Policy Statement

The intent of this policy is to outline the preparatory and work practices and procedures required for Demolition work on all JE Dunn projects

Functional Manager

David Hulse
Safety Director

Bryan Novitski
Senior Safety Manager

General Requirements

Preparatory Operations

Prior to the start of any demolition work, an environmental survey must be completed to identify any hazardous materials within the structure. When the presence of any such materials is apparent or suspected, testing shall be performed and the hazard eliminated before demolition is started.

Prior to start of major structural demolition operations, an engineering survey must be completed of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. This would include any adjacent structure that may be affected by the demolition. This survey must be completed and a copy of the plan maintained on site before start of work.

All electric, gas, water, and other service lines shall be shut off, capped, or otherwise controlled, outside the building line before demolition work is started. In each case, any utility company which is involved shall be notified in advance.

During the demolition process, a voltage tester should be utilized to determine if electrical systems have been de-energized prior to cutting or removing components.

Where a hazard exists from fragmentation of glass, such hazards shall be removed.

Where a hazard exists to employees falling through wall openings, the opening shall be protected to a height of approximately 42 inches.

All floor openings, not used as material drops, shall be covered over with material substantial enough to support the weight of any load which may be imposed. Such material shall be properly secured to prevent its accidental movement.

Employee entrances to multistory structures being demolished shall be completely protected by sidewalk sheds or canopies, or both, providing protection from the face of the building for a minimum of 8 feet. All such canopies shall be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof) and shall sustain a load of 150 pounds per square foot.

A written project specific Silica and nuisance dust control plan shall be developed.

Stairs, Passageways, and Ladders

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

In a multistory building, when a stairwell is being used, it shall be properly illuminated and completely covered not less than two floors below the floor on which demolition work is being performed.

Chutes

Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

No material shall be dropped to any point lying outside the exterior walls more than two floors and only if the area is effectively protected.

All material chutes or sections thereof, at an angle of more than 45 degrees from the horizontal, shall be entirely enclosed, except for openings equipped with closures at or about floor level for the insertion of materials. The openings shall not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings shall be kept closed when not in use.

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

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

Any chute opening, into which workmen dump debris, shall be protected by a substantial guardrail approximately 42 inches above the floor or other surface on which the men stand to dump the material.

Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toe board or bumper, not less than 4 inches thick and 6 inches high, shall be provided at each chute opening.

Change History

Date	Description
8/25/2021	All worker conducting demolition must possess and use a voltage tester to determine if electrical systems have been de-energized prior to cutting or removing.

Removal of Material Through Floor Openings

When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above.

Floor openings shall have curbs or stop-logs to prevent equipment from running over the edge.

Removal of Walls, Masonry Sections, and Chimneys

Masonry walls, or other sections of masonry, shall not be permitted to fall upon the floors of the building in such masses as to exceed the safe carrying capacities of the floors.

No wall section, which is more than one story in height, shall be permitted to stand alone without lateral bracing, unless such wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.

Structural or load-supporting members on any floor shall not be cut or removed until all stories above such a floor have been demolished and removed.

Mechanical equipment shall not be used on floors or working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.

The storage of waste material and debris on any floor shall not exceed the allowable floor loads.

Mechanical Demolition

No workers shall be permitted in any area which can be adversely affected by demolition operations, when balling or clamming is being performed. Only those workers necessary for the performance of the operations shall be permitted in this area at any other time.

During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

SAFETY & HEALTH MANUAL

Section 27: Excavation and Trenching

Mike A Williams
Senior Safety Specialist

Jump to Section

Policy Statement

The intent of this policy is to ensure that excavations are conducted in a safe manner and in compliance with applicable regulations.

Definitions

Competent Person - one who can identify 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

Excavation - any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal

Ramp - an inclined walking or working surface that is used to gain access to one point from another, and is constructed from earth or from structural materials such as steel or wood

Registered Professional Engineer - a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.

Tabulated Data - tables and charts approved by a registered professional engineer and used to design and construct a protective system

Stable Rock - natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material on the side or sides of the excavation is secured against caving-in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.

General Requirements

It is the responsibility of the **contractor** performing excavation and trenching work to adhere to the requirements in this program as well as OSHA, Federal, State and Local rules and regulations.

Each **contractor** performing excavation work is responsible for providing a competent person at the jobsite regardless of type or depth.

Each **contractor** performing excavation work is responsible for initiating and maintaining the One Call or other utility locates as required by local, state, and federal entities.

Additional mandatory guidelines:

- All excavations 5 feet or more in depth must have an OSHA approved protective system installed. These may include:
  - Trench Boxes
  - Shoring
  - Sloping
  - Benching
  - Any combinations of the above

If none of the above is feasible, excavations must be designed by a registered Professional Engineer with expertise in soils and protective systems.

Excavations greater than 20 feet in depth must be designed by a registered Professional Engineer with expertise in soils and protective systems.

Ladders or ramps must be provided when the excavation is 4 feet or more in depth. Ladders or ramps must be within 25 feet of all workers in the excavation. Ladders must be located inside the trench box, shoring or other protective device when used.

Spoil piles must be kept at least 2 feet from the top edge of the excavation. Equipment and materials must be kept at least 2 feet from the edge of the excavation. Additional distance may be required to prevent surcharge at the top edge of the excavation.

All loose rock or soil must be removed from the sides or top of excavations before workers are allowed to enter an excavation.

All excavations must be barricaded for visibility. Barricades that are used for fall protection shall be at least 6 feet from the edge of excavations. Additional distance may be required depending on the depth and other site conditions at the discretion of the competent person, JE Dunn supervisor or safety department.

Fall protection must be installed when workers are exposed to a fall hazard greater than six feet.

Work in excavations with standing water or in excavations where water is accumulating is prohibited. Dewatering systems must be used as needed.

Workers are not allowed to work under suspended loads.

When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the

Annexes

Forms and Permits

Excavations Checklist

Functional Manager

Charles Winans
Senior Safety Manager

Change History

Date	Description
9/10/2021	Added specific examples for acceptable pier hole protection during drilling, after drilling, while setting cages, while pouring concrete, and after concrete is poured but left below subgrade. Added as an Appendix

excavation.

When excavation work can affect footings, piers, utility lines, or other adjacent structures, the competent person must ensure that steps are taken to ensure the stability of the structures. Operations shall determine if a structural engineer should be hired to evaluate the stability of existing buildings or adjacent structures as needed.

The Excavation Checklist must be completed by the competent person prior to starting work and submitted to the JE Dunn site supervision daily.

One Call

Locates must be completed before the commencement of any excavation or dirt work. The contractor performing the work is responsible for calling locates. Locates must be maintained during all excavation activities.

All utilities that are uncovered during excavation work must be properly supported.

Soil Testing and Classification

At least one manual and one visual test must be performed by the competent person to determine soil type. Based on these tests and site conditions the competent person shall classify the soil type as either B or C. The classification of type 'A' or "Stable Rock" must be documented by a soils engineer.

The competent person must test and classify excavations:

- Each Day or work shift before workers are allowed to enter the excavation
- Following rain or other weather condition which may change the classification of the excavation
- Following any other event that could change the safe working conditions of the excavation.

Protective Measures

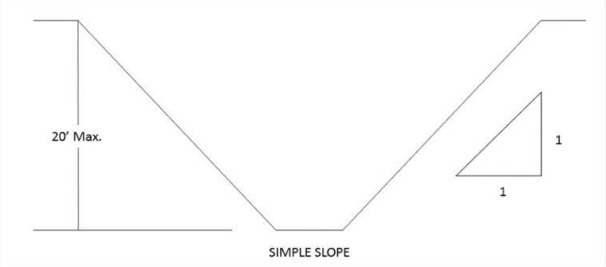
Sloping and Benching shall be accomplished in accordance with the following table based on the soil type as determined by the competent person.

Soil Type Chart

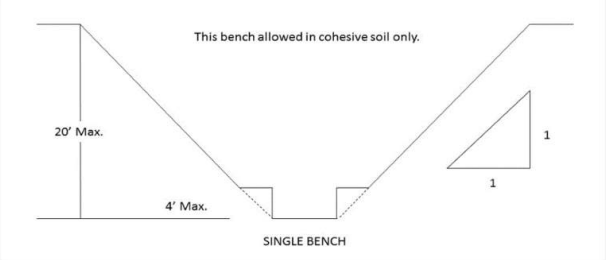
Soil Type	Maxium Allowable Slopes (H:V) for Excavation less than 20 ft deep
Type B	1 : 1 (45^{o})
Type C	1-1/2 : 1 (34^{o})

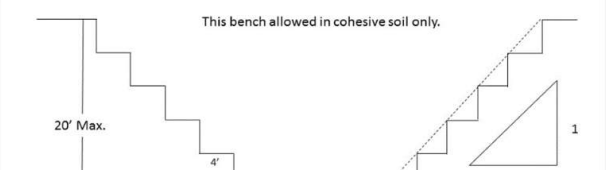
Excavations Made in Type B Soil

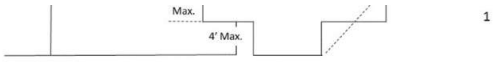
All simple excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1:



b) All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

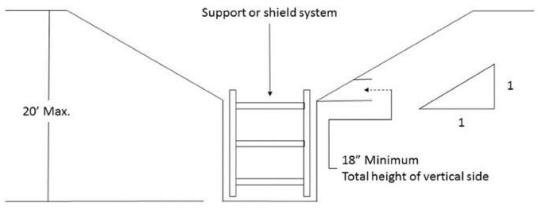






MULTIPLE BENCH

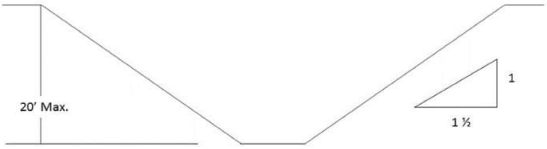
c) All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1:



VERTICALLY SIDED LOWER PORTION

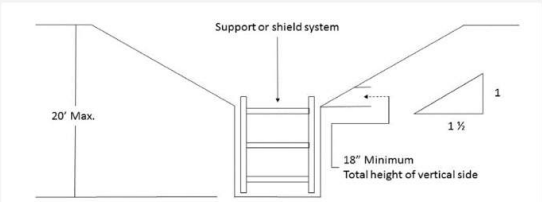
Excavations Made in Type C Soil

All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1:



SIMPLE SLOPE

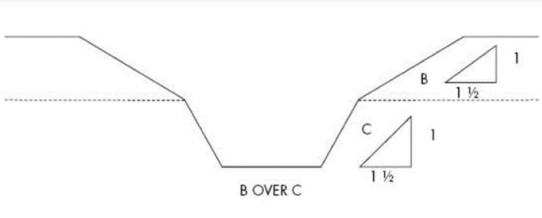
All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1:



VERTICALLY SIDED LOWER PORTION

Excavations Made in Layered Soils

All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below:



B OVER C

Public Protection

Operations must notify the safety department when excavations pose a threat to public safety.

They must be protected by fencing/street plates/barricades and traffic barriers appropriate for the conditions and exposure.

All excavations that are not completely protected by a site fence must have sufficient protection installed around the excavation at the end of each workday or at all times when the public is exposed to excavation work.

Pedestrian Protection

Excavations with limited exposure or no pedestrian traffic may be protected with 42-inch orange barrier fence placed at least 6 feet away from the edges of the excavation.

Excavations in areas with significant pedestrian traffic must be enclosed with 6-foot-tall chain

link fence.

Appropriate signage must be placed to warn the public of the hazards and to re-route pedestrian traffic as needed.

Vehicular Traffic

All signage and barricades installed to warn and re-route traffic away from the work area must be installed per the Manual of Uniform Traffic Control Devices.

Small excavations that are exposed to minimal traffic may be protected by traffic delineators such as cones and barrels with appropriate traffic control signs.

Large excavations or those that are exposed to significant or high speed traffic must be protected by delineators and concrete barriers. Concrete barriers must be placed far enough away from the edge of the excavation to prevent surcharging the excavation but should never be closer than 2 feet from the excavation. Where this is not feasible an engineered excavation that includes these barriers must be provided.

Pier Hole Entry Procedures

Entering pier holes should be avoided. If entrance is required, the following must be met:

Pier holes that must be entered shall be cased. The casing shall extend a minimum of 18 inches above the elevation of the surrounding soil.

Each company that allows workers to enter a pier hole must have a written confined space program.

A competent person shall be designated to fulfill the requirements of the confined space program and to monitor the operation until the worker is removed from the pier hole.

Before a worker enters and works within the confines of the pier, the following is required:

- Atmospheric conditions must be tested and monitored during the work. A four-gas air monitor must be used to monitor the oxygen, combustible atmosphere, carbon monoxide, and hydrogen sulfide levels at various elevations within the pier. When an extension hose is used on the testing equipment, the monitor must be allowed to run a sufficient time to allow the air to reach the sensors.
- Workers shall not be allowed to enter the pier until it can be established that all readings are within acceptable levels.
- Atmospheric condition testing must continue to be monitored at all times while occupied.
- Fresh air should be blown into the pier while occupied whenever feasible.
- If the atmosphere becomes hazardous the worker shall be removed from the pier immediately.

Safe access must be provided. Whenever feasible a boatswains' chair should be used.

Fall protection in the form of a positioning device, or personal fall arrest device must be used during entry.

The worker shall have an independent lifeline attached to their personal fall arrest equipment that can be used if retrieval is required. A method for retrieval must be readily available. This may be a tripod and winch or a second load line on the drilling equipment.

All workers involved in this operation must be trained in confined space procedures, entrance requirements, and retrieval methods before the start of pier hole entry work. Copies of this training must be provided to JE Dunn.

Proper Pier Hole protection

Barricade around Pier Holes

Manufactured Pier Hole Covers

Improvised Pier Hole Covers

Guardrail System around Pier Holes

EXCAVATION CHECKLIST

Project Name: **Project Number:**

Competent Person: **Excavation Contractor:**

Contractor(s) working in excavation:

Date of Inspection: **Time of Inspection:**

General Information:

1. Dimensions of Excavation: Feet Long: Feet Wide: Feed Deep:
2. Have all utility locations been made and marked accordingly? ☐ Yes ☐ No
3. Are their overhead power lines in the general area? ☐ Yes ☐ No
4. Are their other known obstructions in the area? ☐ Yes ☐ No
5. Soil Classification Method: ☐ Visual Testing ☐ Manual Testing
6. Soil Type: ☐ Stable Rock ☐ Type A ☐ Type B ☐ Type C

Soil Type A or Stable Rock must be classified and documented by a Soils Engineer.

7. Rainfall in the past 24 hours: Amount inches Depth of standing water in excavation inches
8. Spoil piles located a minimum of 2' back from edge of the excavation? ☐ Yes ☐ No
9. Has adequate means of egress been established every 25'? ☐ Yes ☐ No
10. Has barricading been installed around perimeter of excavation? ☐ Yes ☐ No
11. Have employees been trained in excavation safety? ☐ Yes ☐ No

Protective Systems:

☐ Sloping ☐ Type A - ¾:1 ☐ Type B - 1:1 ☐ Type C - 1 ½:1

☐ Benching ☐ Type A - ¾:1 ☐ Type B - 1:1

☐ Shoring – Type:

☐ Shielding – Type:

Competent Person (print): Signature: Date:

Superintendent (print): Signature: Date:

This inspection form does not relieve the contractor from liability*

SAFETY & HEALTH MANUAL

Section 28: Underground Utilities

Jump to Section

Policy Statement

The intent of this policy is to provide clear direction on the procedures for contacting the proper organizations for underground utility locates.

Functional Manager

James Robles
National Safety Director

General Requirements

The **Superintendent** is responsible for ensuring all requirements of this procedure are implemented and followed.

The **Superintendent** is also responsible for ensuring that all Trade Partners follow the guidelines for the final location of underground utilities near their work.

Time notice will vary by state. Contact your local 811 operators for more state specific information.

When you contact the service for a locate, you must provide the following information:

Caller name and telephone number

Excavator information:

- Office phone number
- Recording device
- Mailing address
- Email address
- Email address

Onsite contact information:

- First and last name
- Mobile phone number

Excavation information:

- Type of work
- Type of equipment
- Work done for
- Trenchless excavation or explosives
- Is the dig site marked with white flags or paint?
- Depth (in feet)

Location information:

- County and city
- Entire job is within city limits?
- Address or street work is on or along
- Nearest intersecting street
- Second intersecting street
- Location of work
- Start date and time

The Superintendent should ask the locating service if there are any utilities in the area that they do not represent. If a utility is not represented by the location service listed, the utility company shall be contacted directly.

Upon contact with anyone-call service you will be provided a confirmation number that shall be logged in your project diary along with the time, date, and the name of the contact person. If contacting a utility directly, log in the time, date and person's name.

Change History

Date	Description
8/27/2021	Page 3 – Part E. – Line f) – ADDED THE WORD "POTABLE" IN FRONT OF THE WORD WATER

Locates

The location must be provided as promptly as practical but not more than two working days from the time you called in your request. The location will be an "approximate location" which by law is the width of the utility plus two feet on each side.

If the owner of the line provides a depth, it is, at best, approximate and should not be relied on.

Regardless of marking, excavations must be made in a careful, prudent manner around utilities. This will require a combination of hand digging, probing, and pot holing. If a line is incorrectly marked, notify the owner immediately.

Remember, depending on the state requirements, locates are only good for a short period of time. Normally 3-10 days. Check with your local service to determine what that period is and schedule callbacks for the locating service if work was not completed within that time frame.

Caution shall be used when performing excavations where buildings have been demolished. Often there are abandoned service lines that have been branched off the main line and capped at the building line. These lines may still be active and are often not marked by the line locator.

In the event underground utilities are contacted, immediately notify the owner of the utility or emergency response personnel, based on the presented hazard commonly associated with gas and electrical utilities.

Private Utility Lines

There are times when we are on private property and dealing with the property owner's private lines. Many utilities will not locate these lines due to their liability. The Superintendent should meet with the owner to try to locate these lines through as-builts or other means. There are

private locating services that could also be hired that could assist in these line locations.

Locate Color Coding

Most Utilities will use a standardized color-coding system to identify the location of underground lines.

Underground lines will be marked with the standard color codes as follows:

White	Proposed Excavation Line
Fluorescent Pink	Temporary Survey Markings
Red	Electric
Yellow	Gas/Oil/Steam/Petroleum
Orange	Communications CATV
Blue	Potable Water
Green	Sewer and Drain Lines
Purple	Reclaimed Water

SAFETY & HEALTH MANUAL

Section 29: Concrete, Masonry, and Pre-cast


Bill Daubendiek
Safety Manager

Jump to Section

Policy Statement

The intent of this policy is to provide guidance, planning, and inspection procedures for horizontal and vertical concrete placement, precast and tilt up erection, and masonry walls.

Definitions

Qualified Person

Individual that possesses the knowledge, skill and ability either through training or experience to operate equipment included in this policy. They must also successfully demonstrate their practical skills to operate the equipment smoothly and safely.

Competent Person

One who can identify existing and predicable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

Responsibilities

Project Managers are responsible to ensure that the JE Dunn Horizontal Perimeter Guardrail Specifications are placed in the bid documents.

Superintendents are responsible for:

- Ensuring all requirements of this section are strictly followed
- Performing a Pre-Installation Meeting with the concrete Trade Partner to ensure they understand the companies' safety expectations in the execution of their work
- Performing all necessary inspections pursuant to this policy.

General Requirements

- Chemical resistant gloves shall be worn when handling concrete, concrete vibrators, acids, corrosives, and solvents.
- Protective head, hand, eye, and face shield must be worn while applying cement, sand, and water mixture through pneumatic hose.
- Rubber boots are required when working in concrete. Note, placing tape (or equivalent protective measure) over the boot is required to prevent wet concrete from entering the boot.
- No worker is allowed to Ride on a Concrete Buckets or to be working directly under concrete buckets while being elevated or lowered into position is strictly prohibited.
- Elevated buckets must be routed so that the fewest possible employees are exposed to the overhead danger and tagline utilized.
- All vertical rebar 5' and less in height needs to must be capped with rebar caps or bent over to prevent impalement hazards or injury to workers. Hook bars can also be used with approval from the Engineer of record.
- All horizontal rebar 8' and less in height protruding from a wall needs to be bent up out of the way or capped to prevent an impalement hazard.
- Concrete pump hoses and air hose connections and splices must be secured with Metal Clips, Safety Cable, or Nylon Web Hose Halter to prevent separation of sections when pressurized.
- To prevent potential problems with falling concrete, the hose on a concrete placement boom shall have a method of preventing concrete from falling out of the hose when changing positions.
- All hoses or pipe on a placement boom that are not physically attached to the boom shall be tethered.
- Bull float handles must be constructed of nonconductive material while working near energized electrical conductors. Work cannot be any closer than 20' to an energized line.
- Construction loads must not be placed on a concrete structure unless it has been determined that the structure can support the intended loads, based on information received from a person who is Qualified Engineer in structural design.
- No one should be permitted behind the jack during post-tensioning operations. The work area will need to have Red Danger Tape, and signage that says No Entrance to anyone other than the company doing the work is allowed.
- The Red Danger Tape must be erected to limit worker access to the post-tensioning area during tensioning operations. Only those workers that are essential for the post-tensioning operation are allowed within the barricades.
- Powered and rotating type concrete trowel machines that are manually guided shall be equipped with a control switch that will automatically shut off the power whenever the operator removes his hands from the equipment handles. A 6" bumper will need to be added so that the trowel machines cannot exit the slab, or hole covering.
- Sills used to support shoring shall be sound, rigid, and capable of carrying the maximum intended load.
- Welded tubular frames used for shoring must not exceed the safe workload recommended by the manufacturer. An engineered drawing will need to be on site and approved.

Shaft Protection

Stairwells, elevator shafts, chases, and similar large openings inside multistory building must be decked solid on every other floor unless alternate protection is approved by the Safety Director.

Annexes

Plans

Precast Daily Lift Plan (required*)
Site Specific Tilt Up Plan
Brace Maintenance Inspection Checklist

Inspections and Checklists

Pre-Pour Checklist

Guidelines

Precast Package
Horizontal Perimeter Guardrail Specifications
Masonry Wall Bracing

Functional Manager


David Hulse
Safety Director

Change History

Date	Description
8/2021	Definitions Superintendent section - Added followed to complete the statement
8/2021	General Requirements Section - No worker is allowed to ride on a Concrete Bucket, or to be working directly under concrete buckets while being elevated, or lowered
8/2021	General Requirements Section - Reworked the entire statement. All vertical rebar 5' and less in height needs to capped with rebar caps or bent over to prevent impalement hazard, or injury to workers. Hook bars etc.
8/2021	General Requirements Section - Work cannot be any closer than 20' to an energized line.
8/2021	General Requirements Section - Reworked the entire danger tape statement
8/2021	General Requirements Section - Added a 6" bumper will need to be added so that the trowel machines cannot exit the slab, or hole covering.
8/2021	General Requirements Section - An engineered drawing will need to be on site, and approved
8/2021	Horizontal Formwork Section - All wood decking must be nailed down, metal decking bundles must be secured to the steel structure before anyone goes home at the end of the work shift
8/2021	Horizontal Formwork, Wrecking Formwork Section -D Added by the testing lab
8/2021	Horizontal Formwork, Wrecking Formwork Section -Added and the area on the ground barricaded
	Horizontal Formwork,

Cast-in-Place Concrete Pre-Installation Meeting

- A Pre-Installation Meeting shall be scheduled before the start of work to discuss the schedule and execution of the scope and any other hazards or issues identified in the pre-planning checklist.
- The Pre-Installation Checklist shall be completed and filed with the plan.
- Meeting minutes should be distributed and saved.

Horizontal Formwork

Formwork Design:

- Formwork shall be designed by a qualified person. A copy of the formwork shop drawings, stamped by the formwork design Engineer, approved by the Engineer of Record, and maintained on site. These drawings must provide detailed specifications and instructions for:
  - Erecting the formwork
  - Cross bracing and shoring requirements
  - Removal sequence of formwork, shoring and bracing.
  - Re-shore plans

Incomplete work:

- The formwork contractor shall secure all work before the end of the shift. All wood decking must be nailed down, metal decking bundles must secure to the Steel Structure before anyone goes home at the end of the work shift.

Pre-pour Inspection:

- The JE Dunn Superintendent must complete the Pre-Pour Checklist of the formwork prior to each deck pour.
- Before the placement of concrete, the JE Dunn and formwork Superintendent shall conduct an inspection of the formwork system to ensure that the formwork is placed, shored, and braced pursuant to the formwork design drawings. Any questions or concerns regarding the formwork shall be addressed by the formwork supervisor and design Engineer prior to concrete placement.
- Shoring equipment found to be damaged or weakened after erection must be immediately replaced with undamaged equipment.
- All shoring and reshoring equipment must be inspected prior to erection to ensure that the equipment meets the requirements specified in formwork drawings.
- All base plates, shore heads, extension devices, and adjustment screws must be in firm contact and secure with the foundation and form.

Placement of concrete:

- The formwork contractor shall assign a representative to inspect the formwork during the placement of concrete. If a problem is identified that person shall have the ability to communicate with the pour Foreman.

Wrecking of formwork:

- Formwork shall not be wrecked until the concrete has gained sufficient strength to support its weight and superimposed loads. This determination will be based upon information provided in the plans and specifications or concrete testing.
- It is required to have a ground person, and the area on the ground barricaded while wrecking perimeter formwork and shores.

Re-shores:

- The formwork contractor shall adhere to the re-shore plan as prepared by the re-shoring Engineer.
- Spring clips shall be installed on wood re-shores to prevent displacement due to floor flex or vibration.
- All exterior re-shores shall be tied back to an inboard shore.
- The Superintendent shall perform periodic inspections to ensure the re-shore plan is followed and no re-shores are removed prematurely.

Vertical Formwork

Design:

- Formwork shall be designed by a qualified person. A copy of the formwork drawings with detailed wall tie spacing requirements shall be available on site. These drawings must provide detailed specifications and instructions for:
  - Erecting the formwork
  - Lateral bracing requirements
  - Wind loading limitations
  - Rigging attachment points
  - Removal sequence of formwork
  - Allowable hydrostatic pressure limits.
- Vertical form work inside of shafts shall be designed with a trailing catch platform that covers the entire area of the shaft and travels with the formwork as it is raised to the next position.

Formwork Placement:

- Gang forms shall be fitted with approved lifting devices from the manufacturer.
- Engineered spreader beams shall be utilized when more than two picking points are required. The beam has to be marked with the correct weight that beam was designed to be used for. The drawing for assembly will also need to be on file.
- Taglines should be used on all loads.
- The crane shall not be disconnected until the formwork is secured and braced.

Incomplete Work:

- All form work shall be secured before the end of the shift.
- Wall panels must be temporarily braced or secured before the end of the work shift.

Pre-pour Inspection:

- Before the placement of concrete, the Superintendent shall conduct an inspection of the formwork system to ensure that the formwork is placed, and braced pursuant to the formwork design
- Adequacy of the bracing stakes, dead men, sills and anchor bolts shall be reviewed to

8/2021	Reshoresork Section Added exterior
8/2021	Vertical Formwork, Formwork Placement Section - Added from the manufacturer
8/2021	Vertical Formwork, Formwork Placement Section - Reworked the entire statement
8/2021	Vertical Formwork, Incomplete Work Section Added before the end of the work shift
8/2021	Vertical Formwork, Pre-pour Inspection Section - Added in their morning JSA.
8/2021	Vertical Formwork, Concrete Placement Section - Added for the back side of the platform, and to the front side of the form system
8/2021	Added site specific pre-cast erection plan statement
8/2021	Tilt Up - Added a new section
8/2021	Annexes Section updated
3/2023	Cast-in-Place Concrete Pre-Installation Meeting Section added.
3/2023	Requriment for the formwork design Engineer to visit the project prior to the first pour was removed from the Horizontal Formwork section.
3/2023	The requirement to ensure concrete has reached breaking strenght prior to wrecking formwork was expanded to include the use of plans and specifications in the Horizontal and Vertical Formwork sections.
3/2023	In the Re-shores section the language was changed from "formwork Engineer of Record" to "re-shoring Engineer".
3/2023	Allowable hydrostatic pressure limits was added to the Vertical Formwork Design section.
3/2023	The the Tilt-Up section the requirement for embedded lifting inserts to support twice the maximum intended load was changed to four times the intended load.

ensure that they will withstand the anticipated load
- Pour rate and dynamic loading of the system shall be reviewed with the pour crew in their morning JSA.
- Specified Pour rate shall not be exceeded.

Concrete Placement:

- The formwork contractor shall assign a representative to inspect the formwork during the placement of concrete. If a problem is identified that person shall have the ability to communicate with the pour foreman
- A pour platform consisting of a minimum of two scaffold planks installed side by side shall be used.
- Adequate fall protection for workers must be provided for the back side of the platform, and to the front side of the form system.

Wrecking of formwork

- Formwork shall not be wrecked until the concrete has gained sufficient strength to support its weight and superimposed loads. This determination will be based upon information provided in the plans and specifications or concrete testing.
-

Precast

Precast Erection Plan:

- A site-specific precast erection plan shall be written to address specific issues or hazards associated with the erection of precast pieces. The plan shall contain the Identification of:
  - Supervisor responsible for plan implementation
  - Lift Director
  - Rigger
- Fall protection requirements as it pertains to erection activities such as:
  - Leading edge work
  - Unprotected sides and edges
  - Grouting and plumbing
- Identification of persons authorized to enter the erection zone.
- Back welding requirements associated with:
  - Releasing the crane from the load
  - Setting of the adjacent precast panel
- Bracing plan.
- Sequencing Plan for setting pieces to include a 2-3D plan and elevation view.
- Crane plan that includes:
  - Size of crane
  - Boom Length
  - Load Chart
  - Type and weights of rigging anticipated to be used.
  - Copies of the most recent inspections/certifications
  - Operator credentials
  - Soil condition/stability report
  - Determination if mats are required.
  - Locations of power lines
  - Piece list with weights identified.
  - Identification of pieces which will exceed 75% of the capacity of the lift crane at the longest radius or meet the definition of a critical lift.
  - Drawing or explanation of crane location during erection activities.

Precast Pre-Installation Meeting:

- A Pre-Installation Meeting shall be scheduled before the start of work to discuss the erection plan and any other hazards or issues identified in the pre-planning checklist.
- The Safety Pre-Installation Checklist shall be completed and filed with the plan in the project SharePoint.

General Requirements:

- A daily lifting log shall be submitted to the JE Dunn superintendent for approval. The log shall contain piece count, gross weights, crane capacity at the longest radii, and critical lifts for the day. The log shall be signed by the plan implementation supervisor.
- Precast concrete wall units, structural framing, and tilt-up wall panels must be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.
- Lifting inserts that are embedded or attached must support at least four times the maximum intended load applied to them.
- Rebar shall not be used to fabricate embedded lifting devices.
- Lifting hardware must support at least five times the maximum intended load.
- Employees are not allowed under precast concrete members that are being lifted or tilted into position.
- Only Leading-Edge retractable lifelines can used for leading edge fall protection. The retractable must be approved for that use.
- Loads shall not be released from the crane until the piece is properly secured, braced and/or welded in place.

Tilt-Up

Tilt-Up Pre-Installation Meeting:

- A Pre-Installation Meeting shall be scheduled before the start of work to discuss the erection plan and any other hazards or issues identified in the pre-planning checklist.
- The Pre-Installation Checklist shall be completed and filed with the plan.
- The Tilt-Up Site-Specific Safety Plan must be completed.
- A Brace Maintenance Checklist must be completed every 72 hours, or after high winds have occurred.

General Requirements:

- A daily lifting log shall be submitted to the JE Dunn superintendent for approval. The log shall contain piece count, gross weights, crane capacity at the longest radii, and critical lifts for the day. The log shall be signed by the plan implementation supervisor.
- Tilt-Up Concrete wall units, structural framing, and tilt-up wall panels must be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.

- Lifting inserts that are embedded or attached must support at four times the maximum intended load applied to them.
- Rebar shall not be used to fabricate embedded lifting devices.
- Lifting hardware must support at least five times the maximum intended load.
- Employees are not allowed under precast concrete members that are being lifted or tilted into position.
- Only Leading-Edge retractable lifelines can used for leading edge fall protection. The retractable must be approved for that use.
- Loads shall not be released from the crane until the piece is properly secured, braced and/or welded in place.

Masonry

- Whenever a masonry wall is being constructed, a limited access zone must be established prior to the construction of the wall. The limited access zone must be as follows:
  - The limited access zone must be equal to the height of the wall plus four feet, must run the entire length of the wall, and must be established on the side of the wall which does not have scaffold.
  - Only employees actively engaged in constructing the wall may be permitted to enter the limited access zone.
  - The limited access zone must remain in place until the wall is adequately supported.
  - Masonry walls over eight (8) feet must be adequately braced to prevent overturning and to prevent collapse. A sufficient bracing plan shall be developed in writing by a qualified person. This plan shall be specific to the existing conditions. These conditions could be, but not limited to, the type of block, mortar, footing, beam, reinforcing steel, height and width of wall, construction joints, methods, and anticipated wind load. The plan should be kept on site and made available upon request.
  - The bracing and the limited access zone must remain in place until permanent supports are in place or approved by a structural engineer.
  - Proper masonry scaffolding must be erected and maintained by a competent person.

BRACE MAINTENANCE INCPECTION CHECKLIST

Job:_____ Superintendent:_____

The erection supervisor shall check all braces every seventy-two hours or after high winds have occurred. This checklist must be kept on file with JE Dunn at all times during tilt-up activites while bracing is still being used. Designated individuals checking braces must sign and date this sheet on the day the inspection occurred. In addition, please note any discrepancy or damage to braces such as bent or broken braces, loose connections, or missing components. If damage is discovered during inspection, the brace must be immediately tagged, and the erection supervisor notified.

Date:_____

Were any damaged or loose braces identified? ☐ Yes ☐ No

If so, identify which braces:

_____

_____

Signature:_____

Date:_____

Were any damaged or loose braces identified? ☐ Yes ☐ No

If so, identify which braces:

_____

_____

Signature:_____

Specification Addendum

Example Only

Project: CMH Sutherland Tower Addition
Structural Shell Package

Section 03310 - Concrete Work
Part 3 - Execution Add the following:

3.15 GUARDRAILS

A.. The Horizontal Formwork Subcontractor shall be responsible to provide, install, maintain and remove temporary safety guardrails required during their operations. Guardrails shall comply with current OSHA Regulations for Construction Part 1926. Guardrail design, including fastening and bracing requirements, shall be calculated and shown as part of the engineered shop drawings provided by the Horizontal Formwork Subcontractor as required under "Submittals" for this section. Minimum guardrail requirements, unless superseded by OSHA requirements, shall be:

1. Guardrails shall be designed and constructed to withstand a minimum force of 200 lbs. applied in any direction at any point on the top rail, with minimum deflection. The attachment of the handrail to the supporting formwork shall specifically comply with this requirement.

2. Standard guardrail shall consist of top rail, intermediate rail, toeboard and posts with an approximate height of 42 inches. Refer to OSHA 1926.500 for additional details.

3. When the exterior beam form depth "D" is 42 inches or more, guardrails are required at both the perimeter walkway edge and the outside beam form edge. Minimum height of both guardrails is 42 inches. See attached Sketch GR-1.

4. When the exterior beam form depth "D" is less than 42 inches, the perimeter walkway guardrail shall have a minimum height "H" above the top edge of the beam side form based on the width of the perimeter walkway. Rails shall be spaced not more than 21 inches apart.

   See attached Sketch GR-1.

Walkway width "W"	Min. Height above beam side form "H" Measured from the top of the beam side form
24 to 29 inches	36 inches
30 to 35 inches	30 inches
36 to 41 inches	24 inches
42 inches and wider	0 inches

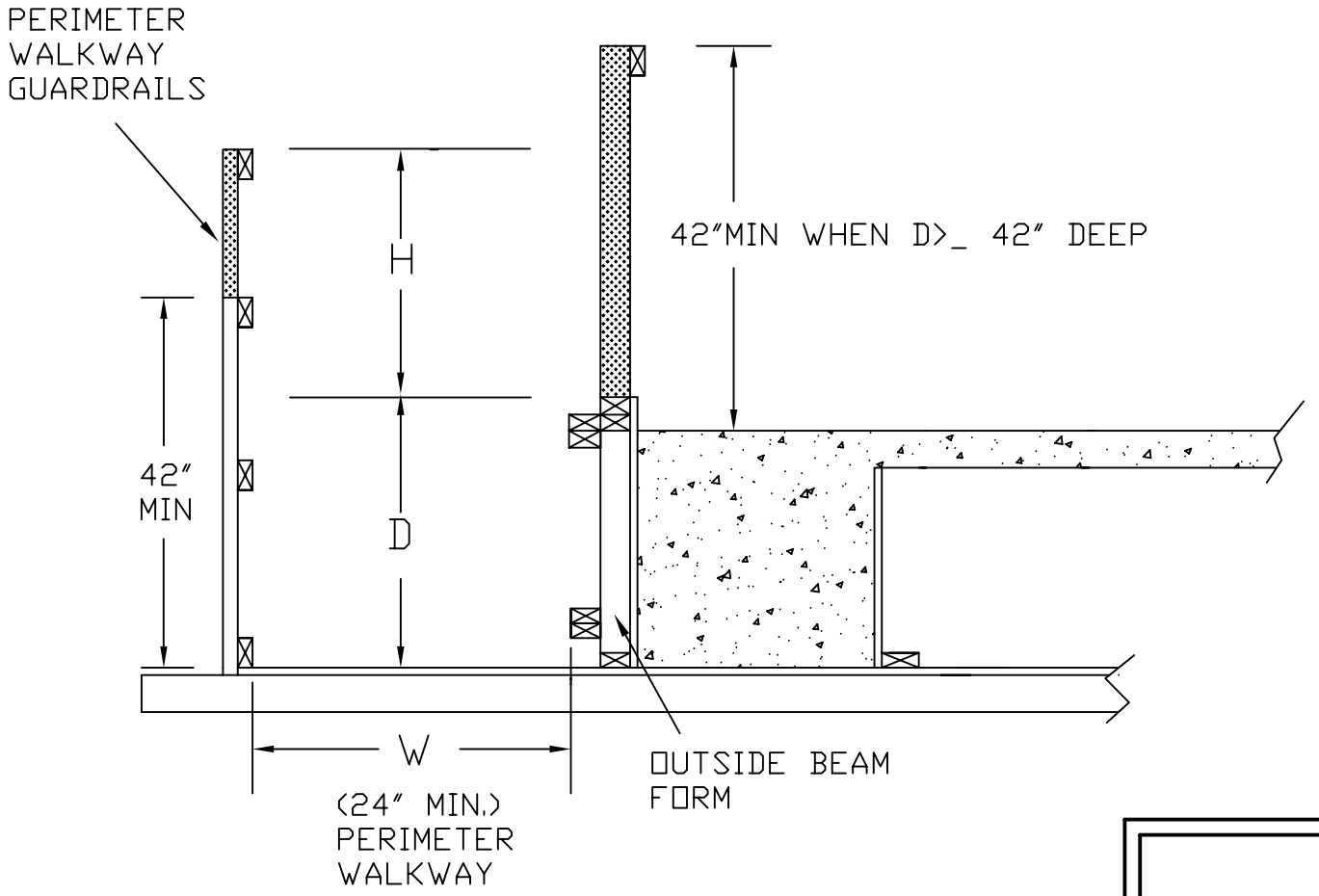
5. The minimum perimeter walkway width, measured from the exterior of the beam edge form system to the inside of the perimeter walkway guardrail, shall be 24 inches.

6. The perimeter walkway guardrail shall be the responsibility of the Horizontal Formwork Subcontractor. The beam edge guardrail, if required, shall be the responsibility of the contractor installing the beam edge formwork.

7. The General Contractor is responsible to provide, install, maintain and remove guardrails at interior slab openings and for "permanent" guardrails or other leading edge fall protection once horizontal formwork is removed. The Horizontal Formwork Subcontractor is responsible for leading edge fall protection of decks under cosntruction prior to guardrail installation.

8. Personal fall protection devices, when guardrails are under construction or when otherwise required, are the responsibility of each contractor for their own employees.

9. No guardrails are to be removed, even for a brief moment, without the authorization of the



Horizontal
Formwork
Guardrail
System

TEK 03-04C

BRACING CONCRETE MASONRY WALLS UNDER CONSTRUCTION

INTRODUCTION

Building codes typically place responsibility for providing a reasonable level of life safety for workers during construction on the erecting contractor. Various methods are employed to protect workers while newly constructed masonry walls are curing and/or until the roof or other structural supports are in place. This TEK provides guidelines for masonry wall stability to resist the lateral loading effects of wind during construction. It is based on principles set forth in the Council for Masonry Wall Bracing's Standard Practice for Bracing Masonry Walls Under Construction (ref. 1), but has been updated in accordance with the design provisions of the 2011 Building Code Requirements for Masonry Structures (MSJC, ref. 2).

When other lateral loads such as impact, seismic, scaffolding, and lateral earth pressure are present, they need to be considered and evaluated separately. The Walls Subject to Backfilling section at the end of this TEK discusses bracing and support of basement walls during backfilling operations.

WALLS SUBJECT TO WIND LOADS

There are several strategies and considerations for protecting life safety on the jobsite. These include internal bracing, external bracing and evacuation zones. The combination of strategies appropriate for a particular job may depend on the type of masonry construction, masonry wall heights, the time elapsed since construction, and wind speeds at the site.

The industry term "internal bracing" is relatively new. Internal bracing refers to the stability of a masonry assembly to resist wind loads through self-weight and allowable

flexural stresses within the masonry.

The use of evacuation zones recognizes that it may be impractical to prevent the collapse of a masonry wall during construction when subjected to extreme loading conditions and that life safety is the primary concern. At prescribed wind speeds (taken as three-second gusts measured at the job site), the wall and the area around it is evacuated. The critical wind speed resulting in evacuation depends on the age of the wall being constructed and involves the three terms: “restricted zone,” “initial period,” and “intermediate period.”

Restricted Zone

The restricted zone is the area on each side of a wall subject to the effect of a masonry wall collapse. It is defined by a length equal to the height of the constructed wall plus 4 ft (1.22 m) on both sides of the wall, and a width equal to the wall length plus 4 ft (1.22 m) on both ends of the wall, as shown in Figure 1. When wind speeds exceed those allowed during the initial and intermediate periods, there is a chance that the masonry wall could fail, and the restricted zone must be evacuated in order to ensure life safety.

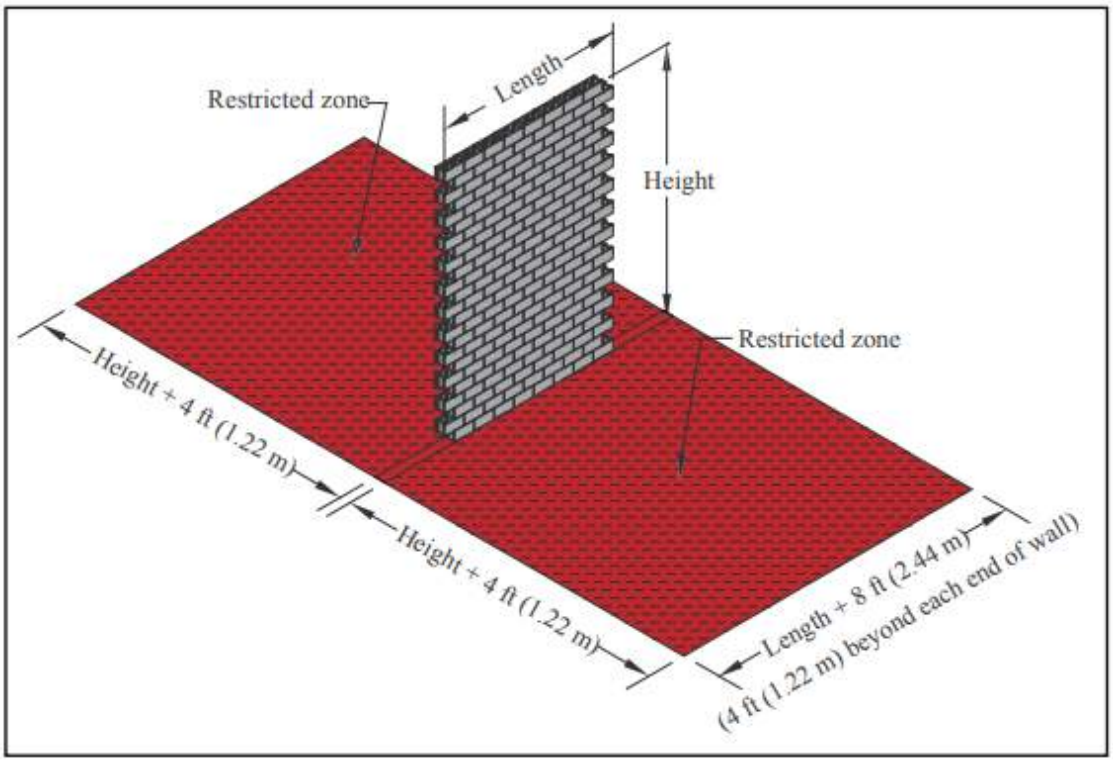


Figure 1—Restricted Zone for Masonry Walls

Initial Period

The initial period is the period of time, not to exceed 24 hours, during which the masonry is being laid above its base or highest line of bracing, and at the end of which required bracing is installed. During this period, the mortar is assumed to have no strength and wall stability is accomplished from the masonry self-weight only. Based on this assumption and a wind speed limit of 20 mph (8.9 m/s), walls can be built to the heights shown in Table 1 without bracing during the initial period. If wind speeds exceed 20 mph (8.9 m/s) during the initial period, work on the wall must cease and the restricted zone on both sides of the wall must be evacuated. Evacuation for walls up to 8 ft (2.44 m) above grade is not necessary until wind speeds reach 35 mph (15.6 m/s) in keeping with a long-standing OSHA requirement.

Nominal wall thickness, in. (mm)	Density of masonry units, γ, lb/ft³ (kg/m³)		
	Lightweight units 95 < γ <105 (1,522 < γ < 1,682)	Medium weight units 105 < γ < 125 (1,682 < γ 2,002)	Normal weight units 125 < γ (2,002 < γ)
4 (102)	8'-0" (2.43)	8'-0" (2.43)	8'-0" (2.43)
6 (152)	8'-0" (2.43)	8'-0" (2.43)	8'-0" (2.43)
8 (203)	9'-4" (2.84)	10'-0" (3.05)	12'-0" (3.65)
10 (254)	13'-4" (4.05)	14'-8" (4.47)	17'-4" (5.27)
12 (305)	18'-0" (5.48)	20'-0" (6.09)	24'-0" (7.31)

Table 1—Maximum Unbraced Height of Ungrouted Hollow Concrete Masonry Walls During the Initial Period, ft-in. (m)

Footnotes:

1. Height of walls above grade or highest line of lateral support

2. Based on 20 mph (8.9 m/s) evacuation wind speed.

3. Based on hollow units of lightest weight in the specified density category.

Intermediate Period

The intermediate period is the period of time following the initial period but before the wall is connected to the elements that provide its final lateral support. The design wind speed is 40 mph (17.9 m/s) 3-second gust for brace design. When the wind speed exceeds 35 mph (15.6 m/s), the restricted zone must be evacuated. The difference of 5 mph (2.2 m/s) is to allow workers time to evacuate the area.

During the intermediate period, the masonry is assumed to have one-half of its design compressive strength and plain masonry allowable flexural stresses are taken as two-thirds of the design value given in the 2011 MSJC (ref. 2). The masonry structural capacity then can be determined using these reduced values in accordance with the provisions of the Code (see ref. 3 for more information).

There are several methods of providing an acceptable level of life safety for masons and others working on the construction site. They are:

1. bracing to a design wind speed of 40 mph (17.9 m/s), 3-second gust and evacuating if the wind speed exceeds 35 mph (15.6 m/s), 3-second gust,

2. alternative bracing designs and methods approved, sealed, and signed by a registered professional engineer if supported by data representing field conditions, and

3. an early warning and evacuation program when the masonry is designed to resist a wind speed of 5 mph (2.2 m/s) greater than the designated evacuation wind speed. The wind speed measurement must be made by an instrument with a ± 2 mph (0.89 m/s) accuracy.

Traditionally, bracing and evacuation of the restricted zones has also been based on wind speeds lower that 35 mph (15.6 m/s). As such, Table 2 addresses evacuation wind speeds of 15 and 25 mph (6.7 and 11.2 m/s) in addition to the 35 mph (15.6 m/s) evacuation wind speed. Many jurisdictions will accept the lower wind speed criteria but users should first confirm acceptability with their local building official and/or OSHA representative before using them.

Table 2 lists maximum unbraced wall heights when early warning with an evacuation program is implemented. Design wind speeds for the heights in Table 2 are for 5 mph (2.2 m/s) greater than the evacuation speed to allow time for the masons to get off the scaffolding and evacuate the restricted zone.

Figure 2 shows a wood brace detail for support heights up to 14′-4″ (4.37 m) maximum. Proprietary pipe bracing systems and cable systems are also available for all heights shown in Table 2—see manufacturer's recommendations for details.

Research has shown that properly designed and constructed reinforcement splices can achieve up to 75% of the specified yield stress of the reinforcing steel at 12 hours and 100% at 24 hours (ref. 1). Therefore, the full capacity of splices may be used after grout has been in place 24 hours. Alternatively, the full splice capacity can be used after only 12 hours if the design lap length is increased by one-third. Splice criteria is as follows for Grade 60 reinforcement:

- 48 bar diameters for grout that has been in place 24 hours or more,

- 64 bar diameters for grout that has been in place 12 hours or more but less than 24 hours.

Connections to masonry can be designed using the previously described reduced masonry strengths and design formulas. As an alternate, restricted working loads for post- drilled anchors as reported in the manufacturer's literature may be used.

Support Condition	Evacuation Wind Speed:					
	15 mph (6.7 m/s)		25 mph (11.2 m/s)		35 mph (15.6 m/s)	
	PCL & MRC[D]	MC[E]	PCL & MRC[D]	MC[E]	PCL & MRC[D]	MC[E]
Unreinforced 8 in. (203 mm) wall						
Unbonded[F]	10'-0" (3.05)		4'-8" (1.42)[G]		2'-8" (0.81)[G]	
Bonded[L]:						
Above grade or line of support	23'-0" (7.01)	23'-0" (7.01)	17'-4" (5.28)	14'-4" (4.36)	12'-4" (3.75)	10'-0" (3.05)
Vertical spacing between braces	21'-4" (6.50)	18'-0" (5.48)	21'-0" (6.40)	17'-4" (5.28)	15'-0" (4.57)	12'-4" (3.75)
Above top brace	10'-8" (3.25)	9'-0" (2.74)	10'-4" (3.14)	8'-8" (2.64)	7'-4" (2.23)	6'-0" (1.82)
Unreinforced 12 in. (305 mm) wall						
Unbonded[F]	20'-0" (6.09)		9'-4" (2.84)		5'-4" (1.62)[G]	
Bonded[L]						
Above grade or line of support	32'-0" (9.75)	32'-0" (9.75)	27'-0" (8.22)	21'-4" (6.50)	17'-4" (5.28)	14'-4" (4.36)
Vertical spacing between braces	32'-0" (9.75)	32'-0" 9.75)	30'-8" (9.34)	26'-0" (7.92)	21'-4" (6.50)	17'-4" (5.28)
Above top brace	16'-0" (4.87)	16'-0" (4.87)	15'-4" (4.67)	13'-0" (3.96)	10'-8" (3.25)	8'-8" (2.64)
Reinforced 8 in. (203 mm) wall[I,J]						
No. 5 at 10 ft o.c. (M#16 at 3.05 m)[M]						
Above grade or line of support	18'-0" (5.48)		18'-0" (5.48)		16'-0" (4.87)	
Vertical spacing between braces	21'-8" (6.60)		21'-8" (6.60)		19'-4" (5.89)	
Above top brace	10'-8" (3.25)		10'-8" (3.25)		9'-8" (2.94)	
No. 5 at 4 ft o.c. (M#16 at 1.22 m) [M]						
Above grade or line of support	23'-4" (7.11)		23'-4" (7.11)		23'-4" (7.11)	
Vertical spacing between braces	28'-0" (8.53)		28'-0" (8.53)		28'-0" (8.53)	
Above top brace	14'-0" (4.26)		14'-0" (4.26)		14'-0" (4.26)	
Reinforced 12 in. (305 mm) wall[I,J]						
No. 5 at 10 ft o.c. (M#16 at 3.05 m)[M]						
Above grade or line of support	25'-4" (7.72)		25'-4" (7.72)		24'-0" (7.31)	
Vertical spacing between braces	30'-0" (9.14)		30'-0" (9.14)		28'-8" (8.73)	
Above top brace	15'-0" (4.57)		15'-0" (4.57)		14'-4" (4.36)	
No. 5 at 4 ft o.c. (M#16 at 1.22 m) [M]						
Above grade or line of support	29'-4" (8.93)		29'-4" (8.93)		29'-4" (8.93)	
Vertical spacing between braces	35'-0" (10.66)		35'-0" (10.66)		35'-0" (10.66)	
Above top brace	17'-4" (5.28)		17'-4" (5.28)		17'-4" (5.28)	

Table 2–Intermediate Period Maximum Unbraced Heights, ft (m) (A, B) (based on ref. 2) Type M or S Mortar Only (L)

A Maximum height above highest line of lateral support permitted without bracing at wind speed indicated.

B These values can be applied to all hollow concrete masonry of 95 lb/ft (1522 kg/m) and greater density and all solid CMU.

C Wall design wind speed is 5 mph (2.2 m/s) greater than evacuation wind speed.

D PCL indicates portland cement/lime. MRC indicates mortar cement.

E MC indicates masonry cement mortar.

[F] Assumes an unbonded condition between the wall and foundation such as at flashing.

[G] Exception: walls may extend up to a height of 8 ft (2.44 m) above the ground without bracing.

[H] Assumes continuity of masonry at the base (i.e. no flashing).

[I] Reinforced walls shall be considered unreinforced until grout is in place 12 hrs.

[J] Reinforcement indicated is minimum vertical required and must be continuous into the foundation. Minimum lap splice for grout between 12 and 24 hrs. old is 40 in. (1,016 mm) or 30 in. (762 mm) splice length for grout 24 hrs. old and over.

[K] For reinforced walls not requiring bracing, check adequacy of foundation to prevent overturning.

[L] Table values are for Type M or S mortars only. Reduce unreinforced table values by 25% for portland cement /lime or mortar cement and 25% for masonry cement Type N mortars.

[M] Table values are for Type M or S mortars only. Reduce reinforced table values by 5% for Type N mortars.

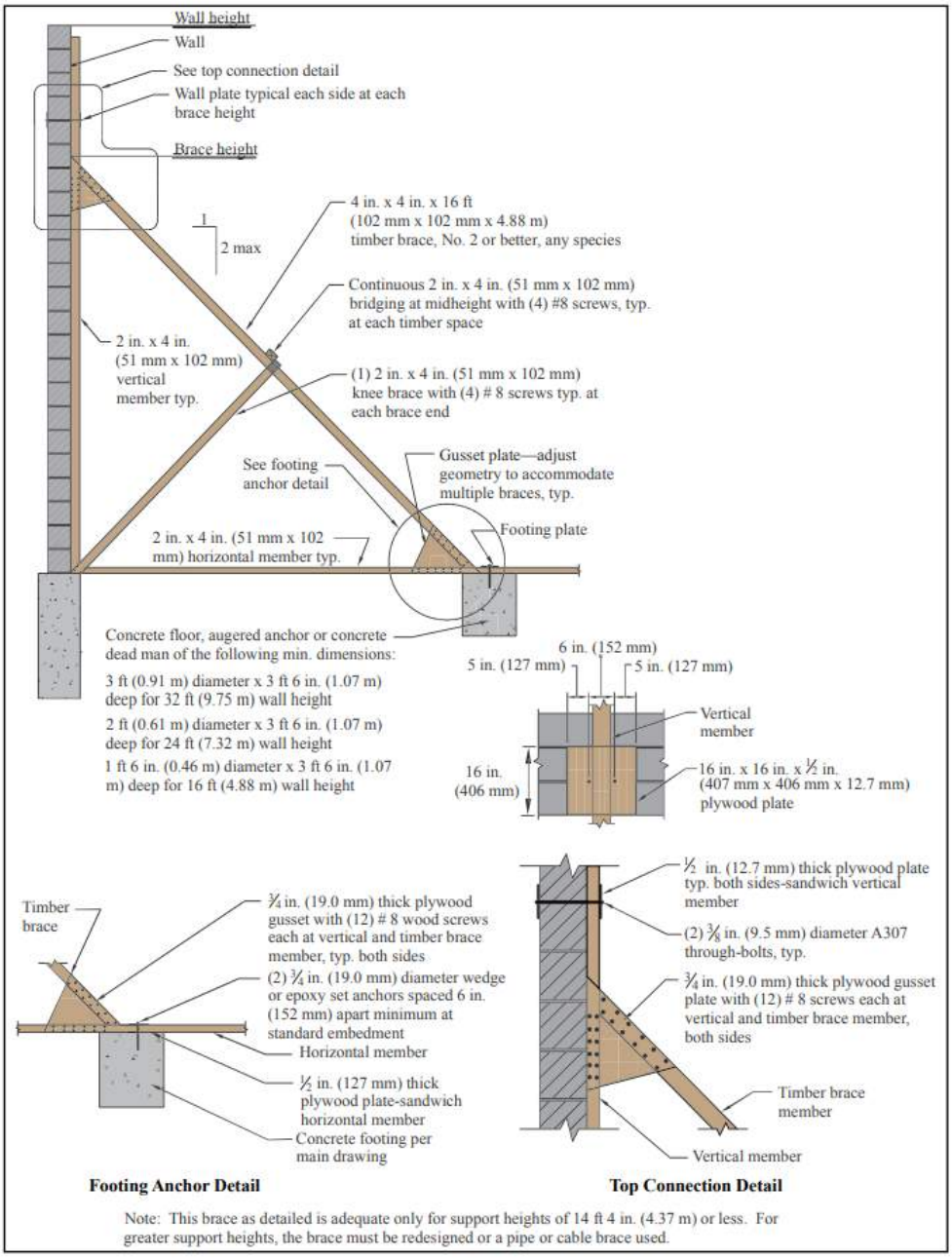


Figure 2—Wood Brace Detail

Design Example

Determine the bracing requirements for a 22 ft (6.71 m) tall wall constructed with 8 in. (203 mm) concrete masonry having a density of 110 lb/ft^3 (1762 kg/m^3) and reinforced with No. 5 bars at 32 in. (M#16 at 813 mm) o.c. using 30 in. (762 mm) splice lengths (i.e., 48 bar diameters). Mortar is masonry cement Type S, control joints are spaced at 24′-8″ (7.52 m), and flashing is at the base of the wall only (unbonded condition).

Initial Period

From Table 1:

Maximum unsupported height = 10′-0″ (3.05 m). (These initial period provisions apply to all of the options that follow.)

Intermediate Period—Unbraced Option

From Table 2:

Alternate 1: Evacuation wind speed of 15 mph (6.7 m/s). NOTE: Although this type of option has historically been accepted, the designer should verify acceptance with the local building official and/or OSHA representative.

Unreinforced wall:

Maximum height above grade, unbonded = 10′-0″ (3.05 m)

Maximum height above grade or line of support, bonded = 23′-0″ (7.01 m)

Reinforced wall:

Maximum height, bonded or unbonded = 23′-4″ (7.11 m) for No. 5 at 48 in. (M#16 at 1.22 m)

This is conservative, because the wall in this example has reinforcement spaced closer than 48 in. (1.22 m).

Strategy:

Build the wall to a height of 10′-0″ (3.05 m) the first day (initial period).

The maximum height for an unbonded condition during the intermediate period is 10′-0″ (3.05 m) for this wind speed, therefore neither bracing nor grouting is required for the 10′-0″ (3.05 m) height during the intermediate period.

If the wall is reinforced and grouted, it can support a total height of 23′-4″ (7.11 m). Therefore, if the first 10′-0″ (3.05 m) is reinforced and grouted, another 10′-0″ (3.05 m) (initial period limit) could be built 24 hours after grout placement if the standard 30 in. (1,016 mm) reinforcement splice is used (or after 12 hours with a 40 in. (762 mm) splice). The 10′- 0″ (3.05 m) height is less than the 23′-0″ (7.01 m) unbraced limit for the bonded unreinforced intermediate period and the total 20′-0″ (6.10 m) of constructed wall height is less than the reinforced limit of 23′-4″ (7.11 m).

The next day, the top 2 ft (0.61 m) of masonry can be added, because the initial period limit of 10′-0″ (3.05 m) is met, the maximum unreinforced bonded limit of 23′-0″ (7.01 m) is met, and the reinforced limit of 23′-4″ (7.11 m) is met. Therefore, the wall can be built in this manner without external bracing.

NOTE: This option requires early warning and evacuation when wind speeds reach 15 mph (6.7 m/s) 3-second gust. This may not be practical in all areas.

Alternate 2: Design for an evacuation wind speed of 35 mph (15.6 m/s).

Unreinforced wall:

Maximum height above grade, unbonded = 8′-0″ (2.44 m) at ground level (see Table 2 note G), 2′-8″ (0.81 m) otherwise, Maximum height above grade or line of support, bonded = 10′-0″ (3.05 m)

Maximum vertical spacing between braces, bonded = 12′-4″ (3.75 m)

Maximum vertical height above brace, bonded = 6′-0″ (1.82 m)

Reinforced wall:

Maximum height above grade or line of support, bonded 23′-4″ (7.11 m)

Maximum vertical spacing between braces, bonded = 28′-0″ (8.53 m)

Maximum vertical height above brace, bonded = 14′-0″ (4.26 m)

Strategy:

Build the wall to a height of 10 ft (3.05 m) the first day (Table 1: initial period limit is 10′-0″ (3.05 m)). Grout that lift the same day, which after the curing period (12 or 24 hours depending on the splice length used) can support a cantilever height of 23′-4″ (7.11 m).

Then, build an additional section of wall of 6′-0″ (1.82 m) high, grout it and brace it at no lower than the 8′-0″ (2.43 m) level, because only 14′-0″ (4.26 m) of the reinforced 22 ft (6.71 m) wall can extend above the brace.

The next or following days, finish the rest of the wall and grout that portion the same day. (Note the first two sections each could have been done in 8′-0″ (2.44 m) heights as well.)

The brace will need to stay in place until the permanent support (roof or floor) is in place. Note that when counting reinforced internal bracing, the wall must be grouted the same day and the restricted zone vacated for the next 12 or 24 hours, depending on the splice length used.

NOTE: Refer to the International Masonry Institute's Internal Bracing Design Guide for Masonry Walls Under Construction (ref. 4) for an example of how to use **NCMA's Structural Masonry Design System Software** (ref. 5) to determine wall bracing requirements. That document also demonstrates how to effectively use low-lift grouting for

internal bracing, as each lift that is grouted can be considered reinforced and able to withstand higher loadings at the bottom of the wall where stresses are highest.

WALLS SUBJECT TO BACKFILLING

Unless concrete masonry basement walls are designed and built to resist lateral earth pressure as cantilever walls, they should not be backfilled until the first floor construction is in place and anchored to the wall or until the walls are adequately braced. Figure 3 illustrates one type of temporary lateral bracing being used in the construction of concrete masonry basement walls. Heavy equipment, such as bulldozers or cranes, should not be operated over the backfill during construction unless the basement walls are appropriately designed for the higher resulting loads.

Ordinarily, earth pressures assumed in the design of basement walls are selected on the assumption that the backfill material will be in a reasonably dry condition when placed. Because lateral earth pressures increase as the moisture content of the earth increases, basement walls should not be backfilled with saturated materials nor should backfill be placed when any appreciable amount of water is standing in the excavation. Similarly, water jetting or soaking should never be used to expedite consolidation of the backfill.

Care should be taken to avoid subjecting the walls to impact loads, as would be imparted by earth sliding down a steep slope and hitting the wall. This could also damage waterproofing, dampproofing, or insulation applied to the walls. Also, if needed, a concrete masonry unit can be left out at the bottom of a wall to prevent an unbalanced accumulation of water. The unit can be replaced before backfilling.

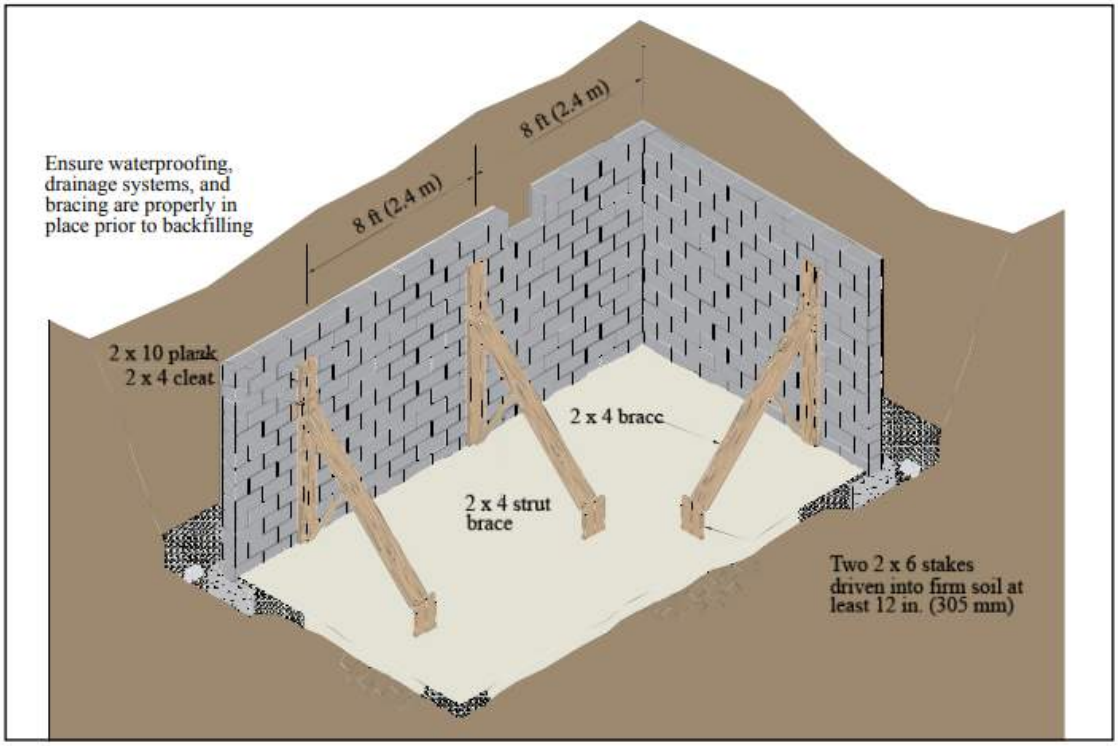


Figure 3–Typical Temporary Bracing for Concrete Masonry Basement Walls (ref. 6)

References

1. Standard Practice for Bracing Masonry Walls Under Construction. Council for Masonry Wall Bracing, December 2012.

2. Building Code Requirements for Masonry Structures, TMS 402-11/ACI 530-11/ASCE 5-11. Reported by the Masonry Standards Joint Committee, 2011.

3. Allowable Stress Design of Concrete Masonry Based on the 2012 IBC and 2011 MSJC, TEK 14-7C. National Concrete Masonry Association, 2013.

4. Internal Bracing Design Guide for Masonry Walls Under Construction. International Masonry Institute, May 2013 (available free at **www.imiweb.org**).

5. Structural Masonry Design System Software, **CMS10V7.2**. National Concrete Masonry Association, 2017 (30-day free trial download available at **www.ncma.org**).

6. Basement Manual Design and Construction Using Concrete Masonry, **TR68B**. National Concrete Masonry Association, 2001.

NCMA and the companies disseminating this technical information disclaim any and all responsibility and liability for the accuracy and the application of the information contained in this publication.

Keywords

backfilling | basement walls | bracing walls | construction loads | internal bracing | lateral loads | plain concrete masonry | restricted zone | unreinforced concrete masonry | wind loads

Daily Lift Plan

It is expected that the lift plan information be completed and discussed with the crew before hoisting. If the crane is not moved or conditions changed, the capacity of the piece listed that has the longest radius (worse case scenario) can be used for the remainder of the picks listed below.

Date: **Project:**

Crane Model: **Description of Scope:**

Lift #	Piece #	Piece Weight (lbs)	Rigging Weight (lbs)	Piece + Rigging Weight (lbs)	Longest Radius*	Crane Capacity**	Crane Location (ref. column lines)	Critical Lift?
1.				0				☐ Yes ☐ No
2.				0				☐ Yes ☐ No
3.				0				☐ Yes ☐ No
4.				0				☐ Yes ☐ No
5.				0				☐ Yes ☐ No
6.				0				☐ Yes ☐ No
7.				0				☐ Yes ☐ No
8.				0				☐ Yes ☐ No
9.				0				☐ Yes ☐ No
10.				0				☐ Yes ☐ No
11.				0				☐ Yes ☐ No
12.				0				☐ Yes ☐ No
13.				0				☐ Yes ☐ No
14.				0				☐ Yes ☐ No
15.				0				☐ Yes ☐ No
16.				0				☐ Yes ☐ No
17.				0				☐ Yes ☐ No
18.				0				☐ Yes ☐ No
19.				0				☐ Yes ☐ No
20.				0				☐ Yes ☐ No

Checklist *(if "No", provide comments in box below)*:

Crane has been visually inspected and appears to be in good working order.	☐ Yes ☐ No
All limit switches and safety devices are functioning properly.	☐ Yes ☐ No
Crane pad has been visually inspected and appears to be unmodified and in good condition.	☐ Yes ☐ No
Crane setup has been approved by the lift director.	☐ Yes ☐ No

Comments:

Crane Operator:

Erector Foreman:

JED Competant Person:

** Longest radius is the distance from the center pin of the crane to the load line at the farthest point of the hoisting cycle. This may be picking from the delivery point, a distance that the operator is required to boom down to past the placement spot to get around an obstacle or the placement point of the load.*

*** Crane capacity is the capacity of the crane at its current configuration and longest radius for the pick minus any deducts required by the load chart. This may be but not limited to the weights of unused jibs, overhaul balls, load lines, etc.*

Precast Erection Standards

For the safe execution of the work, JE Dunn must meet with the erection contractor to ensure that all safety requirements pertaining to the scope have been met. We must also ensure that all parties within the teams understand their responsibilities associated with the work. To meet that goal, the project team shall conduct several "planning" meetings before the physical precast erection activities take place.

This precast erection packet should provide the project team sufficient safety information for planning and preparing for the precast erection meetings.

The Subcontractor responsibilities and requirements for the Precast Erection Requirements have been included in the TPS scope of work for Precast. These requirements should be left in place and not altered.

This packet contains or references:

1. Description of the required Meetings and documentation
2. Excerpts from Chapter 17 of our JE Dunn Safety and Health Manual pertaining to precast erection
3. Precast Erection Pre-install Checklist
4. Precast Daily Lift Plan
5. Critical Lift Worksheet
6. Critical Lift Worksheet Instructions
7. Hoisting Policy Manual (see Portal for latest version)

A. Bid Shakeout /Pre-Award Meeting

This meeting shall be held with the selected erector either before the award of work (prior to issuing contract). In addition to the erector, this meeting should include the precast supplier and may include the crane supplier and/or any other party involved in the scope of work. The purpose of the meeting is to confirm:

1. Execution of the scope of work
2. General erection sequencing
3. Material manufacturing schedule and deliveries
4. Permitting
5. Responsibilities of all parties associated with the work, including site access and crane pad requirements
6. Crane sizing and configuration
7. Acceptance of JE Dunn Precast Erection Requirements (discuss timing of submittal of the Site-specific Precast Erection Plan)

B. Site-Specific Precast Erection Plan

The site-specific erection plan must be submitted to the project team a minimum of 1-2 weeks before the precast pre-installation meeting. This erection plan shall be discussed during that meeting and before the start of erection activities.

This information listed below can be used by the erector to assist them in writing the site-specific erection plan

The plan shall include at a minimum:

a. Identification of the:

   1. Subcontractor supervisor responsible for plan implementation
   2. Precast erector field supervisor (the on-site supervisor directly responsible for all activities related to the precast erection)
   3. Qualified Rigger(s) (meets the OSHA requirements of a qualified rigger)
   4. Signalperson(s) (documentation of training is required)
   5. Qualified Crane Operator (qualifications on the type and model of the proposed crane).

b. The sequence of erection activity, developed in coordination with the Contractor to include lift plan (either 2D with plan and elevation view or 3D).

c. Material deliveries

d. Material staging and storage

e. Identification of individuals authorized to enter the erection zone

f. Fall protection requirements pertaining to erection activities such as:

   1. Leading edge work
   2. Unprotected sides and edges
   3. Welding, grouting and plumbing activities

g. Precast engineer's back welding/grouting requirements associated with:

   1. Releasing the crane from the load
   2. Setting of the adjacent precast panel
   3. Completion of all back welding activities during the progression of the building erection

h. An engineer approved temporary guying and bracing plan that includes recommendations relating to the guying/bracing locations appropriate for the type of structure, site soils, and anticipated wind loads for the area.

i. Grouting plan (if applicable)

j. Crane plan that includes:

1. Size and configuration of crane
2. Load chart
3. Type and weights of rigging anticipated to be used
4. Copies of the most recent inspections/certifications
5. Operator credentials
6. Site preparation
7. Soil condition/stability report (if applicable)
8. Determination if mats are required
9. Locations of power lines
10. Piece report, with weights identified on piece tickets
11. Daily Lift Plan requirements
12. Identification of pieces which are considered a critical lift
13. Drawing or explanation of crane location(s) during erection activities

k. Material picking point details and cast in place picking attachment details

l. Coordination with other trades and construction activities

m. Path for overhead loads and methods used to demarcate the erection area

n. A description of the procedures that will be utilized in the event of rescue or emergency response

C. <u>Precast Erection Pre-Install Meeting</u>

This meeting should be held approximately two weeks ahead of precast erection activities. Attendance will include the JE Dunn project manager, superintendent, safety representative, subcontractor project manager, and precast erector field supervisor shall attend. Meeting shall include review of the Site-Specific Precast Erection Plan and the Safety Pre-Installation Checklist.

The first sheet on the Safety Pre-Installation Checklist has the general safety requirements that the contractor is required to follow on site. Field supervision will be required to add additional non-typical site specific requirements dictated by the owner and/or the complexity of the project. The remainder of the Checklist is specific to the scope of work.

D. Mobilization/Start-up Meeting

This meeting shall be held before the start of the erection activities. Attendance will include the Subcontractor supervisor responsible for the lift plan, precast erector field supervisor, Subcontractor project manager if precast erector field supervisor is not an employee of the Subcontractor, rigger, crane operator(s) and the JE Dunn project team shall be required to attend. The following shall be discussed:

1. Stop work authority of all parties
2. Responsibilities of all parties
3. Site-specific erection plan
4. Precast Daily Lift Plan
5. Crane setup(s) and hoisting paths
6. Truck access
7. Material storage
8. Barricading of hoisting areas
9. Identification of all critical lifts
10. Procedure for securing crane during inclement weather/non-work hours
11. Lightning/wind limits

E. Daily Lift Plan Meeting

This meeting shall be held each day prior to the start of the erection crew's shift. Attendance will include the precast erector field supervisor, Subcontractor representative if precast erector field supervisor is not an employee of the Subcontractor, rigger, crane operator(s) and the JE Dunn superintendent or other designated representative. The following shall be discussed:

1. Review Daily Lift Plan
2. Review critical lifts for the shift. It is expected that a critical lift meeting be conducted for loads that are greater than 75% of the capacity of the crane at that configuration. If there are several critical lifts anticipated and if crane location/setup or any other condition affecting the lift doesn't change, a critical lift meeting can be held for the "worst case scenario" of those lifts. If the crane location or any other condition changes that will affect the capacity of the crane, another critical lift plan meeting shall be conducted.
3. Operator performs daily safety inspection
4. Review any changes in conditions or erection plan
5. Reiterate responsibilities of all parties

F. Records

Completed daily lift plans are to be maintained by JE Dunn superintendent or designated representative.

If any critical component of the plan changes such as crane size, setup, crane operator, plan supervisor, etc., an abbreviated start-up meeting shall be conducted to address changes to the plan.

Safety Pre-Installation Checklist: PRECAST

Project Name: **Job #:** ☐ **CM** ☐ **GC** **Date:**

Contractor Name:

Contractor Safety Contact: (Person who will receive copies of safety reports)
Name: **Title:** **Email:**

JE Dunn requirements to be discussed:

1. Site Specific Safety Orientation Process:

   ☐ Emergency Action Plan ☐ OSHA 10hr Cards (if applicable) ☐ Drug Screen (if applicable)

2. JHA Submittal and approval by JED: ☐ Yes ☐ No

3. JSA completed daily: ☐ Yes

4. SDS Program / Trade Partner Safety Program submitted to JED Supervision: ☐ Yes ☐ No

5. Silica Exposure Control Plan: ☐ Yes ☐ No

6. Weekly Toolbox Talks / Safety Meetings: (submit to)

7. PPE - Dress Code: Hard hat, foot protection, eye and face protection, hand and arm protection (glove requirements), high-vis clothing, and other PPE (body protection, respiratory protection, hearing protection)

8. Fall Protection 100% at 6ft for all scopes: ☐ Yes ☐ No

   a. Floor Hole Cover Policy: ☐ Yes ☐ No

   b. Overhead Protection Policy: ☐ Yes ☐ No

   c. Maintenance and upkeep of fall protection: ☐ Yes ☐ No

9. Protection of Public/ General Liability Issues:

10. Traffic Control/ Deliveries, etc.:

11. Review Hoisting Policy Manual: ☐ Yes ☐ No ☐ N/A

12. Scorecard requirements: ☐ Yes ☐ No

    ☐ Submit Weekly ☐ Leading/Lagging Indicators

13. Scaffolding / Aerial Lifts:

☐ Competent Person ☐ Inspection / Tagging ☐ Erection/Dismantle/Fall Protection

14. Tools and Equipment:

☐ Inspect Daily ☐ Defective - Remove/Tag ☐ Dust Collection ☐ Guards etc.

15. Fire Protection:

☐ Fire Extinguishers ☐ Hot Work Permits/Fire Watch ☐ Fuel/Gas Storage ☐ Temp Heat Plans

16. Electrical:

☐ GFCI Protection ☐ Cord / Tool Inspections

17. Housekeeping responsibilities: ☐ Yes ☐ No

a. Cord Management ☐ Yes ☐ No

18. Material Handling and Storage:

☐ Laydown ☐ Manual Material Handling ☐ Storage

19. Signs and Barricades: ☐ Yes ☐ No

20. Scope Specific Training/ Certs provided to JED. (Crane, Forklift, Competent Person, Aerial lift, Fall Protection, etc.):

21. Other Site Specific Policies (smoking policy, parking, ladders, etc.):

22. Incident and Near Miss Reporting:

23. Enforcement Policy:

24. Additional Items Discussed:

Contractor specific items as applicable:

25. Written Site Specific Erection plan (in accordance with JED Precast Policy):

    ☐ Developed and Signed by Qualified Person ☐ Submitted to and Approved by JED

26. Elements of the Plan should include the Following:

    ☐ Fall Protection Methods ☐ Authorized Workers in the Erection Zone ☐ Back Welding Requirements

    ☐ Bracing Requirements ☐ Implementing Plan Supervisor ☐ Field Pre-planning Meeting

27. Fall Protection:

    ☐ Leading Edge Work:

    ☐ Unprotected Sides and Edges (Guardrails, Stairs):

    ☐ Open Floor Holes:

    ☐ Grouting and Plumbing:

    ☐ Anchor Points to be Used:

    ☐ Life Line to be Used:

    ☐ Rescue Methods:

28. Method for Maintaining Controlled Access Zone for Erection Activities:

29. Crane Selection and Use:

    ☐ Crane Type:

    ☐ Certified Crane Operator:

    ☐ Identification of Soil/Testing:

    ☐ Crane Pads & Cribbing:

    ☐ Path for Overhead Loads:

    ☐ Swing Radius Protection:

    ☐ Inspection Documentation (annual & daily):

- ☐ Powerline & Underground Utilities:
- ☐ Critical Lifts (75% of Capacity/Multiple Crane):
- ☐ Rigging (Types & Inspections):
- ☐ Taglines:
- ☐ Specialized Lifting Devices/Engineered Pick Beams:
- ☐ FAA Permit (if applicable)

30. Structural Stabilty:
    - ☐ Engineered Bracing Plan
    - ☐ Back Welding before release of Crane
    - ☐ Special Bbracing Requirements (Architectural Panels, Other Panels)
31. Access to Work Areas:
    - ☐ Aerial Lifts
    - ☐ Ladders
    - ☐ Stairs
32. Welding/Cutting:
    - ☐ Condition of Leads / Hoses
    - ☐ Fire Protection Methods
    - ☐ Hot Work Permit
    - ☐ Proper Eye-Face Protection
    - ☐ Fuel and Cylinder Storage
33. Training Documentation Provided to JED for:
    - ☐ Qualified Riggers
    - ☐ Fall Protection
    - ☐ Designated Erectors
    - ☐ Signal Persons

Additional Items:

Completed By:

Cc: Project File: Trade Partner:

Safety Representative:

Daily Lift Plan

It is expected that the lift plan information be completed and discussed with the crew before hoisting. If the crane is not moved or conditions changed, the capacity of the piece listed that has the longest radius (worse case scenario) can be used for the remainder of the picks listed below.

Date: **Project:**

Crane Model: **Description of Scope:**

Lift #	Piece #	Piece Weight (lbs)	Rigging Weight (lbs)	Piece + Rigging Weight (lbs)	Longest Radius*	Crane Capacity**	Crane Location (ref. column lines)	Critical Lift?
1.				0				☐ Yes ☐ No
2.				0				☐ Yes ☐ No
3.				0				☐ Yes ☐ No
4.				0				☐ Yes ☐ No
5.				0				☐ Yes ☐ No
6.				0				☐ Yes ☐ No
7.				0				☐ Yes ☐ No
8.				0				☐ Yes ☐ No
9.				0				☐ Yes ☐ No
10.				0				☐ Yes ☐ No
11.				0				☐ Yes ☐ No
12.				0				☐ Yes ☐ No
13.				0				☐ Yes ☐ No
14.				0				☐ Yes ☐ No
15.				0				☐ Yes ☐ No
16.				0				☐ Yes ☐ No
17.				0				☐ Yes ☐ No
18.				0				☐ Yes ☐ No
19.				0				☐ Yes ☐ No
20.				0				☐ Yes ☐ No

Checklist *(if "No", provide comments in box below)*:

Crane has been visually inspected and appears to be in good working order.	☐ Yes ☐ No
All limit switches and safety devices are functioning properly.	☐ Yes ☐ No
Crane pad has been visually inspected and appears to be unmodified and in good condition.	☐ Yes ☐ No
Crane setup has been approved by the lift director.	☐ Yes ☐ No

Comments:

Crane Operator:

Erector Foreman:

JED Competant Person:

** Longest radius is the distance from the center pin of the crane to the load line at the farthest point of the hoisting cycle. This may be picking from the delivery point, a distance that the operator is required to boom down to past the placement spot to get around an obstacle or the placement point of the load.*

*** Crane capacity is the capacity of the crane at its current configuration and longest radius for the pick minus any deducts required by the load chart. This may be but not limited to the weights of unused jibs, overhaul balls, load lines, etc.*

CRITICAL LIFT PLAN INSTRUCTIONS

Title Section:

Project Name: Name of overall project, i.e. AMLI, KU School of Business, Seaton Hall

Project Number: JED or BHC project number

Location: Examples are Kansas City, MO or Nashville, TN

Date: Day Critical Lift Plan is filled out

Company: Contractor or Subcontractor in charge of the proposed lift, may or may not be J. E. Dunn Construction Co.

Load: Description of piece to be hoisted, i.e. Precast Double-tee, Rooftop AHU, Steel Truss

Submitted By: Person filling out Critical Lift Plan and company if different from above company

1. Crane Manufacturer: Company that manufactured the crane used, i.e. Grove, Linkbelt, Tadano
2. Model No: Model of crane, i.e. AFT-130, GMK-5275, RT-880E, LC-400
3. Crane Type: Crawler, All-Terrain, Rough-Terrain, Tower Crane
4. Crane Serial No: From name plate on crane
5. Crane Inspection Date: Date of Annual Inspection, this is required to be on the machine at all times
6. Crane Rated Capacity: Base capacity of crane, i.e. 150 tons, 275 tons, 80 tons
7. Boom Type: Lattice, Hydraulic, Tower jib
8. Boom Length: Boom length/configuration used during the lift in question
9. Lifting From: Select where the lift is being made
10. Jib Configuration: Mobile cranes, select one if jib is on the crane, no selection if no jib is on the machine. Tower cranes, disregard
11. Jib Length: Length of jib, if on the crane. Disregard if no jib is on crane
12. Jib Offset: Offset angle of installed jib, if on the crane. Disregard if no jib is on crane

Critical Lift Criteria

Check any items that apply to this lift.

A. CRANE

1. Crane Setup: Check the box that applies. If crane is on outriggers, fill in the percentage of outrigger extension.

2. Check the load chart / operating area that applies, 360 degrees or limited swing over rear of hydraulic crane or over the front of blocked crawlers.
3. Counter weights used: Insert the total weight of counter weights installed on the crane during the lift.
4. Lift Radius:
    a. Insert the radius from which the lift is started.
    b. Insert the radius at the point of placing the lift.
    c. Insert the worst case, this may be at some point between hoisting and placing.
5. Boom Angle:
    a. Insert the boom angle at which the lift is started.
    b. Insert the boom angle at placement.
    c. Insert the boom angle which represents the worst case during the lift.
6. Rated Capacity:
    a. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the starting point of the lift.
    b. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the placing point of the lift.
    c. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the worst point of the lift, this may be somewhere in between starting and placing.
7. Hoist Rope:
    a. Rope Dia: Fill in the size / diameter of the crane's hoist rope used.
    b. Line Pull: From crane information, fill in the available line pull, one part, for the hoist rope.
    c. Parts Req'd: Number of parts of hoist rope required in reeving to hoist the load. Total weight including all rigging load, divided by the available line pull.

B. LOAD

1. Source of load weight: This would commonly be from the manufacturer of the piece to be hoisted, can also be from bill of ladings or calculations of unit weight and volume.
2. Weight verified by: More than one check should be used to confirm the load weight. The last resort can be the operator aids of the crane (ask the operator immediately after hoisting, before continuing the lift).
3. Weight of Load: Insert the weight of the item to be hoisted from sources above.
4. Weight of load block: From the crane operator, fill in the weight of the load block on the crane, even if the lift is not made with this block.
5. Weight of overhaul ball: From the crane operator, fill in the weight of the overhaul ball on the crane, even if the lift is not made with the ball.
6. Weight of hoist rope: Estimate the length of hoist rope, all lines, below the boom point. Multiply by the unit weight of the rope, and insert here. The operator or the crane owner should know this unit weight.
7. Weight of rigging: Insert the total weight of all rigging, including spreader bars, rolling blocks, shackles, wire rope and synthetic slings.

8. Effective weight of jib: Any jib on the crane, installed or stowed has an effective weight which must be considered as part of the load. The load chart information sheets on the crane will give the jib deductions to insert in this.
9. TOTAL EFFECTIVE LOAD: This is the sum of B3 through B8, including all items that affect the load recognized by the crane.

C. CRANE LOAD / CAPACITY

1. Remaining Capacity: Rated Capacity (A6) of the crane at location minus the Total Effective Load (B9).
2. Load vs. Capacity: The Total Effective Load (B9) divided by the Rated Capacity (A6) at location.

D. RIGGING

Include a description/sketch or attachment of rigging including sizes, capacities, length, and loading of all rigging hardware utilized for the lift. This may include spreader bars, rolling blocks, shackles, slings (wire and synthetic) as well as any "below the hook" lifting devices. This may be from the Lift Director or Certified Rigger, but must be included as part of the Critical Lift Plan.

E. JOBSITE – CRANE PLACEMENT

1. Setup Area:
    a. Clear: Check to see the area is clear of obstacles, materials, or debris which prohibits crane from setting up where needed. The crane must be able to set up within manufacturer's tolerance for level.
    b. Stable: Check to see if the ground conditions are "firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support" are met.
2. Mats Required: When job conditions and ground bearing loads (from outriggers of tracks) dictate, additional supporting materials, i.e. blocking, cribbing, mats, marsh mats, or other supporting materials may become necessary. Check, if this condition exists, that these are properly used.
3. Electrical Hazards: Survey the area to determine if electrical hazards exist. Check Yes or No
    a. Approach Distance: If the answer to 3. Is yes, determine the minimum approach distance prescribed in OSHA 29 CRF 1926.1408 Table A, or the J. E. Dunn Hoisting Policy Manual section III.
    b. Control Method: Examples are Dedicated Spotter, Demarcation Boundaries (painted on ground, line of stanchions, or flagging), Proximity Warning Devices, or Swing Limiting Device on the crane.
4. Proximity to slopes: Specifically downward so as to compromise ground support conditions. If this condition exists, geo-tech engineering support may be required to insure sliding or shearing failure will not take place.

5. Underground Issues: Crane setup area must be checked to identify underground (hidden) vaults, voids, piping or utility structures which would likely not support the crane. Should any exist in the area, they must be clearly marked for the crane to avoid.

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

This section is to be filled out at the pre-lift meeting. Date, time, weather conditions, and wind speed are to be noted for the time of hoisting operations.

1. Critical Lift Plan Reviewed – Has this plan been reviewed with the key personnel at this pre-lift meeting?
2. 3D Lift Plan Reviewed – Have the sketches, 3D of 2D been reviewed during the pre-lift meeting?
3. Pre-shift Inspection Complete – Has the crane operator performed the required pre-shift inspection of the crane.
4. Annual Inspection on Crane – By common practice, a copy of this is kept on the crane. Make sure this inspection is current. If this is not available, contact the crane owner and obtain a copy before proceeding with any hoisting.
5. Counter weights on crane – Verify that the counter weights installed on the crane match or exceed the counter weights used to develop the lift plan.
6. Outriggers Deployed – Check to see that all outriggers are extended to match the lift plan and the weight of the machine is supported on outriggers, not on tires.
7. Ground Conditions Stable – Verify ground conditions providing support for the crane are adequate. Look for cracking around outriggers or tracks, settlement of mats/blocking, and proper drainage.
8. Matting properly Installed per Plan – Verify mat installation matches or exceeds the requirements of the Lift Plan.
9. Crane Level to Required Tolerance – Verify that the crane is set up level to manufacturer tolerances.
10. Underground Hazards Avoided – Verify underground hazards identified, and marked in section D. have been avoided.
11. Proximity to Downward Slopes – Verify distance to downward slopes identified in section D. is met or exceeded.
12. Electrical hazards Identified - Verify electrical hazards identified, and marked in section D. have been avoided, and control method has been implemented.
13. Tail Swing Clear – Check for obstructions to tail swing on crane, eliminate any found.
14. Boom Clearance Checked – If boom obstructions exist, a good way to check is with an empty hook, prior to commencing the lift, using an additional spotter to check the boom.
15. Head Room Checked – Verify rigging used does not exceed the vertical distance between the load and the A2B weight attached to the boom tip.
16. Swing Barrier Installed – Verify the swing barrier protecting access into the counter weight swing area is installed.

17. Hoisting Area Access Controlled – Check that access is prevented into areas under the entire path of the load.
18. Emergency “Drop Zone” Identified – Identify places the load can be landed, if the lift must be stopped for any reason.
19. Tag Lines Used – Check tag lines (proper length) are connected to the load.
20. Signal Method Used – Decide which signal method will be used for the lift.
21. Signal Person Identified – Designate the person to signal the crane operator.
22. Safety Spotter Identified – Identify the person or persons dedicated to spotting, regarding electrical hazards, clearances, or any questionable area.
23. Rigging Inspected – Visually inspect all rigging components, prior to use.
24. Rigging Installation Checked – Visually check that all rigging components are properly installed as tension is applied by the crane.

Special Instructions: Any special conditions or instructions for the crew should be noted here.

Pre-Lift Meeting Attendees: All personnel attending the pre-lift meeting should be listed. Key personnel (Lift Director – in charge of lift, Rigger, Crane Operator, Site Safety Manager, and Project Superintendent) must sign.

BLUE HAT
CRANE & EQUIPMENT
RENTALS

CRITICAL LIFT PLAN

DUNN safety
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Project Name:	Project No.:
Location:	Date:
Company:	
Load:	
Submitted By:	

1. Crane Manufacturer:	2. Model No.	3. Crane Type:	4. Crane Serial No.
5. Crane Inspection Date:	6. Crane Rated Capacity: (tons)	7. Boom Type:	8. Boom Length:
9. Lifting From: Boom: ☐ Jib: ☐	10. Jib Configuration: Stowed: ☐ Erected: ☐	11. Jib Length:	12. Jib Offset:

Critical Lift Criteria (check all that apply)

Load exceeds 75% of the crane capacity, mobile cranes and tower cranes	☐
When crane is used in tandem pick with any other equipment or crane	☐
When lifts are made within 20 feet of power lines	☐
When lift involves specialized, unique, or complex rigging equipment	☐
When hoisting personnel in suspended work platforms	☐
Hoisting specialized equipment with a long lead time to replace	☐

A. CRANE

1. Crane Setup:		
On Outriggers	☐	What %
On Tires	☐	0%
On Tracks	☐	0%
2. Chart Based	360 ☐	Ltd.Swng. ☐
3. Counter weights used:		LBS.
4. Lift Radius:		
a. At pick-up		Ft.
b. At setting		Ft.
c. Worst case		Ft.
5. Boom Angle:		
a. At pick-up		deg.
b. At setting		deg.
c. Worst case		deg.
6. Rated Capacity:		
a. At pick-up		LBS.
b. At setting		LBS.
c. Worst case		LBS.
7. Hoist Rope:		
Rope Dia.		mm/in
Line Pull		LBS.
Parts Req'd.	NaN	PARTS

B. LOAD

1. Source of load weight:		
2. Weight verified by:		
3. Weight of load		LBS.
4. Weight of load block		LBS.
5. Weight of overhaul ball		LBS.
6. Weight of hoist rope		LBS.
7. Weight of rigging		LBS.
8. Effective weight of jib		LBS.
9. TOTAL EFFECTIVE LOAD	0	LBS.

C. CRANE LOAD / CAPACITY

	1. Remaining Capacity (lbs.)	2. Load vs. Capacity	
a. At pick-up	0	NaN	%
b. At setting	0	NaN	%
c. Worst case	0	NaN	%

D. RIGGING

Description & capacity of rigging, or attach sheet to plan:

E. JOB SITE - CRANE PLACEMENT

1. Setup Area:	Clear	Yes ☐	No ☐	4. Proximity to slopes:		Yes ☐	No ☐
	Stable (firm)	Yes ☐	No ☐		Distance:		Ft.
2. Mats Required:		Yes ☐	No ☐	5. Underground Issues:		Yes ☐	No ☐
3. Electrical Hazards:		Yes ☐	No ☐		Loc. Marked:	Yes ☐	No ☐
a. Approach Distance:			Ft.				
b. Control Method:							

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

Date of Lift:			Time of Lift:			
Weather:	Sunny ☐	Overcast ☐	Rain ☐	Lightning ☐		
Wind Speed:		Measured ☐	Estimated ☐	Maximum Allowable:		MPH

(check)		(check)	
1 ☐	Critical Lift Plan Reviewed	13 ☐	Tail Swing Clear
2 ☐	3D Lift Plan Reviewed	14 ☐	Boom Clearance Checked
3 ☐	Pre-shift Inspection Complete	15 ☐	Head Room Checked
4 ☐	Annual Inspection on Crane	16 ☐	Swing Barrier Installed
5 ☐	Counter weights on Crane	17 ☐	Hoisting Area Access Controlled
6 ☐	Outriggers Deployed	18 ☐	Emergency "Drop Zone" Identified
7 ☐	Ground Conditions Stable	19 ☐	Tag Lines Used
8 ☐	Matting Properly Installed per Plan	20 ☐	Signal Method Used
9 ☐	Crane Level to Required Tolerance	21 ☐	Signal Person Identified
10 ☐	Underground Hazards Avoided	22 ☐	Safety Spotter Identified
11 ☐	Proximity to Downward Slopes	23 ☐	Rigging Inspected
12 ☐	Electrical Hazards Identified	24 ☐	Rigging Installation Checked

Special Notes:

1. **3D Lift Plan, or 2D Plan and Elevation Sketches must be included and attached as part of this Plan.**
2. Multiple (tandem) Crane Lifts require a separate plan for each crane.
3. Any change in the crane configuration, placement, rigging, or lifting scheme requires a new Critical Lift Plan developed and submitted.
4. Repetitive lifts require one Critical Lift Plan based upon the most extreme condition.

Special Instructions:

Pre-Lift Meeting Attendees:	Print	Signature
Lift Director		
Craft Foreman		
Certified Rigger		
Crane Operator		
Site Safety Manager		
Site Superintendent		
Additional		

PRE-POUR CHECKLIST

Project Name: **Job #:**

Location:

Date: **Inspected By:**

Place checkmark next to all that have been inspected:

1. Mud Pads:
   - ☐ Installed on a firm level surface
2. Shores:
   - ☐ Installed at proper spacing
   - ☐ Inspected for cracks and breakage
   - ☐ Snugged tight with clamps nailed
   - ☐ Installed plumb
   - ☐ Lacked back at the perimeter
   - ☐ Red Heads nailed to the stringers
   - ☐ X Bracing installed and nailed with 16 p nails
   - ☐ All perimeter froming X Braced at proper intervals
   - ☐ Horizontal lacing (if required) installed and nailed properly
3. Stringers:
   - ☐ Installed at proper spacing
   - ☐ Inspected for cracks and breakage
   - ☐ Nailed and tied off
4. Re-Shores:
   - ☐ Re-shore clips installed
   - ☐ Inspected for cracks and breakage
   - ☐ Tightened with clamps nailed
   - ☐ Plumb
   - ☐ Placed correctly according to drawings
   - ☐ Perimeter shores properly laced and tied back
   - ☐ Horizontal lacing (if required) installed and nailed properly
5. Deck (4x4's):
   - ☐ Spaced correctly and properly nailed to stringers
   - ☐ Inspected for cracks and breakage
   - ☐ Add T-Jacks where necessary for excessive cantilevers

6. Deck (Plywood):

- ☐ Joints break on 4x4's
- ☐ The perimeter of the plywood properly nailed
- ☐ Plywood for the beam bottom designed to extend out far enough from the edge of the beam to receive toeboard

7. Edge Forms:

- ☐ Nailed and braced in accordance with the height of the forms
- ☐ Perimeter beams provided with required ties

8. Pans:

- ☐ End caps nailed securely
- ☐ Wide body caps provided with adequate blocking
- ☐ All end caps checked prior to concrete placement
- ☐ Pans nailed completely and screwed if necessary
- ☐ Diaphragms installed in all pans if necessary
- ☐ Minimum of 2" laps

9. Steel Framed Shoring:

- ☐ Frames installed plumb and at correct spacing
- ☐ All bracing installed and latched
- ☐ Horizontal lacing properly installed
- ☐ Top screws and heads snug
- ☐ All beams secured to the heads properly
- ☐ Frames at the perimeter edges tied back to the interior
- ☐ All feet and base plates on flat solid surface and screwed snug

10. Note an deficiencies:

Project Name: _____ Start Date:_____

Project Location:_____ Completion Date:_____

A. Identification of Personnel

For this project, JE Dunn has selected the following individuals to complete the tilt up scope of work. Documentation regarding qualifications and experience that supports their role on the project are attached. These individuals will make up the "erection crew."

1. Supervisor Responsible for plan implementation:
    i. _____
2. Filed Supervisor on site:
    i. _____
3. Qualified Riggers:
    i. _____
    ii. _____
    iii. _____
4. Qualified Signal Person:
    i. _____
    ii. _____
    iii. _____
5. Qualified Crane Operator:
    i. _____

B. Pour/Erection Sequence

The attached drawing illustrates the planned pour sequence as well as the sequence of erection.

1. Pour/Erection Sequence Notes:

2. APPENDIX 1 - POUR/ERECTION SEQUENCE DRAWING

C. Entering the Erection Zone

The area needed to safely erect all tilt-up panels during a given time frame is the "erection zone." To prevent access from other trades on site, the erection zone will be encompassed in crane flagging on all open sides. The distance of the crane flagging with signage to the exposed hazard will be determined by the erection supervisor, but will in no case be less than the height of the tallest tilt-up panel to be set within that erection zone.

1. Only the persons named on the erection crew (see above) or designated below will be allowed access into the erection zone. Any person wanting access into the secured erection zone must get approval from the erection supervisor.

    i. List of persons, if different than erection crew above:

    _____

2. Designated erection zone distances:

D. Engineer's Back Welding/Bracing Requirements

1. Releasing the crane from the load: The project specifications will dictate what the minimum welding and bracing requirements are prior to releasing the crane's rigging. For this project, the minimum weld/bracing requirements are as follows:

    i. _____

2. APPENDIX 2 - ENGINEERINED BRACING PLAN

3. Hex Chrome exposure: Welding on stainless steel or galvanized metal can produce hazardous fumes that need to be accounted for. On this project, the following exposures exist:

i. ☐ Galvanized Welding ☐ Stainless Steel Welding ☐ Other

ii. Protection of these above hazards will be the following methods:

☐ N95/half mask respirator ☐ Tyvek Suit ☐ Local Exhaust Ventilation

iii. Welding fume hazard notes: _____

4. Bracing Inspections: After installation, pipe braces should be inspected and documented no later than every 72 hours or following any event that could cause panel movement such as wind, contact with crane/equipment, etc.

   i. Pipe brace inspections should be documented using the attached Brace Inspection Checklist.

   ii. APPENDIX 3 – BRACE INSPECTION CHECKLIST

E. Cranes & Hoisting:

Site Superintendent in conjunction with the Project Manager will meet in the pre-construction phase to determine the max weight of tilt-up panels, building footprint, site logistics, and erection sequence. This information will then be provided to Blue Hat Crane company to select the appropriate sized crane and rigging devices. Blue Hat Crane will develop a 2D or 3D drawing of the crane and erection sequence. Below are the details regarding hoisting for this project:

1. Type of Crane:

   ☐ Crawler ☐ Rough Terrain (RT) ☐ Truck Crane/Hydro ☐ Tower Crane

2. Crane model selected for this project: _____
3. Crane boom length: _____
4. Capacity:_____
5. Jib and offset (if applicable):_____

   i. APPENDIX 4 - LOAD CHART

6. Types of weights and rigging to be used:

   ☐ Wire Rope Slings ☐ Nylon Slings ☐ Rolling Blocks ☐ Shackles

   ☐ Spreader Beam ☐ Burks/Daytons

i. Weights of specific rigging devices:

_____

7. Annual Inspection (for cranes) is attached.

   i. APPENDIX 5 – CRANE ANNUAL INSPECTION

8. Operator Credentials: Crane Operators will have either CCO certification for the crane they are operating or training documents from Blue Hat Crane showing that the operator is competent on the specified equipment. See attached documentation on selected operator(s).

   i. APPENDIX 6 – OPERARATOR CERTIFICATIONS/QUALIFICATIONS

9. Site Preparation: The General Contractor must ensure a clear crane road be established in accordance with planned crane set up locations and tilt-up sequence. The road must be level and consist of a stable base.

   i. Crane road/matting notes:

10. Soil Conditions/Stability Report: The General Contractor will supply a soil report to the erection supervisor prior to the delivery of the hoisting equipment for all projects except those utilizing tower crane for hoisting.

    i. APPENDIX 7 – SOIL REPORT (if applicable)

11. Locations of Power Lines: JE Dunn's policy is to keep a minimum distance of twenty (20) feet from overhead power lines, unless the voltage of the line requires a greater distance. For this project, overhead power lines are located at the following locations:

    i. _____

    ii. Encroachment into the 20' hazard zone requires one of the following be met and a plan submitted to the General Contractor for this activity:

        a. ☐ Overhead power lines are de-energized and visibly grounded

        b. ☐ Ground spotter with training and daily pre-erection meeting

        c. ☐ Visual barriers to show the hoisting operator that they are close to the minimum hazard zone

iii. APPENDIX 8 – POWER LINE ENCROACHMENT PLAN (if applicable)

12. A tilt-up panel piece report is attached.

    i. APPENDIX 9 – PANEL PIECE REPORT

13. Daily Lift Plan Requirements: A spreadsheet will be utilized daily to track panels that are set during the given work shift. In lieu of the spreadsheet, the erection supervisor may use a "crane working position" spreadsheet to document, at a minimum, the same information. For this project, the erection supervisor will use:

    i. ☐ Daily Lift Plan Spreadsheet ☐ Crane Working Position Spreadsheet

14. Critical Lifts: All critical lifts will require a pre-lift meeting and a critical lift worksheet completed prior to any hoisting of these precast members. The pre-lift meeting must be attended by the erection supervisor, operator, rigger(s), welder(s), and bracing crew. For this project, critical lifts are identified as the following:

    i. _____

    ii. APPENDIX 10 – CRITICAL LIFT REGISTER

F. Panel Pick Point Details

1. Pick points for all panels will be shown on the attached drawings.

    i. Pick Point details/notes:

    ii. APPENDIX 11 – PANEL DRAWINGS FOR PICK POINTS

E. Coordination with other Trades

1. The erection supervisor will coordinate daily with all trade partners that will be working in conjunction with tilt-up activities or in the vicinity.

2. For this project, specific trades or companies that are effected by tilt-up activities are:

_____

F. Misc. Requirements

1. Sustained winds 25 mph or greater will result in shutdown of activities related to hoisting or aerial lift work. The erection supervisor may, at their discretion, implement a lower wind speed shutdown policy based on site conditions.

2. All other safety policies, not outlined in this site specific plan, are governed by the JE Dunn Safety & Health Manual

SAFETY & HEALTH MANUAL

Section 30: Steel Erection


Charles Winans
Senior Safety Manager

Jump to Section

Policy Statement

The intent of this Steel Erection Policy is to protect employees from hazards associated with steel erection in the construction, alteration, and/or repair of single or multi story structures.

Definitions

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.

Competent Person

One who can identify existing and predicable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

General Requirements

1. The Superintendent is responsible for the implementation and enforcement of these requirements.
2. The Steel Erection Trade Partner(s) is responsible for following the standards of this program including all applicable federal, state and local regulations.
3. Fall Protection is required whenever personnel are exposed to a fall of 6ft or greater in accordance with Section 36: Fall Protection.

Prior to Start of Steel Erection

1. Prior to the start of work, a pre-erection meeting shall be conducted with the Superintendent and representatives of the erection Trade Partner including the erection foreman. The Steel Erection Checklist shall be completed and reviewed.
2. The Controlling Contractor shall provide written notification to the steel erector that:
   a. The concrete in the footings, piers and walls and/or the mortar in the masonry piers and walls have attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.
   b. Anchor bolt repairs, replacements and modifications were completed under the direction and approval of the project Structural Engineer of Record.
3. Site Layout:
   a. For the steel erector to perform necessary operations in a safe manner, controlling contractor shall ensure that:
      a. Access roads into and through the site are adequate for safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected
      b. Adequate space is available for safe storage of materials and safe operation of the erector's equipment.
4. Site Specific Erection Plans, Site Layout and Construction Sequence:
   a. All hoisting and erection operations must be pre-planned by a qualified person. The plan shall be written and submitted to the project superintendent before any work is performed.
   b. Plans must include the following:
      a. The sequence of erection activity, developed in coordination with the controlling contractor
      b. Material deliveries
      c. Material staging and storage
      d. Coordination with other trades and construction activities
      e. A description of the crane and derrick selection and placement procedures, including the following:
         a. Site preparation
         b. Certified crane operator
         c. Path for overhead loads
         d. Critical lifts, including rigging supplies and equipment
         e. Inspection documentation (annual, periodic and daily).
5. A description of steel erection activities and procedures, including the following:
   a. Stability considerations requiring temporary bracing and guying
   b. Erection bridging terminus point
   c. Notifications regarding repair, replacement and modifications of anchor rods (anchor bolts)
   d. Columns and beams (including joists and purlins);
   e. Connections
   f. Decking, ornamental and miscellaneous iron
   g. A description of the fall protection procedures that will be used
   h. A description of the falling object protection procedures
   i. A description of the special procedures required for hazardous non-routine tasks
   j. A certification for each employee who has received training for performing steel erection operations as required by OSHA
   k. A list of the qualified and competent persons
   l. A description of the procedures that will be utilized in the event of rescue or emergency response.
6. In addition, the plan should include identification of the site and project and be signed and dated by the qualified person(s) responsible for its preparation and modification.

1. Multi-Story Structures:

Annexes

Forms and Permits

Steel Erection Package

Functional Managers


David Hulse
Safety Director

Change History

Date	Description
09/01/21	Structural Steel Assembly – Add: Multiple steel member picks may not exceed 5 (Christmas Treeing), each member must be on an individual rigging section and secured by a certified rigger. Tag lines are required on each individual piece. Maximum length of 35ft. with 7ft. minimum distance between each piece. 1926.753(e)(2) - Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly and for each individual attachment point. This capacity, certified by the manufacturer or a qualified rigger, shall be based on the manufacturer's specifications with a 5 to 1 safety factor for all components.
09/01/21	Structural Steel Assembly – Add: d. Refer to Section 35: Falling Object and Overhead Protection
09/01/21	Structural Steel Assembly – Add: g. Connectors may walk beam to connect other side after first side has two bolts installed wrench tight. Beamers and retractable lanyards are recommended, choker and lanyard use is forbidden.
09/01/21	Guying or Bracing – Add d. Column splices must be 100% bolted and nuts snugged up wrench tight, or 100% welded as final detail before rigging and hoisting can be released. Engineered bracing plan or structural engineer detail for any structure using column splices in the site-specific safety plan.
09/01/21	Metal Decking – Add j.iii Refer to Section 35: Falling Object and Overhead Protection
09/01/21	Beams and Columns – Add 1 a. connectors may walk beam to connect other side after first side has two bolts installed wrench tight. b. Beamers and retractable lanyards are recommended, choker and lanyard use is forbidden.
09/01/21	Falling Object Protection – Add 1. Reference Section 35:Falling Object/ Overhead Protection
09/01/21	Fall Protection – Add - 6.Beamers and retractable lanyards are recommended, choker and lanyard use is forbidden.

Structural Steel Assembly

a. Permanent floors must be installed as the erection of structural member's progresses, with no more than eight stories between the erection floor and the upper-most permanent floor.
b. Unfinished bolting or welding above the foundation (or the uppermost secured floor) is not permitted to exceed four floors, or 48 feet (14.6 m), whichever is less.
c. To prevent tripping hazards, shear connectors (studs or lugs) must not be attached so as to project from the top flanges of beams, joists, or beam attachments until after the metal decking, or other walking/working surface, has been installed (Exception: These may be factory installed if all workers, including connectors and decking crew, use fall protection at all times).
d. When shear connectors are used in construction of composite floors, roofs and bridge decks, they must be laid out and installed after the metal decking has been installed, so the metal decking serves as a working platform.
e. Beamers and retractable lanyards are recommended.

2. Multi Lift Rigging
a. Multiple steel member picks may not exceed 5 (Christmas Treeing)
b. Each member must be on an individual rigging section and secured by a qualified rigger.
c. Each member must be rigged individually.
d. Tag lines are required on each individual piece.
e. Maximum length of 35ft. with 7ft. minimum distance between each piece.
f. Members on the mulitiple lift rigging assembly shall be set from the bottom up.
g. Controlled lowering shall be used whenever the load is over the connectors.
h. Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly and for each individual attachment point. This capacity, certified by the manufacturer or a qualified rigger, shall be based on the manufacturer's specifications with a 5 to 1 safety factor for all components.

3. Guying or Bracing:
a. When deemed necessary by a Qualified person, guying or bracing must be installed during the steel erection process to ensure the stability of the structure.
b. Bracing shall be in place and properly installed before the structure is loaded with construction material such as loads of joists, bundles of decking, or bundles of bridging to avoid movement.
c. Bracing equipment may be removed only with the approval of a competent person.
d. Column splices must be 100% bolted and nuts snugged up wrench tight, or 100% welded as final detail before rigging and hoisting can be released. Engineered bracing plan or structural engineer detail for any structure using column splices in the site-specific safety plan.

4. Metal Decking:
a. Hoisting, landing, and placing of metal decking bundles shall be under the direction of a qualified rigger.
b. Bundle packaging and strapping may not be used for hoisting unless specifically designed for that purpose.
c. If loose items such as dunnage, flashing, or other materials are placed on top of metal decking bundles intended to be hoisted, they must be secured to the bundles.
d. When bundles of metal decking are landed on joists, all bridging must be installed and anchored, and all joist-bearing ends attached.
e. Metal decking bundles must be landed on framing members so that enough support is provided to allow the bundles to be un-banded without dislodging the bundles from the supports.
f. At the end of the shift or when environmental or jobsite conditions require, metal decking must be secured against displacement.
g. Metal decking at roof and floor holes and openings must be installed as follows:
    a. Framed metal deck openings must have structural members turned down to allow continuous deck installation, except where prevented by structural design constraints or constructability
    b. Openings such as roof and floor holes must be decked over
    c. When metal decking holes and openings are cut, they must be protected by standard guardrails or adequate floor hole covers
    d. Where large size, configuration, or other structural constraints do not allow openings to be decked over (e.g. elevator shafts, stair wells, etc.), employees must be protected in accordance with the Fall Protection provisions within this policy.
h. Covers for roof and floor openings must support, without failure, twice the weight of the employees, equipment, and materials that may be imposed on them at any one time - All covers must be:
    a. Made of substantial materials and take into consideration moving or mobile equipment and personnel traffic to avoid over-loading and tripping exposures.
    b. Secured when installed to prevent accidental displacement by the wind, equipment or employees. (Reference the "Floor Hole and Opening" Section for complete requirements)
    c. Marked with the word "HOLE" or "COVER" to provide warning of the hazard.
        a. See Visual Standards Here and Here
i. Installed smoke dome or skylight fixtures are not considered covers, unless they meet appropriate strength requirements.
j. Where planks or metal decking around columns do not fit tightly, wire mesh, exterior plywood, or equivalent material must be installed, and must be of sufficient strength to:
    a. Provide fall protection for personnel
    b. Prevent objects from falling through.
k. To prevent accidental movement or displacement, metal decking must be laid tightly, and be immediately secured.
l. During initial placement, metal decking panels must be fully supported by structural members.

5. Derrick Floors:
a. To support the intended floor loading, a derrick floor must be fully decked and/or planked, and the steel member connections completed.
b. Temporary loads placed on a derrick floor must be distributed over the underlying support members so as to prevent local overloading of the deck material.

3/2023	Beams and Columns- Add- 2. Requirement for solid web members used for diagonal bracing to be secured by at least one bolt per connection.
3/2023	Beams and Columns- Add- 4.c. Language added about holes used for perimeter safety calbes are placed so they don't interfere with attachments.
3/2023	Beams and Columns- Add- 4.d. Added requirement that base plates and bearing plates are grouted after the steel frame is plumb.
3/2023	Open Web Steel Joist- Add- 1. Added the required for erection bridging to be installed and anchored prior to releasing hoising cables.
3/2023	Open Web Steel Joist- Add- 9. Add language for columnd that do not have solid web beam framing in two directions.
3/2023	Systems-Engineering Metal Buildings- Add-6. Requirement added for construction loads only to be placed within 8 feet of the center line of the primary support member.
4/2023	Section related to the use of Safety Nets or fully planked decks was removed.

Column Anchorage

1. All columns must be anchored by a minimum of 4 anchor bolts.
2. Columns must be set on level finished floors, pre-grouted leveling plates, leveling nuts, or shim packs that adequately transfer the construction loads.
3. All columns must be evaluated by a Qualified person to determine whether guying or bracing is needed; if guying or bracing is needed, it must be installed.
4. Anchor Rods / anchor bolts will not be repaired, replaced, or field-modified without approval by the project structural engineer of record in writing.

Beams and Columns

1. During the final placing of solid web structural members, the load must not be released from the hoisting line until the members are secured with at least two bolts per connection, of the same size and strength as shown in the erection drawings and bolts are drawn up wrench-tight.
    a. Beamers and retractable lanyards are recommended.
2. A competent person must determine if more than two bolts are necessary to ensure the stability of cantilevered members if additional bolts are needed, they must be installed.
3. Solid web members used as diagonal bracing shall be secured by at least one bolt per connection, wrench-tight or equivalent.
4. Perimeter columns shall not be erected unless:
    a. The perimeter columns extend a minimum of 48 inches (1.2 m) above the finished floor to permit installation of perimeter safety cables prior to erection of the next tier, except where constructability does not allow.
    b. The perimeter columns have holes or other devices in or attached to perimeter columns at 42-45 inches (107-114 cm) above the finished floor and the midpoint between the finished floor and the top cable to permit installation of perimeter safety cables required for fall protection.
    c. In multi-story structures, when holes in the column web are used for perimeter safety cables, the column splice must be placed sufficiently high so as note to interfere with any attachments to the column necessary for the column splice. Column splices are recommended to be placed at every other floor.
    d. Base plates and bearing plates shall be grouted after the steel frame is plumb.

Open Web Steel Joists

1. Hoisting cables will not be released until the seat of the joist on each end has been stabilized and erection bridging is installed and anchored.
2. No modification that affects the strength of the joist can be made without approval of Structural Engineer of record.
3. Steel joists and steel joist girders shall not be used as anchorage points for a fall arrest system unless written approval to do so is obtained from a qualified person.
4. Each steel joist will be secured to the structure, at least on one end immediately upon placement in the final erection position and before additional joists are placed or hoisting cables released. For joists over 60 feet, both ends will be secured prior to release of hoisting cables.
5. No more than one employee is allowed on a joist until bridging is installed and secured.
6. When landing decking materials on joists, ensure that load is distributed properly and does not exceed carrying capacity of joists.
7. No bundle of decking can be placed on joists until all bridging has been installed and anchored and all joist ends are secured.
8. Bundles of decking should be placed on a minimum of three joists to properly distribute weight, and should be within 1 foot of the bearing surface of the joist end.
9. Where columns do not have solid web beam framing in two directions, minimum, a joist shall be field bolted to provide lateral stability during erection. A stabilizer plate shall be provided at column to be connected to joist bottom chord. Provide alternate method of stabilization when constructability does not allow this method.

Systems-Engineering Metal Buildings

1. All safety standards that apply to structural steel erection shall also apply to pre-engineered buildings.
2. Structural columns must be anchored by a minimum of four anchor rods.
3. Rigid frames will have 50 % of the bolts installed and tightened and bridging installed before hoisting equipment is released from the load. In general, connections should be bolted and tightened as the erection sequence advances.
4. Purlins and girts shall not be used as an anchorage point for fall arrest systems without written approval from a qualified person.
5. Construction loads will not be placed on any structural steel framework unless such framework is safely bolted, welded, or otherwise adequately secured.
6. Construction loads may be placed only within a zone that is within 8 feet of the center line of the primary support member.

Falling Object Protection

1. Reference Section 35: Falling Object/ Overhead Protection for additional requirements.
2. All materials, equipment and tools, which are not in use shall be secured to prevent against accidental displacement.
3. No other construction activities will occur during the erection process unless overhead protection is provided for the workers, or a restricted area is in place to prevent exposure to workers below. The restricted area must be delineated by red danger tape installed and maintained by the erector.

Fall Protection

1. During all erection processes, all workers shall utilize and follow 100% fall protection.
2. On multi-story structures, perimeter safety cables shall be installed at the final interior and exterior perimeter of the floors as soon as the metal decking is installed.
3. Controlled decking zones cannot be used as a substitute for the 100% fall protection rule.
4. Fall protection provided by the steel erector shall remain in place and under his control until the controlling contractor has inspected and accepted control and responsibility of the fall protection.
5. When utilizing retractable lifelines in a leading-edge condition, the retractable must be designed and approved for this use.

Training

1. Personnel performing steel erection shall receive appropriate training from their employer that focuses on the specific hazards associated with steel erection such as fall hazards, use and operation of guardrails, personal fall arrest systems, cranes in construction, rigging, and any other special training as required.
2. Trade Partners must supply appropriate training verification and documentation prior to starting erection. Training should include everything in (1.), and the project specific steel erection plan.

Steel Erection Standards

For the safe execution of the work, JE Dunn must meet with the erection contractor to ensure that all safety requirements pertaining to the scope have been met. We must also ensure that all parties within the teams understand their responsibilities associated with the work. To meet that goal, the project team shall conduct several planning meetings before the physical steel erection activities take place.

This steel erection packet should provide the project team sufficient safety information for planning and preparing for the steel erection meetings.

This packet contains:

1. Chapter 35 of our JE Dunn Safety and Health Manual concerning steel erection
2. Steel Erection Pre-install Checklist
3. Critical Lift Worksheet Instructions
4. Critical Lift Worksheet
5. Hoisting Policy Manual (See Portal for latest version)

Due Diligence Meeting

This meeting shall be held with the erector either before or immediately after the award of work. In addition to the erector, this meeting may include the steel supplier, crane supplier or any other party involved in the scope of work. The purpose of the meeting is to establish assumptions for:

1. Execution of the scope of work
2. Erection sequencing
3. Material manufacturing schedule and deliveries
4. Establishing location and type of material picking points
5. Permitting
6. Responsibilities of all parties associated with the work
7. Crane sizing and configuration

This information can be used by the erector to assist them in the writing of the site specific erection plan. The site specific erection plan should be submitted for review before the preinstallation meeting. This erection plan shall be discussed during that meeting and before the start of erection activities.

1. The plan shall include at a minimum identification of the:
   a. Supervisor responsible for plan implementation
   b. Lift Director
   c. Rigger
   d. Signalperson(s)
   e. Crane Operator qualifications
2. The sequence of erection activity, developed in coordination with the controlling contractor
3. Multi piece lifting (Christmas Treeing)
4. Material deliveries
5. Material staging and storage
6. A description of steel erection activities and procedures, including the following:
   a. Bolting and temporary bracing plan

b. Erection bridging terminus point
c. Notifications regarding repair, replacement and modifications of anchor rods (anchor bolts)
d. Notifications regarding concrete strengths of footings/foundations
e. Columns and beams (including joists and purlins)
f. Connections
g. Decking, Ornamental and miscellaneous iron

7. A description of the falling object protection procedures that will be used
8. A description of the special procedures required for hazardous non-routine tasks
9. A certification for each employee who has received training for performing steel erection operations as required by OSHA
10. A list of the qualified and competent persons
11. Fall protection requirements as they pertain to erection activities such as:
    a. Leading edge work
    b. Unprotected sides and edges
    c. Bolting and welding activities
    d. Decking activities
    e. Connectors
12. Crane plan that includes:
    a. Size and configuration of crane
    b. Load chart
    c. Type and weights of rigging anticipated to be used
    d. Copies of the most recent inspections/certifications
    e. Operator credentials
    f. Site preparation
    g. Soil condition/stability report
    h. Determination if mats are required
    i. Locations of power lines
    j. Identification of pieces which would be considered a critical lift
    k. Drawing or explanation of crane location during erection activities
13. Coordination with other trades and construction activities
14. Responsibility for the erection, maintenance and removal of perimeter wire rope guardrail system(s)
15. Path for overhead loads and methods used to demarcate the erection area
16. A description of the procedures that will be utilized in the event of rescue or emergency

Steel Erection Pre-Install Meeting

This meeting should be held several weeks ahead of steel erection activities. The JE Dunn Project Manager, Superintendent, safety representative, subcontractor project manager, and steel erector supervisor shall attend.

The first sheet on the document discusses the general safety requirements that the contractor is required to follow on site. Field supervision will be required to add additional non-typical site-specific requirements dictated by the owner or the complexity of the project.

The remainder of the document is specific to the scope of work. The steel erection plan should be thoroughly discussed during this meeting.

Steel Erection Pre-start Meeting

This meeting shall be held at the start of the erection activities. The supervisor responsible for the lift plan, erector foreman, rigger, crane operator(s) and the JE Dunn project team shall be required to attend. The following shall be discussed:

1. Stop work authority
2. Responsibilities of all parties
3. Project-specific erection plan
4. Crane setup
5. Truck access
6. Material storage
7. Hoisting paths
8. Barricading of hoisting areas
9. Identification of all critical lifts
10. Procedure for securing crane during inclement weather/non-work hours
11. Lightning/wind limits

Daily Routine Meeting

1. Review daily lift log and identify critical lifts
2. Conduct critical lift meeting (if needed)
3. Operator performs daily safety inspection
4. Review any changes in conditions or erection plan
5. Reiterate responsibilities of all parties

If any critical component of the plan changes such as crane size, setup, crane operator, plan supervisor, etc., an abbreviated pre-start meeting shall be conducted to address changes to the plan.

Safety Pre-Installation Checklist: STEEL ERECTION

Project Name: **Job #:** ☐ **CM** ☐ **GC** **Date:**

Contractor Name:

Contractor Safety Contact: (Person who will receive copies of safety reports)
Name: **Title:** **Email:**

JE Dunn requirements to be discussed:

1. Site Specific Safety Orientation Process:

   ☐ Emergency Action Plan ☐ OSHA 10hr Cards (if applicable) ☐ Drug Screen (if applicable)

2. JHA Submittal and approval by JED: ☐ Yes ☐ No

3. JSA completed daily: ☐ Yes

4. SDS Program / Trade Partner Safety Program submitted to JED Supervision: ☐ Yes ☐ No

5. Silica Exposure Control Plan: ☐ Yes ☐ No

6. Weekly Toolbox Talks / Safety Meetings: (submit to)

7. PPE - Dress Code: Hard hat, foot protection, eye and face protection, hand and arm protection (glove requirements), high-vis clothing, and other PPE (body protection, respiratory protection, hearing protection)

8. Fall Protection 100% at 6ft for all scopes: ☐ Yes ☐ No

   a. Floor Hole Cover Policy: ☐ Yes ☐ No

   b. Overhead Protection Policy: ☐ Yes ☐ No

   c. Maintenance and upkeep of fall protection: ☐ Yes ☐ No

9. Protection of Public/ General Liability Issues:

10. Traffic Control/ Deliveries, etc.:

11. Review Hoisting Policy Manual: ☐ Yes ☐ No ☐ N/A

12. Scorecard requirements: ☐ Yes ☐ No

    ☐ Submit Weekly ☐ Leading/Lagging Indicators

13. Scaffolding / Aerial Lifts:

☐ Competent Person ☐ Inspection / Tagging ☐ Erection/Dismantle/Fall Protection

14. Tools and Equipment:

☐ Inspect Daily ☐ Defective - Remove/Tag ☐ Dust Collection ☐ Guards etc.

15. Fire Protection:

☐ Fire Extinguishers ☐ Hot Work Permits/Fire Watch ☐ Fuel/Gas Storage ☐ Temp Heat Plans

16. Electrical:

☐ GFCI Protection ☐ Cord / Tool Inspections

17. Housekeeping responsibilities: ☐ Yes ☐ No

a. Cord Management ☐ Yes ☐ No

18. Material Handling and Storage:

☐ Laydown ☐ Manual Material Handling ☐ Storage

19. Signs and Barricades: ☐ Yes ☐ No

20. Scope Specific Training/ Certs provided to JED. (Crane, Forklift, Competent Person, Aerial lift, Fall Protection, etc.):

21. Other Site Specific Policies (smoking policy, parking, ladders, etc.):

22. Incident and Near Miss Reporting:

23. Enforcement Policy:

24. Additional Items Discussed:

Contractor specific items as applicable:

25. Written Site Specific Erection Plan:
    - ☐ Developed and signed by Qualified Person
    - ☐ Submitted to and approved by JED
26. Documentation provided by Controlling Contractor:
    - ☐ Foundation concrete has reached 75% of design strength
    - ☐ Masonry wall grout has been tested and meets design requirements
    - ☐ All damaged or modified anchor bolts have design fix by Structural Eng of Record
27. Site Layout:
    - ☐ Access Roads for Cranes, Trucks, and Deliveries
    - ☐ Laydown yard for storage of materials and operation of equipment
28. Fall Protection Methods over 6':
    - ☐ Guardrails are installed in multi-story structures as metal decking is installed
    - ☐ Controlled decking zones may **NOT** be used
    - ☐ Warning lines may be no closer than 15 feet from leading edges
    - ☐ Guardrails maintained and controlled by erector until inspected and accepted by controlling contractor
    - ☐ Decking maintained with-in 30 feet/2 stories of connectors of multi- story structures
    - ☐ All Holes covered/ marked and secured
29. Personall Fall arrest equipment:
    - ☐ Methods to be used?
    - ☐ Anchor points to be used?
    - ☐ Rescue system?
    - ☐ Other/Misc. (Swing falls, double tie-offs, etc.)

30. Guardrail Installation:

- ☐ 5/16 inch Cable or Greater
- ☐ Cable Flagging at 6'
- ☐ Turnbuckles
- ☐ Non Malleable Type Clamps
- ☐ 3 Clamps per Connection
- ☐ Receiving Bays
- ☐ Terminations at Outside Corners
- ☐ Intermediate Stanchions
- ☐ Guardrails used as HLL System
- ☐ No Cable for Interior Floor Openings
- ☐ Capable of Supporting 200 lbs with < 3 inches of Deflection
- ☐ Falling Object Protection:
- ☐ Method of Securing Decking and Tools from Displacement?
- ☐ Erection Area Barricaded how?
- ☐ Coordination with other Contractors?

31. Access to Work Area:

- ☐ Ladders
- ☐ Aerial lifts
- ☐ Personnel Platforms
- ☐ Scaffolds & Stair Towers

32. Crane Selection and use:

- ☐ Crane Type:
- ☐ Certified Crane Operator:
- ☐ Identification of Soil/Testing:
- ☐ Crane Pads & Cribbing:
- ☐ Path for Overhead Loads:
- ☐ Swing Radius Protection:
- ☐ Inspection Documentation (annual & daily):
- ☐ Powerline & Underground Utilities:
- ☐ Critical Lifts (75% of Capacity/Multiple Crane):
- ☐ Muliple Lift Rigging Procedure:
- ☐ Rigging (Types & Inspections):
- ☐ Specialized Lifting Devices/Engineered Pick Beams:
- ☐ FAA Permit (if applicable):

33. Forklifts:

☐ Trained Operator ☐ Seatbelt Use ☐ Free Rigging ☐ Personnel Platform Use

34. Fire Protection:

☐ Hot Work Permits ☐ Fire Ext. ☐ Fire Watch ☐ Fire Blankets

35. Welding and Cutting:

☐ Storage of Fuel Gas ☐ Eye & Face Protection ☐ Condition of Leads & Hoses

☐ Flash Back Preventors ☐ Hex Crome/ Galvanized

36. Structure Stability:

☐ Initial Bolting (2 bolts per Connection) ☐ Bracing of Structure

☐ Securing of Joist during Placement

37. Special Erection Conditions:

☐ Panelized/Tandem Joist Erection Conditions:

☐ Tying Back of Safety Latch on Hook:

☐ Other Special Erection Concerns: (Non-Routine Tasks):

38. Training documentation to be provide to JED:

☐ Riggers/Connectors ☐ Signalmen ☐ Multiple Lift Procedures

☐ Aerial Lift Operators ☐ Fall Protection

Additional Items:

Completed By:

Cc: Project File: Trade Partner:

Safety Representative:

CRITICAL LIFT PLAN INSTRUCTIONS

Title Section:

Project Name: Name of overall project, i.e. AMLI, KU School of Business, Seaton Hall

Project Number: JED or BHC project number

Location: Examples are Kansas City, MO or Nashville, TN

Date: Day Critical Lift Plan is filled out

Company: Contractor or Subcontractor in charge of the proposed lift, may or may not be J. E. Dunn Construction Co.

Load: Description of piece to be hoisted, i.e. Precast Double-tee, Rooftop AHU, Steel Truss

Submitted By: Person filling out Critical Lift Plan and company if different from above company

1. Crane Manufacturer: Company that manufactured the crane used, i.e. Grove, Linkbelt, Tadano
2. Model No: Model of crane, i.e. AFT-130, GMK-5275, RT-880E, LC-400
3. Crane Type: Crawler, All-Terrain, Rough-Terrain, Tower Crane
4. Crane Serial No: From name plate on crane
5. Crane Inspection Date: Date of Annual Inspection, this is required to be on the machine at all times
6. Crane Rated Capacity: Base capacity of crane, i.e. 150 tons, 275 tons, 80 tons
7. Boom Type: Lattice, Hydraulic, Tower jib
8. Boom Length: Boom length/configuration used during the lift in question
9. Lifting From: Select where the lift is being made
10. Jib Configuration: Mobile cranes, select one if jib is on the crane, no selection if no jib is on the machine. Tower cranes, disregard
11. Jib Length: Length of jib, if on the crane. Disregard if no jib is on crane
12. Jib Offset: Offset angle of installed jib, if on the crane. Disregard if no jib is on crane

Critical Lift Criteria

Check any items that apply to this lift.

A. CRANE

1. Crane Setup: Check the box that applies. If crane is on outriggers, fill in the percentage of outrigger extension.

2. Check the load chart / operating area that applies, 360 degrees or limited swing over rear of hydraulic crane or over the front of blocked crawlers.
3. Counter weights used: Insert the total weight of counter weights installed on the crane during the lift.
4. Lift Radius:
    a. Insert the radius from which the lift is started.
    b. Insert the radius at the point of placing the lift.
    c. Insert the worst case, this may be at some point between hoisting and placing.
5. Boom Angle:
    a. Insert the boom angle at which the lift is started.
    b. Insert the boom angle at placement.
    c. Insert the boom angle which represents the worst case during the lift.
6. Rated Capacity:
    a. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the starting point of the lift.
    b. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the placing point of the lift.
    c. From the crane's load chart pertaining to the current set-up, fill in the capacity of the crane at the worst point of the lift, this may be somewhere in between starting and placing.
7. Hoist Rope:
    a. Rope Dia: Fill in the size / diameter of the crane's hoist rope used.
    b. Line Pull: From crane information, fill in the available line pull, one part, for the hoist rope.
    c. Parts Req'd: Number of parts of hoist rope required in reeving to hoist the load. Total weight including all rigging load, divided by the available line pull.

B. LOAD

1. Source of load weight: This would commonly be from the manufacturer of the piece to be hoisted, can also be from bill of ladings or calculations of unit weight and volume.
2. Weight verified by: More than one check should be used to confirm the load weight. The last resort can be the operator aids of the crane (ask the operator immediately after hoisting, before continuing the lift).
3. Weight of Load: Insert the weight of the item to be hoisted from sources above.
4. Weight of load block: From the crane operator, fill in the weight of the load block on the crane, even if the lift is not made with this block.
5. Weight of overhaul ball: From the crane operator, fill in the weight of the overhaul ball on the crane, even if the lift is not made with the ball.
6. Weight of hoist rope: Estimate the length of hoist rope, all lines, below the boom point. Multiply by the unit weight of the rope, and insert here. The operator or the crane owner should know this unit weight.
7. Weight of rigging: Insert the total weight of all rigging, including spreader bars, rolling blocks, shackles, wire rope and synthetic slings.

8. Effective weight of jib: Any jib on the crane, installed or stowed has an effective weight which must be considered as part of the load. The load chart information sheets on the crane will give the jib deductions to insert in this.
9. TOTAL EFFECTIVE LOAD: This is the sum of B3 through B8, including all items that affect the load recognized by the crane.

C. CRANE LOAD / CAPACITY

1. Remaining Capacity: Rated Capacity (A6) of the crane at location minus the Total Effective Load (B9).
2. Load vs. Capacity: The Total Effective Load (B9) divided by the Rated Capacity (A6) at location.

D. RIGGING

Include a description/sketch or attachment of rigging including sizes, capacities, length, and loading of all rigging hardware utilized for the lift. This may include spreader bars, rolling blocks, shackles, slings (wire and synthetic) as well as any "below the hook" lifting devices. This may be from the Lift Director or Certified Rigger, but must be included as part of the Critical Lift Plan.

E. JOBSITE – CRANE PLACEMENT

1. Setup Area:
    a. Clear: Check to see the area is clear of obstacles, materials, or debris which prohibits crane from setting up where needed. The crane must be able to set up within manufacturer's tolerance for level.
    b. Stable: Check to see if the ground conditions are "firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support" are met.
2. Mats Required: When job conditions and ground bearing loads (from outriggers of tracks) dictate, additional supporting materials, i.e. blocking, cribbing, mats, marsh mats, or other supporting materials may become necessary. Check, if this condition exists, that these are properly used.
3. Electrical Hazards: Survey the area to determine if electrical hazards exist. Check Yes or No
    a. Approach Distance: If the answer to 3. Is yes, determine the minimum approach distance prescribed in OSHA 29 CRF 1926.1408 Table A, or the J. E. Dunn Hoisting Policy Manual section III.
    b. Control Method: Examples are Dedicated Spotter, Demarcation Boundaries (painted on ground, line of stanchions, or flagging), Proximity Warning Devices, or Swing Limiting Device on the crane.
4. Proximity to slopes: Specifically downward so as to compromise ground support conditions. If this condition exists, geo-tech engineering support may be required to insure sliding or shearing failure will not take place.

5. Underground Issues: Crane setup area must be checked to identify underground (hidden) vaults, voids, piping or utility structures which would likely not support the crane. Should any exist in the area, they must be clearly marked for the crane to avoid.

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

This section is to be filled out at the pre-lift meeting. Date, time, weather conditions, and wind speed are to be noted for the time of hoisting operations.

1. Critical Lift Plan Reviewed – Has this plan been reviewed with the key personnel at this pre-lift meeting?
2. 3D Lift Plan Reviewed – Have the sketches, 3D of 2D been reviewed during the pre-lift meeting?
3. Pre-shift Inspection Complete – Has the crane operator performed the required pre-shift inspection of the crane.
4. Annual Inspection on Crane – By common practice, a copy of this is kept on the crane. Make sure this inspection is current. If this is not available, contact the crane owner and obtain a copy before proceeding with any hoisting.
5. Counter weights on crane – Verify that the counter weights installed on the crane match or exceed the counter weights used to develop the lift plan.
6. Outriggers Deployed – Check to see that all outriggers are extended to match the lift plan and the weight of the machine is supported on outriggers, not on tires.
7. Ground Conditions Stable – Verify ground conditions providing support for the crane are adequate. Look for cracking around outriggers or tracks, settlement of mats/blocking, and proper drainage.
8. Matting properly Installed per Plan – Verify mat installation matches or exceeds the requirements of the Lift Plan.
9. Crane Level to Required Tolerance – Verify that the crane is set up level to manufacturer tolerances.
10. Underground Hazards Avoided – Verify underground hazards identified, and marked in section D. have been avoided.
11. Proximity to Downward Slopes – Verify distance to downward slopes identified in section D. is met or exceeded.
12. Electrical hazards Identified - Verify electrical hazards identified, and marked in section D. have been avoided, and control method has been implemented.
13. Tail Swing Clear – Check for obstructions to tail swing on crane, eliminate any found.
14. Boom Clearance Checked – If boom obstructions exist, a good way to check is with an empty hook, prior to commencing the lift, using an additional spotter to check the boom.
15. Head Room Checked – Verify rigging used does not exceed the vertical distance between the load and the A2B weight attached to the boom tip.
16. Swing Barrier Installed – Verify the swing barrier protecting access into the counter weight swing area is installed.

17. Hoisting Area Access Controlled – Check that access is prevented into areas under the entire path of the load.
18. Emergency “Drop Zone” Identified – Identify places the load can be landed, if the lift must be stopped for any reason.
19. Tag Lines Used – Check tag lines (proper length) are connected to the load.
20. Signal Method Used – Decide which signal method will be used for the lift.
21. Signal Person Identified – Designate the person to signal the crane operator.
22. Safety Spotter Identified – Identify the person or persons dedicated to spotting, regarding electrical hazards, clearances, or any questionable area.
23. Rigging Inspected – Visually inspect all rigging components, prior to use.
24. Rigging Installation Checked – Visually check that all rigging components are properly installed as tension is applied by the crane.

Special Instructions: Any special conditions or instructions for the crew should be noted here.

Pre-Lift Meeting Attendees: All personnel attending the pre-lift meeting should be listed. Key personnel (Lift Director – in charge of lift, Rigger, Crane Operator, Site Safety Manager, and Project Superintendent) must sign.

BLUE HAT
CRANE & EQUIPMENT
RENTALS

CRITICAL LIFT PLAN

DUNN safety
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Project Name:	Project No.:
Location:	Date:
Company:	
Load:	
Submitted By:	

1. Crane Manufacturer:	2. Model No.	3. Crane Type:	4. Crane Serial No.
5. Crane Inspection Date:	6. Crane Rated Capacity: (tons)	7. Boom Type:	8. Boom Length:
9. Lifting From: Boom: ☐ Jib: ☐	10. Jib Configuration: Stowed: ☐ Erected: ☐	11. Jib Length:	12. Jib Offset:

Critical Lift Criteria (check all that apply)

Load exceeds 75% of the crane capacity, mobile cranes and tower cranes	☐
When crane is used in tandem pick with any other equipment or crane	☐
When lifts are made within 20 feet of power lines	☐
When lift involves specialized, unique, or complex rigging equipment	☐
When hoisting personnel in suspended work platforms	☐
Hoisting specialized equipment with a long lead time to replace	☐

A. CRANE

1. Crane Setup:		
On Outriggers	☐	What %
On Tires	☐	0%
On Tracks	☐	0%
2. Chart Based	360 ☐	Ltd.Swng. ☐
3. Counter weights used:		LBS.
4. Lift Radius:		
a. At pick-up		Ft.
b. At setting		Ft.
c. Worst case		Ft.
5. Boom Angle:		
a. At pick-up		deg.
b. At setting		deg.
c. Worst case		deg.
6. Rated Capacity:		
a. At pick-up		LBS.
b. At setting		LBS.
c. Worst case		LBS.
7. Hoist Rope:		
Rope Dia.		mm/in
Line Pull		LBS.
Parts Req'd.	NaN	PARTS

B. LOAD

1. Source of load weight:		
2. Weight verified by:		
3. Weight of load		LBS.
4. Weight of load block		LBS.
5. Weight of overhaul ball		LBS.
6. Weight of hoist rope		LBS.
7. Weight of rigging		LBS.
8. Effective weight of jib		LBS.
9. TOTAL EFFECTIVE LOAD	0	LBS.

C. CRANE LOAD / CAPACITY

	1. Remaining Capacity (lbs.)	2. Load vs. Capacity	
a. At pick-up	0	NaN	%
b. At setting	0	NaN	%
c. Worst case	0	NaN	%

D. RIGGING

Description & capacity of rigging, or attach sheet to plan:

E. JOB SITE - CRANE PLACEMENT

1. Setup Area:	Clear	Yes ☐	No ☐	4. Proximity to slopes:		Yes ☐	No ☐
	Stable (firm)	Yes ☐	No ☐		Distance:		Ft.
2. Mats Required:		Yes ☐	No ☐	5. Underground Issues:		Yes ☐	No ☐
3. Electrical Hazards:		Yes ☐	No ☐		Loc. Marked:	Yes ☐	No ☐
a. Approach Distance:			Ft.				
b. Control Method:							

F. PRE-LIFT CHECKLIST - COMPLETED PRIOR TO LIFT

Date of Lift:			Time of Lift:			
Weather:	Sunny ☐	Overcast ☐	Rain ☐	Lightning ☐		
Wind Speed:		Measured ☐	Estimated ☐	Maximum Allowable:		MPH

(check)		(check)	
1 ☐	Critical Lift Plan Reviewed	13 ☐	Tail Swing Clear
2 ☐	3D Lift Plan Reviewed	14 ☐	Boom Clearance Checked
3 ☐	Pre-shift Inspection Complete	15 ☐	Head Room Checked
4 ☐	Annual Inspection on Crane	16 ☐	Swing Barrier Installed
5 ☐	Counter weights on Crane	17 ☐	Hoisting Area Access Controlled
6 ☐	Outriggers Deployed	18 ☐	Emergency "Drop Zone" Identified
7 ☐	Ground Conditions Stable	19 ☐	Tag Lines Used
8 ☐	Matting Properly Installed per Plan	20 ☐	Signal Method Used
9 ☐	Crane Level to Required Tolerance	21 ☐	Signal Person Identified
10 ☐	Underground Hazards Avoided	22 ☐	Safety Spotter Identified
11 ☐	Proximity to Downward Slopes	23 ☐	Rigging Inspected
12 ☐	Electrical Hazards Identified	24 ☐	Rigging Installation Checked

Special Notes:

1. **3D Lift Plan, or 2D Plan and Elevation Sketches must be included and attached as part of this Plan.**
2. Multiple (tandem) Crane Lifts require a separate plan for each crane.
3. Any change in the crane configuration, placement, rigging, or lifting scheme requires a new Critical Lift Plan developed and submitted.
4. Repetitive lifts require one Critical Lift Plan based upon the most extreme condition.

Special Instructions:

Pre-Lift Meeting Attendees:	Print	Signature
Lift Director		
Craft Foreman		
Certified Rigger		
Crane Operator		
Site Safety Manager		
Site Superintendent		
Additional		

SAFETY & HEALTH MANUAL

Section 31: Electrical Safety


Bruce Lamach
Senior Safety Manager

Jump to Section

Policy Statement

Electrical hazards are a leading cause of injury and death in the construction industry. The purpose of this policy is to establish the minimum requirements for the installation and use of temporary electrical panels, lighting and electrical hand and power tools.

Note: Project teams with clients requiring detailed Energized Electrical Work guidelines, will contact their Regional Safety Director for support in preparing project specific energized work instructions.

Definitions

Bonding

The permanent joining of metallic parts to form an electrically conductive path which will assure electrical continuity and the capacity to conduct safely any current likely to be imposed

Dead front

Without live parts exposed to a person on the operating side of the equipment

Enclosure

The case or housing of apparatus, or the fence or walls which will prevent persons from accidentally contacting energized parts

Ground

A conducting connection, whether intentional or accidental, between an electrical circuit or equipment and the earth, or to some conducting body that serves in place of the earth

Ground-fault circuit interrupter

A device for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit

Qualified

One familiar with the construction and operation of the equipment and the hazards involved

General Requirements

1. This policy applies to all Trade Partners, third party or tiered Trade Partners, Vendors, Owners, Owner Agents who perform work on the Project.
2. Each worker is responsible for a daily visual check of their tools and cords before first use. Damaged or defective tools or cords shall be tagged and removed from service immediately.
3. Each Foreman is responsible for ensuring that all electrical tools and equipment are suitable for their intended use.
4. The Electrical Trade Partner who installs and provides any temporary electrical installation is responsible for ensuring that each installation is in accordance with applicable state, local and federal regulations as well as the requirements in this program.
5. All temporary 120 volt, 15 or 20 amp receptacles used during construction shall have a Ground Fault Circuit Interrupter (GFCI) installed for personnel protection.
6. During construction activities, if an extension cord is plugged into the existing buildings outlet, a portable ground fault circuit interrupter is required.
7. Ground fault circuit interrupters must be tested before each use. Testing can be achieved by pushing the "push to test" button available on the outlet. The electrician should be notified of any outlets that fail to trip during this test.
8. All electrical tools and equipment must be grounded or double insulated.
9. Temporary electrical cords must be covered or elevated in locations where they present a tripping hazard or may be subject to damage.
10. Energized wiring in outlets, switches, junction boxes, circuit breaker panels, etc., must be covered at all times to prevent unauthorized access to live parts.
11. Extension cords shall be three wire grounded type "heavy duty" and designed for hard or extra hard service: with a hard service cord (types S, ST, SO, STO) or junior hard service cord (types SJ, SJO, SJT, SJTO) rating.
12. All extension cords must be UL rated and at minimum of 12 gauge and must be protected from damage. Flat extension cords are not permitted.
13. Power strips also known as surge protectors shall not be used unless they are approved for hard service and sealed for weatherproof service. Residential style power strips or surge protectors shall not be used.

Temporary Panels and Outlets

1. All electrical devices and components must be UL listed for use in the conditions in which they are being installed.
2. All electrical installations, whether temporary or permanent, must be installed per NEC, NFPA and all requirements of this program.
3. All temporary branch circuit panels and related electrical installations must be inspected by a qualified electrician monthly. These inspections should be documented and the documentation posted at each panel.
4. All circuit breakers must be labeled to properly identify what each breaker feeds.
5. The installation and alteration of all electrical systems must be accomplished under the direct supervision of a qualified electrician.

Annexes

Forms and Permits

Energized Electrical Work Permit

Functional Manager


James Robles
National Safety Director

Change History

Date	Description
9/10/2021	Header: Change Last Revised Date to 10SEP2021 and added: **DRAFT** after Construction Operations.
9/10/2021	Part C General Requirements, Para. 11, added: "...and designed for hard or extra hard service" and "hard service cord types..." and "junior hard service cord types..." as well as edited/corrected the listed cord types to correctly match the OSHA standard.
9/10/2021	Part C General Requirements, Para. 12, change / correct minimum wire gauge of extension cords to 12 gauge per consensus.
9/10/2021	Part C General Requirements, Para. 13, added: ".....and sealed for weatherproof service...Surge Protectors do NOT provide personnel protection." For clarity and per consensus.
9/10/2021	Part C General Requirements, ADDED Para. 14: "Homemade or job made extension cords.....are prohibited.....Only properly manufactured extension cords meeting the above requirements are to be used." For clarity and per consensus. Note: edited prior to 2022 publication.
9/10/2021	Part E Electrical Rooms, ADDED Para 4: "If Electrical Room Doors are opened.....must secure the room if he/she leaves the area." Added per consensus.
9/10/2021	Part F Temporary Lighting, Para. 2, added: "...or manufacturer's built-in suspension eye or grommet." Added for clarity and per consensus.
9/10/2021	Part F Temporary Lighting, Para. 5, added: "Broken or missing... shall be replaced immediately." Added for clarity and per consensus.
9/10/2021	Part H Overhead Power Lines, Para. 3, added: "See appropriate Safety Manual Section for the applicable equipment." Added for clarity.
9/10/2021	Part I Lockout / Tagout, Para.3, added: "32" after 'section' (added missing Section Number). Added for clarity.

6. Holes in electrical boxes or panels must be covered with approved devices.
7. Gaps between breakers in branch circuit panels must be covered with approved blanks.
8. All splices must be contained in an electrical box.
9. Weather resistant boxes, cords and raceways are required in all applications where the structure is not dried in with a roof and building envelope.
10. All temporary panels should be closed and secured.
11. All conductors that feed branch circuit boxes or temporary panels must be approved for that use and rated for hard or extra hard usage or must be completely encased in conduit. The use of exposed single conductor wires and triplex, Romex or similar conductors are not allowed.

Electrical Rooms

1. Electrical installations in rooms, closets or vaults with live circuits shall be guarded from accidental contact by cabinets or other forms of enclosures. These enclosures should be accessible only by authorized employees.
2. Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs prohibiting unauthorized access.
3. Doors with locks shall be installed to prevent unauthorized access.
4. If electrical room doors are opened to access and perform work, the electrician doing the work is responsible for keeping non-essential personnel out of the room. That worker must secure the room if they leave that area.

Temporary Lighting

1. Temporary lights shall consist of the molded light strands or be protected by conduit and electrical boxes as appropriate for site conditions. The use of exposed single conductor wires or Romex type light strings is not allowed.
2. Temporary lights must be suspended by their sockets, or manufacturer's built-in suspension eyes or grommets.
3. Light strings shall not have an attachment plug at the end where someone could plug a tool or cord into.
4. Light stands are allowed for task lighting only and may not be used for temporary lighting.
5. All lights shall be provided with protective covers to prevent accidental contact. Broken or missing light bulbs shall be replaced immediately. Broken or missing guards or protective covers shall be replaced immediately.
6. The installing Trade Partner is responsible for maintaining the temporary lighting.

Minimum Illumination Intensities in Foot-Candles

Foot-Candles	Area of Operation
Temporary lighting shall meet the following minimum illumination intensities:	
5	General Construction area lighting
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling and field maintenance areas
5	Indoors: warehouses, corridors, hallways and exit ways
5	Tunnels, shafts and general underground work areas. (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking and scaling. Bureau of Mines approved cap lights shall be acceptable for use in the tunnel heading.)
10	General Construction plant and shops (e.g. batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active storerooms, barracks or living quarters, locker or dressing rooms, mess halls and indoor toilets and workrooms).
30	First aid stations, infirmaries and offices

Live Electrical Circuits (Energized Work)

All electrical equipment greater than 50 volts should be de-energized and Locked out/Tagged out before work is performed. Workers performing work on these circuits/equipment must be trained, qualified and authorized in such work. All work must be in conformance within OSHA and NFPA 70E requirements. If work must be performed on energized electrical circuit(s), the following must take place:

1. A pre-task planning meeting must be conducted with the Trade Partner, Superintendent and Safety Director to explain why this work must be performed live.
2. The Trade Partner must provide a written energized electrical hazard assessment and/or energized electrical work plan. This electrical hazard assessment and/or energized work plan and permit shall include:
   a. Identification of shock risk boundary, limited approach boundary, arc flash boundary, electrical exposure, incident energy
   b. Required protective equipment including Personal Protective Equipment.
3. Proof of energized work training for all persons associated with the task.
4. Flame resistant clothing that is appropriate for the potential arc flash per NFPA 70E must be worn at all times when live panels are open.
5. The area that energized work are taking place must be barricaded to prevent access by unauthorized workers not directly involved with the task.
6. If the location or nature of the task that is being performed changes, the pre-task planning meeting must be revisited.

Overhead Power Lines

1. Whenever feasible overhead lines at or near the jobsite should be removed or de-energized and visibly grounded.
2. All overhead power lines at the jobsite or near the jobsite must be identified as to the voltage by the owner of the lines before cranes, lifts, earth moving equipment, scaffolds or similar equipment can mobilize at the jobsite.
3. Safe distances from live power lines must be maintained at all times. See appropriate Safety Manual Section for the applicable equipment.

Lockout/Tagout

1. Each Trade Partner who disconnects or de-energizes an electrical system shall have a lockout/tagout program in place.
2. Trade Partners must ensure that other trades are familiar with all the lockout/tagout

procedures.
3. See JE Dunn Lockout/Tagout Section 32 for energy control and energy isolation requirements.

ENERGIZED ELECTRICAL WORK PERMIT

Project Name: **Job #:**

Qualified Person in Charge: **Phone Number:**

Request Date:

Energized Electrical (EEW) Details:

1. Panel/Equipment/Drawing # to be worked on:
2. Supporting documentation: ☐ Panel Schedule ☐ One-Line Diagram
3. Energized Electrical Panel? ☐ Yes ☐ No
4. Work Start (date and time): Work Completed (date and time):
5. Work Type: ☐ 1a ☐ 2a ☐ 3a ☐ 4a ☐ 5a
6. Frequent EEW description of tasks (EEW type or task) – *check all that apply or describe specific details below:*

   ☐ Circuit breaker installation in branch/distribution/MCC panel #

   ☐ Conduit installation in branch/distribution/MCC panel # (drill/punch hole and install conduit)

   ☐ Pull wire into branch/distribution/MCC Panel #/Location Panel #

   ☐ EEW Type and Task

   Description of the EEW conductor, circuit devices, and scope specific procedure performed:

7. Shock and Arc Flash Hazard Analysis Results:

   Shock Hazard Voltage: Limited Approach Boundary:

   Arc Flash Boundary: Restricted Approach Boundary:

   Voltage rated gloves required? ☐ Yes ☐ No Prohibited Approach Boundary:

   Voltage rated tools required? ☐ Yes ☐ No Incident Energy or HRC:

8. Electrical Safe Work Practices – *check all that apply:*

- ☐ Secure work are to restrict access to all unqualified persons
- ☐ Use of PPE per shock and arc flash hazard analysis results above, and as necessary for work task and area
- ☐ Completion of scope of work briefing discussion
- ☐ Other (describe scope of work):

"Qualified Person(s)" Performing the Work/Task:

I agree that the scope of work described above can be performed safely, certify that I am qualified to carry out the work, certify that my required training is in current status, and that I understand and will follow the EEW procedure and all safety procedures necessary to complete the scope of work safely. I understand that I may be subject to discipline if I fail to follow the EEW Permit Procedures.

Safety Professional Qualified Person:

(print name) (signature) (date)

Electrical Qualified Person:

(print name) (signature) (date)

Journeyman Electrician or Foreman Qualified Person:

(print name) (signature) (date)

Energized Electrical (EEW) Compelling Reasons:

9. De-energizing would result in an increased or additional hazard:

- ☐ Emergency Alarms
- ☐ Life Safety Support Systems
- ☐ Ventilation Equipment
- ☐ Calibration of metering equipment (attach certification of meter)

10. De-energizing is infeasible due to equipment design or operational limitations:

- ☐ Type 5a Testing/Troubleshooting (required to be energized)
- ☐ Infeasible Shutdown (explain on line 11)

11. Detailed explanation of compelling reason from Trade Partner and qualified person/employee:

Permit Approvers, include: Safety Responsible, Knowledgable Electrical Engineer responsible for validating the compelling reason for EEW:

_____	_____	_____
(print name)	(signature)	(date)

"Qualified Person(s)" performing the work and responsible for validating they are qualified to perform the scope of work:

_____	_____	_____
(print name)	(signature)	(date)

SAFETY & HEALTH MANUAL

Section 32: Lockout/Tagout (LOTO)


Charles Matthews
Senior Safety Specialist

Jump to Section

Policy Statement

This policy applies to all contractors, Trade Partners and vendors who perform work on JE Dunn projects.

Definitions

Affected Employees

One whose job requires him/her to operate or use a machine or equipment on which servicing, commissioning, or maintenance is being performed under LOTO, or whose job requires him/her to work in an area in which such servicing, commissioning, or maintenance is being performed. Affected employees must always be under the visual supervision of an authorized employee.

Authorized Employee

An employee that has been properly trained in the lockout/tagout policy and by training has been authorized to apply/remove their assigned lock during the performance of their work. They will be familiar with the equipment and/or electrical systems that are being put under LOTO. These employees may also be allowed to conduct energy verification activities, or other tasks that involve energized electrical work.

Barricade

An erected barrier used to limit or control access to a designated area.

Capable of Being Locked Out

An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out if LOTO can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

De-Energized

When all energy sources are disconnected or in a released state.

Designated (Qualified) Person

A trained person, competent to safely perform specific duties as determined by responsible employer.

Energized

Connected to an energy source or containing residual or stored energy.

Energy Isolating Device

A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- A manually operated electrical circuit breaker.
- A disconnect switch.
- A manually operated switch in which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently.
- A line valve.
- A block.
- Any similar device used to block or isolate energy.
- (NOTE: Push buttons, selector switches and other control circuit type devices are not energy isolating devices.)

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Group Lockout/Tagout Program

This procedure can be used when there are projects that require a group of authorized employees to perform work on the machine or piece of equipment locked out by an authorized employee in charge.

Live-Dead-Live

Verification of de-energization using a calibrated digital voltmeter, when applicable and High/Medium voltage proximity testers when digital volt meters cannot be used. Procedure consists of testing proper meter operation at a known live source (Live), the moving leads to de-energized source for verification (Dead) and transfer back to known live source verifying proper meter operation (Live).

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.

LOTO

Lockout/Tagout.

Annexes

Forms and Permits

Lockout/Tagout Permit
Emergency LOTO Removal Form
LOTO Logbook

Inspections and Checklists

Lockout/Tagout Authorization and Checklist

Functional Manager


David Hulse
Safety Director

Lockout/Tagout Supervisor

An authorized employee who has been designated as having the primary responsibility for a set number of employees working under the protection of a LOTO procedure to ensure coordination of the work group and ensure continuity of protection for employees.

Multiple Energy Sources

When more than one energy source is present and poses a potential hazard.

Multiple Locking Hasp

A manufactured device designed to accommodate a number of locks (usually 6) to allow more than one person, craft, etc., to secure an Energy Isolation Device.

One-Line Drawing

A document that illustrates all the energy sources that feed into a specified piece of equipment or electrical device.

Other Employee

Employees whose work operations are or may be in an area where energy controls procedures may be utilized.

Safe Position

The position or state of an energy isolating device after the equipment has been isolated from the energy source.

Tagout

A temporary or removable tag (label) used in conjunction with a lockout device.

Zero Energy State

A machine condition where every power source that can produce movement of the machine, or its parts, has been isolated; and where all stored energy has been released.

General Requirements

Employer Responsibilities:

- Ensures that all authorized and affected employees, as well as the designated LOTO supervisor(s), are properly trained and instructed in the LOTO policy and procedure.
- Enforces compliance with LOTO policy and procedures by all personnel, which includes the use of disciplinary action where warranted.
- Ensures that all authorized employees are knowledgeable in and able to demonstrate the necessary skills and techniques to safely work on or near equipment or machinery.
- Ensures that only authorized employees perform the LOTO procedure. Maintains a roster of all authorized employees.

LOTO Supervisor Responsibilities:

- Ensures compliance with the policy and procedures by observing LOTO on an ongoing basis.
- Ensures that all personnel have been properly trained and instructed in LOTO policy and procedures prior to starting any work.
- Ensures that the proper safety equipment and tools are available and are inspected, tested, and maintained in safe and reliable condition and utilized by all authorized employees.
- Enforces the LOTO safety program and issues disciplinary action if the LOTO procedures are not strictly followed.
- Ensures the procedure for transfer of LOTO status at shift changes is strictly followed.
- Before starting each job, the LOTO Supervisor and Foreman shall conduct a job briefing, with employees involved. The briefing shall cover:
  - Hazards associated with the job.
  - Work procedures involved.
  - Special precautions.
  - Energy source controls.
  - Personal Protective Equipment requirements.
  - Information on the energized electrical work permit.
  - Additional job briefing will be held if changes which may affect safety occur.
  - Roles will be clearly defined for all authorized/affected employees at this meeting.

Authorized Employee Responsibilities:

- Must have successfully completed LOTO training.
- Designated by their employer as qualified based on training, experience, and knowledge of electrical hazards and systems.
- Must obtain and care for safety equipment required to comply with the LOTO policy and procedure.
- Must implement--without exception--the LOTO procedure established when working on equipment.
- Must consult with their Foreman whenever there are questions concerning the LOTO policy and procedure.
- Must immediately report any violation of the LOTO policy and procedure to their Foreman.
- Follow the daily work plan and do not deviate from the plan without first consulting with their Foreman/Supervisor.
- Restrict access to areas that are under the custody and control of their LOTO devices.
- Performs Live-Dead-Live verifications and any other verifications needed to verify zero energy state, prior to commencing any activities involving LOTO.

Affected and Other Areas:

- Does not attempt to start or energize a piece of equipment that is/or has been locked and/or tagged out.
- Does not attempt to remove a lock or a tag from any machine or energy control source.
- Does not place any part of their body into an area on a machine where work is performed on the material being processed or where an associated danger zone exists during a

machine operating cycle.
- Does not enter any area that has been barricaded off from the hazards associated with LOTO without properly receiving training and applying their own LOTO devices under the direction of an Authorized Employee.
- No persons, authorized or not, shall cross any barricaded area without first having their own LOTO device installed on equipment that is under active lockout/tag-out.

Locks and Tags

Standardized Locks:

After successfully completing an authorized employee LOTO training course, each qualified person will be assigned an individually keyed lock (one key) as needed for a LOTO procedure. The LOTO Supervisor will maintain a roster or log of lock assignments. The roster shall include at a minimum the employee's name, the numerical code of the lock assigned, the date, equipment to be put under LOTO, location of such equipment in the facility, and their supervisors name and contact information.

After completion of the LOTO procedure, or the need for a LOTO procedure is no longer necessary, the employee shall return the assigned lock to the Foreman or LOTO Supervisor. The Foreman/LOTO Supervisor will then document the return of the lock and the completion of the LOTO procedure on the LOTO roster or log.

Standardized Identification Tags

Each authorized/affected employee will receive one tag for each lock they have been issued.

This tag will have printed on it, the individuals name, the company name, and the date and location in which the tag was applied, as well as a contact phone number.

This tag will also have a statement prohibiting unauthorized operation and removal of the tag. A statement, such as "DANGER – DO NOT OPERATE" will be required on the tag.

This tag will have either a reinforced hole large enough for the shank of the lock to pass through or shall have a tag attachment device which is non-reusable that is attached by hand which is self-locking and non-releasable with a minimum of 50 lbs. opening strength. An all-environment nylon cable tie is acceptable.

Training

Frequency of Training:

- Individual employee training/retraining is required when:
  - The employee is introduced to the LOTO policy and procedures.
  - There is a change in the LOTO policy and procedure.
  - It is determined by the safety department, LOTO Supervisor or any other authority, there are deviations or inadequacies in the employee's knowledge or use of the LOTO program.
  - Any employee who is found to have violated this policy, is involved in an electrical incident, or that cannot demonstrate competency/knowledge of this program, will require re-training.

Documentation of Training:

- Training and re-training is documented to certify that the employee has completed the required training. Documentation will include:
  - Employee's name.
  - Employee's employee number or other unique identification number.
  - Date of training.
  - Reason for training (regular training/re-training as required).
  - Trainer's name.
  - Documentation will be maintained in compliance with company procedures.

Training Elements:

Training of authorized employees must include:
- The purpose and use of the LOTO procedures.
- The type and magnitude of the energy available in the workplace.
- The recognition of applicable hazardous energy sources.
- Responsibilities of the individual and group as it relates to the LOTO program.
- The method of notification that must be used when the LOTO procedures are being applied and removed.
- Prohibitions relating to attempting to restart or re-energize equipment or machines.
- The basic steps of the LOTO program.
- The disciplinary action associated with violations of the LOTO program.
- PPE requirements while performing energy verification status.
- Barricading requirements and distances based on the most current NFPA 70E standards or a site-specific arc flash analysis of the onsite electrical equipment.
- Emergency procedures to follow in the event of an electrical incident.

Training of other affected employees shall include:
- The purpose and use of the LOTO program and when it must be used.
- The method of notification that will be used when the LOTO program is being applied and removed.
- Employee responsibilities during a LOTO procedure and the prohibitions relating to attempting to restart or re-energize equipment or machines.
- A visual observation of the locks and tags used in the LOTO procedure.
- The disciplinary action associated with violation of the LOTO program.
- Barricading requirements and distances based on the most current NFPA 70E standards or a site-specific arc flash analysis of the onsite electrical equipment.
- Emergency procedures to follow in the event of an electrical incident.

Personal Protection Safeguards

Authorized employees working in areas where there are potential hazards must be provided with the appropriate personal protective equipment, isolation devices, and equipment.

Lockout/Tagout Procedures

Preparation:

- LOTO procedures should only be carried out by authorized employees.
- Before implementing the LOTO procedure, you must fully understand:
  - Who is responsible for identifying and determining the de-energization procedure?
  - The number, type and magnitude of the energy to be controlled.
  - The necessary PPE to be used.
  - All points of energy isolation.
  - The methods and means of controlling the hazardous energy sources.
- Complete the LOTO Permit and LOTO Authorization and Checklist that document the exact location of LOTO, who is performing, types of energy, sources of energy, and other relevant details about the individual LOTO program.

Notification:

- Before the application of the LOTO devices, notify all affected personnel of the energy control procedure that is being used and reasons why.

Shutdown:

- Shut down equipment in an orderly manner. This may mean simply turning off the equipment. When the equipment is part of a production or manufacturing process, all parts of the operation must be considered. An orderly shutdown will avoid increased hazards when the equipment is de-energized.

Isolation:

- Locate all energy isolating devices. Often times there are multiple energy sources. When the LOTO Supervisor determines that a piece of equipment needs to be locked out, that supervisor is responsible to ensure that all energy sources are identified and locked out. Reference available posted one-line drawings and electrical diagrams to understand all the sources of energy for a complete shutdown. If the LOTO Supervisor has any doubt whether all sources have been identified, no LOTO procedure shall be implemented until the safety department is notified and all parties have been assured that all potential energy sources have been identified.
- Operate the energy isolating devices so that the equipment is completely isolated from the energy source. When complete, all devices will be in the "safe" or "off" position.

Application of Locks and Tags:

- Securely attach locks and/or tags to the energy isolating device so the device is held in the "safe" or "off" position. Separate locks or tags must be used for each authorized employee.
- If using group lockbox, hasps, etc. all authorized and affected workers must lockout.

Controlling of Stored and Residual Energy:

- Relieve, disconnect and restrain all stored or residual energy. Remember, hazardous energy can also be found in springs, elevated machine members, capacitors, rotating flywheels, hydraulic systems, air, gas, steam, and water pressure.
- This energy must be dissipated or restrained. Operator's and service manuals can assist you in safely controlling the specific energy hazards. Common methods to restrain or dissipate stored energy are repositioning, blocking, and bleeding down systems.
- Install equipment grounding devices (i.e. grounding clusters) to dissipate stored energy or when the potential exists for unexpected re-energization.
- Know in advance the tools and equipment needed to control each hazard. Be sure they are in proper working order and able to perform the tasks you expect of them.

Shutdown verification:

- Check to be sure that all personnel are in a safe location and any needed barricades are in place. Verify that the equipment is properly isolated and all hazardous energy is safely controlled. Operate push buttons and other controls to verify isolation. Check circuits with proper electrical meters. Inspect springs, pressure gauges and the location of moving parts and other sources of stored energy. Be sure to return operating controls to the neutral or off position after the test. Each machine and piece of equipment is different. Follow the instructions found in the operator's and service manual. Once you are absolutely sure that the energy is isolated and safely controlled, proceed with the maintenance and service activities.
- Live-Dead-Live Test - Treat all systems as "live" until the verification is complete and shows a zero energy state on the equipment. This means wearing necessary PPE while performing verification tests/checks.
- Use properly rated PPE before testing electrical meters on a known energy source to verify tester is functioning properly.
- Test the equipment that is being placed under LOTO to verify it is at a zero voltage state.
- Re-test the same known energy source as before to ensure tester is still functioning properly.
- All authorized and affected employees that will be working in the area of the arc flash boundary or hazard zone of the energy source, must witness the energy verification checks.
- **WARNING: Some machinery and equipment can re-accumulate stored energy even after the system has been de-energized. If there is a possibility of stored energy building to a hazardous level, continue verification until maintenance or service is completed or until the possibility of accumulation no longer exists.**

Tagout Procedures

- Tagout must be documented on the LOTO permit and PRIOR APPROVAL IS REQUIRED from the safety department.
- The tagout procedure follows the same steps and has the same requirements for insuring de-energization as the lockout procedure. However, because tagout does not provide the same level of security that is present with lockout, the conditions listed below must be met:
  - Tagout procedures cannot be used in lieu of lockout.
  - Tagout shall only be implemented when there is no physical engineered accommodation for lockout and the employee(s) performing the work can maintain continuous line of sight monitoring of the tag locations(s).
- Tagout requires the use of completed "DANGER-DO NOT OPERATE" tag(s).

Group Lockout/Tagout

- This procedure can be used when there are projects that require a group of authorized employees to perform work on the same machine or piece of equipment that is locked out by the LOTO supervisor in charge.
- There are two types of group LOTO:
  - With the use of a lockbox (Complex Lockout).
  - Without the use of a lockbox (Simple Lockout).
- With the use of a lockbox:
  - The LOTO Supervisor oversees the group LOTO procedure.
  - The LOTO Supervisor must complete each step of the appropriate LOTO procedure and secure locks and tags on all energy isolating devices.
  - The keys for the locks of the equipment are then placed in a lockbox.
  - Each employee then secures their lock and properly completes the tag on the lockbox.
  - After an employee is finished with his/her service or maintenance work, the employee removes his/her lock and tag from the lockbox.
  - After all employees' locks are removed from the lockbox, the LOTO supervisor removes the key(s) from inside and follows the re-energizing procedure.
- Without the use of a lockbox:
  - The LOTO Supervisor oversees the group LOTO procedure.
  - The LOTO Supervisor must complete each step of the appropriate LOTO procedure and secure locks and tags on all energy isolating devices using a multiple locking hasp when necessary.
  - Service or maintenance work can now be performed, but only by the employees who have affixed their locks to the lockout device "hasp" and verified zero energy.
  - After employee is finished with his/her service or maintenance work, the employee removes his/her lock from the device.
  - After all employees' locks are removed from the LOTO device, the LOTO Supervisor removes his/her lock and follows the re-energizing procedure.

Shift or Personnel Change

- If the work is incomplete at the end of the shift, the authorized person(s) at the end of shift will:
  - Contact the LOTO Supervisor for permission to maintain LOTO status for shift rotation at the shift change.
  - The shift-end LOTO Supervisor will notify the on-coming LOTO Supervisor that an authorized employee has a piece of equipment locked and tagged out on which the work is incomplete.
  - The on-coming LOTO Supervisor will ensure that an on-coming authorized employee(s) accompanies the initial authorized employee who has locked the equipment out to the location of the lockout/tagout.
  - The shift-end authorized employee will remove his/her lock and tag from the isolating device in the presence of the on-coming authorized employee.
  - The on-coming authorized employee will place his/her lock and tag on the isolating device, and complete all steps of the LOTO procedure, including energy verification.

Restoring Equipment to Services (Releasing Energy Controls)

- When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken:
  - Inspect the work area. Ensure all non-essential items such as tools, parts and cleaning supplies have been removed. Check to be sure that all machine and equipment components and safety guards are ready for operation. Be certain all employees have been safely positioned or removed. Verify all controls are in neutral, off or stop position.
  - Notify all affected employees that the LOTO devices are being removed.
  - Remove Locks and Tags:
    - After a thorough inspection of the equipment is conducted and the authorized employee is confident that the equipment can be safely returned to service, the lock and tag can be removed by the authorized employee that installed it. Removal of a safety lock or tag not belonging to you is strictly prohibited without the LOTO Supervisor's implementation of the emergency lock removal procedures.
    - Sign the lock back into the logbook for tracking purposes by the LOTO Supervisor before leaving the facility.

Emergency Lock Removal

- When an authorized employee who applies a lock and tag to a machine or piece of equipment and is not available to remove them, they may be removed at the direction of the LOTO Supervisor under the following circumstances:
  - Verification that the authorized employee who applied the LOTO devices is not at the facility
  - After all reasonable efforts are made to contact the authorized employee to inform him/her that their LOTO devices are being removed. If contact is made, mark time of contact and location of worker during contact.
  - And that the authorized employee who applied the LOTO devices is informed before resuming work that the LOTO devices were removed.
  - The safety department must be contacted in the event a lock must be removed, and a separate form documenting this must be completed by the LOTO Supervisor and submitted to the safety department for approval.

Exceptions

- LOTO program does not apply to the following:
  - Servicing or maintenance of a machine or equipment in which the electrical wiring and/or electrical components are not a factor in the job to be performed and safety measures provided by the mechanical lockout/tagout policy and procedure ensures full employee protection.
  - Work on plug connected electrical equipment where the controlling of energy is accomplished by unplugging the equipment and the plug is under the exclusive control of the employee performing the work.

Compliance/Enforcement of this Program

- Employees are responsible for adhering to the requirements of this program. The employee must understand the importance of this program and that ignoring these requirements could result in an accident that could inflict serious bodily harm to themselves or their fellow worker.
- Employees must also understand that failure to follow these requirements or knowingly

bypassing or ignoring any of these written procedures could result in discipline up to and including removal from the project.

- Trade Partners shall be allowed to utilize their company specific LOTO program for their employees, so long as it adheres to the minimum requirements set forth in this policy and any governing regulations.

Emergency LOTO Removal Form

Project Name: **Job #:**

Date of Removal Request:

Employee Requesting Removal:

Employee(s) Affected by Removal: **Affected Employer:**

1. Reason for Removal Request:

2. In order to remove the person's lock device, you must verify the following conditions:

Have you verified the employee is not onsite?	☐ Yes	☐ No
Have you made every attempt to make contact with employee and their supervisor?	☐ Yes	☐ No
Have/will you brief the employee when they return to work?	☐ Yes	☐ No

If you answered 'No' to any of the above questions, please explain:

Trade Partner Approval:

_____	_____	_____
(print name)	(signature)	(date)

JE Dunn Operations Approval:

_____	_____	_____
(print name)	(signature)	(date)

JE Dunn Safety Department Approval:

_____	_____	_____
(print name)	(signature)	(date)

Lockout/Tagout (LOTO) Authorization & Checklist

THIS AUTHORIZATION IS GOOD ONLY FOR WORKERS, DATES AND SHIFT INDICATED BELOW.

Project Name: **Job #:** **Date:** **Shift:**

Contractor Name: **LOTO Supervisor's Authorization:**

Qualified LOTO Tagperson(s):

Name:	Lock ID Number:	Name:	Lock ID Number:
1.		2.	
3.		4.	
5.		6.	

Equipment or Circuit Information:

Equipment or Circuit to be worked on:

Equipment or Circuit Location:

Equipment or Circuit Energy Control:

- **Electrical**
- **Mechanial**
- **Pneumatic**
- **Hydraulic**

Isolation Devices:

Personal Protection Equipment (PPE) Needed: *list all below*

Procedure: *check off as you proceed through this procedure*

- ☐ Notify affected employees
- ☐ Identify all energy sources
- ☐ Dissipate all stored energy
- ☐ Shutdown equipment or circuit by normal stopping procedure
- ☐ Lock and tag all energy isolating devices in OFF position
- ☐ Install blocking (if applicable)
- ☐ After making sure equipment is clear, try normal start-up procedure (return to OFF position) – if lockout unsuccessful, contact LOTO Supervisor
- ☐ Begin work on equipment or circuit

LOCKOUT/TAGOUT PERMIT

Project Name: **Job #:** **Date:**

Location(s) of Work: **Task(s) to be Performed:**

Name(s) of Power Owner: **Name of Supervisor/Foreman:**

Energy Form: *(check all that apply)*

- ☐ **Electrical**:
  - ☐ Low Voltage (< 50v) ☐ Medium Voltage (50v - 600v)
  - ☐ High Voltage (600v or >)
- ☐ **Chemical**: explosion, pressure, extreme heat, fire corrosive, reactive, oxidizer, toxic
- ☐ **Pressure**: pneumatic/hydraulic
- ☐ **Mechanical**: capable of crushing, pinching, cutting, snagging, striking
- ☐ **Thermal / High Temperature**: surface temperature, hot liquids, steam
- ☐ **Non-Ionizing Radiation**:
  - ☐ Ultra ☐ Infrared
  - ☐ Laser ☐ Magnet Fields ☐ RF/Microwave
- ☐ **Stored**: flywheels, springs, differences in elevation, elevated parts that could drop, capacitors, batteries

Basic Procedures: *(check off as completed)*

Lockout Procedure:

- ☐ 1. Notify all affected personnel of LOTO.
- ☐ 2. Check out lock(s) from foreman's LOTO station. Sign out lock on log.
- ☐ 3. Turn off power at disconnect points (see box B).
- ☐ 4. LOTO each energy control point listed in box B. LOTO device placed at time of shut down if possible.
- ☐ 5. Dissipate/Disconnect any stored energy (see box C).
- ☐ 6. Block any mechanical parts. Remove any mechanical links. Lock blocking in place (see box D).
- ☐ 7. Wear the appropriate PPE rated for the arc flash potential of the equipment (reference NFPA 70E table).
- ☐ 8. Verify no hazardous energy. Use circuit tested/meter if electricity is involved (see box E). Verify by direct contact digital meter.
- ☐ 9. Perform required work.

Verify with all crew members or supervisor that lock has been placed on correct device of electrical system.

NOTE: If work is not left in an electrically safe state at the end of the day, a plan needs to be executed with the equipment owner to put the system in a state such that the employes can not be exposed to hazardous energies.

JE DUNN LOCKS CANNOT BE LEFT ON OVERNIGHT and must be removed at the end of shift.

Procedure to Return Equipment to Operation:

- ☐ 1. Verify Danger Zone is clear of equipment, workers, tools and test equipment.
- ☐ 2. Unlock and remove any blocking devices and remove linkages.
- ☐ 3. Reposition any safety devices (i.e. interlocks).
- ☐ 4. Warn workers to stay clear of area.
- ☐ 5. Remove all locks and tags from energy control points.
- ☐ 6. Verify area clear of personnel.
- ☐ 7. Remove all grounding equipment/conductor/devices.
- ☐ 8. Return lock(s) to Foreman's LOTO station. Sign lock back in.
- ☐ 9. Inform System Owner work is complete.
- ☐ 10. Foreman to verify all locks are returned at end of shut down and/or shift.

Specific Procedures:

Foreman are required to walk the equipment and system with the specific Owner prior to work to identify the below information. Person(s) performing work are required to verify conditions and info below with foreman in the field to apply locks and tags.

A. Hazardous Energy (ex.: 120v – 280v)	**B. Specific lockout locations** (ex. Panel XXX and Column Line M/2.5)	**C. Dissipate stored energy at these points** (ex.: capacitor)	**D. Block these parts/Remove linkages at these points**	**E. Method or place to verify that no residual energy exists**

All workers shall be personally responsible for verifying the correct lock placement and by signing below you have verified that the locks and tags have been placed on the system per correct information above. Any worker found in violation of above LOTO policy, will be subject to appropriate disciplinary action, up to and including discharge of employment.

Name: Lock #: Name: Lock #:

Name: Lock #: Name: Lock #:

Name: Lock #: Name: Lock #:

LOTO LOG BOOK

Name	Employer	Supervisor	Phone #	Lock #	Check-Out Date	Check-Out Time	Equipment/System Being Locked Out	Check-In Date	Check-In Time

SAFETY & HEALTH MANUAL

Section 33: Compressed Air, Gas Cylinders, Welding and Cutting

Larry Davis
Safety Manager

Jump to Section

Policy Statement

The intent of this policy is to provide guidelines while working with compressed air/gas (fuel) cylinders and activities associated with welding and cutting.

General Requirements

- Fuel/Gas Cylinder content must be identified by visible readable labels. Cylinder colors shall not be used to identify the cylinder content.
- Users of compressed gas cylinders must be trained in the proper use, storage and hazards associated with these cylinders.
- Cylinders not in use shall be fitted with valve protection cap and secured in an upright position.
- Do not tamper with or alter cylinders, valves or safety relief devices. Do not tighten connection or leaking fittings or attempt other repairs while the cylinder is under pressure.

- Before connecting a regulator to a cylinder valve, the valve shall be opened momentarily and closed immediately. Note: This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.
- Fire extinguishers must be readily available. Reference the Fire Protection and Prevention section for specific distance requirements.

Safe Handling

- All fuel/gas cylinders shall be secured in an upright position.
- When cylinders are hoisted, always use proper carriers. Cylinders should never be choked or lifted by their valve protection cap.
- Cylinders shall not be dropped, struck, or permitted to strike objects in a manner that may damage the cylinder, valve or safety device.
- Empty cylinders shall not be treated any differently than full cylinders.
- Do not place cylinders next to a heat source or direct an open flame at any part of cylinder.
- Oxygen shall not be used as a substitute for compressed air.
- Oxygen shall not be used to remove dust from clothing, to create pressure, or to ventilate areas.
- Jets of oxygen shall not be permitted to strike oily surface or greasy clothes or to enter fuel oil or other storage tanks.
- Never use oily or greasy hands, gloves, or rags to handle oxygen cylinders.
- Acetylene cylinder valves shall not be opened more than 1-1/2 of a turn.

Storage

- All flammable compressed gas cylinder storage areas shall be located outside of the building or structure.
- Valve protection caps shall be placed on all cylinders when not in use.
- Gauges shall be removed, and cylinders capped at the end of the day.
- Oxygen or fuel/gas cylinder shall be used and stored in an upright position.
- Different gases shall be stored at least 20 feet apart or separated by a 5-foot-tall noncombustible firewall with a fire-resistance rating of at least one-half hour.
- Storage areas shall be posted with 'No Smoking or Open Flame' signage.

Liquid Propane Gas (LPG) Tanks

- All Liquid Propane Gas (LPG) supply hoses and connections must be installed per local codes and statutes.
- All hoses and tanks must be protected from damage.
- No more than three (3) 100-pound propane tanks shall be connected via manifold.
- Portable tanks shall be fitted with a Hackney collar.
- Large bulk tanks (1000 gallons or larger) shall be located a minimum of 20 feet away from any buildings or structures and be protected by barricading. Jersey barriers or equivalent must be used when the bulk tanks are exposed to vehicle or equipment traffic.

Welding and Cutting

Torches:

- Boxes used for the storage of gas hose shall be ventilated.
- Hoses, cables, and other equipment shall be kept clear of passageways, ladders, and stairs.
- Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills, or other devices designed for such purpose.
- Flash back arrestors must be provided on all regulators.
- Torches in use shall be inspected at the beginning of each working shift for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall not be used.
- Torches shall be lighted by friction lighters or other approved devices, and not by matches or from hot work.
- Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use.
- Oxygen cylinders and fittings shall be kept away from oil or grease. Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus shall be kept free from oil or greasy substances and shall not be handled with oily hands or gloves. Oxygen shall not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel.
- Never allow acetylene gas pressure to exceed 15 pounds.

Arc Welding and Cutting:

Annexes

Forms and Permits

Hot Work Permit

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
8/2021	Hot work permits are available through the blue hat online catalog.

- Only manual electrode holders which are specifically designed for arc welding and cutting and are of a capacity capable of safely handling the maximum rated current required by the electrodes, shall be used.
- Any current-carrying parts passing through the portion of the holder which the arc welder or cutter grips in his hand, and the outer surfaces of the jaws of the holder, shall be fully insulated against the maximum voltage encountered to ground.
- All arc welding and cutting cables shall be of the completely insulated, flexible type, capable of handling the maximum current requirements of the work in progress, considering the duty cycle under which the arc welder or cutter is working.
- Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected shall be used, except that cables with standard insulated connectors or with splices whose insulating quality is equal to that of the cable are permitted.
- When it becomes necessary to connect or splice lengths of cable one to another, substantial insulated connectors of a capacity at least equivalent to that of the cable shall be used. If connections are affected by means of cable lugs, they shall be securely fastened together to give good electrical contact, and the exposed metal parts of the lugs shall be completely insulated.
- Cables in need of repair shall not be used. When a cable, other than the cable lead becomes worn to the extent of exposing bare conductors, the portion exposed shall be protected by means of rubber and friction tape or other equivalent insulation and meet all requirements of the standard.
- A ground return cable shall have a safe current carrying capacity equal to or exceeding the specified maximum output capacity of the arc welding or cutting unit which it services. When a single ground return cable services more than one unit, its safe current-carrying capacity shall equal or exceed the total specified maximum output capacities of all the units which it services.
- Ventilation for welding and cutting operations shall comply with OSHA requirements.
- When electrode holders are to be left unattended, the electrodes shall be removed, and the holders shall be so placed or protected that they cannot make electrical contact with employees or conducting objects.

Hot Work Procedure and Permits

Fire Prevention for hot work operations

- When practical, objects to be welded, cut, or heated shall be moved to a designated safe location or, if the objects to be welded, cut, or heated cannot be readily moved, all movable fire hazards in the vicinity shall be taken to a safe place, or otherwise protected.
- If the object to be welded, cut, or heated cannot be moved and if all the fire hazards cannot be removed, positive means shall be taken to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them. Fire blankets and similar devices are required and must be installed to direct all potential slag to safe location free of combustible and flammable material.
- No welding, cutting, or heating shall be done where the application of flammable paints or the presence of other flammable compounds, or heavy dust concentrations creates a hazard.
- Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use.
- Fire Watch - When the welding, cutting, or heating operation is such that combustibles cannot be removed or slag and sparks cannot be completely contained, a fire watch shall be assigned to guard against fire while the actual hot work operation is being performed, and for a minimum of thirty minutes following the completion of the hot work. Fire watch personnel shall:
- Be instructed as to the specific anticipated fire hazards, how the firefighting equipment provided is to be used and emergency procedures for the project.
- Be posted at the welding operation and on the other sides of walls, floors, or any other space where sparks, slag or fire could travel.
- Have a fire extinguisher in each area.

Hot Work Permit

This Hot Work Permit is required for any operations involving work producing flames, sparks, or heat. Hot Work includes, but is not limited to: Cutting, welding, brazing, grinding, sowing, soldering, thawing frozen pipes, applying roof covering, sealing plastic shrink-wrap by torch, and using a plumber's torch. The permit must be completed by the company supervisor performing the task. A copy of the permit shall be posted near *and* at the point of work. **If the required precautions cannot be met, the Hot Work is not permitted.**

Hot Work Requested By (Company):

Date: Location of Work:

Nature of Job:

Name of person doing the work:

I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for work.

Supervisor Signature:

Supervisor Name (print):

Contact Number:

Permit Starts: (date) (time) ☐ AM ☐ PM

Permit Expires: (date) (time) ☐ AM ☐ PM

JE Dunn Supervisor Signature:

Comments:

Available sprinklers, hose streams, and extinguishers are in service/operable. ☐ Yes ☐ No

How work equipment in good repair. ☐ Yes ☐ No

REQUIREMENTS WITHIN 35 FEET OF HOT WORK:

(check all that apply)

- ☐ Flammable liquids, dust, lint and oil deposits removed.
- ☐ Explosive atmosphere in area eliminated.
- ☐ Floors swept clean of combustibles. Combustible floors wet down, covered with damp sand or fire-resistant sheets.
- ☐ Remove other combustibles where possible. Otherwise protect with fire-resistant tarpaulins, screens or shields.
- ☐ All wall and floor penetrations covered.
- ☐ Fire-resistant tarpaulins suspended beneath elevated hot work.

WORK IN WALLS/CEILINGS/ENCLOSED EQUIPMENT:

(check all that apply)

- ☐ Construction is noncombustible and without combustible covering or insulation.
- ☐ Combustibles on other side of walls moved away.
- ☐ No danger exists by conduction of heat into another room or area.
- ☐ Enclosed equipment clean of all combustibles.
- ☐ Containers purged of flammable liquids and vapors.

FIRE WATCH/HOT WORK AREA MONITORING:

(check all that apply)

- ☐ Fire watch will be provided during and continuously for 30 minutes after work, including during any work breaks.
- ☐ Fire watch is supplied with suitable extinguishers.
- ☐ Fire watch is trained in use of this equipment and in emergency response.
- ☐ Fire watch may be required for adjoining areas, above and below the hot work floor.
- ☐ After the 30 minute fire watch period has expired, the hot work area shall be thoroughly inspected before leaving the area.

OTHER PRECAUTIONS TAKEN:

(check all that apply)

- ☐ In occupied buildings, the security and building maintenance departments shall be notified of the hot work activities.
- ☐ Confined space entry permit required. Area is protected with smoke or heat detection.
- ☐ Ensure smoke-eaters or ventilations is introduced into the area to remove smoke/fumes from work building.
- ☐ Lockout/Tagout required?

Permit Closed By:

Temperature Reading of Adjacent Areas:

SAFETY & HEALTH MANUAL

Section 34: Confined Space Entry program

Joe Liello
Safety Manager

Jump to Section

Policy Statement

The purpose of this policy is to provide the information to our employees for conducting safe confined space entry operations.

Definitions

Confined space - **a)** Is large enough and so configured that an employee can bodily enter it, **b)** has limited or restricted means for entry or exit, and **c)** is not designed for continuous employee occupancy.

Examples of locations where confined spaces may occur include, but are not limited to the following:

- Pits (such as elevator, escalator, pump, valve or other equipment)
- Manholes (such as sewer, storm drain, electrical, communication, or other utility)
- Tanks (such as fuel, chemical, water or other liquid, sold or gas)
- Concrete pier columns, sewers
- Transformer vaults
- Heating, ventilation and air-conditioning (HVAC) ducts
- Storm drains
- Water mains,
- Precast concrete and other pre-formed manhole units
- Drilled shafts
- Enclosed beams
- Lift stations
- Step up transformers
- Chillers

Acceptable entry conditions - the conditions that must exist in a permit space before an employee may enter that space, to ensure that employees can safely enter, and safely work within, the space

Attendant - an individual stationed outside one or more permit spaces who monitors and assesses the authorized entrants and who must perform those duties

Authorized entrant - an employee who is authorized by the entry supervisor to enter a permit space

Competent person - one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them

Controlling Contractor - the employer that has overall responsibility for construction at the worksite.

- Note: If the controlling contractor owns or manages the property, then it is both a controlling employer and a host employer

Early-warning system - the method used to alert authorized entrants and attendants that an engulfment hazard may be developing. Examples of early-warning systems include, but are not limited to: alarms activated by remote sensors; and lookouts with equipment for immediately communicating with the authorized entrants and attendants

Engulfment - the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing, or suffocation

Entry - the action by which a person passes through an opening into a permit-required confined space. Entry includes work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space, whether or not such action is intentional, or any work activities are actually performed in the space

Entry Employer - any employer who decides that an employee it directs will enter a permit space

- Note: An employer cannot avoid the duties of the standard merely by refusing to decide whether its employees will enter a permit space, and OSHA will consider the failure to so decide to be an implicit decision to allow employees to enter those spaces if they are working in the proximity of the space.

Entry permit - the written or printed document that is provided by the employer who designated the space a permit space to allow and control entry into a permit space and that contains the information specified in this written program

Entry rescue - occurs when a rescue service enters a permit space to rescue one or more employees

Annexes

Forms and Permits

Confined Space Entry Permit
Confined Space - List of Authorized Entrants
Confined Space Log - Permit Required
Confined Space Decision Tree
Non-Permit Required Confined Space Checklist

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
8/23/2021	No Changes Made to section

Entry supervisor - the qualified person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this standard.

- Note: An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this standard for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during an entry operation.

Hazardous atmosphere - an atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist more than 10 percent of its lower flammable limit (LFL)
- Airborne combustible dust at a concentration that meets or exceeds its LFL
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent
- Carbon Monoxide concentration levels greater than 35ppm
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published and which could result in employee exposure more than its dose or permissible exposure limit
- Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH).

Host employer - the employer that owns or manages the property where the construction work is taking place.

- Note: If the owner of the property on which the construction activity occurs has contracted with an entity for the general management of that property, OSHA will treat the contracted management entity as the host employer for as long as that entity manages the property. Otherwise, OSHA will treat the owner of the property as the host employer. In no case, will there be more than one host employer.

Immediately Dangerous to Life or Health (IDLH) - any condition that would interfere with an individual's ability to escape unaided from a permit space and that poses a threat to life or that would cause irreversible adverse health effects

Inerting - displacing the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. Note: This procedure produces an IDLH oxygen-deficient atmosphere

Limited or restricted - for entry or exit means a condition that has a potential to impede an employee's movement into or out of a confined space. Such conditions include, but are not limited to, trip hazards, poor illumination, slippery floors, inclining surfaces and ladders

Lower flammable limit or lower explosive limit - the minimum concentration of a substance in air needed for an ignition source to cause a flame or explosion

Monitor or monitoring - the process used to identify and evaluate the hazards after an authorized entrant enters the space. This is a process of checking for changes that is performed in a periodic or continuous manner after the completion of the initial testing or evaluation of that space

Non-entry rescue - occurs when a rescue service, usually the attendant, retrieves employees in a permit space without entering the permit space

Non-permit confined space - a confined space that meets the definition of a confined space but does not meet the requirements for a permit-required confined space, as defined in this subpart

Permit-required confined space - a confined space that has one or more of the following characteristics:

- Contains or has potential to contain a hazardous atmosphere
- Contains a material that has the potential for engulfing an entrant
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

Permit-required confined space program - the employer's overall program for controlling, and, where appropriate, for protecting employees from permit space hazards and for regulating employee entry into permit spaces

Physical hazard - an existing or potential hazard that can cause death or serious physical damage. Examples include, but are not limited to: explosives, mechanical, electrical, hydraulic and pneumatic energy, radiation, temperature extremes, engulfment, noise, inwardly converging surfaces, and chemicals

Prohibited condition - any condition in a permit space that is not allowed by the permit during the period when entry is authorized. A hazardous atmosphere is a prohibited condition unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee

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 his ability to solve or resolve problems relating to the subject matter, the work, or the project

Rescue - retrieving, and providing medical assistance to, one or more employees who are in a permit space

Rescue service - the personnel designated to rescue employees from permit spaces

Retrieval system - the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces

Test or testing - the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space

Ventilate or ventilation - controlling a hazardous atmosphere using continuous forced-air mechanical systems

Program Requirements

Atmospheric testing - Before a permit space is first entered, the internal atmosphere must be tested with a calibrated direct-reading instrument for oxygen content, flammable gases and vapors, and potential toxic air contaminants.

Before work begins - A competent person identifies all confined spaces where employees may work, and identifies each space that is a permit space by considering and evaluating the elements of that space, including testing as needed.

Continuous monitoring - Permit space atmospheres must be continuously monitored unless equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient. All monitoring must ensure continuous forced air ventilation prevents accumulation of a hazardous atmosphere.

Employees designated to rescue - Each employee must be provided with PPE needed to conduct rescues safely and trained in the use of the PPE; each employee must be trained to proficiently perform assigned rescue duties as authorized entrants; train each employee in basic first aid and CPR; employee team must practice rescues before attempting an actual rescue, and at least once every 12 months, in simulated rescues removing dummies, manikins or actual persons; practice rescue is not required when employees have properly performed a rescue during the past 12 months in the same permit space.

Entry employers - Entry employers must give the controlling contractor info about their entry program and hazards encountered in the space.

Hazard detected - Employees must leave the space immediately; space must be evaluated to determine how the hazard developed; employer must implement measures to protect employees from the hazard before any reentry takes place.

Host employers - Host employers must provide info about permit spaces to the controlling contractor, who passes it on to employers whose employees will enter the spaces.

Information loop - Trade Partners must give the controlling contractor info about their entry program and hazards encountered in the space; the controlling contractor passes this info to other Trade Partners and back to the host.

Monitoring alert - Continuous monitoring equipment must have an alarm to notify all entrants if a specified atmospheric threshold is achieved, or an employee must check the monitor frequently enough to ensure entrants have time to escape.

Multiple roles - An entry supervisor may serve as an attendant or authorized entrant if that person is trained and equipped for each role he or she assumes.

Non-entry rescue - Is required unless the retrieval equipment would increase the risk of entry or would not contribute to the rescue of an entrant; retrieval systems must include use of a chest or full body harness, retrieval line, and mechanical device that must be able to retrieve personnel from a vertical permit space more than 5 feet deep.

Primary point of contact - The controlling contractor – not the host employer – is the primary point of contact for information about confined spaces at the work site.

Required equipment - Testing and monitoring equipment; ventilating equipment; communications equipment; personal protective equipment when feasible engineering and work practice controls don't adequately protect employees; lighting equipment; barriers and shields; ladders or other means of safe entry and exit; rescue and emergency equipment.

Rescue service - Must be selected based on; **1)** being able to reach victim(s) within a time frame appropriate for the hazard identified; **2)** possessing equipment and proficiency in using equipment for the needed rescue; and **3)** agreeing to notify the employer immediately if the rescue service becomes unavailable.

Training - Must result in an understanding of the hazards in the permit space; methods to isolate, control or in other ways protect entrants from hazards; and for employees not authorized to perform rescues, the dangers of attempting such rescues.

Write a permit - You must write a permit specifying what safety measures must be taken and who can go in a permit space before workers assigned and trained to work in a permit space can enter it.

General Requirements

Before work begins, controlled by JE Dunn Construction Company, the safety department must be notified to ensure that a competent person identifies all confined spaces and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.

If the workplace contains one or more permit spaces, the employer who identifies, or who receives notice of, a permit space must:

- Inform exposed employees by posting danger signs
  - Note: A sign reading "DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" would satisfy the requirement for a sign.
- Inform, in a timely manner and in a manner other than posting, its employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

If JE Dunn Construction Company does not authorize employees to work in a confined space then effective measures must be taken to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of this standard.

Each employer that directs its employees to enter a permit space must have a written permit space program implemented at the worksite site. The written program must be made available prior to and during entry operations for inspection by JE Dunn Construction Company employees and their authorized representatives.

- Note: Proper application of the Confined Space Decision Tree facilitates compliance with this requirement.

Contractor may use the alternate procedures for entering a permit space under the following conditions:

- Can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere
- Can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space
- Develops monitoring and inspection data that supports the demonstrations required by the applicable OSHA industry standard
- The following requirements apply for entry into permit spaces:
  - Any conditions making it unsafe to remove an entrance cover shall be eliminated before the cover is removed.
  - When entrance covers are removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space
  - Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee, who enters the space, or that employee's authorized representative, must be provided an opportunity to observe the pre-entry testing required by this paragraph.
  - No hazardous atmosphere is permitted within the space whenever any employee is inside the space.
  - Continuous forced air ventilation must be used, as follows:
    - An employee must not enter the space until the forced air ventilation has eliminated any hazardous atmosphere
    - The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present within the space and must continue until all employees have left the space
    - The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.
    - The atmosphere within the space must be continuously monitored.
    - If a hazard is detected during entry:
      - Each employee must leave the space immediately
      - The space must be evaluated to determine how the hazard developed; and
      - Contractor must implement measures to protect employees from the hazard before any subsequent entry takes place.
    - Contractor must ensure a safe method of entering and exiting the space.
    - Entry supervisor must verify that the space is safe for entry and that the pre-entry measures have been taken, through a written permit that contains the date, the location of the space, and the signature of the person providing the permit.

When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, each entry employer must have a competent person re-evaluate that space and, if necessary, reclassify it as a permit-required confined space.

A space classified by an employer as a permit-required confined space may only be reclassified as a non-permit confined space when a competent person determines that all applicable requirements have been met:

- If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless the employer can demonstrate that doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated;
- The entry employer must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, such entry must be performed under the guidelines of this written program. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.
- The entry employer must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a permit that contains the date, the location of the space, and the signature of the person making the determination.
  The permit must be made available to each employee entering the space or to that employee's authorized representative; and
- If hazards arise within a permit space that has been reclassified as a non-permit space the workers must exit the space. The entry employer must then re-evaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of this standard.

Permit Space Entry Communication and Coordination:

- Before entry operations begin, the host employer must provide the following information, if it has it, to the controlling contractor:
  - The location of each known permit space
  - The hazards or potential hazards in each space or the reason it is a permit space
  - Any precautions that the host employer or any previous controlling contractor or entry employer implemented for the protection of employees in the permit space.
- Before entry operations begin, the controlling contractor must:
  - Obtain the host employer's information about the permit space hazards and previous entry operations; and
  - Provide the following information to each entity entering a permit space and any other entity at the worksite whose activities could foreseeably result in a hazard in the permit space:
    - The information received from the host employer
    - Any additional information the controlling contractor has about the subjects; and
    - The precautions that the host employer, controlling contractor, or other entry employers implemented for the protection of employees in the permit spaces.
- Before entry operations begin, each entry employer must:
  - Obtain the controlling contractor's information regarding permit space hazards and entry operations; and
  - Inform the controlling contractor of the permit space program that the entry employer will follow, including any hazards likely to be confronted or created in each permit space.
- The controlling contractor and entry employer(s) must coordinate entry operations when:
  - More than one entity performs permit space entry at the same time
  - Permit space entry is performed while any activities that could foreseeably result in a

hazard in the permit space are performed.
- Post entry operations:
  - The controlling contractor must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations;
  - The entry employer must inform the controlling contractor in a timely manner of the permit space program followed and of any hazards confronted or created in the permit space(s) during entry operations; and
  - The controlling contractor must inform the host employer of the information exchanged with the entry entities pursuant to this subparagraph.
  - If there is no controlling contractor present at the worksite, the requirements for, and role of, controlling contactor, must be fulfilled by the host employer or other employer who arranges to have employees of another employer perform work that involves permit space entry.

Permit-Required Confined Space Program

Employers must:

Implement the measures necessary to prevent unauthorized entry.

Identify and evaluate the hazards of permit spaces before employees enter them.

Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:
- Specific acceptable entry conditions
- Providing each authorized entrant or that employee's authorized representative with the opportunity to observe any monitoring or testing of permit spaces
- Isolating the permit space and physical hazard(s) within the space
- Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards.
- When an employer is unable to reduce the atmosphere below 10 percent LFL, the employer may only enter if the employer inerts the space to render the entire atmosphere in the space noncombustible, and the employees use PPE to address any other atmospheric hazards (such as oxygen deficiency), and the employer eliminates or isolates all physical hazards in the space.
- Determining that, in the event the ventilation system stops working, the monitoring procedures will detect an increase in atmospheric hazard levels in sufficient time for the entrants to safely exit the permit space
- Providing pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards
- Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry, and ensuring that employees are not allowed to enter into, or remain in, a permit space with a hazardous atmosphere unless the employer can demonstrate that personal protective equipment (PPE) will provide effective protection for each employee in the permit space and provides the appropriate PPE to each employee; and
- Eliminating any conditions that could make it unsafe to remove an entrance cover.

Employer shall provide equipment at no cost to each employee, maintain that equipment properly, and ensure that each employee uses that equipment properly:
- Testing and monitoring equipment
- Ventilating equipment needed to obtain acceptable entry conditions
- Communications equipment
- Personal protective equipment
- Lighting equipment that is explosion proof
- Barriers and shields as applicable
- Equipment needed for safe ingress and egress by authorized entrants
- Rescue and emergency equipment.

Evaluate permit space conditions:

Test conditions in the permit space to determine if acceptable entry conditions exist before changes to the space's natural ventilation are made, and before entry is authorized to begin, except that, if an employer demonstrates that isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), the employer must:
- Perform pre-entry testing to the extent feasible before entry is authorized; and,
- If entry is authorized, continuously monitor entry conditions in the areas where authorized entrants are working.
- Provide an early-warning system that continuously monitors for non-isolated engulfment hazards. The system must alert authorized entrants and attendants in sufficient time for the authorized entrants to safely exit the space.

When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.

Provide each authorized entrant or that employee's authorized representative an opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.

Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because there is some indication that the evaluation of that space may not have been adequate.

Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.

Attendants may be assigned to more than one permit space provided the duties can be effectively performed for each permit space.

Attendants must have clear visibility of all entry points.

If multiple spaces are to be assigned to a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of those permit spaces without distraction from the attendant's responsibilities.

Designate each person who is to have an active role in entry operations, identify the duties of each such employee, and provide each such employee with the training required by this written program.

Develop and implement procedures for summoning rescue and emergency services for rescuing entrants from permit spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue.

Develop and implement a system for the preparation, issuance, use, and cancellation of entry permits as required by this standard, including the safe termination of entry operations under both planned and emergency conditions.

Coordinate multiple entry sites with all employers.

Develop and implement procedures necessary for concluding the entry after entry operations have been completed.

JE Dunn is required to perform a single annual review of the program covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Permitting Process

Before entry, the entry supervisor shall authorize and document the pre-entry requirements using an entry permit.

The completed permit must be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it at the entry point.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

The entry supervisor must terminate entry and take the following action when any of the following apply:

- Cancel the entry permit when the entry operations covered by the entry permit have been completed
- Suspend or cancel the entry permit and fully reassess the space before allowing reentry when a condition that is not allowed arises.

The entry employer must retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation must be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

Entry Permit

The entry permit that documents compliance with this section and authorizes entry to a permit space must identify the following:

- The permit space to be entered
- The purpose of the entry
- The date and the authorized duration of the entry permit
- The authorized entrants within the permit space
- Means of detecting an increase in atmospheric hazard levels in the event the ventilation system stops working
- Each person, by name, currently serving as an attendant
- The individual, by name, currently serving as entry supervisor, and the signature or initials of each entry supervisor who authorizes entry
- The hazards of the permit space to be entered
- The measures used to isolate the permit space and to eliminate or control permit space hazards before entry
- The acceptable entry conditions
- The results of tests and monitoring performed
- The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services
- The communication procedures used by authorized entrants and attendants to maintain contact during the entry
- Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this standard
- Any other information necessary, given the circumstances of the particular confined space, to ensure employee safety
- Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

Training

Employer must provide training to each employee whose work is regulated by this standard, at no cost to the employee, and ensure that the employee possesses the understanding, knowledge, and skills necessary for the safe performance of the duties assigned under this standard.

- Training required by this section must be provided to each affected employee:
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- In both a language and vocabulary that the employee can understand
- Before the employee is first assigned duties under this standard
- Before there is a change in assigned duties
- Whenever there is a change in permit space entry operations that presents a hazard about which an employee has not previously been trained
- Whenever there is any evidence of a deviation from the permit space entry procedures or there are inadequacies in the employee's knowledge or use of these procedures.

The training must establish employee proficiency in the duties required and must introduce new or revised procedures.

Employer must maintain training records to show that the training required has been accomplished.

The training records must contain each employee's name, the name of the trainers, and the dates of training.

Duties of Authorized Entrants

Employer must ensure that all authorized entrants:

Are familiar with and understand the hazards that may be faced during entry.

Properly use equipment as required by this written program.

Maintain effective communication with the attendant.

Alert the attendant whenever:
- There is any warning sign or symptom of exposure to a dangerous situation
- The entrant detects a prohibited condition.

Exit from the permit space as quickly as possible whenever:
- An order to evacuate is given by the attendant or the entry supervisor
- There is any warning sign or symptom of exposure to a dangerous situation
- The entrant detects a prohibited condition
- An evacuation alarm is activated.

Duties of Attendants

Employer must ensure that each attendant:

Is familiar with and understands the hazards that may be faced during entry.

Is aware of possible behavioral effects of hazard exposure in authorized entrants.

Continuously maintains an accurate count of authorized entrants in the permit space.

Remains outside the permit space during entry operations until relieved by another attendant.

Communicates with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space.

Assesses activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
- If there is a prohibited condition
- If the behavioral effects of hazard exposure are apparent in an authorized entrant
- If there is a situation outside the space that could endanger the authorized entrants
- If the attendant cannot effectively and safely perform all the duties required under this written program.

Summons rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

Takes the following actions when unauthorized persons' approach or enter a permit space while entry is underway:
- Warns the unauthorized persons that they must stay away from the permit space
- Advises the unauthorized persons that they must exit immediately if they have entered the permit space
- Informs the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

Performs non-entry rescues as specified by the employer's rescue procedure.

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

Duties of Entry Supervisors

Employer must ensure that each entry supervisor:

Is familiar with and understands the hazards that may be faced during entry.

Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted.

Terminates the entry and cancels or suspends the permit.

Verifies that rescue services are available.

Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

Determines, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

Rescue and Emergency Services

Employer must:

Select a rescue team or service that:
- Has the capability to reach the victim(s) within a time frame that is appropriate for the permit space hazard(s) identified
- Is equipped for, and proficient in, performing the needed rescue services
- Agrees to notify the employer immediately in the event that the rescue service becomes unavailable.

Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site.

Provide the rescue team or service selected with access to all permit spaces.

Should Entry Contractor designate employees to provide permit space rescue and/or emergency services, it must take the following measures and provide all equipment and training at no cost to those employees:
- Provide each affected employee with the personal protective equipment (PPE) needed to conduct permit space rescues safely and train each affected employee so the employee is proficient in the use of that PPE.
- Train each affected employee to perform assigned rescue duties.
- Train each affected employee in basic first aid and cardiopulmonary resuscitation (CPR).

- Ensure that affected employees practice making permit space rescues before attempting an actual rescue, and at least once every 12 months.

Non-entry rescue is required unless the retrieval equipment would increase the overall risk. Emergency assistance must be available in the event that non-entry rescue fails. Retrieval systems must meet the following requirements:

- Each authorized entrant must use a full body harness.
- The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space. A mechanical device must be able to retrieve personnel from vertical type permit spaces more than 5 feet deep.

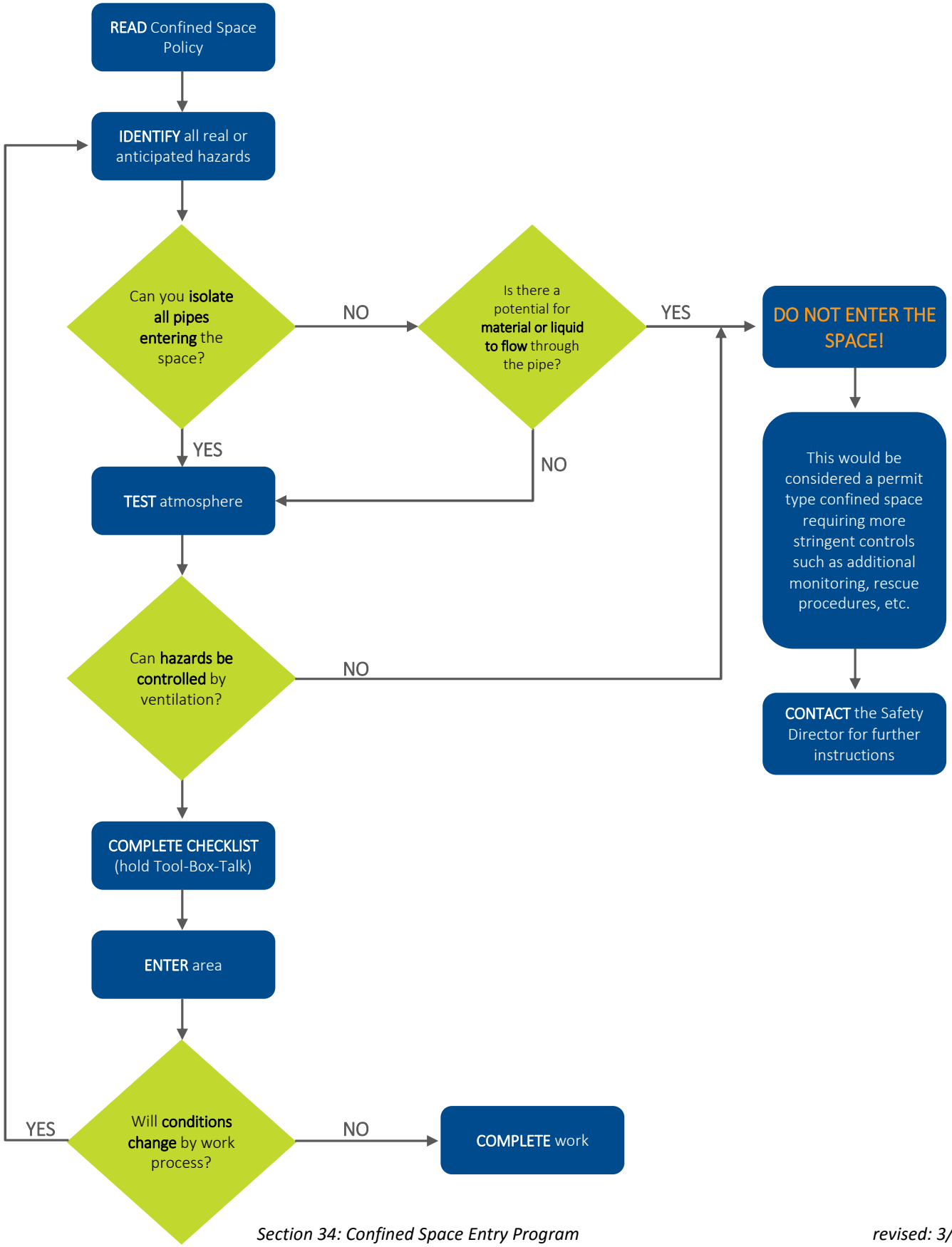
If an injured entrant is exposed to a substance for which a Safety Data Sheet (SDS) or other similar written information is required to be kept at the worksite, that SDS or written information must be made available to the medical facility treating the exposed entrant

Document Retention

Refer to Records Management section for appropriate document retention policy.

CONFINED SPACE:
LIST OF AUTHORIZED ENTRANTS, ATTENDANTS & SUPERVISORS

Name	Department/Faculty	Location/Address	Job Title	Authorized Entrant	Entry Attendant	Entry Supervisor


READ Confined Space Policy
IDENTIFY all real or anticipated hazards
Can you isolate all pipes entering the space?
NO
Is there a potential for material or liquid to flow through the pipe?
YES
DO NOT ENTER THE SPACE!
This would be considered a permit type confined space requiring more stringent controls such as additional monitoring, rescue procedures, etc.
CONTACT the Safety Director for further instructions
YES
NO
TEST atmosphere
Can hazards be controlled by ventilation?
NO
COMPLETE CHECKLIST (hold Tool-Box-Talk)
ENTER area
Will conditions change by work process?
YES
NO
COMPLETE work

CONFINED SPACE ENTRY PERMIT

ORIGINAL COPY OF PERMIT MUST BE KEPT AT THE JOBSITE

Date Issued: **Time Issued:**

Date Expires: **Time Expires:**

Jobsite Identification/Space:

Jobsite Supervisor:

Equipment to be worked on:

Work to be Performed:

Identify Standby Personnel:

1. **Atmospheric Checks**: Time
   Oxygen (%)
   Explosive (%LFL)
   Toxic (PPM)

   Tester's Signature:

2. **Source Isolation** (no entry):

Pumps or lines blinded, disconnected, or blocked	☐ N/A	☐ Yes	☐ No

3. **Ventilation Modification**:

Mechanical	☐ N/A	☐ Yes	☐ No
Natural Ventilation Only	☐ N/A	☐ Yes	☐ No

4. **Atmospheric Checks AFTER Isolation and Ventilation**:

Time	
Oxygen (%)	> 19.5%
Explosive (%LFL)	< 10%
Toxic (PPM)	< 10 PPM H(2)S

   Tester's Signature:

5. **Communication Procedures**:

6. **Rescue Procedures**:

7. **Entry, Standby, and Backup Persons:**

Successfully completed required training?	☐ Yes	☐ No
Is it current?	☐ Yes	☐ No

8. **Equipment:**

Direct reading gas monitor tested	☐ N/A	☐ Yes	☐ No
Safety harnesses and lifelines for entry and standy persons	☐ N/A	☐ Yes	☐ No
Hoisting equipment	☐ N/A	☐ Yes	☐ No
Powered communications	☐ N/A	☐ Yes	☐ No
SCBA's for entry and standby persons	☐ N/A	☐ Yes	☐ No
Protective clothing	☐ N/A	☐ Yes	☐ No
All electric equipment listed Class I, Division I, Group D, non-sparking tools	☐ N/A	☐ Yes	☐ No

9. **Record continuous atmospheric monitoring results every 2 hours:**

Oxygen	%	Time	Oxygen	%	Time
Oxygen	%	Time	Oxygen	%	Time
Explosive	%	Time	Explosive	%	Time
Explosive	%	Time	Explosive	%	Time
Toxic	%	Time	Toxic	%	Time
Toxic	%	Time	Toxic	%	Time

We have reviewed the work authorized by this permit and the information contained herein. Written instructions and safety procedures have been received and are understood. Entry cannot be approved if any squares are marked in the "No" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared by:

Approved by:

Reviewed by Confined Space Operation Personnel (print name and sign):

CONFINED SPACE INVENTORY LOG – PERMIT REQUIRED

***Hazard Codes:**

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 wuch that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section.
4. Contains any other recognize serious safety or health hazard.

Location	Type of Space	*Hazard Code	Special Precautions

SAFETY & HEALTH MANUAL

Section 35: Falling Object and Overhead Protection

Jake Jenkins
Senior Safety Specialist

Jump to Section

Policy Statement

The intent of this policy is to protect people and property from overhead hazards both inside and outside of the project.

Definitions

Competent Person

One who can identify 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.

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 his ability to solve or resolve problems relating to the subject matter, the work, or the project.

Fall Zone

The area (including but not limited to the area directly beneath a potential falling object) in which it is reasonably foreseeable that falling objects could fall.

General Requirements

1. Materials may not be stacked within 10 feet of the exterior edge of a building or within 6 feet of an interior opening where the material is higher than the toe board or debris netting.
2. All materials or equipment that have the potential to fall from heights (i.e., post shores, ladders, plywood, 2x4", etc.) when placed within 15ft of a leading edge or hole must be physically secured back to the structure.
3. Ensure that all materials are adequately secure in case of weather events.
4. Good housekeeping practices and inspections shall be performed regularly.
5. Workers who enter barricaded areas without authorization are subject to disciplinary action up to and including removal from project site.

Superintendent and Project Executive Responsibilities

1. Conduct a risk assessment of the project prior to starting with the first elevated deck and put in place a written Falling Object / Overhead Protection Plan, to include:
   a. Review and approval by a competent person and Regional Safety Director
   b. Protection against exposure hazards to both project site personnel and property.
   c. Protection against exposure hazards to offsite project personnel and property.
2. Provide effective and timely communication of the Falling Object / Overhead Protection Plan to all JE Dunn employees, Trade Partners, Vendors, and all others that enter the project site.
3. Review the plan periodically and make adjustments as necessary.
4. Inspect falling object/overhead protection systems in BIM 360 Field (at least weekly).

Safety Personnel Responsibilities

1. Review risk assessment, project conditions and provide guidance as necessary.
2. Regional Safety Director has the responsibility and authority to make exceptions and additions to the plan.
3. Safety professionals assigned full time to projects inspect weekly and roving safety professionals inspect during every visit.

Guardrail – Debris Netting

1. Must be installed on all elevated floors and interior openings (where applicable).
2. Debris nets, must have the following provisions:
   a. Nets installed from the top of guardrail to floor.
   b. Elevated / temporary decks must include, and maintain, a debris netting protection system sufficient to protect falling object hazards.
   c. Be inspected and maintained regularly (weekly).

Horizontal Debris Netting (Cantilever Nets)

1. Designed and installed by qualified personnel. Contact logistics or the National / Regional Safety Director for further details.
2. Debris nets must have sufficient strength capable of stopping falling objects such as tools and small objects & materials used at the site.
3. Must be installed on projects to protect people when:
   a. Working or walking below
   b. Where off-site exposures exist
4. Shall be inspected (at least weekly) and maintained per manufacture requirements. Inspection must be documented and verifiable.
5. Debris netting will not be used for fall protection even though many of the systems are designed to this specification.
6. Horizontal debris netting must start by the 5th floor or 50 feet (which ever comes first) and follow upwards. Note, netting installation can begin as early as the second floor. For special circumstances, horizontal debris netting may be utilized on lower levels to provide adequate and sufficient protection.
7. Debris netting systems should never trail the live deck more than 40 ft and preferably remain within 30ft.

Annexes

Plans and Forms

Site Specific Overhead Protection Plan Template
Overhead Protection Catch Platform
Overhead Protection Walkway

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
08/05/2021	Overhead Protection Plan Template has been created as a PDF. Separate attachment.
08/05/2021	A section was added for barrier screens as an overhead protection option.
08/05/2021	A section was created for tool tethers. Giving direction on when their use is required and what types of tethers can be used. Information was gathered from ANSI/ISEA 121 "Dropped Objects Standard."
08/10/2021	Suggestion to remove current and approved types of Horizontal debris nets.
08/10/2021	Suggestion to change language on when overhead protection systems should be implemented from "5th floor" to call out a specific height. This will prevent any confusion with structures which do not have standard floor numbering.
08/10/2021	Suggestion to change "Fall Zone" to "Perimeter Zone."
08/10/2021	Suggestion to remove pictures and add a link to a guide with visuals.

Barrier Screen Systems

1. Barrier screen systems may be used in place of horizontal debris netting.
2. The system must be designed and installed by qualified personnel. Contact logistics or the National / Regional Safety Director for further details.
3. Must be installed on projects to protect people when:
   a. Working or walking below
   b. Where off-site exposures exist
4. Barrier screen must have sufficient strength capable of containing potential falling objects such as tools, small objects & materials used at the site.
5. The barrier screen may be used as a fall protection system if designed for this application, and engineering is provided.
6. The barrier screen system must start by the 5th floor and follow upwards.
7. All gaps 2 inches or larger must be adequately covered to prevent tools or materials from falling past the barrier system.

Overhead Protection: Points of Entry, Hoist Platforms, Loading Areas, Walkways and Material Laydown

1. Overhead Protection shall be provided where potential exposures exist, such as: at all points of entry, exterior personnel hoists, loading areas, walkways leading up to the dock, trash disposal locations, walkways connected to adjacent hoist docks (when applicable), and laydown areas near fall zone.
2. Overhead Protection will be constructed with a minimum standard of 3 layers of ¾ inch exterior grade plywood (or equivalent) supported by joists consisting of 4x4 or 2x8 (upright) or scaffold planks. If this solution is unsuitable, all other systems will be engineered. System must be secured to prevent uplift. Methods to construct may include: a) stick build lumber walkway, b) jersey barrier system with stick build system on top, c) walk through scaffold frame scaffold. Conex boxes are also acceptable to use for entry point protection.
3. Overhead protection should extend outward from the edge of building to a minimum of 30 feet or as allowed by site conditions and continue with sufficient protection and coverage taking into consideration any additional provisions for height.
4. Designs must consider:
   a. The heights of the overhead work
   b. The materials being installed over the potential fall area
   c. The tools and equipment being used in the area.
5. Overhead work that exceeds the intended level of protection provided by the design should include:
   a. Re-routing of traffic, construction personnel, construction equipment, public, etc.
   b. Placement of a trained and authorized ground person to control risk and exposure.

Perimeter Zone Protection and Barricades

1. A controlled access zone should be established using barricades and should completely encompass the potential fall zone.
2. Perimeter zones must be well defined (and marked), easily controlled and established around the entire perimeter of the structure, when possible.
3. Placement of a "Ground man" to warn other workers of the overhead hazard and keep people out of the potential fall area may be necessary. Note, an employee assigned as a "Ground man" must receive adequate training before being assigned, be able to effectively communicate with all employees, and should be equipped with an air horn or whistle and distinct vest.
4. Barricades may consist of:
   a. Standard barricading, i.e. chain link fence panels, plastic orange fence or an equivalent barricade and appropriate signage to warn of overhead work or potential falling objects.
   b. High strength fiber tape with appropriate signage. (Appropriate signage to include: company name, point of contact, and duration of work for the overhead hazard.)
5. A temporary barricade (less than 8 hours) may consist of red danger tape if it is not erected in a high traffic area.

Tool Tethering

1. Tool Lanyards are required during any overhead work activities where access at ground level cannot be restricted. Examples include working near an open-sided floor, edge of the structure, or any work in a personnel lift.
2. Tools over 5lbs are not allowed to be tethered directly to a person.
3. Tool attachments, anchor points, and tool lanyards all must have a maximum weight capacity which is greater than or equal to the weight of the tool.
4. All tool tethers must have a legible label with manufacturer name, product identification number, published capacity, tether length, and maximum tether length.
5. All tethers must meet the requirements of the ANSI/ISEA 121-2018 standard.

FALL PROTECTION WORK PLAN

JE DUNN CONSTRUCTION

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Company:	Site Location:
Job Task:	
Job Location/Description:	

Plan Prepared By:	Date:

- Workers must review and sign this fall protection work plan prior to starting work. Workers must understand this plan and be trained in fall protection and the systems and equipment that will be used.
- This Fall Protection Work Plan must be posted at the worksite for the duration of work activities.

1. Identify potential fall hazards *(check all that apply)*

☐	Mobile elevating work platforms	☐	Stairways
☐	Excavations/trenches	☐	Roof steep slope (greater than 4:12)
☐	Floor openings	☐	Roof low slope (4:12 or less)
☐	Wall openings	☐	Swing fall
☐	Skylight openings	☐	Hazardous process/equipment
☐	Roof openings	☐	Debris/objects falling to lower level
☐	Elevator shaft	☐	Sharp edges
☐	Ladders (fixed or portable)	☐	Reinforcing steel installation
☐	Scaffold	☐	Other:

2. Describe the fall hazard(s) details

3. Identify fall protection systems to be used

☐	Guardrail system	☐	Aerial lift
☐	Covers (holes and openings)	☐	Horizontal lifeline
☐	Appropriate anchors for systems used	☐	Vertical lifeline and rope grab
☐	Personal fall arrest system	☐	Warning line
☐	Personal fall restraint system	☐	Mobile Fall Protection Unit
☐	Positioning device system	☐	Other:
☐	Scaffold with guardrail	☐	Other:
☐	Scissor lift	☐	Other:

4. Describe procedures for assembly, maintenance, inspection, disassembly of fall protection system to be used

5. Describe procedures for handling, storage, securing tools and materials

6. Identify methods of overhead protection for workers who may be in, or pass through the area below worksite

☐	Barricading	☐	Toeboards/screens on scaffolds
☐	Hard Hat Lanyard	☐	Toeboards/covers on floor openings
☐	Catch net	☐	Screens on guardrails
☐	Warning signs	☐	Secure large tools
☐	Tool belts	☐	Overhead Protection:
☐	Tool lanyards	☐	Other:

7. Identify method for prompt, safe removal of injured workers

☐	Written agreement with:	☐	Self-rescue
☐	Site first aid	☐	Other employees
☐	Elevator/Stairs	☐	Other:

8. Identify method used to determine adequacy of anchorage points

☐	Evaluation by professional engineer	☐	Existing engineering/design documents
☐	Manufacturer's data	☐	Other:

9. Describe and identify locations of anchorage points

10. Select system components

☐	Full body harness	☐	Choker
☐	Vertical lifeline	☐	Carabiner
☐	Horizontal lifeline	☐	Rope grab
☐	Lanyard	☐	Personal shock absorber
☐	Boatswains chair	☐	Beamer
☐	Connecting devices (identify)	☐	Anchorage points (identify)
☐	Other:	☐	Other:

11. Distance from anchor to ground, lower level or obstruction (see page 4 chart)

12. Calculated minimum fall clearance (see page 4 chart)

13. Inspection Checklist

☐	Identification tags
☐	Horizontal lifeline tension is correct
☐	Integrity of stitching in shock absorber
☐	Integrity of stitching in harness/lanyard
☐	Manufacturers assembly/disassembly instructions
☐	Locking capability of retractable lanyards assured
☐	Locking capability of carabiners assured
☐	Locking capability of snap hooks assured
☐	Knots and other connection methods do not weaken lifeline
☐	Lifelines installed and protected from cuts or abrasions
☐	Rope (wear, fraying, damage, mildew)
☐	Lanyards (wear, fraying, damage, mildew)
☐	D-rings have adequate strength, are not cracked or deformed
☐	Guardrails are sound and of adequate strength
☐	Devices that are used to connect to horizontal lifelines lock in both directions
☐	Anchorage points provide adequate strength and are capable of meeting requirements
☐	Hole covers are secured, marked and capable of withstanding anticipated weight loads
☐	Warning line meets strength and other requirements
☐	Inspection of Overhead Protection
☐	Other:
☐	Other:
☐	Other:

14. Employee(s) trained to work under this plan

Name (print)	Signature	Date

Name/title of Competent Person who is provided training under this plan:

15. Work Plan Approval(s)

Name of Lead Worker/Supervisor	Signature	Date
Designed Engineered System: (Name of Qualified Person)	**Signature**	**Date**
Name of Designated Competent Person On-site	**Signature**	**Date**

Fall clearance is the minimum vertical distance needed between the anchor point and a lower level (this can be the ground or lower obstruction) with a safety factor to prevent the worker from hitting the lower level in a fall.

What is the distance from the anchor point to the ground or lower level where a worker would fall?

If a worker falls, when wearing a fall protection system, what is the minimum fall clearance from the anchor point to the worker's feet including a 3 ft. safety factor? *(Calculate as shown below)*

The calculated minimum fall clearance of a specific fall protection system may never be equal or greater than the distance between the anchor point and the lower level.

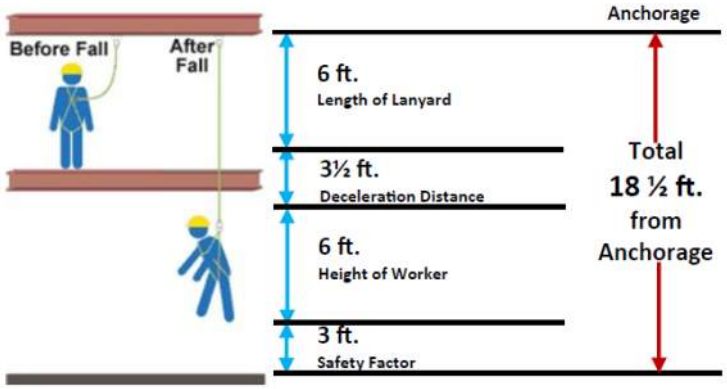
Description	Distance
Lanyard length or free fall distance for self-retracting lifeline	
Maximum allowable deceleration distance	**3½ ft.**
Workers height	
Other component if applies	
Safety factor	**3**
Minimum fall clearance (sum of above)	

Calculating Fall Clearance Using a Shock Absorbing Lanyard

Example:

- First, add the length of the shock absorbing lanyard (6 ft.) to the maximum elongation of the shock absorber during deceleration ($3^{1/2}$ ft.) to the average height of a worker (6 ft.)
- Then, add a safety factor of 3 ft. to allow for the possibility of an improperly fit harness, a taller than average worker and/or a miscalculation of distance.
- The total, $18^{1/2}$ ft. is the suggested safe fall clearance distance for this example.

NOTE: Should the shock absorbing lanyard be used in conjunction with a cross-arm anchorage connector or other, the additional length of the anchorage connector must be taken into consideration

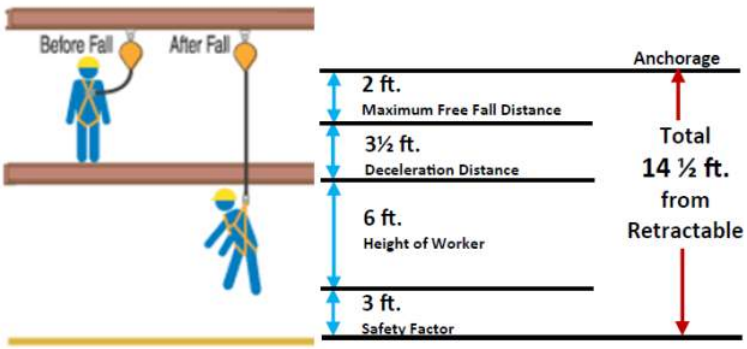


Calculating Fall Clearance Using a Self-Retracting Lifeline

Example:

- First, add the maximum free fall distance (2 ft.) with a retractable lifeline to the maximum deceleration distance ($3^{1/2}$ ft.) to the average height of a worker (6 ft.)
- Then, add a safety factor of 3 ft. to allow for the possibility of an improperly fit harness, a taller than average worker and/or a miscalculation of distance.
- The total, $14^{1/2}$ ft. is the suggested safe fall clearance distance for this example.

NOTE: When using a retractable lifeline, the distance is calculated from the point where the retractable attaches to the back D-ring of the worker's harness.



SAFETY & HEALTH MANUAL

Section 36: Fall Protection


John McKenzie
Senior Safety Manager

Jump to Section

Policy Statement

The purpose of this policy is to outline the proper use of fall protection systems to guard against fall hazards.

Definitions

Anchorage - a secure point of attachment for lifelines, lanyards or deceleration devices

Body harness - straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system

Fall Restraint System (FRS) – may allow worker to approach the edge or fall hazard, but at no time will it allow a worker to reach the edge or fall hazard

Free fall - the act of falling before a personal fall arrest system begins to apply force to arrest the fall

Free fall distance - the vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.

Lanyard - a flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline, or anchorage

Leading edge - the edge of a floor, roof, or formwork for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

Personal Fall Arrest System (PFAS) - a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these

General Requirements

Fall protection systems should be used in the following order:
- Guardrails and/or Safety Nets on Outrigger Platforms
- Personal Fall Arrest System
- Warning Line or Controlled Access Zone

Fall protection is required when on a walking or working surface (vertical or horizontal surface) 6 feet or more above a lower level, regardless of the trade at work or the task being performed.

Fall protection systems, equipment and design must allow for 100% fall protection.

The use of a Safety Monitor System and a Controlled Decking Zone as a primary means of fall protection is prohibited.

Anytime a personal fall arrest system is used, a rescue plan must be in place and may include self-rescue.

Responsibilities:

The Superintendent is responsible for developing and implementation of the project fall protection work plan for JE Dunn self-perform craft working at heights 6 feet or higher. (See attached Fall Protection Work Plan Template).

The fall protection plan must be kept on fie and updated as conditions and task change.

Trade Partners
- Are to provide the appropriate equipment, training and supervision needed to accomplish fall protection at the jobsite.
- Should have a similar process to the JE Dunn Fall Protection Work Plan.

Each Trade Partner's Foreman is responsible for:
- Providing and ensuring that the fall protection being used is appropriate for the application.
- Training each of their workers on the proper installation, use, maintenance, inspection and limitations of their fall protection equipment.
- Retraining immediately following an unsafe fall protection observation for his crew.

Wooden Guardrails

Guardrail Construction Specifications:
- Installed by a competent person
- All guardrails must consist of a top-rail, mid-rail, and a toe board
- Top-rails must be 42 inches from the working surface
- Top-rails must support 200 pounds of force in a downward and outward direction
- Mid-rails must support 150 pounds
- Toe boards must be capable of resisting, without failure, 50 pounds of force without failure (see Falling Object Protection)
- Structural support stanchions must be installed every 8 feet
- Sixteen penny nails should be used to build wood rails. Duplex or form nails should not be used as they may pose a snagging hazard or may damage the lumber.

Annexes

Forms and Permits

Fall Protection Work Plan
Inspection Checklist - Full Body Harness
Inspection Checklist - Lanyards
Inspection Checklist - Self-Retracting Lifelines
Inspection Checklist - Anchorage Plates
Inspection Checklist - Hooks-Carabiners
Inspection Checklist -Tie-Off Adaptors
Wire Rope Guardrail System Construction Guide
Wood Guardrail Construction Guide
Receiving Bay Construction Guide

Functional Manager


Nate Mock
Safety Director

Change History

Date	Description
11/22/2021	Requirement for a fall protection work plan was added
11/22/2021	Self-Retractable Lifeline section was added
11/22/2021	The Requirement for the use of the trauma straps when using PFAS was added

Wire Rope Guardrail Requirements:

- Wire rope guardrails shall be designed by a qualified person and or registered professional engineer.
- Structural support stanchions must be installed every 10 feet.
- Wire rope rails must not deflect more than 3 inches in any direction when a 200-pound force is applied
- Wire rope rails should be terminated by wrapping around columns or other structural supports at each inside and outside corner
- Runs should not exceed 90 feet
- Terminations must consist of three drop-forged cable clamps made in the USA installed per manufacturer's requirements.
- Cables must be flagged with visible material every 6 feet (bright colored duct tape may be used to help maintain 6 foot distances)
- Turnbuckles should be installed at each section to provide easy maintenance.
- Wire rope guardrails are not to be used for fall protection tie-off unless designed by qualified person and or registered professional engineer.

Personal Fall Arrest System (PFAS)

Personal fall arrest systems must protect the employee from a fall greater than 6 feet and prevent contact with any objects.

All employees using fall protection PPE shall be trained on the proper use, fit and wear before donning the equipment.

Personal fall arrest equipment shall be inspected prior to each use for wear, damage and other deterioration. Defective equipment shall be tagged and removed from service.

Equipment must be used per manufacturer's recommendations.

Anchor points for PFAS must support 5,000 pounds per worker and be designed to limit free fall distance to 6 feet.

No shop made devices such as hooks, brackets or attachments are allowed.

Personal fall arrest systems shall not be attached to guardrail systems.

Any component subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

Lifelines and lanyards shall be used only for employee safeguarding.

Lanyards

Must be used in accordance with manufacture requirements.

Shock absorbing lanyards will be a minimum of ½ inch nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet.

The lanyard shall have a nominal breaking strength of 5,400 pounds.

Lanyards shall not be extended in any way unless approved by the manufacturer.

Lanyards shall not be hooked back to themselves unless designed for that purpose by the manufacturer.

Self-Retracting Lifelines (SRL)

Must be used in accordance with manufacture requirements.

The lifeline must be fully retracted to the housing when not in use.

When using a self-retracting lifeline, the snap-hook of the retractable shall be attached directly to the back D-ring of the worker's harness, unless using an approved D-ring extender.

ANSI Z359.14 leading edge rated SRLs must be used where it's possible for the lifeline to contact a sharp or abrasive edge.

Fall Restraint System (FRS)

Fall Restraint System (FRS) shall be installed per applicable ANSI standards.

A FRS must consist of a full body harness, a life line (capable of fall arrest) and anchorage point.

Anchor points for FRS must support 1,000 lbs. per worker attached.

Specialized training must be provided to use a Fall Restraint System. This training shall be documented and shall consist of the following:

- The installation, maintenance and limitation of the FRS and its components
- The proper use of the FRS

Safety Nets

Safety nets need approved by Regional Safety Director prior to use.

Safety nets shall be installed as close as possible under the walking/working surface on which employees are working, but in no case, more than 30 feet below such level.

Safety nets shall extend outward from the outermost projection of the work surface as follows:

Minimum Required Distance for Safety Nets

Vertical Distance from Working Level to Horizontal Plane of Net	Minimum Required Horizontal Distance of Outer Edge of Net from Edge of Working Surface
Up to 5 feet	8 feet
5 feet to 10 feet	10 feet

More than 10 feet	13 feet

Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface.

Warning Lines

Warning lines may be used for roofing operations or any other situation where temporary fall protection must be provided for an unprotected side or edge.

Warning lines must be approved by JE Dunn project safety specialist prior to use.

Warning lines may not be utilized as a primary means of fall protection. They are used to keep unauthorized workers out of an area that is not protected by other means. Additional means of fall protection must be used when workers are located between the warning line and the unprotected roof edge or open sided floor. These systems may include:

- Personal Fall Arrest
- Guardrails
- Safety Nets
- Or combination of the above

Warning lines must be installed a minimum of 15 feet away from the roof edge or unprotected side. (Note: Use of warning line less than 15 feet requires approval from JE Dunn project safety specialist)

- Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines.

Warning lines must:

- Must be 100% complete (Never gaps or holes in the system)
- Be flagged with high visibility material every 6 feet
- Be maintained at a height of 34-39"
- Red Rope or Pennant Flagging is preferred. Red Danger tape high tensile heavy-duty tape may be used.
- Stanchions that support warning lines should be able to withstand a force of at least 16 pounds.
- Warning line material must have a minimum tensile strength of 500 pounds.
- Danger Signage must be posted on a minimum 2 sides of the flagged off area or every 50 feet as needed. The signage must detail (the hazard, date, contractor responsible, contractor contact person and phone number).
- The warning line location must have gate entry with signage detailing "Gate". The entry can be physical gate, red rope gate, flagging, and or red high strength heavy duty danger tape.
- Warning lines should not be as substitute for guardrails! Warning lines should only be used when standard guardrails or personal fall protection is unfeasible. Please contact your project safety specialist if you have questions on the use of warning lines, and or other fall protection systems.

Controlled Access Zones (CAZ)

Controlled Access Zones (CAZ) primarily used for precast and decking operations may be used for leading edge work but shall not be utilized as a primary means of fall protection.

Other means of fall protection must be utilized when workers are located between the control line and the leading edge or other fall hazard.

These systems may include:

- Personal Fall Arrest
- Guardrails
- Safety Nets
- Or combination of the above

Controlled Access Zone lines shall consist of:

- Control lines shall be erected not less than 6 feet or more than 25 feet from unprotected or leading edge
- Precast Only: Control lines shall be erected not less than 6 feet or more than 60 feet from unprotected or leading edge
- Has to extend along the entire length of unprotected or leading edge
- Control lines shall be connected on each side to guardrail system or wall
- Be flagged with high visibility material every 6 feet
- Be maintained at a height of 39-45"
- Warning line material must have a minimum tensile strength of 500 pounds

Vertical Lifelines

Must be used in accordance with manufacture.

A minimum of 5/8 inch polyester/polypropylene, with a minimum breaking strength of 5,400 pounds shall be used.

Lifelines shall be secured above the point of operation to an anchorage point capable of supporting a minimum dead weight of 5,400 pounds.

When vertical lifelines are used, each employee shall be attached to a separate lifeline.

No knots will be used to secure rope to an anchor point.

Lifelines shall be protected against being cut or abraded.

Horizontal Lifelines

Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system and shall be designed to a safety factor of twice the designed load.

Procedure:

- The horizontal lifeline system must be designed by a registered professional engineer.
- All materials used in the horizontal lifeline system design must be capable of sustaining a minimum breaking strength of 5,000 pounds. The materials listed below are capable of

sustaining a minimum load of 5,000 pounds if installed properly

Cast-in-Place Buildings:

- The wire rope used for lifelines shall be galvanized aircraft cable a minimum of 5/16" in diameter
- Lifeline connections must consist of three drop-forged cable clamps made in the USA installed per manufacturer's requirements.
- Cable runs shall not exceed 90 feet with each dead end of the cable wrapping a column (Intermediate supports should be provided every 10 feet to meet minimum perimeter guardrail requirements.)
- Cable splices are not allowed in cable runs between column anchors.
- Chaffing or softening pads shall be used on the sharp corners of the column.

Structural steel buildings:

- The wire rope used for lifelines shall be galvanized aircraft cable a minimum of 5/16" in diameter.
- Lifeline connections must consist of three drop-forged cable clamps made in the USA installed per manufacturer's requirements
- Cable runs shall not exceed 90 feet with each dead end of the cable wrapping a column. (Intermediate supports should be provided every 10 feet to meet minimum perimeter guardrail requirements.)
- Cable splices are not allowed in cable runs between column anchors.
- Washers may be welded to columns, or columns may be punched, to provide intermediate support for lifelines. Wire rope shall be terminated whenever there is a change in direction. Washers or column punches shall not be utilized for changes in direction.
- Chaffing or softening pads shall be used on the sharp corners of the column.

Testing:

- Drop tests shall be conducted on the system if no current test data is available or the system design has changed. Contact the safety department for assistance/direction in performing these tests.

Full Body Harness

Full body harnesses are required for all personal fall protection applications.

Leg and chest straps must be properly buckled when utilizing the harness for fall protection.

Suspension trauma straps are required on all body harnesses when utilized for PFAS.

Training

Trade Partners must provide training and retraining to employees:

- Immediately prior to using a fall protection system.
- Each time a new crew or crew member is added to a crew.
- Each time that a worker is observed using fall protection improperly or in an unsafe manner.
- Anytime that the equipment or methods of fall protection change.

Training shall include:

- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, 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 roles and responsibilities of each worker in fall protection plans.
- All applicable state federal and local fall protection standards.

Training must be documented and include:

- The date of the training and the name of the project being inspected.
- A description of the topics discussed and details including the fall protection methods, proper use, inspection, installation, maintenance, and any project specific requirements as applicable.
- A sign-in sheet with all attendees.
- The name of the person giving the training and the responsible foreman (if different).

Copies of the training shall be available upon request.

FALL PROTECTION WORK PLAN

Fall protection is required at 6 feet; however, a written plan is required at or above 10 feet.

JE DUNN CONSTRUCTION

SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

Company:	Site Location:
Job Task:	
Job Location/Description:	

Plan Prepared By:	Date:

- Workers must review and sign this fall protection work plan prior to starting work. Workers must understand this plan and be trained in fall protection and the systems and equipment that will be used.
- This Fall Protection Work Plan must be posted at the worksite for the duration of work activities.

1. Identify potential fall hazards *(check all that apply)*

☐	Mobile elevating work platforms	☐	Stairways
☐	Excavations/trenches	☐	Roof steep slope (greater than 4:12)
☐	Floor openings	☐	Roof low slope (4:12 or less)
☐	Wall openings	☐	Swing fall
☐	Skylight openings	☐	Hazardous process/equipment
☐	Roof openings	☐	Debris/objects falling to lower level
☐	Elevator shaft	☐	Sharp edges
☐	Ladders (fixed or portable)	☐	Reinforcing steel installation
☐	Scaffold	☐	Other:

2. Describe the fall hazard(s) details

3. Identify fall protection systems to be used

☐	Guardrail system	☐	Aerial lift
☐	Covers (holes and openings)	☐	Horizontal lifeline
☐	Appropriate anchors for systems used	☐	Vertical lifeline and rope grab
☐	Personal fall arrest system	☐	Warning line
☐	Personal fall restraint system	☐	Mobile Fall Protection Unit
☐	Positioning device system	☐	Other:
☐	Scaffold with guardrail	☐	Other:
☐	Scissor lift	☐	Other:

4. Describe procedures for assembly, maintenance, inspection, disassembly of fall protection system to be used

5. Describe procedures for handling, storage, securing tools and materials

6. Identify methods of overhead protection for workers who may be in, or pass through the area below worksite

☐	Barricading	☐	Toeboards/screens on scaffolds
☐	Hard Hat Lanyard	☐	Toeboards/covers on floor openings
☐	Catch net	☐	Screens on guardrails
☐	Warning signs	☐	Secure large tools
☐	Tool belts	☐	Overhead Protection:
☐	Tool lanyards	☐	Other:

7. Identify method for prompt, safe removal of injured workers
CALL 503-460-4000 IF FALL OCCURS

☐	Written agreement with:	☐	Self-rescue
☐	Site first aid	☐	Other employees
☐	Elevator/Stairs	☐	Other:

8. Identify method used to determine adequacy of anchorage points

☐	Evaluation by professional engineer	☐	Existing engineering/design documents
☐	Manufacturer's data	☐	Other:

9. Describe and identify locations of anchorage points

10. Select system components

☐	Full body harness	☐	Choker
☐	Vertical lifeline	☐	Carabiner
☐	Horizontal lifeline	☐	Rope grab
☐	Lanyard	☐	Personal shock absorber
☐	Boatswains chair	☐	Beamer
☐	Connecting devices (identify)	☐	Anchorage points (identify)
☐	Other:	☐	Other:

11. Distance from anchor to ground, lower level or obstruction (see page 4 chart)

12. Calculated minimum fall clearance (see page 4 chart)

13. Inspection Checklist

☐	Identification tags
☐	Horizontal lifeline tension is correct
☐	Integrity of stitching in shock absorber
☐	Integrity of stitching in harness/lanyard
☐	Manufacturers assembly/disassembly instructions
☐	Locking capability of retractable lanyards assured
☐	Locking capability of carabiners assured
☐	Locking capability of snap hooks assured
☐	Knots and other connection methods do not weaken lifeline
☐	Lifelines installed and protected from cuts or abrasions
☐	Rope (wear, fraying, damage, mildew)
☐	Lanyards (wear, fraying, damage, mildew)
☐	D-rings have adequate strength, are not cracked or deformed
☐	Guardrails are sound and of adequate strength
☐	Devices that are used to connect to horizontal lifelines lock in both directions
☐	Anchorage points provide adequate strength and are capable of meeting requirements
☐	Hole covers are secured, marked and capable of withstanding anticipated weight loads
☐	Warning line meets strength and other requirements
☐	Inspection of Overhead Protection
☐	Other:
☐	Other:
☐	Other:

14. Employee(s) trained to work under this plan

Name (print)	Signature	Date

Name/title of Competent Person who is provided training under this plan:

15. Work Plan Approval(s)

Name of Lead Worker/Supervisor	Signature	Date
Designed Engineered System: (Name of Qualified Person)	**Signature**	**Date**
Name of Designated Competent Person On-site	**Signature**	**Date**

Fall clearance is the minimum vertical distance needed between the anchor point and a lower level (this can be the ground or lower obstruction) with a safety factor to prevent the worker from hitting the lower level in a fall.

What is the distance from the anchor point to the ground or lower level where a worker would fall?

If a worker falls, when wearing a fall protection system, what is the minimum fall clearance from the anchor point to the worker's feet including a 3 ft. safety factor? *(Calculate as shown below)*

The calculated minimum fall clearance of a specific fall protection system may never be equal or greater than the distance between the anchor point and the lower level.

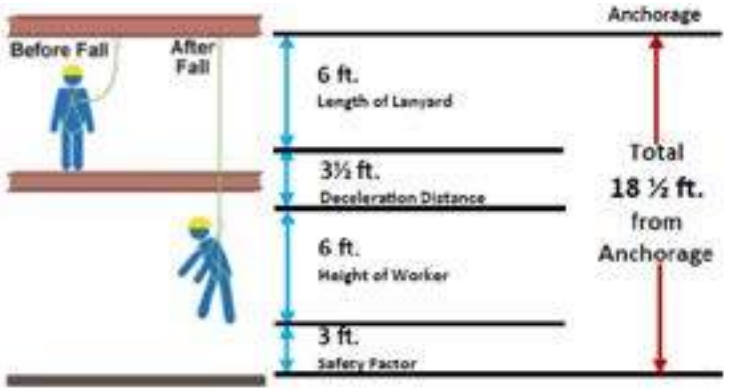
Description	Distance
Lanyard length or free fall distance for self-retracting lifeline	
Maximum allowable deceleration distance	**3½ ft.**
Workers height	
Other component if applies	
Safety factor	**3**
Minimum fall clearance (sum of above)	

Calculating Fall Clearance Using a Shock Absorbing Lanyard

Example:

- First, add the length of the shock absorbing lanyard (6 ft.) to the maximum elongation of the shock absorber during deceleration ($3^{1/2}$ ft.) to the average height of a worker (6 ft.)
- Then, add a safety factor of 3 ft. to allow for the possibility of an improperly fit harness, a taller than average worker and/or a miscalculation of distance.
- The total, $18^{1/2}$ ft. is the suggested safe fall clearance distance for this example.

NOTE: Should the shock absorbing lanyard be used in conjunction with a cross-arm anchorage connector or other, the additional length of the anchorage connector must be taken into consideration

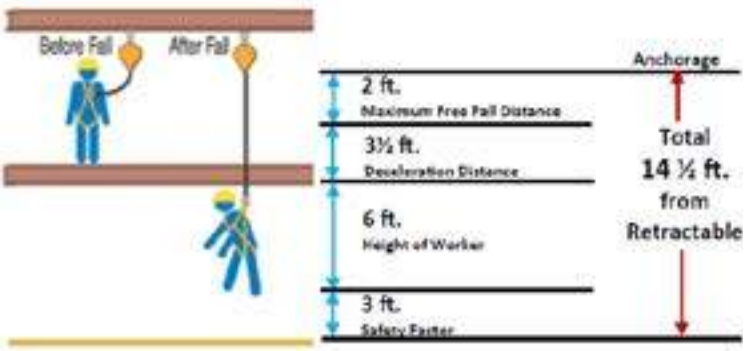


Calculating Fall Clearance Using a Self-Retracting Lifeline

Example:

- First, add the maximum free fall distance (2 ft.) with a retractable lifeline to the maximum deceleration distance ($3^{1/2}$ ft.) to the average height of a worker (6 ft.)
- Then, add a safety factor of 3 ft. to allow for the possibility of an improperly fit harness, a taller than average worker and/or a miscalculation of distance.
- The total, $14^{1/2}$ ft. is the suggested safe fall clearance distance for this example.

NOTE: When using a retractable lifeline, the distance is calculated from the point where the retractable attaches to the back D-ring of the worker's harness.



Anchorage Plates Inspection Checklist

Project Name: **Job #:** **Date:**

Anchorage Plate Model: **Manufacture Date:**

Serial Number: **Lot Number:** **Purchase Date:**

Comments:

General Factors:	Accepted or Rejected:	Supportive Details or Comments:
1. **Physical Damage**: Inspect for cracks, sharp edges, burrs, and deformities.	☐ Accepted ☐ Rejected	
2. **Excessive Corrosion**: Inspect for corrosion which effects the operation and/or strength	☐ Accepted ☐ Rejected	
3. **Fasteners**: Inspect for corrosion, tightness damage and distortion. If welded, inspect weld for corrosion, cracks and damage.	☐ Accepted ☐ Rejected	
4. **Markings**: Inspect make certain marking(s) are legible.	☐ Accepted ☐ Rejected	
5.	☐ Accepted ☐ Rejected	
6.	☐ Accepted ☐ Rejected	
7.	☐ Accepted ☐ Rejected	

OVERALL DISPOSITION: ☐ Accepted ☐ Rejected

Inspected By: **Date Inspected:**

Full Body Harness Inspection Checklist

Project Name: **Job #:** **Date:**

Harness Model: **Manufacture Date:**

Serial Number: **Lot Number:** **Purchase Date:**

Comments:

General Factors:	Accepted or Rejected:	Supportive Details or Comments:
1. **Hardware** (includes D-rings, buckles, keepers, and back pads): Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.	☐ Accepted ☐ Rejected	
2. **Webbing**: Inspect for cuts, burns, tears, abrasions, frays, excessive soiling, and discoloration.	☐ Accepted ☐ Rejected	
3. **Stitching**: Inspect for pulled or cut stiches.	☐ Accepted ☐ Rejected	
4. **Labels**: Inspect, make certain all labels are securely held in place and legible.	☐ Accepted ☐ Rejected	
5.	☐ Accepted ☐ Rejected	
6.	☐ Accepted ☐ Rejected	
7.	☐ Accepted ☐ Rejected	

OVERALL DISPOSITION: ☐ Accepted ☐ Rejected

Inspected By: **Date Inspected:**

Hooks/Carabiners Inspection Checklist

Project Name: **Job #:** **Date:**

Hook/Carabiner Model: **Manufacture Date:**

Serial Number: **Lot Number:** **Purchase Date:**

Comments:

General Factors:	Accepted or Rejected:	Supportive Details or Comments:
1. **Physical Damage**: Inspect for cracks, sharp edges, burrs, deformities, and locking operation	☐ Accepted ☐ Rejected	
2. **Excessive Corrosion**: Inspect for corrosion which effects the operation and/or strength	☐ Accepted ☐ Rejected	
3. **Markings**: Inspect make certain marking(s) are legible.	☐ Accepted ☐ Rejected	
4.	☐ Accepted ☐ Rejected	
5.	☐ Accepted ☐ Rejected	
6.	☐ Accepted ☐ Rejected	
7.	☐ Accepted ☐ Rejected	

OVERALL DISPOSITION: ☐ Accepted ☐ Rejected

Inspected By: **Date Inspected:**

Lanyards Inspection Checklist

Project Name: **Job #:** **Date:**

Lanyard Model: **Manufacture Date:**

Serial Number: **Lot Number:** **Purchase Date:**

Comments:

General Factors:	Accepted or Rejected:	Supportive Details or Comments:
1. **Hardware** (includes snap hooks, carabiners, adjusters, keepers, thimbles and D-rings): Inspect for damage, distortion, sharp edges, burrs, cracks, corrosion and proper operation.	☐ Accepted ☐ Rejected	
2. **Webbing**: Inspect for cuts, burns, tears, abrasions, frays, excessive soiling, and discoloration.	☐ Accepted ☐ Rejected	
3. **Stitching**: Inspect for pulled or cut stiches.	☐ Accepted ☐ Rejected	
4. **Synthetic Rope**: Inspect for broken wires, corrosion, kings, and separation of strands.	☐ Accepted ☐ Rejected	
5. **Wire Rope**: Inspect for broken wires, corrosion, kinds, and separation of strands.	☐ Accepted ☐ Rejected	
6. **Energy Absorbing Component**: Inspect for elongation, tears, and excessive soiling.	☐ Accepted ☐ Rejected	
7. **Labels**: Inspect, make certain all labels are securely held in place and legible.	☐ Accepted ☐ Rejected	

OVERALL DISPOSITION: ☐ Accepted ☐ Rejected

Inspected By: **Date Inspected:**

Self Retracting Lifelines Inspection Checklist

Project Name: **Job #:** **Date:**

Self Retracting Lifeline Model: **Manufacture Date:**

Serial Number: **Lot Number:** **Purchase Date:**

Owner/Department/Location: **Owner's ID #:**

Comments:

General Factors:	Accepted or Rejected:	Supportive Details or Comments:
1. **Impact Indicator**: Inspect indicator for activation (rupture of red stitching, elongated indicator, etc.)	☐ Accepted ☐ Rejected	
2. **Screws/Fasteners**: Inspect for damage and make certain all screws and fasteners are tight.	☐ Accepted ☐ Rejected	
3. **Housing**: Inspect for distortion, cracks and other damage. Inspect anchoring loop for distortion and damage.	☐ Accepted ☐ Rejected	
4. **Lifeline**: Inspect for cuts, burns, tears, abrasions, frays, excessive soiling and discoloration, broken wires (see impact indicator section)	☐ Accepted ☐ Rejected	
5. **Locking Action**: Inspect for proper lock-up of brake mechanism.	☐ Accepted ☐ Rejected	
6. **Retraction/Extension**: Inspect spring tension by pulling lifeline out fully and allowing it to retract fully (no slack).	☐ Accepted ☐ Rejected	
7. **Hooks/Carabiners**: Inspect for physical damage, corrosion, proper operation and markings (see separate checklist for hooks/carabiners).	☐ Accepted ☐ Rejected	
8. **Reserve Line**: Inspect reserve lifeline retention systems for deployment.	☐ Accepted ☐ Rejected	
9. **Labels**: Inspect, make certain all labels are securely held in place and legible.	☐ Accepted ☐ Rejected	

OVERALL DISPOSITION: ☐ Accepted ☐ Rejected

Inspected By: **Date Inspected:**

Tie-Off Adaptors Inspection Checklist

Project Name: **Job #:** **Date:**

Tie-Off Adaptor Model: **Manufacture Date:**

Serial Number: **Lot Number:** **Purchase Date:**

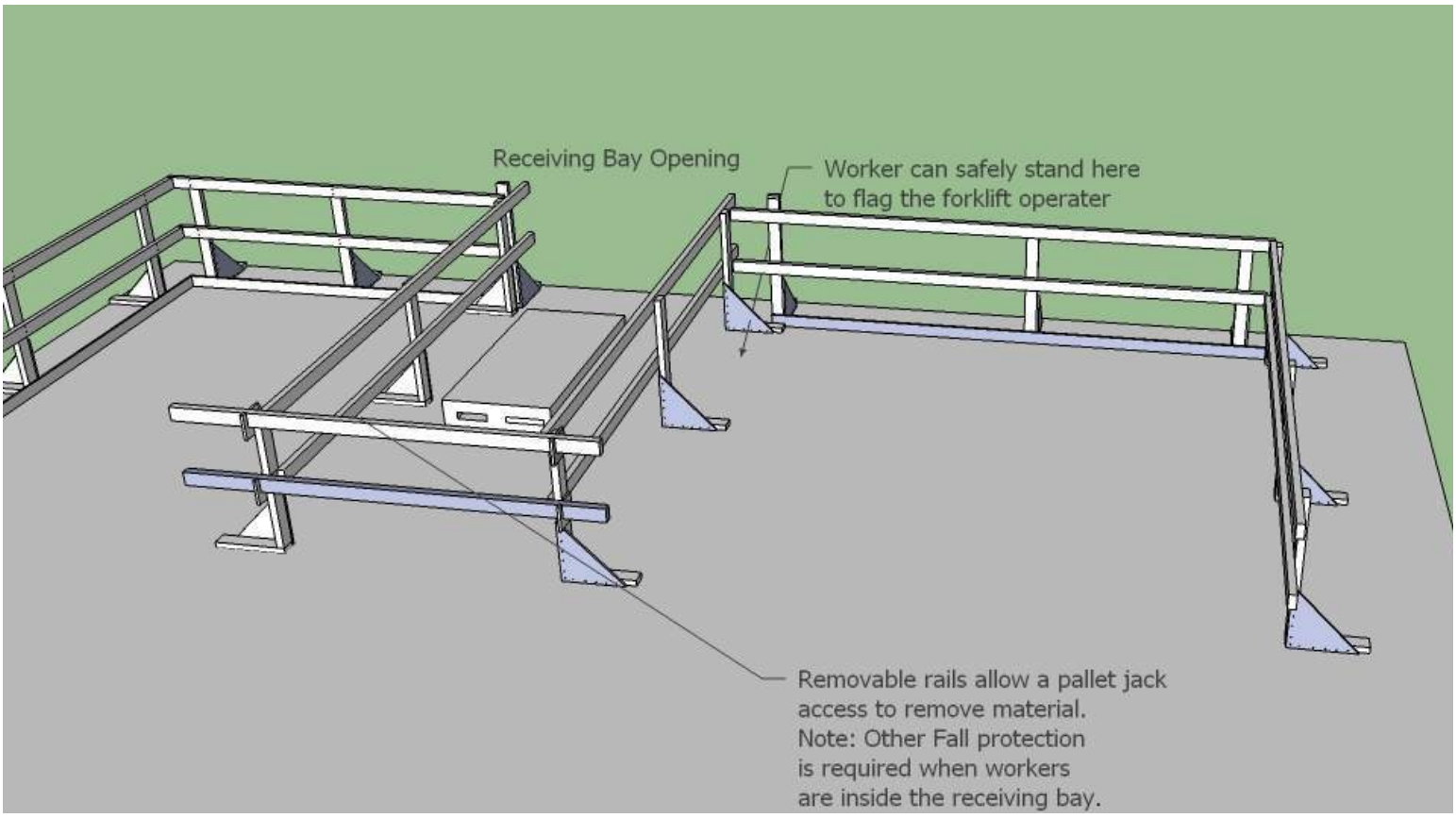
Comments:

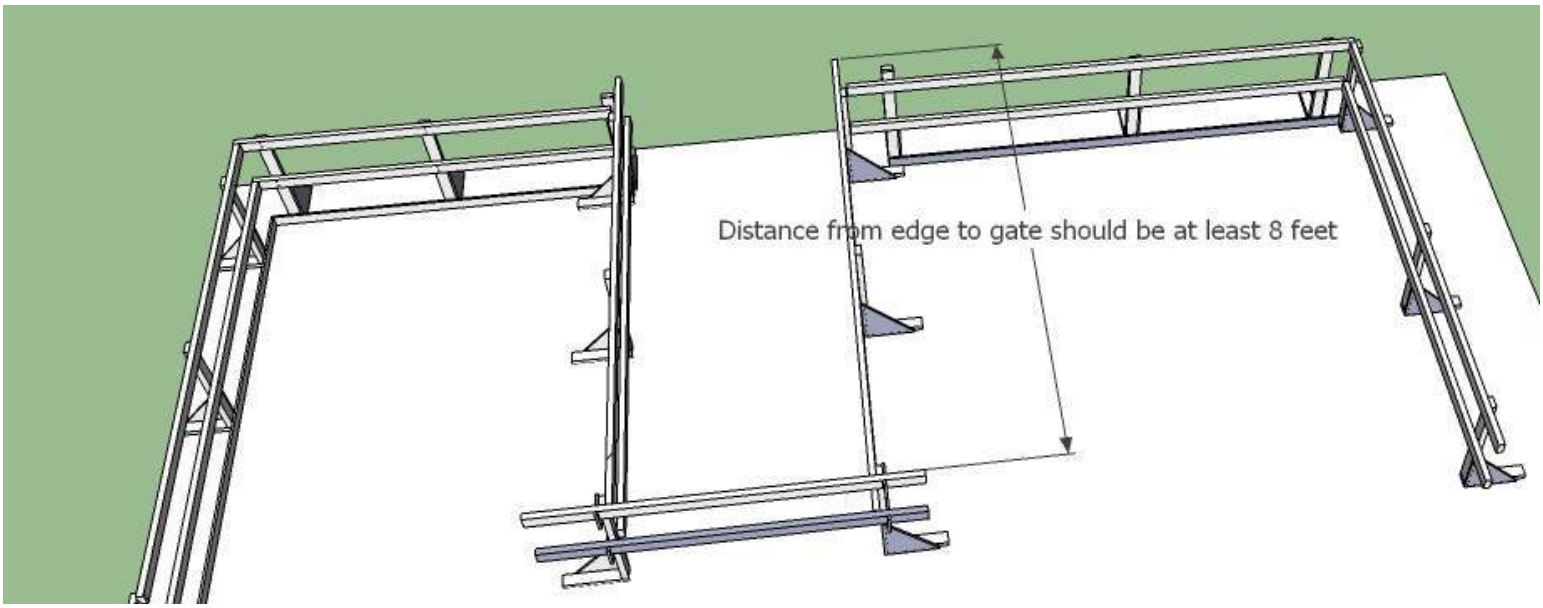
General Factors:	Accepted or Rejected:	Supportive Details or Comments:
1. **Hardware** (includes D-rings): Inspect for damage, distortion, sharp edges, burrs, cracks and corrosion.	☐ Accepted ☐ Rejected	
2. **Webbing**: Inspect for cuts, burns, tears, abrasions, frays, excessive soiling, and discoloration.	☐ Accepted ☐ Rejected	
3. **Stitching**: Inspect for pulled or cut stiches.	☐ Accepted ☐ Rejected	
4. **Labels**: Inspect, make certain all labels are securely held in place and legible.	☐ Accepted ☐ Rejected	
5.	☐ Accepted ☐ Rejected	
6.	☐ Accepted ☐ Rejected	
7.	☐ Accepted ☐ Rejected	

OVERALL DISPOSITION: ☐ Accepted ☐ Rejected

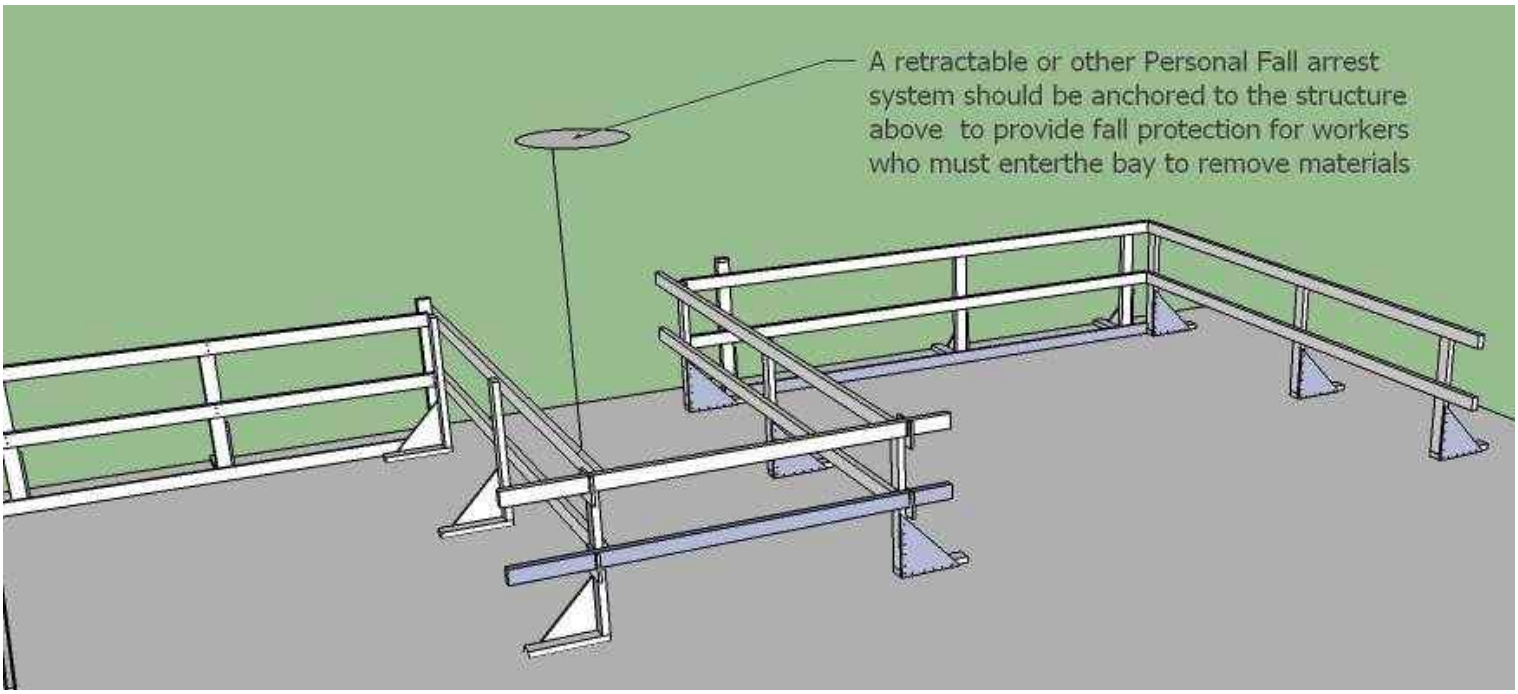
Inspected By: **Date Inspected:**

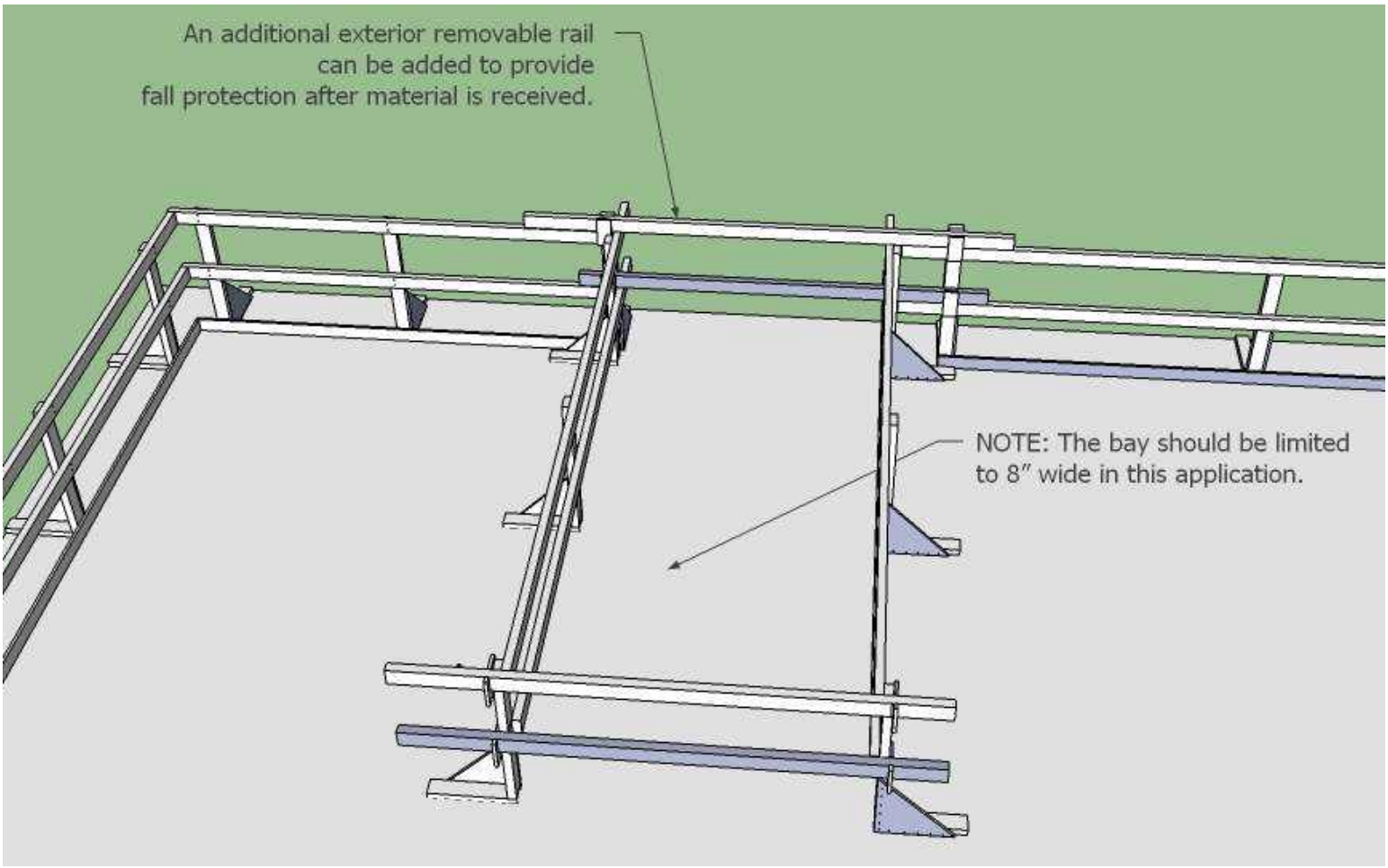
JE Dunn
Receiving Bay Construction Guide





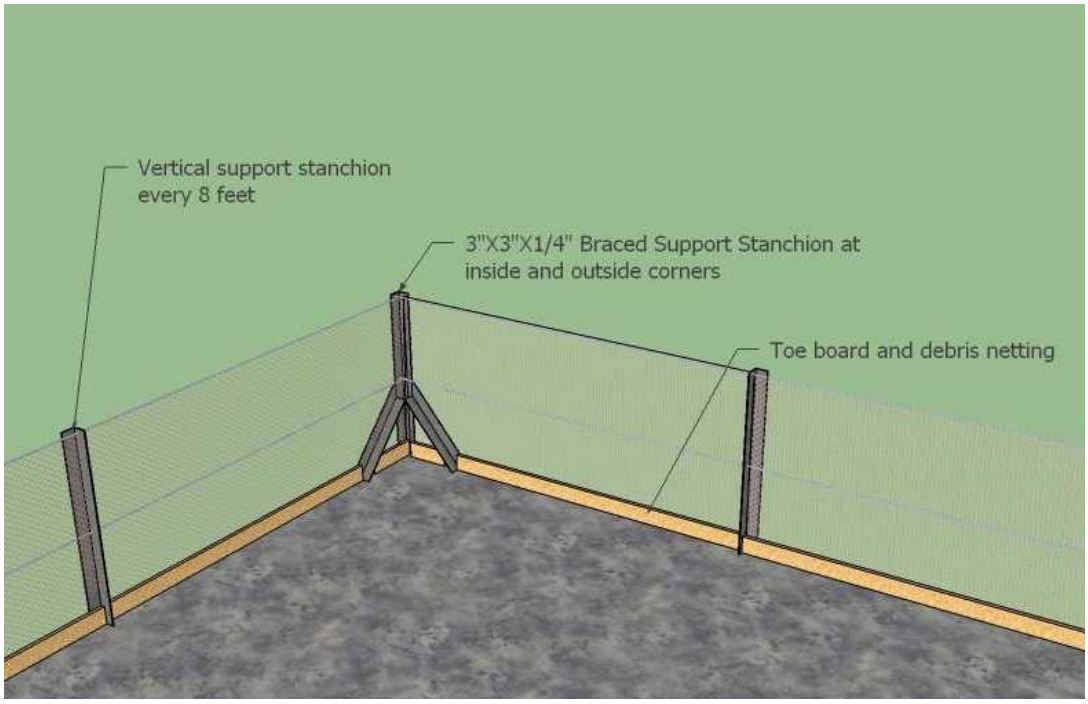
This document should be used to train workers in the proper construction and use of guardrail receiving bay systems.



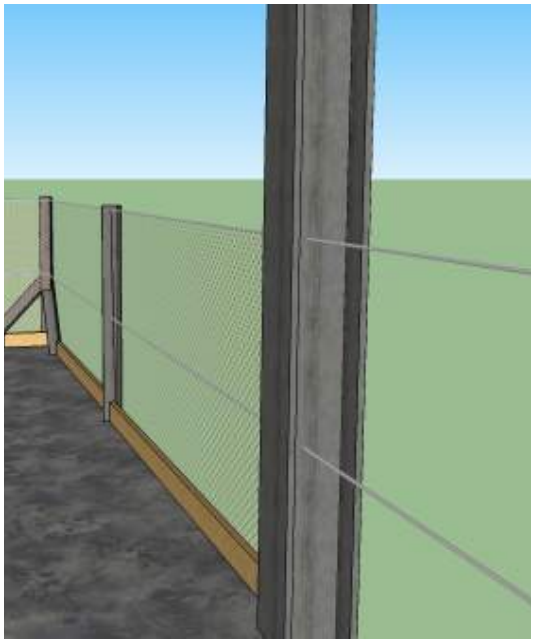


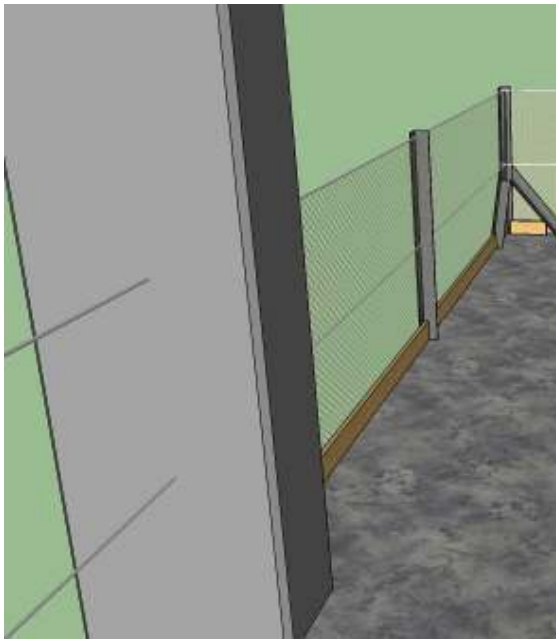
This document should be used to train workers in the proper construction and use of guardrail receiving bay systems.

Je Dunn
Cable Guardrail Guide



Steel columns should be punched to support guardrails. Concrete columns may have pvc block outs installed to support the cables.

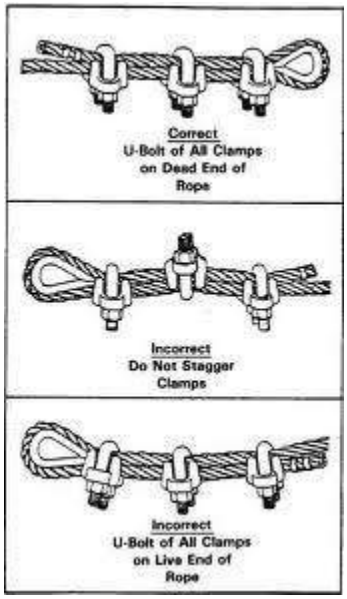




This document should be used to train workers in the proper construction of cable guardrail systems.

Cable Terminations:

- Three non-malleable or forges clamps should be used.
- Clamps must be installed according to the clamp manufactures instructions
- The sable of the clamps must be on the live wire.

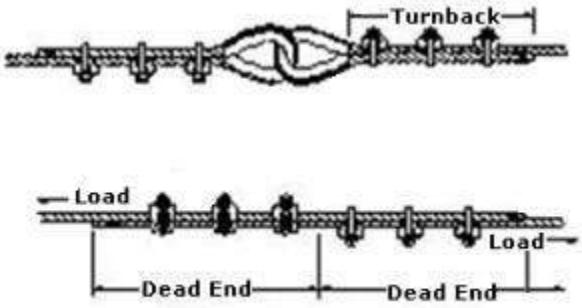


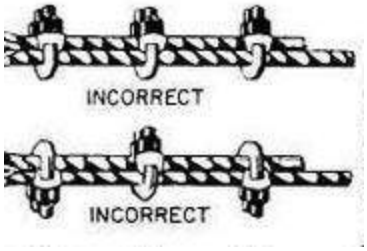
RECOMMENDED SEQUENCE OF ATTACHING WIREROPE CLIPS

1. Apply first clip one base width from dead end of wire rope. Tighten nuts.
2. Apply second clip nearest thimble. Do not tighten nuts.
3. Apply all other clips, leaving equal space between each clip. For maximum holding power, install clips 6-7 rope diameters apart. Take up rope slack. TIGHTEN ALL NUTS EVENLY ON ALL CLIPS to recommended torque.
4. Inspect clips periodically. When loads are placed on rope, it will stretch and shrink in diameter. To be safe, tighten all nuts periodically.

Cable Splices:

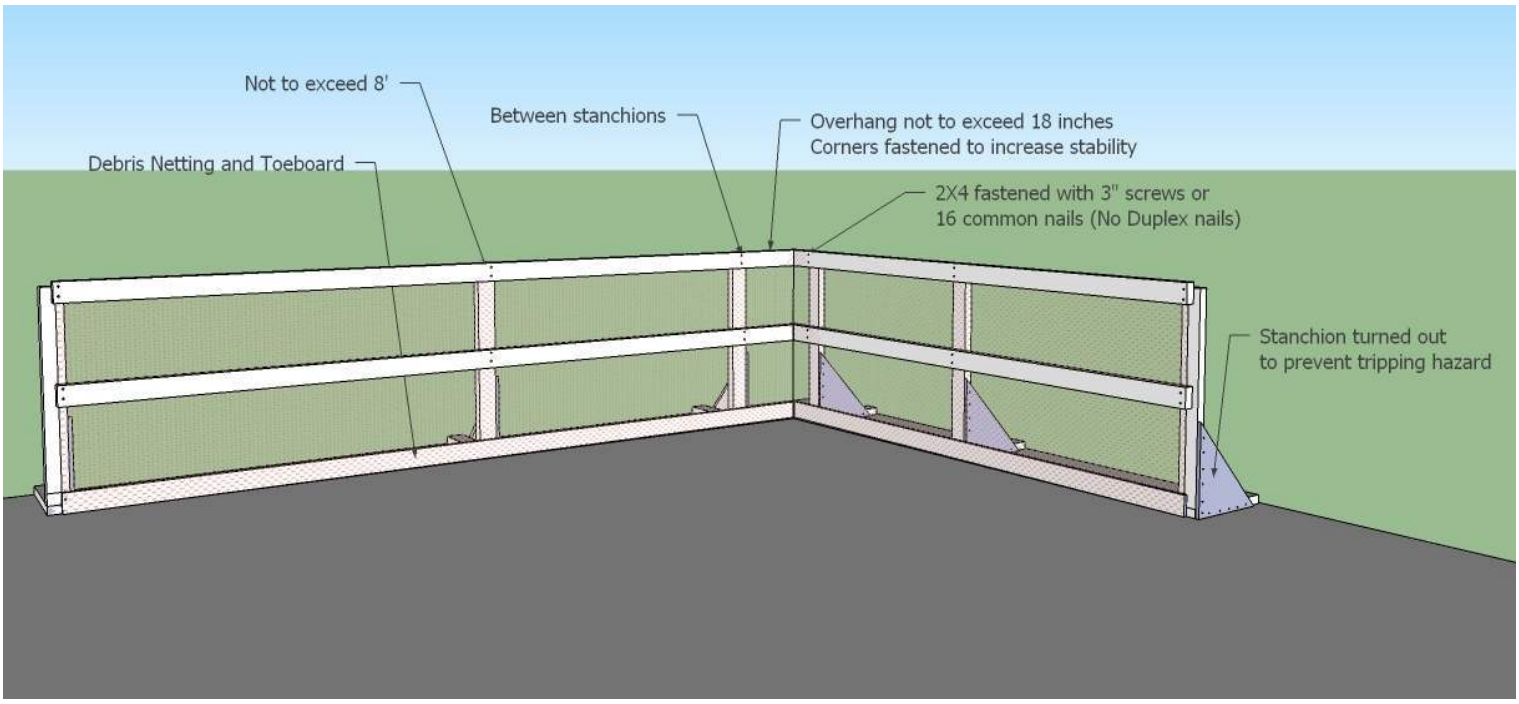
Splices may be done with two turnbacks or double lapping.

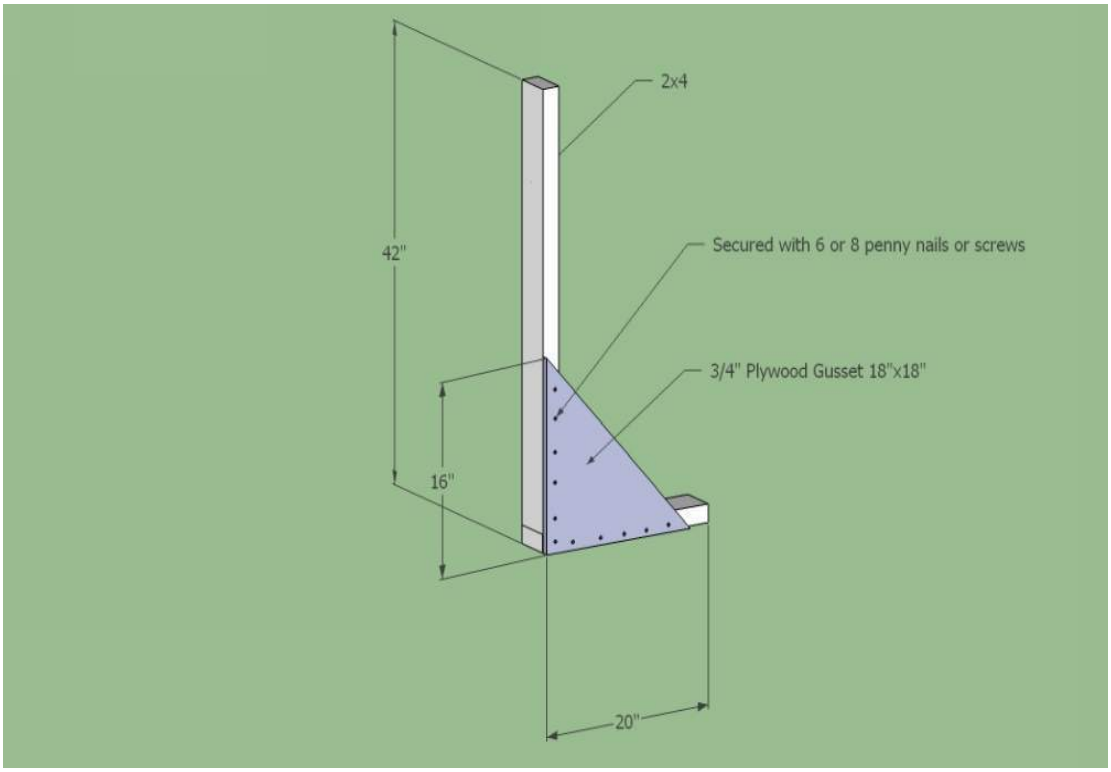




This document should be used to train workers in the proper construction of cable guardrail systems.

JE Dunn
Wood Guardrail Construction Guide





This document should be used to train workers in the proper construction of wood guardrail systems.

FLOOR COVER/PROTECTION REMOVAL PERMIT

Check which applies: ☐ **Floor Cover Removal** ☐ **Floor Cover Modification**

Describe specific location, floor level, size of opening and preventive measures:

Company Performing Work:

Supervisor/Foreman Name: **Cell Phone #:**

Start Date: **Finish Date:**

Time Work Started: ☐ **AM** ☐ **PM** **Time Work Completed:** ☐ **AM** ☐ **PM**

Alternate fall protection must be implemented to protect the workers during the removal process. The potential fall hazard created by the removal of the cover or protection must not be left unattended. Guardrails shall be put in place, or the floor cover properly reinstalled before leaving the area.

Describe the fall protection that will be utilized by workers while removing the cover/protection:

Define how the area will be guarded or protected to prevent any employee(s) from inadvertently getting in close proximity to the hazard:

Job Safety Analysis (JSA) is required before beginning this activity. The JSA and permit must be shared with all supervisors and workers who may be affected.

Each employee shall receive instructions on the task and how to safely protect themselves and the surrounding area. Employees must sign below.

Superintendent's Approval (or competent JE Dunn designee):

Date: **Time Issued:** ☐ **AM** ☐ **PM** **Time Returned:** ☐ **AM** ☐ **PM**

Employee Name (print):	Employee Signature:	Date:
Employee Name (print):	Employee Signature:	Date:
Employee Name (print):	Employee Signature:	Date:
Employee Name (print):	Employee Signature:	Date:
Employee Name (print):	Employee Signature:	Date:

This permit is a project record and must be returned to the JE Dunn Superintendent once the area is returned to a safe state.

SAFETY & HEALTH MANUAL

Section 37: Floor Holes and Openings

ES Erik Sphoon
Safety Manager

Jump to Section

Policy Statement

The purpose of this policy is to establish minimum requirements for protecting holes and openings in floors, roofs, and other walking/working surfaces.

- Workers falling through openings
- Materials and objects falling through openings onto workers below.

Definitions

Floor hole

Any gap or void measuring 12" or less at its largest dimension, but more than 1" at its smallest dimension, in any floor, roof, platform (walking working surface) through which materials, but not persons, may fall. Examples include pipe openings, slot type openings etc.

Floor opening

Any gap or void measuring 12" or more at its smallest dimension in any roof, floor, platform, pavement, or yard (walking/working surface) which a person may fall, such as a hatchway, stair, ladder opening, pit, or large manhole.

Floor Hole/Opening Covers

Floor hole/opening covers are used to protect holes and openings in floors, platforms, and walking/working surfaces. These covers must be capable of supporting two times the potential load of which they may be subjected. The cover must completely overlay the hole/opening and be secured against accidental displacement. Covers must be marked in hi-vis color (Orange), and marked **HOLE COVER – DO NOT REMOVE (CUBIERTA DE HOYO – NO REMOVER)**

Standards for Floor Holes and Openings

- Cover or protect floor holes and openings immediately and / or as soon as they are created.
- All floor holes greater than 1" must be covered or protected to prevent falling objects.
- At a minimum, floor covers shall be constructed out of ¾" exterior grade plywood or the equivalent. **Manufactured floor covers meeting the strength requirements of intended loads may be used.**
- Covers must completely cover the opening and be constructed so they will effectively support two times the weight of employees, equipment and materials that may be imposed on cover at any one time. Where floor covers cannot be constructed to accommodate such equipment or materials, curbs or bumpers of sufficient strength with a minimum of 3 inches in height shall be installed around the opening to prevent access unless cable guardrails and toe boards are installed.
- All types of floor covers in excess of 1'x1' will extend a minimum of 4 inches over the edge of the floor opening being covered.
- Covers not supported on all sides or intended for other than foot traffic shall be designed by a qualified person.
- When equipment such as an aerial/scissor lift is operating near an opening or drop in floor elevation, a rail or bumper block of sufficient strength (i.e., min. bumper block: 2-2x4's or equivalent) must be installed to prevent the equipment from accidentally driving off the edge
- Covers must be marked in hi-vis color (Orange). **HOLE COVER – DO NOT REMOVE (CUBIERTA DE HOYA – NO REMOVER)**
- **Note: this provision does not apply to cast iron manhole covers, or steel grates, used on streets or roadways.**

1'x1' Floor Holes or Less

- Must meet the general requirements, e.g., covered/protected, and secured from accidental displacement by wind, equipment, or employee.
- Floor cover must meet 2x intended load requirements.
- Floor hole covers smaller than 1'x1' or 144" can be secured by cleating the underside.

Greater than 1'x1' / 144" and less than 40" Opening at narrowest dimension

- Floor openings greater than 1'x1' (144") must include a cover which is mechanically secured, anchored or fastened to avoid accidental displacement by use of sufficient bracing nails or screws. (Do not use double headed nails.)
- In cases where the floor opening is greater than 12", but equal to or less than 24" at its narrowest dimension, only one support brace will be required to extend the entire length of the floor opening cover.
- All floor openings 40" or less at their narrowest dimensions are to be covered and secured using 3/4" exterior grade plywood or the equivalent. Note, for normal foot traffic, a 4x8 sheet of 3/4" exterior grade plywood is sufficient to cover a 3'x7' floor opening.

40" Opening or Greater

- When a floor opening exceeds 40" at its narrowest dimension, it will require temporary flooring of sufficient strength for the anticipated loads. Temporary flooring can be solid 2-inch lumber positively secured to prevent displacement from personnel. Temporary flooring can be 3/4" exterior-grade plywood as long as it is properly supported. In any case, the cover shall be designed by a qualified person.
- Stairwells, elevator shafts, chases and similar large type openings must be decked solid on every other floor unless alternate protection is approved by the Regional Safety Director.

Annexes

Forms and Permits

Floor Hole Inspection Form
Floor Cover Protection Removal Permit

Functional Manager

David Hulse
Safety Director

Floor Cover Removal

Whenever any type of floor cover in this procedure must be removed, the employee(s) removing it must have authorization from their supervisor in addition to the following:

- Any Floor Cover over 1'x1' in size shall require a "Floor Cover Removal Permit". This permit must be obtained through the JE Dunn Superintendent (or competent JED designee) who must inspect, authorize, and approve the removal and protection required.
- If a Floor Cover must be removed for an extended period, a substantial guardrail system must be erected and anchored to afford adequate fall protection.
- Permits shall be issued and returned to JE Dunn Superintendent (or competent JED designee) and kept as a project record.

Floor Cover Modifications

- If floor covers must be modified, or cut, to accept piping, conduit, etc., the Supervisor responsible for the work must contact a JE Dunn Superintendent. If size exceeds 1'x1' floor cover, a "Floor Cover Removal Permit" shall be initiated.

Inspection / Verification Process

- An assessment and/or survey shall be made (keep current) using available resources, such as: BIM modeling, drawings, etc.
- Regular inspections shall be made by the project team to ensure all existing and potential floor hole and openings + covers are positively identified, marked, and meet the intent of this procedure. The expectation of "regular" inspections is 1x per week and anytime conditions change. Inspections shall be documented in BIM 360 field or through another reliable and verifiable written record.

FLOOR HOLE INSPECTION FORM

(This information can also be captured in 360 Field.)

Hole Number	WE	WE	WE	WE	WE	WE	WE	WE	WE	WE	WE	WE
Inspector Initials												

SAFETY & HEALTH MANUAL

Section 38: Fire Protection and Prevention

Nate Mock
Safety Director

Jump to Section

Policy Statement

The purpose of this policy is to outline Fire Prevention, Hot Work procedures and Temporary Heat requirements to be followed on each JE Dunn project. This program applies to all Trade Partners, lower tier Trade Partners, and vendors.

General Requirements

- Operations is responsible for the implementation of the project fire protection program.
- Check with local fire marshal regarding compliance with NFPA requirements including temporary standpipes
- If temporary standpipes are required, the standpipes shall be installed when the progress of construction is not more than 35 feet in height above the lowest level of the fire department access. Standpipes shall be provided with fire department hose connections and outlets at accessible locations adjacent to usable stairs. The standpipe system shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. Each floor shall be provided with a 2½-inch valve outlet for fire department use. Where construction height requires installation of a Class III standpipe, fire pumps and water main connections shall be provided to serve the standpipe.
- Trade Partners are to provide the appropriate equipment, manpower, training, and supervision needed to accomplish fire protection at the jobsite. Equipment may include; fire extinguishers, fire blankets, fire watch, water pump sprayer, laser thermometer.
- Each Trade Partner's Foreman is responsible for:
  - Providing and ensuring that the fire prevention procedures are being used
  - Training all workers on the proper installation, use, maintenance, inspection, and limitations of their fire protection equipment

Fire Extinguishers

- All site workers must be trained in the proper use, maintenance, and limitations of fire extinguishers.
- Extinguishers will be inspected monthly or more often when circumstances warrant. Additionally, all extinguishers will be certified annually. The inspections should be documented on the extinguisher and should include:
- A visual inspection of the extinguisher components such as the extinguisher housing, nozzle, pin, handle, label, and inspection tag
- Verify that the extinguisher is charged with the needle in the green
  - Each extinguisher will have a durable tag or sticker securely attached showing the signature and company that completed the previous yearly inspection
  - Extinguishers that show any sign of damage or defects must be removed from service, placed in a designated location, and replaced until serviced and re-inspected by an authorized provider
- A fire extinguisher rated not less than 2A shall be provided for each 3,000 square feet of the protected building area. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.
- Any flammable or combustible liquid storage, shall have a fire extinguisher, rated no less than 20-B:C.
- Fueling areas shall be provided with at least one fire extinguisher having a rating of not less than 20-B:C located so that an extinguisher will be no less than 25 feet or more than 75 feet from each pump, dispenser, underground fill pipe opening, and lubrication or service area.

Flammable and Combustible Storage and Handling

General Storage Requirements:

- It shall be designed that it will safely relieve internal pressure when subjected to fire exposure.
- Areas where flammable and combustible materials are stored shall be kept free of trash, weeds and debris, or other combustible material.
- Areas where flammable and combustible liquids are stored shall be marked with signs that read: Flammable – No Smoking or Open Flame within 50 feet.
- Flammable or combustible liquids shall not be stored in areas used for exits, stairways, or normally used for the passage of people.
- Flammable liquids shall be kept in closed containers when not in use.
- All equipment engines shall be shut off prior to being fueled.
- Only metal fuel containers with flash arrestors and self-closing lids are permitted.

Indoor Storage:

- No more than 25 gallons of flammable or combustible liquids shall be stored in a building, outside of an approved storage cabinet.
- A 1-hour fire resistant barrier must segregate non-compatible materials that may create a fire hazard.
- Clearance shall be maintained around light and heating units to prevent ignition.
- No more than 60 gallons of flammable or 120 gallons of combustible liquids shall be stored in any one cabinet. No single storage area shall have more than three storage

Annexes

Forms and Permits

Fire Extinguisher Usage Instructions

Functional Manager

Nate Mock
Safety Director

Change History

Original Published Date: April 7th 2017

Date	Description
9/14/2021	Section Reviewed

cabinets.
- Cabinets shall be conspicuously labeled, "Flammable – Keep Fire Away".

Outside Storage:

- Fuel shall not be stored within 20 feet of a building.
- The storage area shall be kept free from the accumulation of weeds and grass and a procedure shall be in place for regularly scheduled clean-up of the storage area.
- Above ground storage tanks shall have spill containment.
- Storage tanks shall be protected from vehicle traffic.
- All storage tanks shall be vented.
- All storage tanks shall have an automatic shut off on dispensing hoses.

Liquid Petroleum (LP) and Fuel Gas:

- LP bottles must be stored outside or in a well-ventilated area. Storage areas must be protected from equipment and other activities that could damage the bottles
- Storage outside of buildings, for containers awaiting use, shall be located from the nearest building or group of buildings, in accordance with the following:

Liquid Petroleum (LP) and Fuel Gas:

- LP bottles must be stored outside or in a well-ventilated area. Storage areas must be protected from equipment and other activities that could damage the bottles
- Storage outside of buildings, for containers awaiting use, shall be located from the nearest building or group of buildings, in accordance with the following:

Liquid Petroleum and Fuel Gas Storage Distance Requirements	
Quantity of LP-Gas Stored	Distance (feet)
0 – 500 pounds	0 feet
500-999 pounds	10 feet
1,000 – 5,999 pounds	20 feet
6,000 pounds or greater	25 feet

- Danger "NO Smoking" signs should be posted in bulk LP gas storage areas.
- In locations where tanks may be exposed to crane loads or other potential falling objects, overhead protection designed for the exposure, must be provided.
- Gasoline, diesel and other flammable or combustible fuels should not be stored with LP tanks.

LP bottles <100 Pounds:

- Bottles must be secured in an upright position at all times. Three bottles may be tied together to accomplish this requirement.
- Bottles may not be located within exits, stairways, or other areas that may affect safe egress.
- All bottles must have a hackney collar installed.
- O rings, hoses, couplings, regulators, and similar devises must be inspected daily. Leaking or damaged devices may not be used.
- Bottles with dents, weld burns, or other damage shall not be used.
- Bottles must be stored and used in the upright position.
- No more than three (3), 100-pound tanks may be connected via manifold.
- When multiple manifolds are used on the same floor, such manifolds must be separated by at least 20 feet.
- Torches or other heat producing devices may not be used to thaw bottles.
- Bottles must be a minimum of 6 feet from heaters.
- Bottles may be tilted and rolled on end for short distance. A cart or dolly should be used for long distances to avoid muscular skeletal or back injuries.
- When dollies or carts are used the bottles must be secured in an upright position.
- Bottles may not be hoisted by choking the bottle or the hackney collar.
- Material baskets that allow the bottles to be supported in an upright position may be used to hoist bottles.
- When transporting bottles on any hoist, smoking is prohibited.

Large LP tanks >1,000 gallons:

- When tanks measuring 2,000 gallon (cumulative) or more are placed at a single site, the fuel gas supplier and the regional safety department should be contacted to help facilitate the safe placing and use prior to placing the tanks.
- Hoses from large tanks must be placed in areas where they will not come into contact with equipment or construction activities that could result in damage. Hoses should be run overhead when it is safe to do so.
- Hoses must be placed away from ignition and heat sources including temporary lighting overhead electrical installations.
- Hot work may not take place near LP gas hoses or tanks.
- Fuel gas hoses, regulators and other accessories shall have a rated working pressure of 250 psig and be approved for LPG use.

LP Gas System Safety Devices and Design Recommendations:

- Systems must be designed by a competent person.
- Every container and shall be provided with one or more approved safety relief valve(s) or device(s).
- Shutoff valves shall not be installed between the safety relief device and the container, or the equipment or piping to which the safety relief device is connected, except that a shutoff valve may be used where the arrangement of this valve is such that full required capacity flow through the safety relief device is always afforded.
- In addition to the standard fire protection requirements an additional 20ABC fire extinguisher per temporary heater is required.
- Concrete blankets, plastic sheeting and other material that could blow into heaters must be secured or weighted down.
- Trash and other combustibles must not be allowed to accumulate in areas where heaters are being used.
- LPG is heavier than air. Any significant leak will move downwards and stay on the ground. It will accumulate in any low-lying area such as depressions in the ground, drains or pits. If a leak is detected the area should be ventilated and heat sources extinguished.

Temporary Heating and Cooling Plans

A temporary heating or cooling plan must be submitted to the Safety Director, Engineering Services, and Quality departments for approval before temporary or permanent heat or A/C systems are used. This includes the use of existing building systems.

Heaters

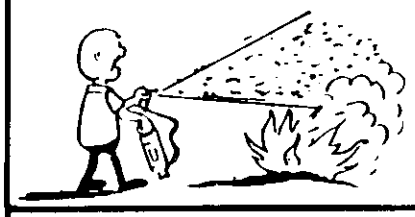
- A fire watch is required when using temporary heat unless a variance is approved by Safety. At least one competent person must be present to maintain and inspect all heating units. The fire watch must also inspect the project for potential fire hazards relating to the use of heaters. A full-time fire watch is not required when using steam heaters that are tapped into existing building systems.
- Heaters must be inspected before use and following any incident that may have resulted in damage to the heater. Damaged heaters may not be used.
- The following OSHA requirements regarding minimum clearances must be maintained:

Minimum Heater Clearances			
Heating Appliances	Minimum Clearances (inches)		Chimney Connector
	Sides	Rear	
Room Heater (Circulating Type)	12 inches	12 inches	18 inches
Room Heater (Radiant Type)	36 inches	36 inches	18 inches

  - Gasoline, diesel and other flammable or combustible liquids shall not be placed near heaters.
  - Housekeeping must be maintained throughout the day. Trash shall not be allowed to accumulate.
  - Trash or combustible material such as wood, cardboard and insulation must not be stored near heaters.
  - Fuel fired heaters that produce Carbon Monoxide gas must be used only in well-ventilated areas.
  - Carbon monoxide levels must be monitored when using equipment indoors or in any area where ventilation is restricted.
  - LP Heater Use:
    - Heaters may not be directed at LPG bottles.
    - Cylinder valves must be closed when heaters are not in use.
- Electrical Heaters:
  - A qualified electrician must install electrical heaters when connections must be made within electrical boxes.
  - Heaters must have a three-wire grounding type plug.
  - Electrical cords must not be placed where they pose a trip hazard or where they may be damaged by equipment and construction activities.
- Training:
  - All employees should be trained in the care, maintenance and handling of bottles and heaters.
  - All employees should be trained in the use of fire protection equipment and emergency fire procedures.
  - Employees who act as fire watch must be familiar with the crisis management, emergency action, and emergency contact list for the project.

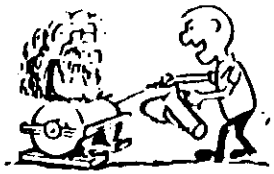
HOW TO OPERATE

FOAM: Don't Spray Stream into the Burning Liquid. Allow Foam to Fall Lightly on Fire.

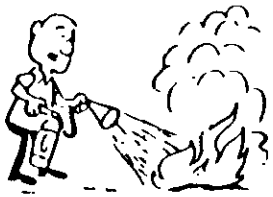


PUMP TANK: Place Foot on Footrest and Direct Stream at Base of Flames

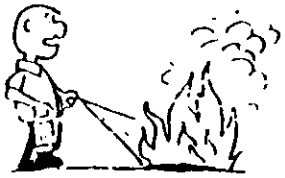
ORY CHEMICAL: Direct at the Base of the Flames. In the Case of Class Fires, Follow Up by Directing the Ory Chemicals at Remaining Material That is Burning



CARBON DIOXIDE: Direct Discharge as Close to Fire as Possible. First at Edge of Flames and Gradually Forward and Upward



SODA-ACID, GAS CARTRIDGE: Direct Stream at Base of Flame



KIND OF FIRE

DECIDE THE CLASS OF FIRE YOU ARE FIGHTING . . .

. . . THEN CHECK THE COLUMNS TO THE RIGHT OF THAT CLASS

CLASS A FIRES

USE THESE EXTINGUISHERS

ORDINARY COMBUSTIBLES
- WOOD
- PAPER
- CLOTH

ETC.

CLASS B FIRES

USE THESE EXTINGUISHERS

FLAMMABLE LIQUIDS, GREASE
- GASOLINE
- PAINTS
- OILS, ETC.

CLASS C FIRES

USE THESE EXTINGUISHERS

ELECTRICAL EQUIPMENT
- MOTORS
- SWITCHES

ETC.

APPROVED TYPE OF EXTINGUISHER

MATCH UP PROPER EXTINGUISHER WITH CLASS OF FIRE SHOWN AT LEFT

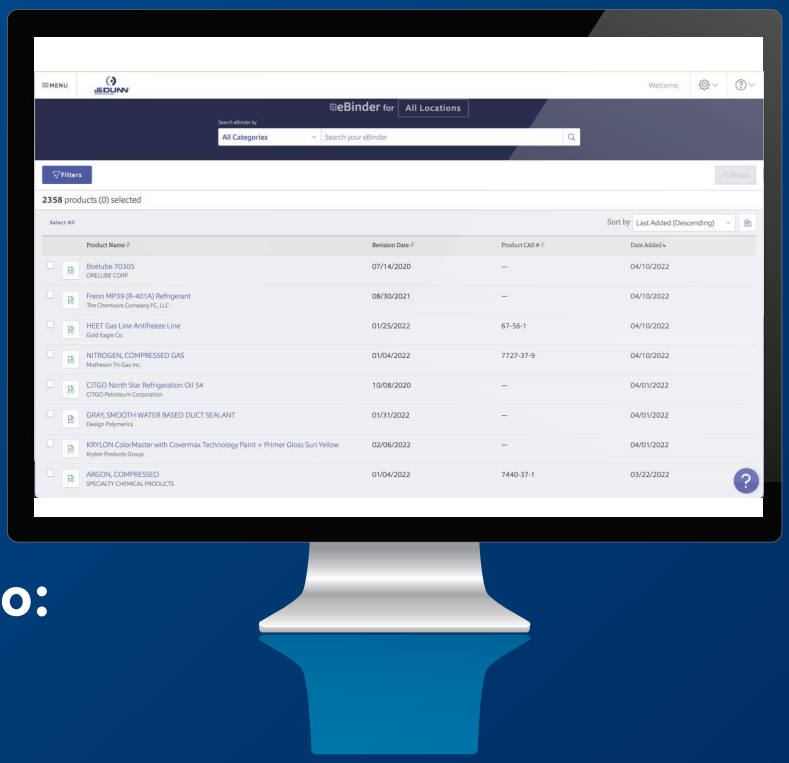
FOAM Solution of Aluminum Sulphate and Bicarbonate of Soda	CARBON DIOXIDE Carbon Dioxide Gas Under Pressure	SODA ACID Bicarbonate of Soda Solution and Sulphuric Acid	PUMP TANK Plain Water	GAS CARTRIDGE Water Expelled by Carbon Dioxide Gas	MULTI-PURPOSE DRY CHEMICAL	ORDINARY DRY CHEMICAL
A B	X	A	A	A	A B C	X
A B	B C	X	X	X	A B C	B C
X	B C	X	X	X	A B C	B C

JE DUNN CONSTRUCTION SAFETY DATA SHEETS (SDS)

For online access to an SDS,

CLICK THE SDS ONLINE LINK

located on the Safety page of Connect or go to:



http://hq.msdsonline.com/jedunnsl/Search/Default.aspx

If computer access is not available, have an SDS e-mailed to you within 24 hours:

Contact VelocityEHS Chemical Management

1.888.362.7416

24 HOURS A DAY — 7 DAYS A WEEK

HAVE THE FOLLOWING INFORMATION ON HAND WHEN CALLING

Product Name
Manufacturers Name
E-Mail Address
Product Code

SAFETY & HEALTH MANUAL

Section 39: Hazard Communication (HazCom and SDS)

Jerry Eaton
Safety Specialist 2

Jump to Section

Policy Statement

To protect workers from hazards presented by hazardous chemicals in the workplace, JE Dunn has developed a comprehensive hazard communication program which aligns with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). This program includes a written hazard communication program for the workplace, a list of all hazardous chemicals present at the workplace, proper labeling of all containers of chemicals in the workplace, a file of all Safety Data Sheets (SDS) maintained at the workplace and provide all employees with information and training on all hazardous chemicals at their workplace.

Definitions

Container

Any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers

Label

An appropriate group of written, printed, or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging

Pictogram

A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category

Precautionary statement

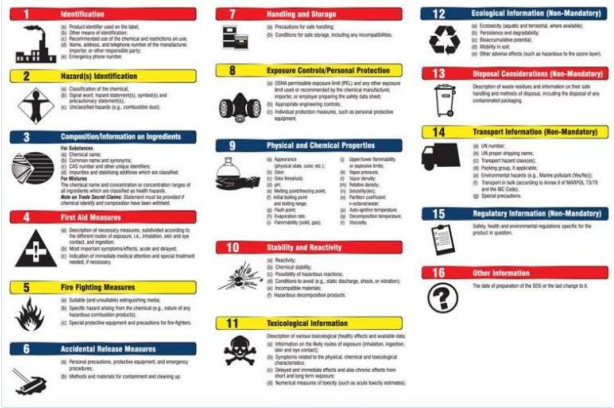
A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling

Signal word

A word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

Safety data sheet (SDS)

Written or printed material concerning a hazardous chemical



Sample SDS information

Hazard Determination

The Company will not make a determination if a chemical is hazardous. They will rely on the evaluation performed by the manufacturer or material supplier and follow the recommendations from the Safety Data Sheets (SDS).

Chemical Lists

A list of all chemicals used or stored in the workplace will be maintained and upgraded as needed. This list will be maintained and kept with the SDS.

1. Copies of the SDS for materials or chemicals used on the project are available online at

Annexes

Poster and Links

Safety Data Sheets Poster
MSDS Online

Functional Manager

James Robles
National Safety Director

Change History

Date	Description
9/9/2021	Section E. Safety Data Sheets (SDS) – deleted the word fax.
9/9/2021	SDS Online poster update and website link.

Safety Data Sheets (SDS)

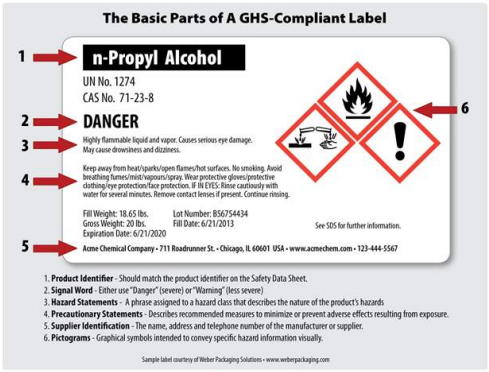
MSDS Online. SDS can also be obtained by calling 1-866-362-7416 24hrs/day-7 days/week to request a copy be emailed to the project.

2. SDS's will be made available to all employees, their representatives, or Trade Partners for review.
3. If an SDS cannot be found for a chemical or product, call the Safety Department for assistance.
4. Logistics shall request SDS's on all purchases. SDS's shall be forwarded to the safety department. If SDS's are not sent with the shipment, a letter shall be sent to the manufacturer requesting the SDS. A file shall be maintained for follow-up on SDSs request letters.

Click to Download a PDF

Labels and Other Forms of Warning

1. Each container, regardless of size1, shall be labeled, tagged or otherwise marked to show the identity of the hazardous chemicals and the appropriate warnings.
2. Field supervisors shall be responsible for seeing that all portable containers used in their work areas are labeled with identity and hazard warnings. If the chemical is transferred to another container, that container must be properly labeled with its contents and appropriate hazards. For help with labeling, please contact the safety department.
3. All incoming materials shall be checked for the following:
   a. Name of the chemical/product identifier
   b. Signal word
   c. Pictograms
   d. Appropriate hazard warnings
   e. Precautionary statement
   f. Name and address of the responsible party



Sample Chemical Label

Employee Training and Other Information

1. The Superintendent shall be responsible for ensuring that every employee is trained in the following subjects:
   a. Explanation of the Hazard Communication Standard.
   b. Introduction to the written Hazard Communication Program.
   c. Availability and interpretation of SDS.
   d. Labeling procedures and how to interpret them.
   e. Physical and health hazards of chemicals in the workplace.
   f. Proper protective measures to undertake when exposed to the hazard.
   g. Where and how to obtain additional information.
   h. The safety department, upon request, will assist the Superintendent in the training of employees.
2. Posters shall be placed on site informing workers of the location of the written program and the SDS's.

Multi-Employer Worksites

Each Trade Partner working on site must have a Hazard Communication Program and corresponding Safety Data Sheets available on site. A copy of their program must be placed in our project office along with all programs. The program must remain on site as long as they have material on site. The superintendent shall be made aware of the location of that program. If JE Dunn employees are potentially exposed to chemicals used by other Trade Partners, they shall be trained in the hazards associated with those chemicals.

Work Performed in Other Facilities

1. If work is performed in an active facility, that owner has a responsibility to provide JE Dunn the following:
   a. The facilities Hazard Communication Program
   b. A list of hazardous materials we may encounter along with the proper SDS's
   c. The system they use for identifying chemicals, pipes, tanks, etc.
2. If we encounter materials, tanks, pipes, vessels, etc. that JE Dunn is unaware of the contents, the owner and/or his representative will be notified immediately to provide the needed information before work resumes.

Non-Routine Tasks

Occasionally, workers are required to perform tasks that would be considered non-routine. An example would be requiring a laborer to spray a special concrete sealer on the inside of a vault (enclosed space). The task of sealing concrete in itself would not be considered non-routine but the fact that he would be in an enclosed space would qualify this as a non-routine task. Another example would be requiring a laborer to remove existing plant piping that at one time may have contained hazardous chemicals that he would normally not be required to handle. If a worker is required to perform a task that would be considered non-routine, the Superintendent shall ensure that:

1. The worker is trained in the hazards associated with this task.
2. The personal protective equipment available is sufficient for the potential hazards encountered.
3. All SDS's associated with the work are available and precautions followed.

SAFETY & HEALTH MANUAL

Section 40: Housekeeping

Tyler Snell
Safety Manager

Jump to Section

Policy Statement

The intent of this section is to define expectations for project housekeeping.

General Requirements

To reduce the risk of fire, slip, trip and fall hazards, good housekeeping habits must be maintained daily.

Operations will develop a cord management plan that addresses electrical cords, hoses, welding leads to prevent slips, trips, and falls.

All stripped lumber shall be safely stacked after nails have been removed or bent over.

All stairways, scaffolds, ramps, platforms, walkways, and work areas shall be kept clear and clean of trash and material.

Trade Partners shall provide trash receptacles in their immediate work areas and in lunch and break areas.

Round or rolling stock such as pipe, rebar, conduit and all-thread scraps and equivalent, must be immediately disposed of properly and not allowed to lie on the floor.

All combustible scrap and debris shall be removed from project daily. Methods include:

- Trash chutes
- Trash carts
- Rolling containers
- Cranes
- Material hoists

Floor sweep must be used when sweeping activities have the potential for generating fugitive dust.

Separate closed containers shall be provided by the Trade Partner generating waste containing paint soaked combustibles, oily or solvent soaked rags. This material shall be removed from the project daily.

Trash carts used to fly debris off the building shall not have the debris stacked any higher than the sides. Materials should be physically secured if there is the potential for displacement.

Dumpsters shall have the end door open for employees to dump trash or a platform shall be built for safe access.

- If personnel are entering inside a dumpster, a safe access procedure must be developed. At a minimum there must be a visual indicator notifying others outside that personnel are inside dumpster.

Sanition

Potable Water

An adequate supply of potable water shall be provided by each Trade Partner for their employees unless noted otherwise in the contract documents.

All potable containers used to distribute drinking water shall be sanitized, clearly marked, and not used for any other purpose. The lids shall be sealed with tape and marked with the date it was filled.

The common drinking cup is prohibited on-site.

When using single service cups on-site, a sanitary container for unused cups and a receptacle for disposing of cups shall be provided.

Non-Potable Water

Outlets for non-potable water used for firefighting, dust control, industrial use, etc. shall be identified by proper signage.

Toilets

Adequate toilet facilities shall be provided for employees according to the following table and must meet all local laws:

Number of Adequate Toilet Facilities

Number of Employees	Minimum Number of Facilities
20 or Less	1
21 to 199	1 toilet seat and 1 urinal per 40 workers
200 or More	1 toilet seat and 1 urinal per 50 workers

Annexes

Forms and Templates

Housekeeping Poster

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
11/22/2021	Cord Management Plan requirement was added
11/22/2021	Added the requirement to use floor sweep
11/22/2021	Dumpster access requirement was added
05/18/22	Added Housekeeping Poster to annex

Hand sanitizer shall be provided and maintained by the toilet supplier.

Under temporary field conditions, provisions shall be made to assure a minimum of one toilet facility is available.

Toilets should be serviced on a regular basis (preferably, 2x weekly) and more often if conditions warrant.

Local codes shall be checked for additional requirements such as heat and hand washing facilities.

All toilets must provide privacy for the user.

Toilets must be serviced on a regular cadence that ensures they are maintained in a sanitary condition.

JOBSITE HOUSEKEEPING EXPECTATIONS

EXPECTATIVAS DE LIMPIEZA EN EL LUGAR DE TRABAJO

INDIVIDUAL ACCOUNTABLE: LEAD SUPERINTENDENT

INDIVIDUO RESPONSABLE: SUPERINTENDENTE PRINCIPAL

ENTRY/EGRESS: *ENTRADA/SALIDA*

- Maintain well-defined entry/egress points, including consideration for a solid walking surface leading in/out of the building and overhead protection. Keep walkways clean, clear and unobstructed with proper lighting. Consider the use of flagging or directional devices in restricted space areas. Adjust as required based on construction progression.

  Mantener bien definidos los puntos de entrada/salida, incluida la consideración de una superficie sólida para entrar y salir del edificio y la protección de la parte superior. Mantenga los pasillos limpios, despejados, sin obstáculos y con una iluminación adecuada. Considere el uso de dispositivos de señalización u orientación en áreas restringidas. Adapte según sea necesario en función del ritmo de la construcción.

CLEANLINESS: *LIMPIEZA*

- Provide, or require trade partners to provide, trash containers on every floor in a quantity sufficient to accommodate the amount of trash generated in a typical day. "There is no such thing as a clean pile of trash." Trash container shall be emptied on a regular basis. Floors should be swept on a regular basis to prevent excess accumulation of dust and debris. Consideration should be given to utilization of floor scrubbers in certain locations.

  Proporcionar o exigir a los socios comerciales que proporcionen contenedores de basura en cada piso y en cantidad suficiente para colocar la basura generada en un día normal. "No existe una montón de basura limpia". El contenedor de basura se deberá vaciar con regularidad. Se deben barrer los pisos periódicamente a fin de evitar la acumulación excesiva de polvo y desechos. Se debe considerar la utilización de fregadoras de pisos en determinados espacios.

STORED MATERIALS: *MATERIALES ALMACENADOS*

- Materials should be stored on wheeled devices or on dunnage. Materials should be kept at least 10 feet away from edges of elevated levels. Excess or unused material or equipment should be moved off-site in a timely fashion.

  Los materiales deben almacenarse en dispositivos con ruedas o sobre plataformas de estiba. Los materiales deben mantenerse al menos a 10 pies de distancia de los bordes de los niveles elevados. El material o equipo sobrante o no utilizado debe retirarse del lugar en el momento oportuno.

CORD MANAGEMENT: *GESTIÓN DEL CABLEADO*

- Establish and maintain a good cord management protocol, keeping cords and hoses overhead and not lying in corridors or doorways. Do not suspend cords from conductive surfaces.

  Establezca y mantenga un buen protocolo de gestión del cableado que permita mantener los cables y las mangueras suspendidos y no tendidos en pasillos o accesos. No cuelgue los cables de superficies conductoras.

SITE PERIMETER: *PERÍMETRO DEL LUGAR DE TRABAJO*

- Keep site fencing, barriers and wind screens secured, level and strapped down. Maintain perimeter debris netting and barrier cables on multi-story buildings. These items play a key part in project safety and security, and the appearance of these items from the street is important as they represent our brand.

  Mantenga cercas, barreras y pantallas contra el viento aseguradas, niveladas y amarradas. Mantenga redes perimetrales para escombros y cables de barrera en edificios de varios pisos. Estos artículos juegan un papel clave en la seguridad y protección del proyecto, y la apariencia de estos artículos en la calle es importante ya que representan nuestra marca.

JE DUNN® CONSTRUCTION

JOBSITE HOUSEKEEPING
EXAMPLES

EJEMPLOS DE LIMPIEZA EN EL LUGAR DE TRABAJO

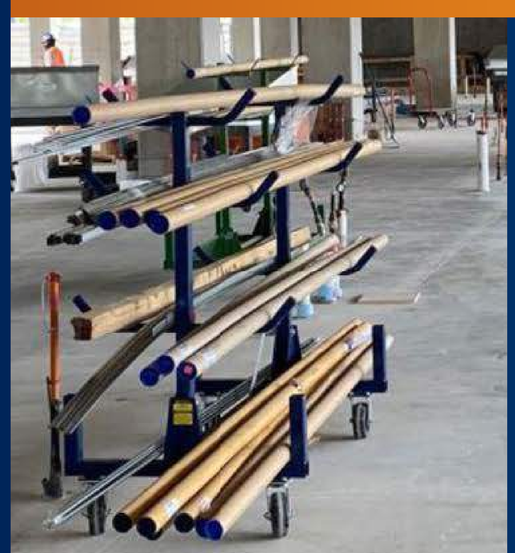
INDIVIDUAL ACCOUNTABLE: LEAD SUPERINTENDENT

INDIVIDUO RESPONSABLE: SUPERINTENDENTE PRINCIPAL

ENTRY/EGRESS
ENTRADA/SALIDA

CLEANLINESS
LIMPIEZA

STORED MATERIALS
MATERIALES ALMACENADOS



CORD MANAGEMENT
GESTIÓN DEL CABLEADO

SITE PERIMETER *PERÍMETRO DEL LUGAR DE TRABAJO*

JE DUNN®
CONSTRUCTION

SAFETY & HEALTH MANUAL

Section 41: Material Handling and Storage

Tyler Snell
Safety Manager

Jump to Section

Policy Statement

The intent of this section is to provide requirements for the safe handling and storage of materials, tools, and/or equipment on the project site. The accomplishment of this requirement by use of mechanical means, proper body placement, and an effective logistics plan will help reduce the risk of incident to onsite personnel.

Annexes

Forms

Truck Loading Procedure Form

Functional Manager

Nate Mock
Safety Director

Change History

Date	Description
11/22/2021	The Truck/Trailer Loading/Unloading section was added

Material Storage

Materials that are not to be installed within a few days of delivery should not be stored on the project when space is limited. Reduce the need for onsite storage by requiring a "just in time" delivery for materials and/or equipment.

Aisle and passageways must be kept clear for free and safe movement of material handling equipment and personnel.

- Permanent passageways on the project should be marked with standard traffic control signs and devices (i.e. cones, fencing, tape, etc.)
- All egress and exits from a building shall be kept free of material and equipment at all times.

Materials shall not be placed within six (6') feet of hoist ways or floor openings and not within ten (10') feet of exterior walls that are not completed.

- Exception: Where guardrails with debris netting are installed on perimeter building edges, materials can be stored closer than 10' provided that they do not exceed the height of the guardrail system.

Dunnage shall be placed under all stored materials to allow for easier movement by mechanical means and to prevent materials from contacting water on the ground or floor.

Materials must be stable and secured if there is a potential for them to become dislodged from contact by equipment or personnel.

- Pallets of material should remain in their original packaging (i.e. shrink-wrap or container) until the last possible moment before use.

Masonry block/brick shall be stacked in a neat and orderly fashion and not more than 6' tall. When pallets are stored with banding or shrink-wrap, then no more than 2 pallets of block (8' or less) may be stacked.

Lumber must adhere to the following requirements:

- Used lumber must have all nails removed before stacking or disposal
- Bundles of dimensional lumber will be stacked neatly with longer pieces on the bottom and tapering back to smaller pieces at the top
- Plywood must be secured from displacement when weather conditions warrant. Placing a series of nails or screws through the first few layers of material is acceptable
- Stacked no more than 8' tall from the surface.

Rolling stock (pipes, conduits, rebar, etc.) must be placed in a rack for storage or on dunnage and cleated to prevent movement if on a floor.

Load limits for the floor or structure that is being used for material storage must be determined, posted, and not exceeded.

Spill containment (such as a "catch pan") shall be positioned under all liquid storage containers to contain any potential spills or leaks.

Storage areas must be planned with the project Superintendent to ensure they do not conflict with current or future utilities.

- No material shall be stored directly under an overhead powerline unless specific provisions are met:
  - All parts of material handling equipment must be kept a minimum of 20' away from energized overhead powerlines
  - Warning signs must be installed to warn workers and operators of equipment of the danger overhead powerlines present
  - The overhead powerlines are de-energized and visibly grounded.

Material Handling and Transportation

Ensure that loads are centered, stable, and secured to prevent tipping/displacement while moving or in transit.

Loads must be kept as low as possible while traveling to limit the exposure to a falling load.

Inspect the material prior to moving it to determine if containers are damaged, banding has been removed, or similar load securing devices are not present. Transfer materials to an approved and rated container for safer handling if original containers are not suitable.

Clear the path of travel for the load to ensure no obstructions are present that could cause the

load to shift or fall.

Hand placement during hoisting and/or setting of materials and equipment is critical. Plan the points of where the worker will place their hands to lift or set the material/equipment. Avoid pinch points that are common and use dunnage to allow space for hand placement under the load.

Only hoist from approved and rated pick points on a container or material. Never re-use empty containers for removing excess material or debris from a building or floor.

Barrels must be hoisted with an approved picking device and never by attaching slings directly to the barrel in a choke or basket hitch.

Personnel riding in vehicles or equipment must be seated with all parts of their body within the confines of the vehicle or equipment. No person is allowed to ride in the bed of a truck or cart.

Seatbelts are required for all personnel in a vehicle or equipment.

All personnel must be removed from vehicles prior to loading or unloading operations from a crane or other hoisting device.

Loads that extend beyond the limits of the bed of a truck or trailer must be visibly marked with high visibility materials (ex. red flagging).

Place softeners on sharp edges of materials (specifically metal) to prevent cuts while handling the material. Pieces of carpet, burlap, or heavy cardboard may be acceptable for this use. Proper gloves and arm protection sleeves will be required for personnel exposed to sharp edges during material handling.

Safe Lifting Requirements

Personnel should first know their own capacity for lifting materials, tools, or equipment prior to starting any tasks.

Determine the weight of the load before applying force to move it. This can be obtained from shipping labels or material calculations for common construction products. If unsure of the load weight, always seek assistance from a co-worker or supervisor.

Inspect the materials/equipment prior to attempting to lift or move them. Damaged containers, sharp edges, etc. can pose additional hazards that could interfere with safe lifting and transportation.

Mechanical material handling equipment or aids should always be used when possible to lessen the amount of manual lifting required for a job. The amount of weight in a single lift should be limited to approximately 50 pounds for all materials/equipment. If a lift will exceed this limit, seek assistance from a co-worker or mechanical means to transport the materials.

Objects or materials that are awkward to lift or carry should use the "2-person rule"; 2 people should carry long items (ex. 8' or longer) such as tall extension ladder, sheet of plywood, formwork, etc. During windy conditions, any large sheet materials (plywood, formwork, or drywall) must use the 2-person rule to prevent the material from being pushed or pulled from the workers' hands.

Use the following rules for picking up, carrying, or placing materials:

- Place feet as close to the load as possible
- Bend at the knees and not at the waist. Never lift any materials by bending at the waist to pick them up
- Get a good handhold on the load - keep hands out of pinch points and use handles where available
- Lift straight up on the load using the leg muscles
- Keep the load close to the body - keep the load below head height
- Maintain a straight back while carrying the load
- Never twist or turn at the waist; make changes in direction with the feet only
- To place the load down, bend with the waist. Bend the knees and place the load down on cribbing/dunnage to avoid pinch points. Where possible, keep the load at least one foot off the ground to minimize stress on the body from lifting.

Truck/Trailer Loading/Unloading

Policy Statement

The intent of this policy is to ensure safe operations for all activities involving the receiving, loading, and unloading of trucks and trailers.

Loading/Unloading Area

Ensure logistics plan is in place for equipment and material deliveries.

Areas should limit exposure to personnel and public.

Trucks must be parked on an even and level surface.

Driver Safety/Removing Straps

Truck drivers are required to wear all required PPE and follow JE Dunn dress requirements.

When unloading with a forklift, exclusion zones or spotters must be in place prior to the removal of hold-down straps/chains.

Construction personnel should not attempt to load or unload any truck until the driver has opened and secured the truck doors or tailgates and removed hold-down straps/chains.

If securing devices are used, construction personnel must stand clear until the securing devices are removed by the driver.

Material or equipment being transported by vendor's vehicle off the construction site must be secured only by the vendor's employee.

Driver should remain in the cab during loading/unloading. If there is the potential for the load to go over the top or strike the cab, the driver should be removed to a safe location.

Load Evaluation

The following items must be considered prior to loading or unloading a truck

- Is the load stable and secure from movement?
- Is there adequate dunnage and cribbing?
- Is load co-mingled with other materials?

Access

A secured ladder, ramp, lift gate or other safe means must be used to access the bed of a truck or trailer.

Jumping from the bed of a truck or trailer is not allowed.

Walking surfaces on truck beds or trailers should be stable and free of trip hazards.

When working off a truck bed or trailer 6 feet or greater in height, fall protection feasibility must be evaluated by JE Dunn Safety.

Exclusion Zone (Forklifts)

An exclusion zone is required to be set-up at a minimum of 10 feet on the opposite side of the forklift with danger tape or red rope. **Controlled Access Zone MUST BE RED**.

- Note: When using a forklift to hoist equipment/materials exclusions zones are required. A certified hoisting attachment/hook must be used.
- Free rigging is not allowed.

A spotter can be used on the opposite side of the forklift if danger tape or rope is unfeasible.

Where exposed to the general public, certified flaggers must be used to control pedestrian and vehicle traffic.

Cranes

Trucks and trailers should be unloaded in areas where exposure to other personnel is limited.

The area must be evaluated to determine if barricades are needed to keep personnel from being exposed to overhead loads

At a minimum, the certified signal person must ensure that the load is safe to pick, give an auditable warning and ensure all personnel are removed from the path of the load.

- Note: All requirements in the JE Dunn Hoisting Manual apply to loading and unloading of trucks and trailers.

Truck Loading/Unloading Checklist

Prior to the loading or unloading of any truck or trailer the Truck Loading/Unloading Checklist must be completed in addition to a JSA.

A JE Dunn Superintendent/Safety must be contacted if during the completion of the checklist it is deemed that the load in unsafe to load or unload.

TRUCK LOADING & UNLOADING PROCEDURE

JE DUNN CONSTRUCTION

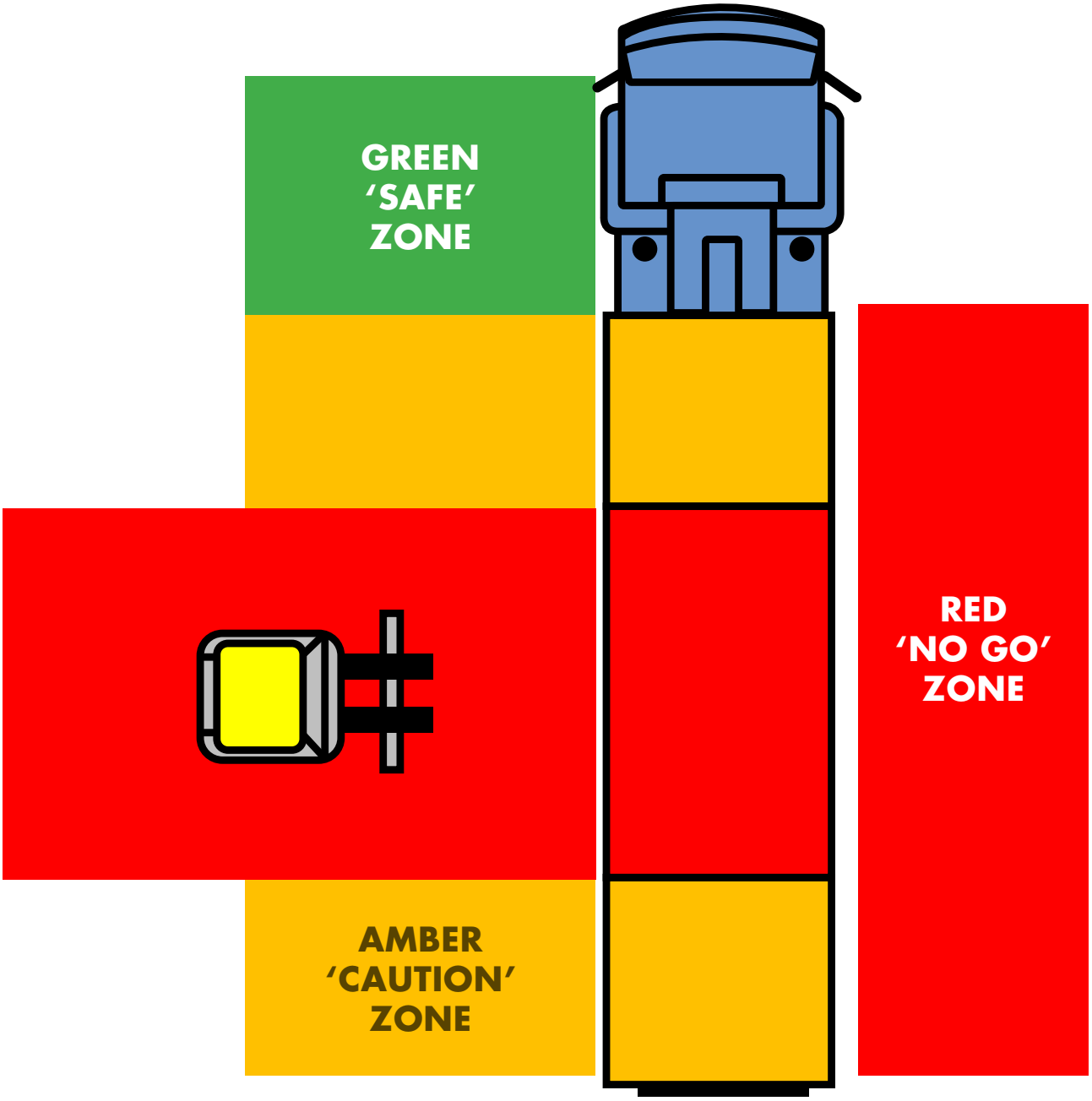
SAFETY
EVERYONE.
EVERYWHERE.
ALL THE TIME.

DATE:_____	LOAD: _____

#	ITEM	CHECK	OK/NG/NA	COMMENTS
1	**Driver Expectation and Access**	Park on even surface?		
		Driver wearing all PPE?		
		Driver location during operation?* **Note: Driver should remain in the cab during loading/unloading. If there is the potential for the load to go over the top of the cab the driver should be removed to a safe location.*		
		Safe access to and from the load		
2	**Load Evaluation**	Is the load stable and secure from movement?* **Note: Additional controls are required if the load appears to be unstable prior to removing straps/chains*		
		Adequate Dunnage and Cribbing?		
		Is load co-mingled?* **Note: If yes, review ability to unload JED material safely*		
3	**Exclusion Zone**	Do you have a loading/unloading area setup?		
		FORKLIFT: Exclusion Zone Set-up at a minimum of 10 feet on the opposite side of the forklift with danger tape, or red rope. **Controlled Access Zone MUST BE RED.**		
		FORKLIFT: Spotter used on the opposite side of the forklift if danger tape or rope is unfeasible		
4	**Flaggers**	Flaggers used to control vehicle and pedestrian traffic.* **Note: If loading/unloading outside the boundaries of the project flaggers are required.*		
5	**JSA**	Review JSA with spotter(s)/flagger(s). Ensure all personnel are outside the Exclusion Zones		
Proceed with Loading/ Unloading		**All requirements above met?**		

Operator/Riggers Signature:_____	Date:_____

LOADING/UNLOADING EXCLUSION ZONE
(LUEZ)



SAFETY & HEALTH MANUAL

Section 42: Signs and Barricades

Kurt Glenn
Senior Safety Specialist

Jump to Section

Policy Statement

The intent of this section is to define clear expectations for signs and barricades utilized on and around JE Dunn projects.

Functional Manager

David Hulse
Safety Director

Change History

Date	Description
8/2021	No Change History

Sign Types

All signs are available for order through the online JE Dunn Logistics catalog.

Danger Signs – Used only where an immediate hazard exists. Danger signs shall meet the following requirements:
- The colors will be red, black, and white
- Removed as soon as the potential hazard is no longer present
- Sign should be printed and not handwritten when possible
- Signage cannot be makeshift (i.e. duct tape, cardboard, drywall, scrap wood, etc.). Laminated for interior use. Metal for exterior use.

Caution Signs – Used only to warn against potential hazards or to caution against unsafe practices. Caution signs shall meet the following requirements:
- The colors will be yellow, black, and white
- Removed as soon as the potential hazard is no longer present
- Sign should be printed and not handwritten when possible
- Signage cannot be makeshift (i.e., duct tape, cardboard, drywall, scrap wood, etc.). Laminated for interior use. Metal for exterior use.

Radiation Signs – Shall be installed where there is an exposure to radiation in the immediate work area. Radiation signs shall meet the following requirements:
- The colors will be yellow, reddish purple, and yellow letters
- Removed as soon as the potential exposure is no longer present
- Sign should be printed and not handwritten when possible
- Signage cannot be makeshift (i.e., duct tape, cardboard, drywall, scrap wood, etc.). Laminated for interior use. Metal for exterior use.

Exit Signs – Are to be installed at egress points throughout the project. The exit signs should meet the following requirements:
- The signs shall be lettered in legible red letters no less than 6 inches high on a white background.
- Removed as soon as the potential hazard is no longer present.
- Sign should be printed and not handwritten when possible.
- Signs should be visible in all light conditions.
- Signage cannot be makeshift (i.e., duct tape, cardboard, drywall, scrap wood, etc.). Laminated for interior use. Metal for exterior use.

Informational Signs – Signs will be used to convey safety messages. The informational signs should meet the following requirements:
- The colors will be white and green
- Removed as soon as it is no longer needed
- Sign should be printed and not handwritten when possible
- Signage cannot be makeshift (i.e., duct tape, cardboard, drywall, scrap wood, etc.). Laminated for interior use. Metal for exterior use.

Directional Signs – Directional signs will be used to direct pedestrian or vehicular traffic. Directional signs shall meet the following requirements:
- The colors will be white and black.
- Removed as soon as it is no longer needed.
- Sign should be printed and not handwritten when possible.
- Signage cannot be makeshift (duct tape, cardboard, drywall, scrap wood, etc.) Laminated for interior use. Metal for exterior use.

Traffic Signs – will be posted at points of hazard on the construction site. Traffic control signs must meet and comply with the requirements set by the Manual on Uniform Traffic Control Devices.

Slow Moving Vehicle Sign – will be installed and prominently displayed on construction equipment that will be traveling on public roads outside of the work zone.

Enter the Work Zone Sign – will displayed at the main entrance of a work zone on the perimeter fencing or by other acceptable means.

Signals

Traffic signals must comply with the requirements set forth in the Manual of Uniform Traffic Control Devices (MUTCD).

Stop/Slow paddles shall have an octagonal shape on a rigid handle with the base of the sign at 6 feet high and shall be at least 18 inches wide with letters at least 6 inches high. The STOP face shall have white letters and a white border on a red background. The SLOW face shall have black letters and a black border on an orange background. When used at night, the STOP/SLOW paddle shall be retro-reflectorized.

Red Orange Safety Flag - Use of flags should be limited to emergency situations. Flags, when used, shall be red or fluorescent orange/red in color, shall be a minimum of 24 inches square, and shall be securely fastened to a staff that is approximately 36 inches in length.

Reinforced Tape - ½ inch rope can be used in lieu of tape and must be accompanied by the

Barricade Types

appropriate signage for the hazard.

Red Danger tape – Barricading tape can be used for a short-term identification of restricted areas. Danger tape will be used in areas where an imminent hazard exists. When using danger barricade tape the following will apply:

- Unauthorized employees shall not enter this temporarily barricaded area.
- Any unauthorized employee that crosses the danger taped area is subject to disciplinary action up to removal from the job site.
- Tape will be removed as soon as potential hazard has been eliminated.
- The Trade Partner that installed the tape shall place their company name and the person responsible in legible ink on the back of the tape.
- The installer shall be responsible for the installation/maintenance and removal/disposal of the barricading tape.

Yellow Caution Tape – will be used in an area where a potential hazard exists. Non-designated employees should find alternative routes if this area blocks their path of travel. When using caution barricade tape the following will apply:

- Employees must get permission to enter barricaded area from supervisor that installed the barricade.
- Any unauthorized employee that crosses the caution taped area is subject to disciplinary action if they did not have permission to enter.
- The Trade Partner that installed the tape shall place their company name and the person responsible in legible ink on the back of the tape.
- The installer shall be responsible for the installation/maintenance and removal/disposal of the barricading tape.

Yellow & Magenta Radiation Tape - radiation tape will be used in areas where potential exposure to radiation may occur. When using radiation barricade tape the following will apply:

- Unauthorized personnel are not allowed beyond the barricaded area.
- Any unauthorized employee that crosses the radiation taped area is subject to disciplinary action if they did not have permission to enter.
- The Trade Partner that installed the tape shall place their company name and the person responsible in legible ink on the back of the tape.
- The installer shall be responsible for the installation/maintenance and removal/disposal of the barricading tape.

Water Filled Barricades – water filled barricades must be inspected regularly to ensure that they are connected to adjacent barricades, do not leak, and are not damaged. When in use the barricades must be filled with water to ensure proper functionality.

Concrete "K" / "Jersey" Barriers - If barriers are struck by a vehicle or machinery they must be inspected immediately. If the barrier is damaged, then it must be replaced.

Delineator Cones – are to be inspected regularly to ensure that they are not damaged and are able to maintain a vertical position. If cones are damaged or discolored, they must be replaced as soon as possible. Ensure that cones are in their designated location daily.

Channelizer Barrel Drums / Cones – are to be in full shape when in use. Inspected regularly to ensure that they maintain proper visibility from their designated locations in the traffic control plan. If drums / cones are damaged or discolored they must be repaired or replaced as soon as possible. Ensure that barrels/cones are in their designated location daily.

Barricade Lights / Flashers – must be functioning if installed on any traffic control devices. If lights are damaged or not functioning, they must be removed or replaced.

Type 1 Barricades - Any damaged folding or panel barricades must be replaced if damaged or discolored. Ensure that stripes are displayed properly – they should direct the traffic where to go by pointing downward in the direction of traffic.

Type 2 Barricades - Any damaged folding or panel barricades must be replaced if damaged or discolored. Ensure that stripes are displayed properly – they should direct the traffic where to go by pointing downward in the direction of traffic.

Type 3 Barricades – When in use must be secured by stands, uprights or other acceptable methods to ensure full visibility. Any damaged barricades must be replaced if damaged or discolored. Ensure that stripes are displayed properly – they should direct the traffic where to go by pointing downward in the direction of traffic.

Crowd Barrier – crowd barriers must be inspected regularly. The legs should be able to maintain the barrier erect and in place. If legs are damaged, they must be taken out of service and repaired or replaced. Crowd barriers are to be used for pedestrian traffic and shall not be used in place of water filled or concrete jersey barriers.

Temporary Fence Panels – fence panels and all components must be inspected regularly. If fence panel stands are damaged, they must be repaired or replaced. When fence panels are installed on water filled barricades, they must be secured with clamps to prevent displacement. If fence panels are free standing, they must be installed on temporary fence panel stands to ensure that they maintain their upright position. Orange fencing is not considered perimeter security fencing.

Wind screen / Privacy Screen – screens should be installed on temporary fence panels when it is required. Screens should be inspected regularly and replaced if damaged. If the JE Dunn logo is located on a wind screen, make sure that logo is legible and right-side up. If screen is found to create a hazard it may be removed, or an alternative solution may be acceptable.

Fence "T" Posts & Barrier Fencing – when installed ensure that posts are vertical and not bent or damaged. Barrier fencing must be secured to ensure full visibility. Barrier fencing must be inspected regularly and replaced if damaged.

SAFETY & HEALTH MANUAL

Section 43: Environmental Management


Mark Close
Safety Manager

Jump to Section

Policy Statement

This policy is intendant to establish the fundamental environmental principles that applies good management practices to reduce and mitigate environmental impacts.

Project leadership (PM, Superintendent & Safety) is required to evaluate each section of this policy prior to starting a project and ensure that all applicable procedures are implemented.

Trade partners are expected to follow all applicable requirements of this section.

Functional Manager


Nate Mock
Safety Director

Hazardous Materials and Waste Management

Purpose

To institute construction practices that minimize the amount of hazardous materials used or hazardous waste generated on our projects, and to ensure proper disposal.

Regulatory Requirements

- 29 CFR 1910.120/1926.65
- 49 CFR 172
- Resource Conservation and Recovery Act
- Superfund Amendment and Reauthorization Act Title III – Right to know
- USDOT HM 126F/181

Procedure

- Each project team shall review their scope of work for likely sources of hazardous waste generated from demolition, renovation, and construction activities.
- The following are common hazardous waste streams that must considered to determine if the project will be generating hazardous waste or using hazardous materials.
  - Paint wastes
  - Spent solvents
  - Saturated rags
  - Contaminated used oil, including oil from pipe beveller/threading equipment
  - Contaminated soil
  - Aerosol can content
  - Chemical cleaning wastes
  - Asbestos
  - Lead Paint
  - PCB Caulking
  - Fluorescent Bulbs
  - Mercury Switches
- If it's determined that the project will either generate hazardous waste or utilize hazardous materials, the following requirements must be implemented
  - Secure required regulatory permits and comply with permit.
  - Generate a Waste Stream Report, e.g., the type of waste, type of activity of generation, quantity, SDS, location, disposal plans and necessary actions.
- Provide training on hazardous waste/materials requirements.

Spills and Spill Release Response

Purpose

To minimize the risk of releases of any fuel, oils, solvents, paints and other liquids to the ground, surface water, sewers and/or atmospheres; and provide guidance on spill response.

Regulatory Requirements

- 40 CFR 112 – SPCC Regulations
- Comprehensive Environmental Response Compensation and Liability Act
- Hazardous Waste Operations and Emergency Response Standard
- Resource Conservation and Recovery Act
- Section 311(j)(l)(c) Clean Water Act

Procedure

- Each project team shall develop a plan as it related to spill and leak prevention, containment, and cleanup. The plan shall include, at a minimum:
  - Determine potential sources of spills and leaks on the project.
  - Location of chemical and fuel storage.
  - Need for secondary containment.
  - Spill Kits locations.
  - Soil remediation requirements
  - Mitigations needed for storm and sanitary sewers
- Those involved in spill containment and clean-up shall be trained to safely perform the task
- Sites that have storage of large amount of chemicals or fuel should have an Environmental Services contractor to provide emergency spill response.
- Frequent inspections should occur to monitor spill prevention and response.

Purpose

Erosion, Sediment, and Stormwater Controls

To limit erosion and sediment disturbance in potential problem areas and uses effective control practices that will lessen negative impacts to local water resources and natural areas.

Procedure

- Prior to starting work all projects should obtain all required federal and state permits including:
- NPDES stormwater construction permit (disturbance 1 acre or more)
- Municipal permits
- When required project teams shall develop a Storm Water Pollution Prevention Plan (SWPPP).
  - A SWPPP must consist of the following:
    - Project and SWPPP contact information
    - Site and activity description, including a site map
    - Identification of potential pollutant sources
    - Description of controls to reduce pollutants using Best Management Practices (BMPs)
    - Maintenance/inspection procedures
    - Records of inspections and follow-up maintenance of BMPs
  - Personnel designated to administer SWPPP requirements must be competent in erosion, sediment, and stormwater controls methods.
    - Note: some states require personal to an erosion control certification to administer a SWPPP
- Common erosion and sediment controls consist of, but are not limited to the following:
  - Silt Fencing
  - Straw Wattles (Fiber Rolls)
  - Stone Check Dams
  - Berms
  - Control Blankets
  - Sediment Catch Basins
- Controls always need to be installed to prevent pollutants from entering storm drains, waterways, lakes, or wetlands.
- Non-stormwater discharges must always be approved via permit or the authority having jurisdiction.
  - water flushing
  - dust control
  - uncontaminated ground water

Outdoor Air Quality

Purpose

To define and mitigate potential outdoor air pollutants and implement proper controls.

Regulatory Requirements

- 40 CFR part 63, Subpart C- List of Hazardous Air Pollutants
- Clean Air Act
- Local law regulations
- National Ambient Air Quality Standards (NAAQS)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)

Procedure

- Project teams prior to starting work must determine if work will generate any regulated air pollutants.
- Common air pollutants include but are not limited to.
  - Dust
    - Soil
    - Building Demolition
    - Crushing/Screening Operations
  - Asbestos
  - Large emission generating stationary equipment
- Proper air permitting must be obtained prior to beginning work.
- Permitting is typically obtained from either the State or regional agency.
- Adequate controls must be use and all permit requirements must be implemented.