

NCC- National Concrete & Construction

CORPORATE SAFETY, HEALTH, & ENVIRONMENTAL MANUAL



Revision: 1.0

Effective Date: 10/25/2024

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DOCUMENT STATUS

This Corporate Safety, Health & Environmental Manual is a controlled document belonging to NCC – National Concrete & Construction.

The policies and procedures contained in this manual apply to all NCC employees, supervisors, managers, temporary workers, subcontractors, vendors, visitors, and other persons performing work under NCC’s direction or control.

Printed copies may become outdated when revisions are issued. The current electronic version maintained by NCC management shall be considered the official controlled copy.

No portion of this manual may be removed, altered, or replaced without authorization from NCC management.

DOCUMENT CONTROL

Document Information	Details
Document Title	Corporate Safety, Health & Environmental Manual
Document Number	NCC-SAF-001
Original Issue Date	10/25/2024
Current Revision	Revision 1.0
Revision Date	10/25/2024
Document Owner	NCC Management

Approved By	Joseph Kolasensky (MNGR)
Review Frequency	At least annually and whenever operations or regulations materially change
Applies To	All NCC operations and employees

REVISION HISTORY

Revision	Date	Description of Revision	Approved By
1.0	10/25/2024	Initial issue	Joseph Kolasensky

MANAGEMENT APPROVAL

This manual establishes the minimum safety, health, and environmental expectations for NCC – National Concrete & Construction.

Management has reviewed and approved this manual and expects every employee and supervisor to understand and follow its requirements. Production, scheduling, cost, and customer demands shall never justify exposing any person to an uncontrolled hazard.

Management authorizes every employee to stop work when the employee reasonably believes an unsafe condition exists. Work shall not resume until the condition has been evaluated and appropriate corrective measures have been implemented.

Approved By: Joseph Kolasensky

Title: MNGR

Signature: _____

Date: 11/01/2024

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SECTION 1

SAFETY MANAGEMENT SYSTEM

1.1 PURPOSE

The purpose of the NCC Corporate Safety, Health & Environmental Manual is to establish a consistent system for preventing workplace injuries, occupational illnesses, property damage, vehicle accidents, environmental incidents, and interruptions to company operations.

This manual communicates the minimum requirements that apply to work performed by NCC. It is intended to help management, supervisors, and employees identify hazards before work begins and select effective methods for eliminating or controlling those hazards.

The manual is also intended to:

1. Establish clear safety responsibilities throughout the company.
2. Provide employees with practical rules and procedures for performing their work safely.
3. Promote early identification and correction of hazardous conditions.
4. Establish consistent training, inspection, and documentation practices.
5. Protect employees, subcontractors, customers, members of the public, company property, and the environment.
6. Support compliance with applicable federal, state, local, contractual, and customer safety requirements.
7. Promote continuous improvement in NCC's safety performance.
8. Establish Stop-Work Authority for every employee.
9. Ensure that incidents, injuries, property damage, and near misses are reported and investigated.
10. Make safety an active part of estimating, planning, scheduling, purchasing, supervision, and field execution.

This manual does not replace sound judgment, proper training, manufacturer instructions, engineered plans, project specifications, or applicable laws and regulations.

When requirements conflict, the most protective applicable requirement shall be followed unless management, the project's controlling contractor, or a qualified professional provides written direction otherwise.

1.2 SCOPE

This manual applies to all NCC operations, including but not limited to:

- Residential concrete construction
- Commercial concrete construction
- Structural concrete
- Civil and site concrete
- Foundations and footings
- Slabs on grade
- Elevated slabs
- Sidewalks, curbs, gutters, and driveways
- Formwork and shoring
- Reinforcing steel
- Block and masonry construction
- Bond beams and lintels
- Concrete pumping
- Concrete placement and finishing
- Saw cutting, grinding, drilling, and coring
- Excavation and trenching
- Site grading and compaction
- Material handling
- Equipment operation
- Trucks and trailer operations
- Shop and yard activities
- Maintenance and repair
- Office employees visiting field operations
- Work performed by NCC subcontractors

Every employee is expected to comply with this manual as a condition of employment.

Subcontractors working under NCC shall follow this manual, their own approved safety program, and the requirements of the controlling contractor. When requirements differ, the more protective requirement shall apply.

1.3 CORPORATE SAFETY POLICY STATEMENT

NCC – National Concrete & Construction is committed to providing a workplace in which work can be performed safely, professionally, and efficiently.

No project, schedule, production goal, or financial consideration is more important than protecting human life and health.

NCC believes that injuries, occupational illnesses, property damage, and environmental incidents can be prevented through proper planning, training, supervision, communication, and personal responsibility.

Management shall provide reasonable resources necessary to support this safety program, including:

- **Appropriate personal protective equipment**
- **Employee safety training**
- **Qualified supervision**
- **Equipment maintenance**
- **Jobsite inspections**
- **Hazard-control materials and systems**
- **Emergency planning**
- **Incident investigation**
- **Corrective-action tracking**

Employees shall be expected and encouraged to report unsafe conditions, damaged equipment, near misses, injuries, and safety concerns immediately.

No employee shall be retaliated against for making a good-faith safety report, requesting clarification, refusing an assignment that presents an imminent uncontrolled danger, or exercising Stop-Work Authority.

Safety is a shared responsibility. Every person has an obligation to protect themselves, their coworkers, the public, company property, and the environment.

1.4 SAFETY MISSION

NCC's safety mission is:

To complete every project with craftsmanship, professionalism, and respect for human life by planning the work, controlling hazards, and sending every worker home safely at the end of each shift.

Safety shall be incorporated into every phase of NCC's operations, including:

- Estimating
- Preconstruction
- Scheduling
- Procurement
- Mobilization
- Daily field planning
- Production
- Quality control
- Equipment maintenance
- Project closeout

Safety shall not be treated as a separate department or an afterthought. It is part of how NCC conducts business.

1.5 CORE SAFETY PRINCIPLES

NCC shall operate according to the following principles:

1. Plan Before Performing

Work shall be evaluated before it begins. Hazards, manpower, equipment, access, material handling, weather, and emergency requirements shall be considered during planning.

2. Correct Hazards Promptly

Unsafe conditions shall be corrected as soon as they are identified. When immediate correction is not possible, the affected area or equipment shall be secured and work shall be suspended until appropriate controls are established.

3. Use the Right Person for the Task

Employees shall only perform work for which they are trained, qualified, authorized, and physically capable.

4. Use the Right Tool and Equipment

Tools and equipment shall be appropriate for the work, maintained in safe condition, and used according to manufacturer instructions.

5. Communicate Clearly

Supervisors shall explain work assignments, hazards, control measures, and emergency procedures in language and vocabulary employees understand.

6. Inspect the Work

Jobsites, tools, equipment, vehicles, excavations, scaffolds, ladders, formwork, and other critical work areas shall be inspected at appropriate intervals by authorized persons.

7. Protect the Public

Work areas shall be barricaded, controlled, and maintained to prevent exposure of customers, occupants, visitors, pedestrians, and motorists to construction hazards.

8. Learn From Every Incident

Injuries, property damage, near misses, and unsafe observations shall be investigated to determine causes and prevent recurrence. Investigations are intended to improve systems, not merely assign blame.

9. Lead by Example

Managers, supervisors, and foremen shall comply with the same safety rules expected of employees.

10. Stop Unsafe Work

Every employee has the responsibility and authority to stop work when an uncontrolled hazard may cause injury, illness, property damage, or environmental harm.

1.6 STOP-WORK AUTHORITY

Every NCC employee is granted Stop-Work Authority.

An employee shall immediately stop work or request that work be stopped when the employee observes:

- An imminent danger
- Missing or inadequate fall protection
- An unsafe excavation or trench
- Unprotected protruding reinforcing steel
- Damaged or improperly used equipment
- Unsafe concrete-pump setup or hose conditions
- Workers beneath suspended loads
- Uncontrolled silica dust
- Unsafe electrical conditions
- Severe weather or lightning exposure
- A person working without required training
- A worker who appears impaired or medically unfit
- A condition that could injure a worker or member of the public

The employee exercising Stop-Work Authority shall:

1. Warn affected persons.
2. Stop the activity when it can be done safely.
3. Notify the supervisor or foreman.
4. Identify the unsafe condition.
5. Remain clear of the hazard.
6. Allow management or the designated competent person to evaluate the condition.
7. Resume work only after corrective measures are implemented and authorization is provided.

No employee shall be disciplined, intimidated, threatened, or retaliated against for exercising Stop-Work Authority in good faith.

Knowingly abusing Stop-Work Authority to disrupt work, threaten another employee, or avoid legitimate work assignments may be addressed under the company disciplinary policy.

When uncertainty exists, employees are expected to stop and ask. It is better to pause a pour than to pour gasoline on a problem.

1.7 EMPLOYEE PARTICIPATION

NCC recognizes that field employees are often the first people to observe changing hazards and practical weaknesses in a work plan.

Employees are encouraged to participate in the safety program by:

- Reporting hazards
- Reporting near misses
- Suggesting safer work methods
- Participating in toolbox talks
- Assisting with Job Hazard Analyses

- Inspecting tools before use
- Identifying damaged equipment
- Asking questions when instructions are unclear
- Participating in incident investigations
- Recommending training topics
- Exercising Stop-Work Authority when necessary

Employees may report safety concerns to their foreman, superintendent, project manager, safety coordinator, or company owner.

Reports may be made verbally or in writing.

NCC prohibits retaliation against employees who make good-faith safety reports.

Safety recognition programs shall reward positive participation such as hazard reporting, training, housekeeping, planning, and corrective actions. Programs shall not discourage employees from reporting injuries or illnesses.

1.8 SAFETY PROGRAM ADMINISTRATION

NCC management shall designate a person to coordinate administration of the safety program.

The designated Safety Coordinator may be a full-time safety professional, manager, superintendent, or other qualified employee depending on company size and operational needs.

The Safety Coordinator's duties may include:

- Maintaining the safety manual
- Coordinating employee training
- Maintaining safety records
- Monitoring regulatory and customer requirements
- Conducting or coordinating inspections

- Assisting with incident investigations
- Tracking corrective actions
- Supporting competent persons
- Reviewing Job Hazard Analyses
- Coordinating insurance or third-party safety visits
- Maintaining required posters and notices
- Supporting emergency planning
- Preparing safety-performance reports
- Recommending program improvements

The designation of a Safety Coordinator does not remove safety responsibility from managers, supervisors, foremen, or employees.

Every member of management remains responsible for safety within their area of control.

1.9 ANNUAL PROGRAM REVIEW

NCC shall review this manual at least annually.

The manual shall also be reviewed when:

- New equipment is purchased
- New work activities are introduced
- A serious incident or recurring near miss occurs
- Applicable requirements materially change
- A customer or controlling contractor identifies a program deficiency
- An inspection reveals repeated noncompliance
- Organizational responsibilities change
- Field employees identify a practical improvement

The review should consider:

- Injury and illness trends
- Vehicle accidents
- Property damage
- Near-miss reports
- Employee suggestions
- Inspection findings
- Disciplinary trends

- Training completion
- Insurance recommendations
- Customer requirements
- Changes in company operations

Revisions shall be documented in the Revision History table.

Affected employees shall be informed and trained when revisions change their responsibilities or work procedures.

SECTION 2

ROLES AND RESPONSIBILITIES

2.1 COMPANY MANAGEMENT

NCC management has overall responsibility for establishing and maintaining the company safety program.

Management shall:

1. Demonstrate visible commitment to safety.
2. Provide appropriate resources for training, PPE, equipment maintenance, and hazard control.
3. Assign safety responsibilities to qualified persons.
4. Hold supervisors and employees accountable for safety performance.
5. Review significant incidents and corrective actions.
6. Support Stop-Work Authority.
7. Ensure safety is considered during estimating and scheduling.
8. Avoid assigning work that cannot be performed safely with available resources.
9. Review the safety program at least annually.
10. Lead by example.

Management shall not knowingly direct an employee to violate a safety requirement or perform work under an uncontrolled hazardous condition.

2.2 SAFETY COORDINATOR

The Safety Coordinator shall support management and field operations in implementing this manual.

The Safety Coordinator shall have authority to:

- Enter and inspect NCC work areas
- Review safety records
- Stop unsafe work
- Require corrective action
- Recommend employee training
- Remove damaged equipment from service
- Consult qualified professionals when necessary
- Report unresolved hazards directly to company ownership

The Safety Coordinator is not expected to personally observe every work activity. Supervisors and employees remain responsible for daily hazard recognition and compliance.

2.3 PROJECT MANAGERS

Project Managers shall incorporate safety into project planning and coordination.

Project Managers shall:

- Review contract safety requirements
 - Coordinate safety expectations with the controlling contractor
 - Include safety needs in project budgets
 - Confirm that appropriate equipment and manpower are available
 - Identify work requiring engineered plans or qualified professionals
 - Coordinate subcontractor safety requirements
 - Support field supervisors in correcting hazards
 - Participate in incident investigations when appropriate
 - Ensure project schedules do not encourage unsafe shortcuts
 - Maintain communication between the office and field
-

2.4 SUPERINTENDENTS

Superintendents are responsible for overall field safety on projects under their supervision.

Superintendents shall:

1. Review the scope of work and anticipated hazards.
 2. Confirm completion of required planning documents.
 3. Designate competent persons where required.
 4. Coordinate activities with other contractors.
 5. Conduct or assign frequent jobsite inspections.
 6. Correct unsafe conditions promptly.
 7. Confirm employees receive required training.
 8. Verify that appropriate PPE is available.
 9. Enforce company safety rules consistently.
 10. Report incidents to management.
 11. Preserve incident scenes when appropriate.
 12. Review daily Job Hazard Analyses and pre-task plans.
 13. Monitor changing weather and site conditions.
 14. Maintain emergency information at the project.
 15. Stop work when hazards are not adequately controlled.
-

2.5 FOREMEN

Foremen provide direct daily supervision and are the backbone of NCC's field safety program.

Foremen shall:

- Conduct daily pre-task planning
- Review hazards with the crew
- Confirm each employee understands the assignment
- Assign employees according to training and ability
- Inspect the work area before work begins
- Inspect tools and equipment
- Enforce PPE requirements
- Monitor employees throughout the shift
- Correct unsafe acts and conditions

- Conduct toolbox talks
- Report injuries and near misses immediately
- Remove defective equipment from service
- Maintain safe access and housekeeping
- Coordinate spotters and exclusion zones
- Stop work when conditions change
- Notify supervision when additional resources are needed

Foremen shall not allow an employee to operate equipment without appropriate authorization and training.

2.6 COMPETENT PERSONS

A competent person is an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures.

NCC shall designate competent persons in writing when required for work such as:

- Excavation and trenching
- Scaffolding
- Fall protection
- Silica exposure control
- Demolition
- Concrete and formwork activities
- Other operations requiring competent-person oversight

Competent-person designation shall be based on knowledge, training, experience, and authority.

A competent person shall:

1. Understand the hazards associated with the assigned operation.
2. Conduct required inspections.
3. Identify unsafe conditions.
4. Implement corrective measures.
5. Stop work when necessary.
6. Maintain required documentation.
7. Remain available when the operation requires oversight.

8. Notify management when conditions exceed their qualifications or authority.

A job title alone does not make a person competent. The person must possess both the necessary capability and authority.

2.7 EQUIPMENT OPERATORS

Equipment operators shall:

- Operate only equipment they are trained and authorized to use
- Complete required pre-use inspections
- Wear seatbelts when equipment is equipped with them
- Follow manufacturer instructions
- Maintain safe travel speeds
- Use spotters when visibility is restricted
- Keep workers clear of swing radiuses and operating zones
- Avoid operating too close to excavations, slopes, or unstable ground
- Secure equipment before leaving the operator station
- Report defects immediately
- Remove unsafe equipment from service
- Never carry unauthorized passengers
- Avoid mobile-phone use while operating
- Maintain three points of contact while mounting and dismounting
- Confirm backup alarms, cameras, lights, and horns are operational

Operators may refuse to operate equipment they reasonably believe is unsafe.

2.8 EMPLOYEES

Every employee is responsible for working safely.

Employees shall:

1. Follow company policies and supervisor instructions.
2. Attend required training.
3. Wear required PPE.
4. Inspect tools before use.

5. Report unsafe conditions.
6. Report injuries, illnesses, property damage, and near misses immediately.
7. Use Stop-Work Authority when necessary.
8. Avoid horseplay, fighting, and practical jokes.
9. Maintain clean work areas.
10. Use equipment only when trained and authorized.
11. Never remove or bypass safety guards.
12. Avoid working while impaired.
13. Protect coworkers and members of the public.
14. Ask questions when instructions are unclear.
15. Participate in Job Hazard Analyses and toolbox talks.
16. Follow barricades, warning signs, and exclusion zones.
17. Cooperate with incident investigations.
18. Notify supervision when physical limitations affect the safe performance of assigned work.

Employees are expected to take reasonable care of company-issued PPE and equipment.

2.9 SUBCONTRACTORS

Subcontractors working under NCC shall:

- Comply with applicable safety requirements
- Provide trained and qualified workers
- Maintain required licenses and certifications
- Provide appropriate PPE
- Conduct task-specific planning
- Inspect their tools and equipment
- Report incidents to NCC immediately
- Cooperate with NCC safety inspections
- Correct hazards promptly
- Participate in coordination meetings
- Maintain required records
- Follow project-specific requirements
- Control hazards created by their work
- Protect other workers and the public

NCC reserves the right to stop subcontractor work, remove unsafe workers, reject unsafe equipment, or require corrective action.

Repeated or serious noncompliance may result in removal from the project or termination of the subcontract.

2.10 VISITORS AND VENDORS

Visitors and vendors shall:

- Check in with the designated NCC representative
- Receive applicable site-safety instructions
- Wear required PPE
- Remain in authorized areas
- Follow employee escorts when required
- Stay clear of equipment operating zones
- Avoid entering excavations, scaffolds, formwork, or restricted areas
- Report observed hazards
- Follow emergency instructions

Children and unauthorized persons are prohibited from active construction areas.

Visitors who refuse to follow safety requirements shall be removed from the work area.

SECTION 3

GENERAL SAFETY REQUIREMENTS

3.1 GENERAL CONDUCT

All NCC employees are expected to conduct themselves professionally and safely while on company property, customer property, active jobsites, public roadways, material yards, shops, and any other location where company business is being performed.

Employees shall:

1. Follow all company safety policies and procedures.
2. Follow lawful instructions issued by supervisors, competent persons, controlling contractors, and authorized customer representatives.
3. Remain alert to changing jobsite conditions.
4. Perform only work they are trained, qualified, and authorized to perform.
5. Maintain control of tools, materials, equipment, and vehicles.
6. Immediately report hazards, injuries, property damage, near misses, and unsafe behavior.
7. Treat coworkers, subcontractors, customers, inspectors, and members of the public with respect.
8. Avoid actions that distract employees who are operating equipment or performing hazardous work.
9. Comply with warning signs, barricades, exclusion zones, and access restrictions.
10. Maintain professional behavior during safety meetings, training, and emergency situations.

The following conduct is prohibited:

- Horseplay
- Fighting
- Threatening behavior
- Practical jokes
- Throwing tools or materials
- Intentional misuse of equipment
- Removing safety guards
- Bypassing safety devices
- Entering restricted areas without authorization
- Working under suspended loads
- Operating equipment without authorization
- Sleeping during work hours
- Possessing unauthorized weapons
- Using personal headphones when they interfere with hazard awareness
- Using mobile phones while operating vehicles or equipment
- Willfully violating safety requirements

Employees shall not pressure another employee to perform work that person reasonably believes is unsafe.

Disagreements concerning safety shall be referred to supervision before work continues.

3.2 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment, commonly referred to as PPE, is used when hazards cannot be fully eliminated through engineering controls, work practices, or administrative controls.

PPE shall not be considered a substitute for proper planning or hazard elimination.

NCC shall provide required PPE in accordance with applicable company, project, and regulatory requirements.

Employees shall wear, maintain, inspect, and use PPE as instructed.

3.2.1 Minimum Jobsite PPE

Unless a project-specific rule requires additional protection, the following minimum PPE shall be worn in active construction areas:

- Hard hat
- Safety glasses with side protection
- High-visibility vest or high-visibility clothing
- Work gloves appropriate for the task
- Work boots suitable for construction activities
- Long pants
- Shirt with sleeves

Supervisors may require additional PPE based on project conditions.

3.2.2 Eye and Face Protection

Safety glasses shall be worn in active work areas.

Additional protection shall be used for tasks involving:

- Grinding
- Chipping

- Saw cutting
- Core drilling
- Concrete splashing
- Chemical handling
- Pressure washing
- Compressed air
- Flying particles
- Overhead debris
- Concrete-pump line cleaning
- Form stripping
- Welding or torch cutting

Face shields shall be worn with safety glasses when the hazard presents a risk to the entire face.

A face shield shall not replace required safety glasses.

3.2.3 Head Protection

Hard hats shall be worn where employees may be exposed to:

- Falling objects
- Overhead work
- Equipment movement
- Suspended loads
- Electrical hazards
- Formwork operations
- Reinforcing-steel installation
- Masonry construction
- Concrete pumping
- Demolition
- Excavation activities

Hard hats shall be inspected regularly.

Hard hats with cracks, punctures, chemical damage, missing suspension components, or other defects shall be removed from service.

Employees shall not drill holes into hard hats, paint them with unauthorized materials, or wear them backward unless the manufacturer permits it.

3.2.4 Hand Protection

Gloves shall be selected based on the specific task.

Examples include:

- Alkali-resistant gloves for wet concrete
- Cut-resistant gloves for rebar and sharp materials
- Chemical-resistant gloves for curing compounds and sealers
- General work gloves for material handling
- Heat-resistant gloves for hot work
- Vibration-reducing gloves where appropriate

Employees shall not wear loose-fitting gloves near rotating equipment when the glove could become entangled.

Wet or contaminated gloves shall be replaced or cleaned as appropriate.

3.2.5 Foot Protection

Employees shall wear durable work boots appropriate for construction work.

Footwear shall provide:

- Slip resistance
- Ankle support
- Protection from sharp materials
- Protection from crushing hazards
- Stability on uneven terrain

Steel-toe or composite-toe protection may be required for tasks involving heavy material handling, reinforcing steel, masonry units, equipment maintenance, or other crushing hazards.

Rubber boots shall be worn when employees must enter wet concrete.

Wet concrete shall not be allowed to enter boots.

3.2.6 Hearing Protection

Hearing protection shall be worn when employees are exposed to high-noise equipment or operations, including:

- Concrete saws
- Jackhammers

- Chipping hammers
- Grinders
- Compaction equipment
- Power trowels
- Pumps
- Generators
- Compressors
- Heavy equipment
- Masonry saws

Employees shall use earplugs, earmuffs, or a combination as directed.

Employees shall not modify hearing protection.

3.2.7 Respiratory Protection

Respirators shall only be used under an approved respiratory-protection program when required.

Employees required to wear respirators may need:

- Medical evaluation
- Fit testing
- Training
- Facial-hair restrictions
- Respirator inspection
- Proper storage
- Cartridge-change procedures

Employees shall not use another employee's respirator.

Disposable dust masks shall not be treated as universal protection against silica, chemicals, or hazardous atmospheres.

3.2.8 High-Visibility Clothing

High-visibility clothing shall be worn when employees are exposed to:

- Moving vehicles
- Heavy equipment
- Concrete trucks
- Roadways
- Parking lots

- Material-delivery zones
- Low-light conditions
- Night work

High-visibility garments shall be kept reasonably clean and visible.

3.2.9 Fall-Protection Equipment

Employees using personal fall-arrest equipment shall be trained and authorized.

Fall-protection equipment shall be inspected before use.

Equipment shall be removed from service if it has:

- Cuts
- Burns
- Fraying
- Broken stitching
- Damaged hooks
- Missing labels
- Chemical contamination
- Fall-arrest loading
- Excessive wear

Fall-protection equipment shall not be used for lifting materials.

3.2.10 PPE Inspection and Replacement

Employees shall inspect PPE before use.

Defective PPE shall be:

1. Removed from service.
2. Reported to supervision.
3. Repaired by an authorized person when permitted.
4. Replaced when repair is not permitted or practical.

Employees shall not continue working without required PPE.

3.3 HOUSEKEEPING

Good housekeeping is a basic condition of safe and productive work.

Work areas shall be maintained to prevent:

- Trips
- Slips
- Falls
- Fire hazards
- Blocked access
- Equipment interference
- Material damage
- Public exposure
- Pest attraction
- Environmental contamination

Employees shall:

1. Keep access routes clear.
2. Remove scrap material regularly.
3. Stack lumber, forms, rebar, block, and supplies securely.
4. Control hoses, cords, and leads.
5. Remove protruding nails or bend them over.
6. Store tools when not in use.
7. Clean spills promptly.
8. Maintain clear access to fire extinguishers.
9. Keep ladders and emergency exits unobstructed.
10. Secure loose material before leaving the jobsite.
11. Dispose of food waste properly.
12. Maintain clean vehicle and equipment cabs.
13. Keep concrete washout contained.
14. Prevent materials from entering storm drains.

Housekeeping shall be performed throughout the shift and not only at the end of the day.

Foremen shall inspect housekeeping conditions as part of daily site supervision.

3.3.1 Hoses and Cords

Concrete-pump hoses, water hoses, extension cords, welding leads, and air hoses shall be routed to reduce trip hazards.

Where hoses or cords cross walking or vehicle routes, they shall be:

- Rerouted
- Elevated
- Covered
- Barricaded
- Otherwise protected

Employees shall not create makeshift cord connections or leave damaged cords in service.

3.3.2 Material Stacking

Materials shall be stacked on stable, level surfaces.

Stacks shall not be allowed to become unstable.

Block, bagged cement, lumber, form panels, rebar, and other materials shall be stored so they do not:

- Roll
- Slide
- Collapse
- Block access
- Obstruct visibility
- Overload slabs or platforms

Banding and strapping shall be removed carefully.

Employees shall not stand directly in the release path of stored energy when cutting bands.

3.4 JOB HAZARD ANALYSIS

A Job Hazard Analysis, or JHA, shall be completed for work activities that present significant hazards or require formal preplanning.

A JHA may also be referred to as a Job Safety Analysis, Activity Hazard Analysis, or Pre-Task Plan.

The JHA shall identify:

1. The work activity.
2. The steps required to complete the work.
3. Hazards associated with each step.
4. Required control measures.
5. Required PPE.
6. Training or qualification requirements.
7. Emergency considerations.
8. Responsible persons.
9. Required inspections.
10. Changes that may require the JHA to be revised.

JHAs shall be completed before work begins when required by:

- NCC policy
- The controlling contractor
- Project specifications
- Customer requirements
- A competent person
- The Safety Coordinator
- The nature of the hazard

3.4.1 Activities Commonly Requiring a JHA

Activities that commonly require a written JHA include:

- Concrete pumping
- Elevated pours
- Formwork erection
- Form stripping
- Reinforcing-steel installation
- Excavation and trenching
- Scaffold erection
- Fall-protection work
- Crane and rigging activities
- Saw cutting
- Silica-producing tasks
- Demolition
- Confined-space work
- Traffic-control activities
- Night work
- Work near power lines

- Heavy-equipment operations
- Concrete placement in restricted areas
- Work near the public
- Unusual or nonroutine activities

3.4.2 Crew Review

The foreman shall review the JHA with affected employees before the task begins.

Employees shall be given an opportunity to:

- Ask questions
- Identify additional hazards
- Recommend controls
- Clarify assignments
- Confirm understanding

Employees may be required to sign the JHA to document participation.

A signature confirms participation and review. It does not transfer the company's responsibility for providing a safe workplace.

3.4.3 Changing Conditions

The JHA shall be reviewed and revised when:

- Weather changes
- Site access changes
- Equipment changes
- Crew composition changes
- The work sequence changes
- New contractors enter the area
- An incident or near miss occurs
- New hazards are identified
- Work continues on another shift
- The original controls become ineffective

When conditions change unexpectedly, work shall pause until the new hazards are evaluated.

3.5 DAILY PRE-TASK PLANNING

Daily pre-task planning shall be conducted before employees begin work.

The foreman or supervisor shall review:

- Work activities
- Crew assignments
- Equipment needs
- Delivery schedules
- Weather conditions
- Heat conditions
- Site access
- Public exposure
- Other contractor activities
- PPE requirements
- Emergency procedures
- Material-handling plans
- Traffic and backing hazards
- Fall hazards
- Electrical hazards
- Silica hazards
- Excavation conditions
- Concrete placement sequence

The daily plan shall be communicated in language and vocabulary employees understand.

The plan shall be updated during the day when conditions change.

3.5.1 Questions to Address

The crew should be able to answer:

- 1. What are we doing today?**
- 2. What can hurt us?**
- 3. What controls are required?**
- 4. Who is responsible for each part of the work?**
- 5. What equipment will be used?**
- 6. Where are workers permitted to stand?**
- 7. What areas are restricted?**

- 8. What happens if something goes wrong?**
- 9. Who is the competent person?**
- 10. When must work stop?**

A hurried start often creates a slow disaster. Five minutes of planning can save hours of repair, paperwork, and awkward phone calls.

3.6 TOOLBOX TALKS

Toolbox talks are short safety meetings focused on current or upcoming hazards.

Toolbox talks shall be conducted:

- At least weekly
- When new hazards are introduced
- After an incident or near miss
- When unsafe trends are observed
- When required by a customer or controlling contractor
- Before unusual or high-risk work

Topics shall be relevant to current operations whenever possible.

Examples include:

- Heat stress
- Concrete burns
- Silica
- Rebar impalement
- Trench safety
- Backing equipment
- Pump-hose safety
- Fall protection
- Ladder use
- Hand injuries
- Housekeeping
- Electrical cords
- Saw safety
- Rigging
- Severe weather

- Hydration
- Material handling
- Trailer safety
- Public protection

3.6.1 Toolbox Talk Documentation

Toolbox-talk records should include:

- Date
- Project
- Topic
- Presenter
- Key points discussed
- Employee names
- Employee signatures
- Questions or concerns
- Corrective actions

Toolbox talks shall not replace required formal training.

3.6.2 Employee Participation

Employees are expected to:

- Pay attention
- Participate
- Ask questions
- Report related hazards
- Sign attendance records honestly
- Apply the information in the field

Supervisors shall avoid rushing through meetings merely to collect signatures.

3.7 HAZARD REPORTING

Employees shall report unsafe conditions and unsafe acts immediately.

Reports may involve:

- Damaged tools
- Defective equipment
- Missing guards
- Unsafe trenches
- Unprotected rebar
- Exposed electrical conductors
- Damaged extension cords
- Unsafe scaffolds
- Inadequate fall protection
- Excessive silica dust
- Poor housekeeping
- Unsecured materials
- Vehicle defects
- Impaired employees
- Public exposure
- Chemical spills
- Missing barricades
- Unsafe concrete-pump setup
- Severe weather exposure

Employees may report hazards to:

- Their foreman
- Superintendent
- Project Manager
- Safety Coordinator
- Company management

No employee shall be retaliated against for making a good-faith hazard report.

3.7.1 Immediate Danger

When a hazard presents an immediate danger, the employee shall:

- 1. Stop the activity when safe to do so.**
- 2. Warn others.**
- 3. Leave the danger area.**
- 4. Notify supervision.**
- 5. Prevent unauthorized entry when possible.**
- 6. Wait for evaluation and corrective action.**

3.7.2 Corrective Action

Reported hazards shall be evaluated promptly.

Corrective measures may include:

- Repairing equipment
- Replacing equipment
- Installing guards
- Adding barricades
- Revising work methods
- Providing training
- Reassigning workers
- Improving access
- Changing the work sequence
- Adding ventilation
- Using wet methods
- Increasing supervision
- Suspending work

Corrective actions shall be documented when appropriate.

3.8 SAFETY INSPECTIONS

NCC shall conduct regular inspections of jobsites, equipment, vehicles, tools, and work practices.

Inspections may be conducted by:

- Foremen
- Superintendents
- Competent persons
- Safety Coordinator
- Project Managers
- Equipment operators
- Third-party safety professionals
- Insurance representatives
- Customer representatives
- Controlling contractors

3.8.1 Daily Inspections

Daily inspections may include:

- Work areas
- Access routes
- PPE compliance
- Tools
- Equipment
- Vehicles
- Trailers
- Excavations
- Ladders
- Scaffolds
- Formwork
- Fall protection
- Rebar protection
- Electrical cords
- Housekeeping
- Emergency supplies
- Fire extinguishers
- Weather conditions

3.8.2 Formal Inspections

Formal documented inspections shall be conducted at intervals appropriate to the work.

Inspection records should identify:

- Date
- Project
- Inspector
- Conditions observed
- Hazards found
- Corrective action
- Responsible person
- Completion date
- Follow-up verification

3.8.3 Deficient Conditions

Hazards identified during inspections shall be prioritized based on severity.

Conditions presenting immediate danger shall be corrected before work continues.

Less immediate conditions shall be assigned for correction within a reasonable period.

Repeated hazards may require:

- Additional training
 - Increased supervision
 - Procedure revision
 - Disciplinary action
 - Equipment replacement
 - Management review
-

3.9 CORRECTIVE ACTIONS

Corrective action is required when unsafe conditions, unsafe practices, procedural deficiencies, or training gaps are identified.

Corrective actions should address the cause of the problem rather than only the visible symptom.

Examples include:

- Replacing a damaged ladder
- Retraining employees
- Revising a JHA
- Repairing backup alarms
- Improving material-delivery planning
- Adding rebar caps
- Installing guardrails
- Revising equipment routes
- Providing shade and hydration
- Assigning additional spotters
- Repairing damaged cords
- Changing silica-control methods
- Improving subcontractor coordination

3.9.1 Corrective-Action Responsibility

Each corrective action shall be assigned to a responsible person.

The responsible person shall:

- 1. Understand the required correction.**
- 2. Complete the correction within the assigned time.**
- 3. Notify supervision when complete.**
- 4. Provide supporting documentation when required.**
- 5. Report obstacles that prevent completion.**

3.9.2 Verification

A supervisor, competent person, or Safety Coordinator shall verify significant corrective actions.

A hazard shall not be considered closed merely because paperwork says so. The fix must exist in the field, where gravity and machinery continue refusing to read memos.

3.10 SAFETY DISCIPLINARY POLICY

NCC expects employees to follow safety requirements.

Disciplinary action may be used when an employee:

- Knowingly violates a safety rule
- Repeatedly ignores instructions
- Fails to wear required PPE
- Operates equipment without authorization
- Removes guards
- Bypasses safety devices
- Engages in horseplay
- Fails to report an incident
- Uses a mobile phone while operating equipment
- Enters a restricted area
- Works under suspended loads
- Fails to follow fall-protection requirements

- Refuses reasonable safety instructions
- Reports to work impaired
- Falsifies safety documents

Discipline shall be applied as consistently as practical.

3.10.1 Progressive Discipline

Depending on the circumstances, progressive discipline may include:

- 1. Verbal coaching.**
- 2. Documented verbal warning.**
- 3. Written warning.**
- 4. Suspension.**
- 5. Removal from the project.**
- 6. Termination of employment.**

NCC reserves the right to skip steps when the conduct is serious.

3.10.2 Serious Violations

Immediate suspension or termination may be considered for:

- Intentional bypass of a critical safety device
- Working under a suspended load
- Deliberate violation of fall-protection rules
- Operating equipment while impaired
- Fighting
- Threatening violence
- Falsifying incident records
- Unauthorized operation of heavy equipment
- Deliberately entering an unsafe trench
- Reckless driving
- Intentional exposure of another person to danger

3.10.3 Supervisor Accountability

Supervisors may also be disciplined for:

- Ignoring known hazards
- Directing unsafe work
- Failing to enforce PPE

- Allowing unauthorized equipment operation
- Failing to report incidents
- Retaliating against employees
- Failing to correct repeated hazards
- Pressuring crews to bypass safety requirements

Safety accountability applies uphill as well as downhill.

3.11 SAFETY RECOGNITION

NCC may recognize employees or crews who demonstrate positive safety leadership.

Recognition may be based on:

- Hazard reporting
- Near-miss reporting
- Good housekeeping
- Strong pre-task planning
- Equipment care
- Safety suggestions
- Training participation
- Public protection
- Mentoring new employees
- Proper Stop-Work Authority
- Consistent PPE compliance

Recognition programs shall not discourage injury or illness reporting.

Employees shall never be rewarded solely because no injuries were reported.

3.12 SUBCONTRACTOR COORDINATION

Before beginning work, NCC and affected subcontractors shall discuss:

- Scope of work
- Work areas

- Hazardous activities
- Equipment routes
- Material deliveries
- Concrete placement sequence
- Excavations
- Fall hazards
- Electrical hazards
- Silica-producing work
- Emergency procedures
- Restricted areas
- Required PPE
- Inspection responsibilities
- Incident reporting
- Project-specific rules

Subcontractors shall notify NCC when their work may create hazards for others.

NCC shall notify subcontractors when NCC operations may affect their employees.

Coordination shall continue throughout the project.

3.13 PUBLIC PROTECTION

NCC shall take reasonable measures to protect customers, occupants, pedestrians, motorists, visitors, and members of the public.

Protective measures may include:

- Barricades
- Fencing
- Warning signs
- Spotters
- Covered walkways
- Traffic control
- Flaggers
- Restricted access
- Equipment exclusion zones
- Controlled delivery times

- Secured materials
- Temporary lighting
- Housekeeping
- Trench covers
- Guardrails
- Dust control

Employees shall not assume the public understands construction hazards.

Children, residents, customers, and pedestrians may enter work areas unexpectedly. Crews shall plan accordingly.

3.13.1 Occupied Properties

When working at occupied homes or businesses, employees shall:

- Maintain safe access
- Protect doorways and walkways
- Control dust and debris
- Secure tools
- Protect pets and children
- Coordinate shutdowns
- Avoid blocking emergency access
- Maintain professional conduct
- Notify occupants of changing hazards

3.14 SAFETY SIGNS, TAGS, AND BARRICADES

Safety signs, tags, and barricades shall be used to communicate hazards and restrict access.

Employees shall not remove or relocate safety signs, tags, or barricades without authorization.

Examples include:

- Danger signs
- Warning signs
- Caution signs
- Equipment out-of-service tags

- Excavation barricades
- Fall-hazard barricades
- Concrete-pour exclusion zones
- Rebar hazard warnings
- Electrical hazard signs
- Confined-space signs
- Wet concrete signs
- Traffic-control devices

Barricades shall be appropriate for the hazard.

Caution tape alone may not be sufficient for fall hazards, vehicle hazards, or public protection.

3.15 LANGUAGE AND COMMUNICATION

Safety information shall be communicated in language and vocabulary employees understand.

NCC may use:

- Bilingual supervisors
- Translated documents
- Interpreters
- Demonstrations
- Pictures
- Hands-on training
- Videos
- Verbal instruction

Employees shall not pretend to understand safety instructions.

Employees are expected to ask questions when communication is unclear.

Supervisors shall confirm understanding through discussion, demonstration, or observation.

3.16 FATIGUE AND FITNESS FOR DUTY

Employees shall report to work physically and mentally capable of safely performing assigned duties.

Conditions that may affect fitness for duty include:

- Illness
- Injury
- Medication
- Extreme fatigue
- Heat stress
- Dehydration
- Alcohol
- Drugs
- Emotional distress
- Lack of sleep

Employees shall notify supervision when a condition may affect safe performance.

Supervisors shall evaluate whether the employee can:

- Continue working
- Perform modified duties
- Take a rest period
- Obtain medical evaluation
- Leave the jobsite safely

Employees shall not operate vehicles or equipment when fatigued or impaired.

3.17 CELL PHONE AND ELECTRONIC-DEVICE USE

Employees shall not use handheld phones or electronic devices while:

- Driving
- Operating equipment
- Spotting equipment
- Directing traffic
- Working near suspended loads

- Working at height
- Performing rigging
- Using power tools
- Walking through active equipment zones
- Performing other safety-sensitive tasks

Calls and messages shall be handled from a safe location.

Emergency communications are permitted when they can be performed safely.

Headphones and earbuds shall not be used when they interfere with:

- Verbal warnings
 - Backup alarms
 - Equipment horns
 - Traffic awareness
 - Emergency instructions
-

3.18 WORKING ALONE

Employees should not work alone when performing high-hazard activities.

High-hazard work that may require additional personnel includes:

- Excavation entry
- Elevated work
- Confined-space entry
- Heavy-equipment repair
- Electrical troubleshooting
- Remote sitework
- Concrete-pump line clearing
- Night work
- Work near water
- Hot work
- Tasks requiring emergency rescue capability

When employees work alone, supervision shall establish:

- Communication methods
- Check-in times

- Emergency procedures
- Work limits
- Location information
- Expected completion time

Employees shall not perform unauthorized high-hazard work alone.

3.19 NIGHT WORK

Night work requires additional planning due to reduced visibility, fatigue, public traffic, and communication challenges.

Night-work plans shall address:

- Lighting
- Reflective PPE
- Equipment visibility
- Traffic control
- Spotters
- Fatigue
- Noise restrictions
- Emergency access
- Delivery routes
- Public protection
- Shift supervision
- Weather conditions

Temporary lighting shall be positioned to reduce glare and shadows.

Employees shall not work in areas where lighting is inadequate for the task.

3.20 SHIFT HANDOFF

When work continues across shifts, the outgoing supervisor shall communicate important information to the incoming supervisor.

Handoff information should include:

- Work completed
- Work remaining
- Equipment condition
- Open excavations
- Formwork status
- Concrete placement status
- Restricted areas
- Unresolved hazards
- Weather concerns
- Damaged tools
- Utility conditions
- Public-access issues
- Corrective actions
- Incidents or near misses

A poor shift handoff allows yesterday's hazard to greet tomorrow's crew before the coffee does.

SECTION 4

EMERGENCY MANAGEMENT

4.1 EMERGENCY ACTION PLAN

Each project shall have an Emergency Action Plan appropriate to the location, work activities, workforce, and anticipated hazards.

The plan shall address:

- Emergency contacts
- Project address
- Site access
- Nearest medical facility
- Emergency transportation
- Fire
- Medical emergencies
- Severe weather

- Lightning
- Hurricanes
- Chemical spills
- Equipment emergencies
- Excavation incidents
- Evacuation
- Assembly areas
- Communication methods
- Accountability

The plan shall be available to employees.

Employees shall receive emergency information before beginning work.

4.1.1 Project Information

The project emergency sheet should include:

- Project name
- Full street address
- Nearest cross street
- GPS coordinates when useful
- Site entrance
- Gate instructions
- Superintendent contact
- Foreman contact
- Customer contact
- Emergency services number
- Nearest hospital
- Urgent-care location
- Utility emergency numbers
- Assembly point

The project address shall be posted where employees can quickly find it.

4.2 EMERGENCY COMMUNICATION

Employees shall know how to summon emergency assistance.

Communication may be made through:

- Mobile phone
- Two-way radio
- Site alarm
- Air horn
- Verbal warning
- Vehicle horn
- Runner

Emergency communication shall clearly provide:

- 1. The nature of the emergency.**
- 2. The project address.**
- 3. The exact location on site.**
- 4. The number of injured persons.**
- 5. Known hazards.**
- 6. The caller's name and phone number.**
- 7. The safest entrance for responders.**

The caller should remain on the line until released by emergency dispatch.

A designated employee should meet emergency responders at the entrance when practical.

4.3 MEDICAL EMERGENCIES

When a serious injury or medical emergency occurs:

- 1. Stop work.**
- 2. Protect the injured person from additional hazards.**
- 3. Call emergency services.**
- 4. Provide first aid only within the responder's training.**
- 5. Do not move the injured person unless necessary to prevent greater harm.**
- 6. Send someone to direct emergency responders.**
- 7. Notify NCC management.**
- 8. Preserve the scene when appropriate.**

9. Control access.

10. Document the incident.

Examples of emergencies include:

- Unconsciousness
- Severe bleeding
- Chest pain
- Difficulty breathing
- Heat stroke
- Crushing injury
- Amputation
- Electrical shock
- Serious fall
- Head injury
- Chemical exposure
- Concrete burns
- Equipment rollover
- Trench collapse

Employees shall not transport a critically injured person in a company vehicle unless directed by emergency professionals or no safer option exists.

4.4 FIRST AID AND CPR

NCC shall maintain accessible first-aid supplies appropriate to the workforce and hazards.

First-aid kits shall be:

- Clearly marked
- Readily accessible
- Protected from contamination
- Inspected regularly
- Restocked as needed

Projects should have trained first-aid and CPR personnel available when required or practical.

Only trained employees shall provide care beyond basic assistance.

Employees shall use protective gloves when contact with blood or bodily fluids is possible.

4.4.1 First-Aid Kit Contents

Contents may include:

- Adhesive bandages
- Sterile gauze
- Trauma pads
- Medical tape
- Antiseptic wipes
- Burn dressings
- Eye-wash solution
- Disposable gloves
- Scissors
- Cold packs
- Roller bandages
- CPR barrier
- Emergency blanket
- First-aid instructions

Medication shall not be distributed through the company first-aid kit unless authorized by company policy.

4.5 FIRE PREVENTION

Employees shall take reasonable measures to prevent fires.

Fire hazards include:

- Fuel
- Solvents
- Gasoline
- Diesel
- Propane
- Welding
- Cutting
- Smoking

- Electrical defects
- Hot engines
- Combustible debris
- Improper chemical storage

Employees shall:

- 1. Maintain access to fire extinguishers.**
- 2. Store flammable materials properly.**
- 3. Shut down engines before fueling unless the manufacturer permits otherwise.**
- 4. Control ignition sources.**
- 5. Remove combustible debris.**
- 6. Follow hot-work procedures.**
- 7. Report leaks.**
- 8. Avoid smoking near fuel or chemicals.**
- 9. Secure compressed-gas cylinders.**
- 10. Inspect cords and temporary power.**

4.5.1 Fire Extinguishers

Fire extinguishers shall be:

- Appropriate for the hazard
- Accessible
- Clearly visible
- Inspected
- Protected from damage
- Mounted or secured

Employees expected to use extinguishers shall receive appropriate instruction.

Employees shall not attempt to fight a fire when:

- The fire is spreading
- Smoke is heavy
- The escape route is threatened
- Hazardous chemicals are involved
- The employee is not trained
- The extinguisher is inadequate

Life safety comes first. Concrete may be durable, but employees are not replaceable components.

4.6 EVACUATION

When evacuation is required, employees shall:

- 1. Stop work safely.**
- 2. Shut down equipment when time permits.**
- 3. Leave through the designated route.**
- 4. Avoid elevators where applicable.**
- 5. Report to the assembly area.**
- 6. Remain available for accountability.**
- 7. Do not reenter until authorized.**

Supervisors shall account for employees and report missing persons.

Employees shall not leave the assembly area without notifying supervision.

Visitors and subcontractors shall be included in accountability procedures when practical.

4.7 SEVERE WEATHER

Supervisors shall monitor severe weather that may affect operations.

Hazards include:

- Lightning
- High winds
- Heavy rain
- Flooding
- Tornadoes
- Hurricanes
- Extreme heat
- Reduced visibility

Work shall be modified or suspended when conditions create unacceptable risk.

Examples include:

- Crane or boom operations in high winds
- Elevated work during lightning
- Excavation entry during flooding
- Equipment operation in poor visibility
- Concrete placement during severe storms
- Work beneath unstable materials
- Travel during dangerous weather

Employees shall follow supervisor instructions regarding shelter and evacuation.

4.8 LIGHTNING

Lightning is a significant hazard during Florida construction operations.

When lightning threatens, employees shall stop exposed outdoor work and move to a safe location.

Unsafe shelter locations include:

- Under trees
- Near cranes
- Near pump booms
- On scaffolds
- In open fields
- Beside metal fencing
- Near reinforcing steel
- In partially enclosed structures without protection

Safer locations may include:

- Substantial enclosed buildings
- Fully enclosed vehicles
- Designated site shelters

Supervisors shall establish project-specific lightning procedures.

Employees shall not resume exposed outdoor work until conditions are determined to be acceptable.

4.9 HURRICANE PREPAREDNESS

NCC shall prepare for hurricanes and tropical storms when operations may be affected.

Preparation may include:

- Monitoring forecasts
- Securing materials
- Lowering equipment attachments
- Removing loose debris
- Protecting documents
- Securing trailers
- Relocating equipment
- Fueling vehicles
- Protecting chemicals
- Clearing drainage
- Suspending deliveries
- Closing projects
- Establishing employee communication

Employees shall not be required to remain at an unsafe jobsite during dangerous storm conditions.

4.9.1 Post-Storm Reentry

Before work resumes, a qualified supervisor shall inspect for:

- Downed power lines
- Flooding
- Unstable structures
- Damaged scaffolds
- Open excavations
- Contaminated water
- Fallen trees
- Damaged equipment

- Debris
- Washouts
- Road closures
- Electrical hazards

Work shall not resume until critical hazards are controlled.

4.10 HEAT-RELATED EMERGENCIES

Employees and supervisors shall recognize symptoms of heat illness.

Heat Exhaustion Symptoms

- Heavy sweating
- Weakness
- Dizziness
- Headache
- Nausea
- Muscle cramps
- Irritability
- Rapid pulse
- Cool or clammy skin

Heat Stroke Symptoms

- Confusion
- Collapse
- Loss of coordination
- Seizure
- Unconsciousness
- Hot skin
- Very high body temperature
- Abnormal behavior

Heat stroke is a medical emergency.

When heat stroke is suspected:

- 1. Call emergency services immediately.**

- 2. Move the employee to shade or air conditioning.**
- 3. Begin rapid cooling.**
- 4. Remove unnecessary outer clothing.**
- 5. Apply cool water, ice packs, or wet towels.**
- 6. Do not leave the employee alone.**
- 7. Do not force fluids into an unconscious or confused person.**

Cooling shall begin immediately and continue while emergency assistance is on the way.

4.11 CHEMICAL SPILLS

Employees shall report spills immediately.

The response shall depend on:

- Material involved
- Quantity
- Location
- Fire risk
- Drainage exposure
- Employee exposure
- Available spill-control materials

Employees shall not clean up chemicals unless they are trained and equipped.

Spill response may include:

- 1. Stop the source when safe.**
- 2. Protect people.**
- 3. Eliminate ignition sources.**
- 4. Prevent entry into drains.**
- 5. Use absorbent materials.**
- 6. Barricade the area.**
- 7. Notify supervision.**
- 8. Review the Safety Data Sheet.**
- 9. Dispose of waste properly.**
- 10. Document the incident.**

Large or hazardous spills may require emergency response or regulatory notification.

4.12 EQUIPMENT EMERGENCIES

Equipment emergencies may include:

- Rollover
- Worker struck by equipment
- Hydraulic failure
- Fire
- Suspended-load failure
- Boom contact with power lines
- Runaway equipment
- Entrapment
- Fuel leak
- Brake failure

Employees shall:

- 1. Stop nearby operations.**
- 2. Keep unauthorized persons away.**
- 3. Call emergency services when needed.**
- 4. Avoid touching equipment in contact with electrical lines.**
- 5. Follow operator emergency procedures.**
- 6. Do not attempt an unplanned rescue.**
- 7. Notify management.**
- 8. Preserve the scene.**

Only trained and authorized persons shall recover overturned or disabled equipment.

4.13 TRENCH-COLLAPSE EMERGENCIES

Employees shall not enter a collapsed trench to attempt rescue unless they are part of a trained and properly equipped rescue team.

Secondary collapse may kill rescuers.

When a collapse occurs:

- 1. Call emergency services.**
- 2. Stop nearby equipment.**
- 3. Keep employees away from the edge.**
- 4. Shut down vibration sources.**
- 5. Prevent additional soil or material from entering.**
- 6. Identify the victim's last known location.**
- 7. Provide information to responders.**
- 8. Do not enter the trench.**

Good intentions are not a protective system.

4.14 INCIDENT COMMAND

For serious emergencies, the highest-ranking qualified NCC supervisor present shall coordinate company actions until relieved by emergency responders or management.

The coordinator shall:

- Call emergency services
- Control access
- Account for employees
- Assign a responder guide
- Notify management
- Protect evidence
- Coordinate customer communication
- Prevent unauthorized statements
- Support emergency personnel

Employees shall not post photographs, videos, or incident details on social media.

Only authorized company representatives may speak on behalf of NCC.

4.15 EMERGENCY DRILLS

NCC may conduct emergency drills for:

- Evacuation
- Severe weather
- Fire
- Medical response
- Spill response
- Employee accountability

Drills shall be documented.

Lessons learned shall be reviewed and corrective actions implemented.

4.16 EMERGENCY CONTACT POSTING

Emergency contact information shall be posted or readily available at each active project.

The posting should include:

- 911
- Project address
- Superintendent
- Foreman
- Safety Coordinator
- Company office
- Nearest hospital
- Poison-control contact
- Utility emergency contacts
- Customer representative
- Assembly location

Employees shall be shown where this information is located during orientation.

SECTION 5

OCCUPATIONAL HEALTH

5.1 HEAT-ILLNESS PREVENTION

NCC recognizes that employees performing construction work in Florida may be exposed to high temperatures, direct sunlight, humidity, radiant heat, physically demanding labor, and personal protective equipment that increases the risk of heat illness.

Heat-related illness can occur indoors or outdoors and may affect new employees, experienced employees, supervisors, equipment operators, and employees returning after an absence.

NCC shall maintain a heat-illness prevention program based on:

- Water
- Rest
- Shade or cooling
- Acclimatization
- Work planning
- Employee monitoring
- Training
- Emergency response

Supervisors shall consider heat exposure when planning manpower, schedules, work sequence, break frequency, equipment use, and physically demanding tasks.

Production expectations shall be adjusted when necessary to protect employees from excessive heat.

5.1.1 HEAT-RISK FACTORS

Heat risk may be increased by:

- High air temperature
- High humidity

- Direct sunlight
- Limited air movement
- Radiant heat from concrete, equipment, roofs, or pavement
- Heavy physical labor
- Impermeable or heavy protective clothing
- Lack of acclimatization
- Dehydration
- Certain medications
- Illness
- Fatigue
- Alcohol use
- Previous heat illness
- Working through breaks
- Inadequate sleep
- Working inside enclosed structures
- Operating equipment without air conditioning
- Returning to work after vacation or extended absence

Supervisors shall evaluate the combination of conditions rather than relying only on air temperature.

An employee may experience heat illness even when the temperature does not appear extreme.

5.1.2 WATER

NCC shall provide access to adequate drinking water.

Drinking water shall be:

- Potable
- Cool when practical
- Readily accessible
- Located reasonably near the work
- Supplied in sufficient quantity
- Maintained in sanitary containers

Employees shall be encouraged to drink water regularly throughout the shift rather than waiting until they become thirsty.

During hot conditions, employees should generally drink small amounts frequently.

Employees shall not share drinking cups unless disposable single-use cups are provided.

Water containers shall not be dipped into by hand.

Employees shall not place tools, rags, chemicals, or other materials on drinking-water coolers.

Sports drinks or electrolyte replacements may be provided when employees perform prolonged heavy work and sweat extensively. Electrolyte drinks shall not replace access to drinking water.

Energy drinks, excessive caffeine, and sugary beverages may contribute to poor hydration and shall not be relied upon for heat protection.

5.1.3 REST AND SHADE

Employees shall be allowed reasonable rest periods based on:

- Heat conditions
- Work intensity
- Employee symptoms
- Clothing and PPE
- Acclimatization
- Direct sunlight
- Duration of exposure

Shade or cooling areas may include:

- Tents
- Canopies
- Air-conditioned vehicles
- Air-conditioned trailers
- Buildings
- Covered break areas
- Fans
- Portable cooling units

Rest areas shall be located away from:

- Moving equipment
- Suspended loads
- Fuel storage
- Chemical storage
- Traffic routes
- Active concrete placement
- Other uncontrolled hazards

Employees shall not be discouraged from taking a necessary recovery break when experiencing heat symptoms.

A worker who requests a heat-recovery break shall be permitted to rest and shall be monitored when symptoms are present.

5.1.4 ACCLIMATIZATION

Acclimatization is the process by which the body gradually adjusts to working in heat.

New employees and employees returning after an extended absence may be at increased risk.

Supervisors shall provide closer observation and gradually increase heat exposure for:

- New employees
- Temporary employees
- Employees returning from vacation
- Employees returning after illness
- Employees transferred from cooler work
- Employees beginning unusually strenuous assignments

Acclimatization normally requires several days of progressively increased exposure.

Supervisors shall not assume that an employee is acclimatized merely because the employee lives in Florida.

Living near heat and working ten hours in it are different animals.

5.1.5 WORK PLANNING DURING HOT CONDITIONS

When practical, supervisors should:

- Schedule the heaviest work during cooler hours
- Rotate physically demanding tasks
- Use mechanical assistance
- Increase rest frequency
- Increase employee monitoring
- Provide additional shade
- Start work earlier when authorized
- Reduce unnecessary PPE layers
- Use fans or ventilation
- Stage materials close to the work
- Avoid unnecessary manual handling
- Coordinate concrete placements carefully
- Provide relief operators
- Assign a buddy system
- Monitor employees returning after an absence

Supervisors shall account for heat retained by fresh concrete, pavement, equipment, formwork, masonry walls, and enclosed work areas.

5.1.6 HEAT-ILLNESS SYMPTOMS

Employees shall be trained to recognize heat-related symptoms.

Heat Cramps

Symptoms may include:

- Painful muscle cramps
- Tightness
- Spasms
- Heavy sweating
- Thirst

The employee shall:

- 1. Stop strenuous activity.**
- 2. Move to a cooler area.**
- 3. Drink water or an appropriate electrolyte beverage.**
- 4. Notify supervision.**
- 5. Obtain medical assistance if symptoms persist.**

Heat Exhaustion

Symptoms may include:

- Heavy sweating
- Headache
- Dizziness
- Weakness
- Nausea
- Vomiting
- Irritability
- Rapid pulse
- Cool or clammy skin
- Loss of coordination
- Unusual fatigue
- Fainting

The employee shall be removed from heat and monitored.

Cooling measures may include:

- Moving to shade or air conditioning
- Removing unnecessary outer clothing
- Applying cool wet towels
- Using fans
- Providing cool water when the employee is alert and able to drink

An employee showing heat-exhaustion symptoms shall not be left alone.

Medical care shall be obtained if symptoms are severe, worsen, or do not improve promptly.

Heat Stroke

Heat stroke is a medical emergency.

Symptoms may include:

- Confusion
- Abnormal behavior
- Slurred speech
- Collapse
- Seizure
- Loss of consciousness
- Very high body temperature
- Hot skin
- Inability to walk normally
- Aggressive or irrational behavior

When heat stroke is suspected:

- 1. Call 911 immediately.**
- 2. Begin rapid cooling.**
- 3. Move the person to shade or air conditioning.**
- 4. Remove unnecessary outer clothing.**
- 5. Apply ice, cool water, wet towels, or other available cooling.**
- 6. Place cold packs near the neck, armpits, and groin when available.**
- 7. Stay with the employee.**
- 8. Do not force fluids into a confused or unconscious person.**
- 9. Continue cooling until emergency responders arrive.**

Employees shall not delay emergency response while attempting to determine whether the condition is definitely heat stroke.

When in doubt, treat it as an emergency.

5.1.7 BUDDY MONITORING

Employees working in hot conditions shall watch coworkers for signs of heat illness.

Employees shall report when a coworker:

- Becomes confused
- Stops sweating unexpectedly
- Stumbles

- Becomes unusually irritable
- Appears weak
- Complains of dizziness
- Develops slurred speech
- Stops responding normally
- Has difficulty performing familiar work
- Attempts to continue working despite visible distress

Employees experiencing heat illness may not recognize their own condition.

Crew members shall not allow a distressed worker to leave alone, drive, or sit unattended in a vehicle.

5.1.8 HEAT TRAINING

Heat-illness training shall address:

- Risk factors
- Water requirements
- Rest and shade
- Acclimatization
- Symptoms
- First aid
- Emergency communication
- Project location
- Employee monitoring
- Medication and health considerations
- The importance of immediate reporting

Supervisors shall receive additional training regarding:

- Work planning
 - Employee observation
 - Emergency response
 - Acclimatization
 - Return-to-work decisions
 - Adjusting schedules and workloads
 - Documenting heat incidents
-

5.2 RESPIRABLE CRYSTALLINE SILICA EXPOSURE-CONTROL PROGRAM

Concrete, mortar, masonry block, brick, grout, stone, and similar materials may contain crystalline silica.

Respirable crystalline silica may be created when these materials are:

- Cut
- Sawed
- Drilled
- Ground
- Chipped
- Crushed
- Jackhammered
- Swept dry
- Cleaned with compressed air
- Demolished
- Mixed or handled in a dusty condition

NCC shall evaluate work activities that may expose employees to respirable crystalline silica.

Silica hazards shall be controlled through:

1. Engineering controls.
2. Work-practice controls.
3. Restricted access.
4. Respiratory protection when required.
5. Training.
6. Housekeeping controls.
7. Exposure assessment when necessary.
8. Medical surveillance when required.
9. Written planning and documentation.

5.2.1 WRITTEN SILICA EXPOSURE-CONTROL PLAN

NCC shall maintain a written exposure-control plan for applicable silica-producing operations.

The plan shall identify:

- Tasks involving silica exposure
- Engineering controls
- Work practices
- Respiratory protection
- Housekeeping procedures
- Restricted work areas
- Persons responsible for implementation
- Methods for limiting bystander exposure

The plan shall be reviewed at least annually and updated when work activities or control methods change.

A competent person shall be designated to implement the plan.

5.2.2 SILICA COMPETENT PERSON

The silica competent person shall be capable of identifying existing and foreseeable silica hazards and shall have authority to correct them.

Responsibilities may include:

- Reviewing silica-producing tasks
 - Selecting control methods
 - Inspecting water-delivery systems
 - Inspecting dust-collection systems
 - Ensuring vacuums are appropriate
 - Establishing restricted areas
 - Monitoring employee practices
 - Ensuring respiratory requirements are followed
 - Stopping work when controls fail
 - Updating the exposure-control plan
-

5.2.3 SILICA ENGINEERING CONTROLS

Engineering controls shall be the primary method of reducing silica exposure.

Examples include:

- Integrated water-delivery systems
- Continuous water applied to cutting surfaces
- Local exhaust ventilation
- Shrouded tools
- Dust collectors
- HEPA-filtered vacuums
- Enclosed operator cabs
- Remote operation
- Tool-mounted dust collection

Water shall be applied at a rate sufficient to minimize visible dust without creating electrical, slipping, or environmental hazards.

Dust-collection systems shall be operated and maintained according to manufacturer instructions.

Employees shall not disconnect water lines, shrouds, vacuum hoses, filters, or other required controls merely to speed production.

5.2.4 SILICA WORK-PRACTICE CONTROLS

Employees shall:

- Position themselves away from dust
- Keep others out of the immediate work area
- Use tools according to manufacturer instructions
- Maintain water flow
- Maintain dust-collection equipment
- Empty vacuums carefully
- Avoid dry sweeping
- Avoid compressed-air cleaning
- Minimize dropping dusty materials
- Position exhaust away from employees
- Report failed controls
- Stop work when required controls are unavailable

Supervisors shall account for wind direction and nearby workers.

Silica controls shall protect both the employee using the tool and employees working nearby.

5.2.5 PROHIBITED SILICA PRACTICES

The following practices are prohibited unless specifically evaluated and permitted under applicable requirements:

- Dry sweeping silica-containing dust
- Dry brushing accumulated silica dust
- Cleaning clothing with compressed air
- Blowing silica dust from surfaces
- Operating controlled equipment without the required control
- Removing dust shrouds
- Using damaged vacuum hoses
- Using unapproved household vacuums
- Allowing visible dust clouds to spread through occupied areas
- Eating, drinking, or smoking in dusty work areas

Wet slurry shall not be allowed to dry and become airborne dust.

5.2.6 HOUSEKEEPING FOR SILICA DUST

Silica-containing dust shall be cleaned using:

- HEPA-filtered vacuuming
- Wet sweeping
- Wet methods
- Other methods that minimize airborne dust

Collected dust and slurry shall be disposed of in accordance with project and environmental requirements.

Vacuum bags and filters shall be changed using procedures that minimize exposure.

Employees performing cleanup shall wear required PPE.

5.2.7 RESPIRATORS FOR SILICA WORK

Respirators shall be used when required by:

- The selected exposure-control method
- Applicable task requirements
- Exposure-monitoring results
- The competent person
- Project-specific requirements
- Conditions in which engineering controls are insufficient

Employees shall not substitute an unapproved dust mask for required respiratory protection.

Required respirator use shall be managed under NCC's Respiratory Protection Program.

5.2.8 SILICA MEDICAL SURVEILLANCE

NCC shall provide medical surveillance when required by applicable silica regulations.

Medical information shall be maintained confidentially.

Supervisors shall not attempt to diagnose silica-related illness or request private medical information beyond what the company is legally entitled to receive.

Employees shall be informed of applicable medical-surveillance requirements.

5.2.9 SILICA TRAINING

Employees exposed to silica hazards shall receive training covering:

- Health hazards
- Tasks that may create exposure
- Control methods

- Respiratory requirements
- Housekeeping
- Restricted areas
- Medical surveillance
- The written exposure-control plan
- The identity of the competent person

Training shall be communicated in language and vocabulary employees understand.

5.3 RESPIRATORY PROTECTION PROGRAM

NCC shall establish and maintain a written Respiratory Protection Program when employees are required to wear respirators.

Respirators shall be used only after reasonable engineering and work-practice controls have been considered and implemented where feasible.

The program shall address:

- Program administration
- Hazard evaluation
- Respirator selection
- Medical evaluation
- Fit testing
- Training
- Inspection
- Cleaning
- Maintenance
- Storage
- Cartridge replacement
- Voluntary use
- Program evaluation
- Recordkeeping

A qualified program administrator shall oversee the program.

5.3.1 RESPIRATOR SELECTION

Respirators shall be selected based on:

- The hazard
- Exposure level
- Oxygen concentration
- Contaminant type
- Work duration
- Physical demands
- Manufacturer limitations
- Assigned protection factor
- Other PPE requirements

Atmosphere-supplying respirators and specialized respiratory equipment shall only be used under a program specifically addressing those hazards.

Dust-filtering respirators shall not be used for:

- Oxygen-deficient atmospheres
- Unknown atmospheres
- Chemical vapors unless approved
- Confined-space rescue
- Immediately dangerous conditions

5.3.2 MEDICAL EVALUATION

Employees shall complete a required medical evaluation before using a respirator when use is mandatory.

The medical evaluation shall be completed before fit testing or required respirator use.

Medical information shall be reviewed by an appropriate licensed healthcare professional.

The company shall receive only the information permitted by applicable requirements, such as whether the employee is medically able to use the respirator and whether limitations apply.

Medical questionnaires and private medical information shall be handled confidentially.

5.3.3 FIT TESTING

Employees required to wear tight-fitting respirators shall be fit tested:

- Before initial use
- At least annually
- When a different respirator make, model, style, or size is used
- When physical changes may affect fit
- When the employee reports fit problems
- When otherwise required

Employees shall be fit tested using the same make, model, style, and size they will wear.

Fit testing shall be performed by a qualified person using an accepted procedure.

5.3.4 FACIAL HAIR

Employees shall not wear tight-fitting respirators when facial hair interferes with:

- The respirator sealing surface
- Valve function
- Proper fit

Employees required to use tight-fitting respirators shall report to work clean-shaven in the sealing area.

Mustaches, sideburns, beards, or other facial hair may be permitted only when they do not interfere with the seal or function.

5.3.5 USER SEAL CHECK

Employees wearing tight-fitting respirators shall perform a user seal check each time the respirator is put on.

A user seal check is not a substitute for required fit testing.

Employees who cannot obtain an acceptable seal shall:

1. Leave the hazardous area.
 2. Adjust or replace the respirator.
 3. Notify supervision.
 4. Avoid returning until proper protection is established.
-

5.3.6 RESPIRATOR INSPECTION

Respirators shall be inspected before each use.

The inspection shall include:

- Facepiece
- Straps
- Valves
- Filters
- Cartridges
- Connections
- Gaskets
- Sealing surfaces
- Cleanliness
- General condition

Damaged respirators shall be removed from service.

Employees shall not attempt unauthorized repairs.

Replacement parts shall be approved for the specific respirator.

5.3.7 CLEANING AND STORAGE

Reusable respirators shall be cleaned and disinfected as required.

Respirators shall be stored:

- In a clean location
- Away from dust

- Away from sunlight
- Away from chemicals
- Away from temperature extremes
- In a manner that prevents deformation

Respirators shall not be stored loose in toolboxes, truck beds, or equipment cabs where they may become contaminated or damaged.

5.3.8 RESPIRATOR CARTRIDGES AND FILTERS

Filters and cartridges shall be changed according to:

- Manufacturer instructions
- The cartridge-change schedule
- Damage or contamination
- Breathing resistance
- Applicable company procedures

Employees shall not rely on odor alone to determine when chemical cartridges must be replaced.

Cartridges shall not be mixed between incompatible respirator models.

5.3.9 VOLUNTARY RESPIRATOR USE

Employees may request voluntary respirator use when exposure levels do not require respiratory protection.

Voluntary use shall be evaluated to ensure the respirator itself does not create a hazard.

Employees voluntarily using filtering facepieces shall receive required information regarding proper use and limitations.

Voluntary use of reusable elastomeric respirators may require additional program controls.

Employees shall not bring unauthorized respirators to the jobsite and assume they are approved for the task.

5.4 HAZARD COMMUNICATION PROGRAM

NCC shall maintain a written Hazard Communication Program for hazardous chemicals used or stored in the workplace.

The program shall include:

- Chemical inventory
- Safety Data Sheets
- Container labeling
- Employee training
- Nonroutine-task procedures
- Contractor coordination
- Program responsibility

Examples of chemicals used in NCC operations may include:

- Curing compounds
- Concrete sealers
- Form-release agents
- Epoxy adhesives
- Anchoring adhesives
- Fuels
- Oils
- Hydraulic fluids
- Cleaning products
- Solvents
- Paint
- Masonry cleaners
- Grout additives
- Bonding agents
- Concrete admixtures
- Battery chemicals
- Welding gases

5.4.1 CHEMICAL INVENTORY

NCC shall maintain a list of hazardous chemicals known to be present.

The inventory should identify:

- Product name
- Manufacturer
- Work location
- Typical use
- Safety Data Sheet status

The inventory shall be reviewed periodically and updated when new products are introduced or removed.

Employees shall not bring unapproved chemicals onto NCC projects.

5.4.2 SAFETY DATA SHEETS

A Safety Data Sheet, or SDS, shall be available for hazardous chemicals used in the workplace.

SDS information includes:

- Product identification
- Hazard identification
- Composition
- First-aid measures
- Firefighting measures
- Spill procedures
- Handling and storage
- Exposure controls
- PPE recommendations
- Physical properties
- Stability and reactivity
- Toxicological information

SDSs may be maintained electronically, on paper, or through another reliable system, provided employees can access them during the work shift.

Access shall not depend solely on one person's personal phone.

Employees shall be informed how to obtain SDS information.

5.4.3 CONTAINER LABELS

Original manufacturer labels shall not be removed or defaced.

Secondary containers shall be labeled unless they are intended for immediate use by the employee who transferred the material.

Labels shall clearly identify the chemical and communicate applicable hazards.

Employees shall not use chemicals from:

- Unmarked bottles
- Food containers
- Beverage containers
- Damaged containers
- Containers with unreadable labels

Gasoline shall never be placed in water bottles, soda bottles, or similar containers.

That shortcut has written some very expensive endings.

5.4.4 HAZARD-COMMUNICATION TRAINING

Employees shall receive hazard-communication training:

- At initial assignment
- When new chemical hazards are introduced
- When employees are assigned unfamiliar chemical work
- When deficiencies are identified

Training shall include:

- Location of the written program
- Location of SDSs
- Label information
- Hazard pictograms
- Signal words
- Hazard statements

- Precautionary statements
 - Protective measures
 - Spill procedures
 - Emergency response
 - Employee rights to information
-

5.4.5 NONROUTINE CHEMICAL TASKS

Before employees perform nonroutine chemical tasks, supervision shall review:

- Chemical hazards
- Required PPE
- Ventilation
- Fire hazards
- Spill response
- First aid
- Restricted access
- Waste disposal
- Manufacturer instructions

Examples may include:

- Applying specialized sealers
 - Using strong masonry cleaners
 - Cleaning chemical tanks
 - Handling concentrated additives
 - Removing chemical spills
 - Using unfamiliar epoxy systems
-

5.4.6 CONTRACTOR COORDINATION

NCC shall communicate chemical hazards to affected contractors when NCC chemicals may expose their employees.

NCC shall obtain necessary information regarding hazardous chemicals brought onsite by other contractors when NCC employees may be exposed.

Chemical coordination should address:

- SDS access
 - Labeling
 - Work locations
 - Ventilation
 - Restricted areas
 - Emergency procedures
 - Required PPE
-

5.5 WET CONCRETE, CEMENT, AND MORTAR EXPOSURE

Wet concrete, cement, mortar, and grout may cause:

- Skin irritation
- Chemical burns
- Eye injury
- Allergic skin reactions
- Respiratory irritation

Cement burns may develop slowly and may not cause immediate pain.

Employees shall prevent prolonged skin contact.

5.5.1 REQUIRED PROTECTION

Employees working with wet concrete, mortar, grout, or cement shall use appropriate protection, which may include:

- Alkali-resistant gloves
- Long sleeves
- Long pants
- Waterproof boots
- Safety glasses
- Face shield
- Knee protection
- Waterproof protective clothing

Clothing shall be arranged to prevent wet concrete from entering boots or gloves.

Employees shall not kneel directly in wet concrete.

5.5.2 CONTAMINATED CLOTHING

Wet or cement-contaminated clothing shall be removed promptly.

Employees shall:

- 1. Move to a private safe location.**
- 2. Remove contaminated clothing.**
- 3. Flush affected skin with clean water.**
- 4. Avoid using harsh chemicals to neutralize cement.**
- 5. Obtain medical attention for persistent irritation or burns.**
- 6. Inform supervision.**

Contaminated clothing shall be washed before reuse.

Leather boots and gloves contaminated with wet cement may retain hazardous material and may need to be replaced.

5.5.3 EYE EXPOSURE

When cement, concrete, grout, chemicals, or dust enter an employee's eye:

- 1. Begin flushing immediately.**
- 2. Use clean water or an eyewash station.**
- 3. Continue flushing for the recommended period.**
- 4. Remove contact lenses when practical.**
- 5. Do not rub the eye.**
- 6. Obtain medical evaluation.**
- 7. Report the incident.**

Appropriate eyewash capability shall be available when corrosive materials present an eye hazard.

5.5.4 CEMENT-BURN RESPONSE

When a cement burn is suspected:

- 1. Remove contaminated clothing.**
- 2. Brush off dry material carefully before flushing.**
- 3. Flush skin with clean water.**
- 4. Do not apply unauthorized neutralizing chemicals.**
- 5. Cover the area loosely with a clean dressing.**
- 6. Obtain medical evaluation.**
- 7. Report the incident immediately.**

Employees shall not dismiss a cement exposure because pain is mild.

Delayed treatment can allow the burn to deepen.

5.6 HEARING CONSERVATION

NCC shall evaluate noise exposure from construction activities and provide hearing protection when required.

Common high-noise sources include:

- Concrete saws
- Masonry saws
- Grinders
- Jackhammers
- Chipping hammers
- Compactors
- Power trowels
- Heavy equipment
- Compressors
- Generators
- Pumps
- Impact tools
- Demolition

Noise shall be controlled where practical through:

- Equipment selection
 - Maintenance
 - Barriers
 - Distance
 - Work scheduling
 - Enclosures
 - Reduced exposure duration
-

5.6.1 HEARING PROTECTION

Employees shall wear hearing protection in designated areas or when directed.

Hearing protection may include:

- Foam earplugs
- Premolded earplugs
- Earmuffs
- Dual protection

Hearing protection shall:

- Be appropriate for the noise
- Fit properly
- Be kept clean
- Be replaced when damaged
- Be worn for the entire exposure period

Employees shall not remove hearing protection while standing next to operating high-noise equipment.

5.6.2 NOISE WARNING SIGNS

Warning signs or restricted areas may be established around high-noise operations.

Employees working nearby shall be informed before high-noise work begins.

Radios and headphones shall not be used as hearing protection.

Turning up music to defeat a concrete saw is not noise control. It is merely a louder argument.

5.6.3 AUDIOMETRIC TESTING

NCC shall provide audiometric testing and related program elements when required by applicable occupational-noise standards.

Records shall be maintained confidentially and according to applicable requirements.

5.7 ERGONOMICS AND MATERIAL HANDLING

Concrete construction involves frequent lifting, carrying, pushing, pulling, bending, kneeling, tying, vibrating, finishing, and equipment handling.

NCC shall reduce ergonomic hazards through planning, mechanical assistance, teamwork, and proper work practices.

Employees shall avoid unnecessary lifting when equipment or assistance is available.

5.7.1 LIFTING PRACTICES

Before lifting, employees shall evaluate:

- Weight
- Shape
- Grip
- Travel path
- Destination
- Ground conditions
- Need for help
- Need for mechanical assistance

Employees should:

- 1. Position close to the load.**
- 2. Establish stable footing.**
- 3. Bend through the knees and hips.**
- 4. Maintain control.**
- 5. Avoid twisting.**
- 6. Turn with the feet.**
- 7. Set the load down carefully.**
- 8. Request assistance when needed.**

Employees shall not attempt to prove strength by lifting unsafe loads.

Concrete does not award medals.

5.7.2 TEAM LIFTING

Team lifting shall be used when a load is:

- Heavy
- Long
- Awkward
- Unstable
- Difficult to grip
- Capable of shifting

One employee shall coordinate the lift.

The team shall agree on:

- Commands
- Route
- Placement
- Timing
- Release point

Employees shall not release the load without warning.

5.7.3 MECHANICAL ASSISTANCE

Mechanical assistance may include:

- Forklifts
- Telehandlers
- Skid steers
- Excavators
- Carts
- Dollies
- Concrete buggies
- Hoists
- Cranes
- Material lifts
- Rebar carts

Employees shall keep hands and feet clear while loads are mechanically placed.

5.7.4 REPETITIVE WORK

Supervisors should rotate repetitive tasks when practical.

Repetitive tasks may include:

- Rebar tying
- Block placement
- Screeding
- Bull floating
- Troweling
- Grinding
- Drilling
- Form stripping
- Shoveling
- Raking concrete

Employees shall report numbness, tingling, persistent pain, weakness, or loss of grip.

5.7.5 KNEELING AND LOW-LEVEL WORK

Knee protection should be used for prolonged kneeling when practical.

Employees shall avoid kneeling in wet concrete or on sharp reinforcing steel.

Work platforms, kneeling pads, long-handled tools, or alternate methods should be considered.

5.8 SANITATION AND HYGIENE

NCC shall provide or arrange reasonable access to sanitary facilities.

Employees shall be provided access to:

- Potable drinking water
- Toilets
- Handwashing facilities or suitable alternatives
- Waste disposal
- Clean break areas where practical

Employees shall maintain sanitary work practices.

5.8.1 HANDWASHING

Employees shall wash hands:

- Before eating
- Before drinking
- Before smoking
- After chemical handling
- After contact with wet concrete
- After using the restroom
- Before leaving work when exposed to hazardous materials

Where running water is unavailable, appropriate hand-cleaning supplies shall be provided.

Hand sanitizer does not remove cement, silica dust, grease, or many chemicals and shall not always be treated as a substitute for washing.

5.8.2 EATING AND DRINKING AREAS

Employees shall not eat, drink, chew tobacco, or smoke in areas contaminated by:

- Silica dust
- Chemicals
- Wet concrete
- Fuel
- Sewage
- Waste
- Lead
- Other harmful materials

Food and drinks shall be stored away from chemicals and contaminated tools.

5.8.3 TOILETS

Toilet facilities shall be maintained in sanitary condition and made reasonably accessible.

Employees shall not intentionally damage or misuse sanitary facilities.

Handwashing supplies shall be maintained where required.

5.9 BLOODBORNE-PATHOGEN AWARENESS

Employees may be exposed to blood or bodily fluids while assisting an injured person.

Employees shall treat blood and certain bodily fluids as potentially infectious.

Appropriate precautions include:

- Disposable gloves
- Eye protection
- CPR barriers
- Handwashing
- Safe cleanup
- Proper disposal
- Prompt reporting

Employees shall not provide medical assistance beyond their training.

5.9.1 EXPOSURE RESPONSE

When an employee has unprotected contact with blood or bodily fluids through:

- Broken skin
- Eyes
- Mouth
- Needlestick
- Sharp-object injury

The employee shall:

1. Wash or flush the area immediately.
2. Notify supervision.
3. Obtain prompt medical evaluation.
4. Complete required documentation.
5. Follow medical recommendations.

Exposure information shall be handled confidentially.

5.9.2 BLOOD CLEANUP

Blood cleanup shall be performed only by trained and protected employees.

Cleanup materials may include:

- Disposable gloves
- Eye protection

- Absorbent materials
- Approved disinfectant
- Waste bags
- Sharps containers when applicable

Broken glass or sharp materials shall not be picked up by hand.

5.10 SUBSTANCE ABUSE AND IMPAIRMENT

Employees shall report to work free from impairment.

The use, possession, sale, distribution, or manufacture of illegal drugs on company property, in company vehicles, or on jobsites is prohibited.

Employees shall not consume alcohol during working time, during breaks, in company vehicles, or on active jobsites.

Employees shall not work while impaired by:

- Alcohol
 - Illegal drugs
 - Misused prescription medication
 - Misused over-the-counter medication
 - Cannabis
 - Fatigue
 - Other substances or conditions affecting safe performance
-

5.10.1 PRESCRIPTION AND OVER-THE-COUNTER MEDICATION

Employees are not required to disclose private medical diagnoses.

However, employees shall inform supervision when medication may affect their ability to:

- Drive
- Operate equipment
- Work at height
- Make safe decisions

- Maintain balance
- Respond to hazards
- Perform assigned duties

Supervision shall evaluate whether temporary work restrictions are appropriate.

5.10.2 REASONABLE SUSPICION

Reasonable suspicion may be based on observable facts such as:

- Slurred speech
- Unsteady movement
- Odor of alcohol
- Confusion
- Unsafe behavior
- Extreme mood changes
- Apparent inability to perform familiar tasks
- Possession of prohibited substances
- Credible reports
- Evidence of substance use

Supervisors shall document observations and notify management.

The employee shall not be permitted to drive or operate equipment while the concern is evaluated.

5.10.3 POST-INCIDENT PROCEDURES

Post-incident drug or alcohol testing may be conducted when permitted by company policy and applicable law.

Testing decisions shall not be made merely because an employee reported an injury.

The circumstances of the incident and whether impairment could reasonably have contributed shall be considered.

5.11 FITNESS FOR DUTY

Employees shall be capable of performing assigned tasks safely.

Fitness-for-duty concerns may arise from:

- Illness
- Injury
- Heat stress
- Fatigue
- Medication
- Emotional distress
- Impairment
- Physical restrictions
- Loss of required vision or hearing ability

Supervisors shall not diagnose medical conditions.

When a legitimate concern exists, supervision may:

- Stop the employee's work
- Reassign the employee
- Request medical evaluation
- Arrange safe transportation
- Contact emergency services
- Follow company return-to-work procedures

5.12 INDOOR AIR QUALITY AND VENTILATION

Employees working in enclosed or partially enclosed areas may be exposed to:

- Dust
- Exhaust
- Chemical vapors
- Welding fumes
- Gasoline vapors
- Carbon monoxide
- Oxygen deficiency

- Heat

Gasoline-powered or diesel-powered equipment shall not be operated in enclosed areas without appropriate evaluation and ventilation.

Fans shall be positioned so contaminated air is not directed toward employees or occupied areas.

Employees shall leave the area and notify supervision if they experience:

- Headache
- Dizziness
- Nausea
- Confusion
- Eye irritation
- Breathing difficulty
- Unusual odor
- Weakness

Unknown atmospheres shall not be entered without appropriate evaluation.

5.13 CARBON-MONOXIDE PREVENTION

Carbon monoxide is colorless and odorless and may be produced by fuel-burning equipment.

Potential sources include:

- Generators
- Concrete saws
- Pumps
- Compressors
- Heaters
- Trucks
- Skid steers
- Forklifts
- Pressure washers

Fuel-powered equipment shall not be operated inside enclosed or poorly ventilated areas unless the operation has been evaluated and effective controls are provided.

Opening one door may not provide adequate ventilation.

When carbon-monoxide exposure is possible, air monitoring may be required.

5.14 INSECTS, ANIMALS, AND VEGETATION

Florida construction sites may expose employees to:

- Fire ants
- Bees
- Wasps
- Mosquitoes
- Snakes
- Spiders
- Ticks
- Poisonous plants
- Aggressive animals

Employees shall inspect work areas before disturbing:

- Stored forms
- Lumber
- Block
- Tarps
- Pipes
- Brush
- Debris
- Equipment that has been idle

Employees shall not attempt to handle snakes or wildlife.

Known nests, hives, or infestations shall be reported.

Employees with known severe insect allergies should follow personal medical guidance and inform appropriate persons when emergency assistance may be necessary.

5.15 SUN EXPOSURE

Employees working outdoors may be exposed to ultraviolet radiation.

Protective measures may include:

- Long sleeves
- Neck protection
- Brim attachments approved for hard hats
- Sunscreen
- Shade
- Safety glasses with ultraviolet protection

Employees shall remain alert for signs of sunburn and heat stress.

Sunscreen shall not be allowed to contaminate respirator sealing surfaces, gloves, tools, or safety glasses.

5.16 OCCUPATIONAL-HEALTH REPORTING

Employees shall promptly report work-related symptoms, including:

- Skin irritation
- Cement burns
- Breathing difficulty
- Persistent coughing
- Eye irritation
- Hearing changes
- Dizziness
- Heat symptoms
- Numbness
- Tingling
- Repetitive-motion pain
- Chemical reactions

Early reporting allows the company to evaluate exposure and prevent the condition from becoming more serious.

Employees shall not be retaliated against for reporting occupational-health concerns.

5.17 OCCUPATIONAL-HEALTH RECORDS

NCC shall maintain occupational-health records as required.

Records may include:

- Exposure-monitoring results
- Respirator fit tests
- Medical-clearance documentation
- Training records
- Silica records
- Hearing records
- Incident reports
- Chemical inventories
- Safety Data Sheets

Medical information shall be maintained separately and confidentially when required.

Access shall be limited to authorized persons.

5.18 PROGRAM REVIEW

The occupational-health program shall be reviewed periodically and when:

- New chemicals are introduced
- New tools or equipment are purchased
- Exposure conditions change
- Employees report symptoms
- Monitoring identifies elevated exposure
- Control methods fail
- A regulatory requirement changes
- An incident occurs

Corrective measures may include:

- Substituting materials
- Improving ventilation
- Upgrading tools
- Increasing water controls

- Changing work practices
- Adding training
- Revising PPE
- Conducting exposure monitoring
- Obtaining professional assistance

SECTION 6

CONCRETE OPERATIONS

6.1 GENERAL CONCRETE SAFETY

Concrete construction presents hazards involving:

- Wet concrete
- Cement burns
- Heavy material
- Moving equipment
- Ready-mix trucks
- Concrete pumps
- Pressurized hoses
- Formwork
- Reinforcing steel
- Power tools
- Silica dust
- Slips, trips, and falls
- Manual handling
- Elevated work
- Electrical exposure
- Noise
- Heat

Concrete operations shall be planned before work begins.

Planning shall address:

- 1. Site access.**
- 2. Concrete-truck routes.**
- 3. Pump location.**
- 4. Equipment travel paths.**

5. Employee positioning.
6. Placement sequence.
7. Formwork readiness.
8. Reinforcing-steel protection.
9. Lighting.
10. Weather.
11. Washout.
12. Emergency access.
13. Public protection.
14. Communication methods.
15. Required PPE.
16. Hose and line routing.
17. Finishing equipment.
18. Concrete delivery timing.
19. Work at height.
20. Silica-producing cleanup.

Supervisors shall ensure that employees understand the pour plan before placement begins.

Concrete placement shall not begin until required inspections, access controls, formwork checks, and equipment preparations are complete.

6.1.1 PRE-POUR MEETING

A pre-pour meeting shall be conducted for significant concrete placements.

The meeting should include:

- Superintendent
- Foreman
- Pump operator
- Ready-mix supplier representative when appropriate
- Finish crew leader
- Equipment operators
- Safety representative when required
- Controlling contractor representative when required
- Other affected trades

The pre-pour meeting shall address:

- Pour limits
- Placement sequence
- Concrete quantity
- Mix design
- Truck spacing
- Pump setup
- Hose routing
- Equipment access
- Employee positions
- Communication signals
- Lighting
- Weather
- Backup equipment
- Washout
- Emergency shutdown
- Potential delays
- Public exposure
- Rebar and formwork hazards

Changes to the pour plan shall be communicated before work continues.

6.1.2 POUR AREA CONTROL

The pour area shall be controlled to prevent unauthorized entry.

Control measures may include:

- Barricades
- Cones
- Warning signs
- Spotters
- Dedicated access routes
- Restricted work zones
- Lighting
- Traffic-control personnel
- Physical barriers

Only employees involved in the placement shall enter active pour zones.

Employees shall avoid standing:

- Behind backing trucks
 - Beneath pump booms
 - Near pressurized hose connections
 - Between equipment and fixed objects
 - On unstable formwork
 - Beneath suspended buckets
 - In blind spots
 - Near unprotected slab edges
-

6.1.3 COMMUNICATION

A clear communication system shall be established before placement begins.

Communication may include:

- Hand signals
- Radios
- Verbal commands
- Horn signals
- Designated signal persons

One person shall be designated to communicate with the pump operator or truck driver when practical.

Employees shall not give conflicting signals.

The emergency-stop signal shall be understood by all affected employees.

Any employee may signal an emergency stop.

6.2 READY-MIX TRUCK OPERATIONS

Ready-mix trucks create hazards due to:

- Limited driver visibility
- Backing
- Uneven ground
- Overhead obstructions

- Chute movement
- Rotating equipment
- Washout water
- Traffic interaction
- Rollovers
- Contact with power lines
- Congested placement areas

Concrete-truck routes shall be evaluated before deliveries begin.

6.2.1 SITE ACCESS

Truck access routes shall be:

- Stable
- Wide enough for safe travel
- Free of unnecessary obstructions
- Away from unsupported excavation edges
- Clear of low overhead hazards
- Adequately marked
- Suitable for expected loads

Supervisors shall consider:

- Soft soil
- Fill material
- Slopes
- Drainage structures
- Underground utilities
- Septic systems
- Curbs
- Existing slabs
- Overhead power lines
- Turning radius
- Exit routes

Trucks shall not be directed onto surfaces that may not support their weight.

6.2.2 BACKING

Backing shall be minimized whenever practical.

When backing is necessary:

- A spotter shall be used when visibility is restricted.
- The driver and spotter shall establish signals.
- The spotter shall remain visible to the driver.
- The spotter shall remain clear of the vehicle path.
- Employees shall stay out of blind spots.
- Backup alarms shall be operational.
- The travel path shall be checked before movement.

If the driver loses sight of the spotter, the driver shall stop.

Employees shall not walk behind a backing concrete truck.

6.2.3 TRUCK POSITIONING

Concrete trucks shall be positioned on stable ground.

Drivers shall avoid:

- Unsupported trench edges
- Steep slopes
- Soft shoulders
- Uncompacted fill
- Washout pits
- Underground tanks
- Unprotected slabs
- Electrical hazards

Wheel chocks may be required depending on slope and site conditions.

Employees shall remain clear while trucks are repositioned.

6.2.4 CHUTES

Concrete chutes shall be handled carefully.

Employees shall:

- Keep hands clear of pinch points
- Maintain stable footing
- Avoid standing beneath raised chute sections
- Secure chute extensions
- Use proper lifting techniques
- Avoid overreaching
- Clean chutes from safe positions
- Avoid standing between the chute and fixed objects

Chutes shall not be used as ladders or platforms.

6.2.5 TRUCK WASHOUT

Truck washout shall occur only in designated locations.

Washout areas shall:

- Be contained
- Be located away from drains
- Be accessible
- Be marked
- Prevent discharge to soil or waterways when prohibited
- Be maintained to prevent overflow
- Be cleaned as required

Employees shall not direct washout water into:

- Storm drains
 - Streets
 - Ditches
 - Wetlands
 - Surface water
 - Unapproved ground areas
-

6.3 CONCRETE PLACEMENT

Concrete placement shall be performed under the direction of a competent supervisor.

Before placement begins, the supervisor shall verify:

- Formwork is ready
 - Reinforcing steel is secured
 - Embedded items are installed
 - Access is adequate
 - Lighting is sufficient
 - Fall protection is installed
 - Pour routes are clear
 - Equipment is operational
 - Washout is prepared
 - Emergency procedures are understood
-

6.3.1 EMPLOYEE POSITIONING

Employees shall maintain positions that reduce exposure to:

- Moving trucks
- Pump hoses
- Concrete splashing
- Equipment swing radius
- Slab edges
- Openings
- Formwork collapse
- Rebar hazards
- Vibrators
- Electrical cords
- Slippery surfaces

Employees shall not position themselves between:

- A truck and a wall
- A buggy and a form
- A pump hose and a fixed object
- Heavy equipment and stored material

- Formwork and moving machinery

Escape routes shall remain available.

6.3.2 FOOTING AND FOUNDATION PLACEMENT

Footing and foundation placements shall be evaluated for:

- Excavation stability
- Safe access
- Rebar impalement
- Mud
- Water accumulation
- Restricted movement
- Formwork stability
- Equipment operating near edges

Employees shall not enter unprotected excavations.

Ladders or other approved access shall be provided when required.

Concrete placement shall not overload excavation sides, forms, or working surfaces.

6.3.3 SLAB-ON-GRADE PLACEMENT

Slab placement presents hazards from:

- Hoses
- Wet surfaces
- Laser screeds
- Buggies
- Vibrators
- Screed boards
- Rebar
- Dowels
- Backing equipment

Employees shall coordinate movement before equipment enters the slab area.

Walk paths should be planned.

Employees shall avoid stepping backward into openings, forms, or reinforcing steel.

6.3.4 ELEVATED PLACEMENT

Elevated concrete placement shall require additional planning.

The plan shall address:

- Formwork capacity
- Shoring
- Reshoring
- Access
- Guardrails
- Personal fall protection
- Openings
- Pump-boom clearance
- Concrete distribution
- Load concentration
- Emergency rescue
- Lighting
- Weather
- Communication

Concrete shall be placed in a manner that avoids unbalanced or excessive loading.

Employees shall not remove guardrails without authorization and replacement controls.

6.4 CONCRETE PUMPING

Concrete pumping involves pressurized systems and heavy moving components.

Hazards include:

- Hose whip
- Line failure
- Clamp failure
- Boom movement
- Contact with power lines
- Falling concrete
- Plugged lines
- Stored pressure
- Unstable setup
- Pinch points
- Equipment rollover
- Public exposure

Only qualified and authorized persons shall operate concrete pumps.

6.4.1 PUMP SETUP

Before pumping begins, the setup area shall be evaluated for:

- Ground stability
- Outrigger support
- Slope
- Underground utilities
- Excavations
- Overhead power lines
- Traffic
- Public access
- Boom clearance
- Washout
- Hose routing
- Emergency access

Outriggers shall be fully deployed when required by the manufacturer.

Outrigger pads shall be used when necessary to distribute loads.

The pump shall not be set up on unstable ground or near unsupported edges.

6.4.2 POWER-LINE CLEARANCE

Pump booms shall maintain required clearance from energized power lines.

Before setup:

- 1. Identify overhead lines.**
- 2. Determine line voltage when necessary.**
- 3. Establish required clearance.**
- 4. Use a dedicated spotter when appropriate.**
- 5. Barricade danger areas.**
- 6. Coordinate with the utility when required.**

Employees shall treat overhead lines as energized unless confirmed otherwise by the utility.

If the pump contacts a power line:

- The operator should remain in the cab when safe.
- Employees shall stay away from the equipment.
- No one shall touch the pump.
- Emergency services and the utility shall be contacted.
- The operator shall exit only when remaining creates greater danger and shall follow emergency-jump procedures if necessary.

6.4.3 OUTRIGGERS

Outriggers shall be positioned according to manufacturer instructions.

Employees shall keep clear during deployment.

Outrigger hazards include:

- Crushing
- Pinching
- Ground failure
- Contact with structures
- Striking employees

- Improper cribbing

Outrigger pads and cribbing shall be stable and of adequate size.

Makeshift materials that may split, crush, or shift shall not be used.

6.4.4 PUMP INSPECTION

Before operation, the pump operator shall inspect:

- Boom
- Hydraulic systems
- Outriggers
- Controls
- Emergency stops
- Hoppers
- Grates
- Clamps
- Pins
- Gaskets
- Hoses
- Pipeline
- Tires
- Lights
- Alarms
- Remote controls
- Safety devices

Defects affecting safe operation shall be corrected before use.

Inspection records shall be completed when required.

6.4.5 HOPPER SAFETY

Hopper grates shall remain in place during operation.

Employees shall not place hands, feet, tools, or objects into an operating hopper.

Cleaning or maintenance shall not begin until:

- Equipment is shut down
- Stored energy is relieved
- Lockout procedures are followed
- Moving parts are secured

Employees shall remain clear of agitators.

6.4.6 BOOM OPERATION

Only the operator shall control boom movement.

Employees shall remain clear of the boom's movement path.

The boom shall not be used to:

- Lift workers
- Lift materials unless specifically designed
- Pull hoses
- Move equipment
- Support scaffolds
- Contact structures

Boom operation shall stop when:

- Visibility is lost
 - Wind exceeds safe limits
 - Power-line clearance cannot be maintained
 - Ground stability changes
 - Unauthorized persons enter the area
 - Controls malfunction
 - Communication is lost
-

6.5 HOSE AND PIPELINE SAFETY

Concrete delivery hoses and pipelines are pressurized systems.

Employees shall inspect:

- Hoses
- Couplings
- Clamps
- Gaskets
- Safety pins
- Restraints
- Connections
- End hoses
- Reducers

Damaged components shall not be used.

6.5.1 CONNECTIONS

All pipeline connections shall be:

- Clean
- Properly seated
- Correctly clamped
- Pinned
- Inspected
- Compatible

Employees shall not use improvised pins, bolts, wire, or damaged clamps.

Connections shall not be opened while the line is under pressure.

6.5.2 HOSE ROUTING

Hoses shall be routed to:

- Reduce trip hazards
- Avoid sharp bends
- Prevent crushing
- Avoid vehicle traffic
- Maintain escape routes

- Protect the public
- Minimize unnecessary length

Hoses shall not be routed over sharp edges without protection.

Employees shall not stand on pressurized hoses.

6.5.3 END-HOSE CONTROL

The end hose shall be controlled by trained employees.

Employees shall:

- Maintain stable footing
- Use sufficient manpower
- Keep the hose under control
- Avoid wrapping the hose around the body
- Stay clear of pinch points
- Communicate with the operator
- Avoid standing directly in front of the hose discharge

The end hose shall not be kinked to stop concrete flow.

6.5.4 HOSE WHIP

Hose whip may occur when compressed air, blockages, or sudden pressure changes cause violent hose movement.

To reduce hose-whip risk:

- Maintain proper line lubrication
- Avoid introducing unnecessary air
- Use correct startup procedures
- Keep employees clear during priming
- Control the end hose
- Use proper reducers
- Follow manufacturer instructions
- Stop pumping when abnormal movement occurs

Employees shall remain clear of the end hose during initial startup, reprime, blockage clearing, and line cleaning.

6.5.5 BLOCKED LINES

Only trained and authorized persons shall address blocked lines.

Before disconnecting any line:

- 1. Stop the pump.**
- 2. Relieve pressure.**
- 3. Confirm zero energy.**
- 4. Secure the system.**
- 5. Clear employees from the danger area.**
- 6. Follow manufacturer procedures.**
- 7. Use appropriate PPE.**

Employees shall not strike pressurized clamps or open a blocked line under pressure.

A blocked line is not a stubborn garden hose. It is stored energy wearing a concrete jacket.

6.5.6 LINE CLEANING

Line cleaning shall be performed by qualified persons.

The procedure shall address:

- Pressure
- Air use
- Water use
- Cleaning balls
- Catch baskets
- Discharge areas
- Public protection
- Employee positioning
- Communication

The discharge end shall be secured and controlled.

Employees shall not stand in front of the discharge.

Compressed-air cleaning shall be performed only under approved procedures.

6.6 CONCRETE BUGGIES

Concrete buggies shall be operated only by trained and authorized employees.

Hazards include:

- Rollovers
 - Backing
 - Pinch points
 - Slopes
 - Unstable ground
 - Overloading
 - Pedestrians
 - Wet surfaces
 - Mechanical failure
-

6.6.1 PRE-USE INSPECTION

Operators shall inspect:

- Brakes
- Steering
- Tires or tracks
- Horn
- Backup alarm
- Controls
- Dump mechanism
- Seatbelt
- Guarding
- Fluid leaks
- General condition

Unsafe buggies shall be removed from service.

6.6.2 OPERATING RULES

Operators shall:

- Wear seatbelts when provided
- Maintain safe speed
- Avoid sudden turns
- Keep loads within capacity
- Travel cautiously on slopes
- Avoid unsupported edges
- Keep pedestrians clear
- Use spotters when needed
- Maintain visibility
- Avoid carrying passengers
- Lower the bucket or hopper when parked
- Set the brake before leaving

Employees shall not ride on the sides, front, hopper, or frame.

6.6.3 DUMPING

Before dumping, operators shall verify:

- Stable ground
- Clear employees
- Adequate edge protection
- Safe clearance
- Proper alignment

Employees shall remain clear of the dumping mechanism and pinch points.

Buggies shall not dump near unsupported excavation edges without evaluation.

6.7 CONCRETE VIBRATORS

Concrete vibrators present hazards involving:

- Electricity
- Rotating components
- Vibration
- Noise
- Wet conditions
- Cords
- Manual handling

Employees shall inspect vibrators before use.

Inspection shall include:

- Power cord
- Plug
- Grounding
- Housing
- Flexible shaft
- Head
- Switch
- Connections

Damaged vibrators shall be removed from service.

6.7.1 ELECTRICAL PROTECTION

Electric vibrators shall be connected through required ground-fault protection.

Connections shall be kept out of wet areas when practical.

Employees shall not carry vibrators by the cord.

Cords shall be protected from:

- Concrete
- Equipment
- Sharp edges
- Water
- Traffic
- Crushing

6.7.2 SAFE USE

Employees shall:

- Maintain stable footing
- Avoid wrapping cords around the body
- Use proper lifting techniques
- Rotate tasks when practical
- Wear hearing protection when required
- Shut down before adjustment
- Keep hands clear of moving components

Vibrators shall not be left operating unattended.

6.8 SCREEDING OPERATIONS

Screeding may involve:

- Manual screeds
- Vibratory screeds
- Roller screeds
- Laser screeds
- Mechanical strike-off equipment

Hazards include:

- Back strain
 - Hand injuries
 - Slips
 - Electrical exposure
 - Equipment movement
 - Noise
 - Vibration
 - Pinch points
-

6.8.1 MANUAL SCREEDING

Employees shall:

- Coordinate movements
- Use proper body mechanics
- Maintain clear footing
- Avoid overreaching
- Rotate tasks
- Wear gloves
- Control screed boards
- Keep fingers clear of pinch points

Long screeds shall be handled by sufficient personnel.

6.8.2 MECHANICAL SCREEDS

Mechanical screeds shall be inspected before use.

Employees shall:

- Keep guards in place
- Avoid contact with moving parts
- Use hearing protection
- Control cords and hoses
- Follow startup procedures
- Shut down before adjustment
- Keep others clear

Fuel-powered equipment shall not be used in enclosed spaces without ventilation evaluation.

6.8.3 LASER SCREEDS

Laser screeds shall be operated by trained and authorized persons.

The work plan shall address:

- Machine travel
- Pedestrian exclusion

- Blind spots
- Swing areas
- Slab openings
- Edge hazards
- Refueling
- Maintenance
- Communication

Employees shall maintain eye contact with the operator when approaching.

6.9 CONCRETE FINISHING

Finishing operations may involve:

- Hand floats
- Bull floats
- Fresno tools
- Edgers
- Trowels
- Power trowels
- Kneeboards
- Sprayers
- Curing compounds

Hazards include:

- Repetitive motion
 - Slips
 - Wet concrete contact
 - Chemical exposure
 - Rotating equipment
 - Noise
 - Manual handling
 - Heat
-

6.9.1 HAND FINISHING

Employees shall:

- Use tools in good condition
- Maintain stable footing
- Avoid prolonged awkward posture
- Wear appropriate gloves
- Prevent wet concrete contact
- Rotate repetitive tasks
- Store tools safely
- Keep handles clear of walkways

Broken or splintered handles shall be removed from service.

6.9.2 KNEEBOARD USE

Kneeboards shall be stable and in good condition.

Employees shall:

- Wear knee protection
- Avoid direct wet-concrete exposure
- Maintain safe access
- Avoid working near unprotected edges
- Clean contaminated clothing promptly

Kneeboards shall not be used as flotation devices, ramps, or makeshift platforms.

6.10 POWER-TROWEL SAFETY

Power trowels shall be operated only by trained employees.

Hazards include:

- Rotating blades
- Loss of control
- Fuel
- Exhaust
- Noise
- Slippery surfaces
- Pinch points

- Startup movement
-

6.10.1 WALK-BEHIND TROWELS

Before use, employees shall inspect:

- Guard ring
- Blades
- Handles
- Controls
- Kill switch
- Engine
- Fuel system
- General condition

Employees shall:

- Maintain control of the handle
- Keep feet clear
- Avoid loose clothing
- Use hearing protection
- Shut down before adjustment
- Refuel only when cool
- Keep others clear
- Avoid enclosed-space exhaust exposure

The emergency shutoff shall remain operational.

6.10.2 RIDE-ON TROWELS

Ride-on trowels shall be operated by trained and authorized employees.

Operators shall:

- Inspect before use
- Use provided seatbelts when applicable
- Maintain safe speed
- Avoid slab edges and openings

- Keep pedestrians clear
- Shut down before leaving the seat
- Follow manufacturer procedures
- Avoid horseplay
- Maintain adequate ventilation

Ride-on trowels shall not be operated near unprotected elevated edges without additional controls.

6.11 WET-CONCRETE AND CEMENT-BURN PREVENTION

Employees shall avoid skin contact with wet concrete, mortar, grout, and cement.

Required controls may include:

- Waterproof gloves
- Long sleeves
- Long pants
- Rubber boots
- Eye protection
- Face protection
- Knee protection
- Washing facilities

Employees shall not kneel, sit, or stand in wet concrete without appropriate protection.

6.11.1 BOOT PROTECTION

Boot tops shall be arranged to prevent concrete from entering.

Employees shall not tuck pant legs into boots when doing so may direct wet concrete inside.

If concrete enters a boot:

1. Leave the work area.
2. Remove the boot.

3. Remove contaminated socks.
 4. Flush the skin.
 5. Report the exposure.
 6. Obtain medical evaluation when irritation or burning occurs.
-

6.11.2 SKIN CLEANING

Employees shall wash exposed skin with clean water and appropriate soap.

Gasoline, solvents, diesel, and harsh chemicals shall not be used to clean skin.

Barrier creams may be used only as supplemental protection and shall not replace gloves or protective clothing.

6.12 FORMWORK

Formwork shall be designed, erected, supported, braced, and maintained to safely support anticipated loads.

Formwork systems shall follow:

- Engineered drawings when required
- Manufacturer instructions
- Project specifications
- Approved field procedures

Unauthorized changes shall not be made to engineered formwork.

6.12.1 FORMWORK INSPECTION

Before concrete placement, formwork shall be inspected for:

- Alignment
- Bracing
- Connections
- Supports

- Ties
- Shores
- Hardware
- Damage
- Settlement
- Openings
- Access
- Guardrails
- Cleanliness
- Release-agent conditions

Deficiencies shall be corrected before placement.

6.12.2 ACCESS AROUND FORMS

Employees shall have safe access around and within formwork.

Employees shall not climb formwork unless it is designed for access.

Walkways, ladders, platforms, or scaffolds shall be provided where required.

Form ties, walers, braces, and rebar shall not be used as makeshift ladders.

6.12.3 FORM-RELEASE AGENTS

Form-release agents shall be used according to manufacturer instructions.

Employees shall review applicable chemical hazards.

Required controls may include:

- Gloves
- Eye protection
- Ventilation
- Spill prevention
- Respiratory protection
- Restricted access

Release agents shall not be applied near ignition sources unless approved.

Overspray shall be controlled.

6.12.4 FORM STABILITY

Employees shall not remove, loosen, relocate, or damage braces, ties, or supports without authorization.

Materials shall not be stacked against formwork unless the system is designed for the load.

Equipment shall not strike or push against forms.

Any movement, bulging, cracking, leaking, or shifting shall be reported immediately.

Placement shall stop when form stability is in question.

6.13 SHORING AND RESHORING

Shoring and reshoring shall be installed according to approved plans and procedures.

Shoring systems shall be inspected:

- Before use
- Before concrete placement
- During placement
- After significant loading
- After weather events
- After impact
- Before removal

Employees shall not alter shoring without authorization.

6.13.1 SHORE BASES

Shore bases shall be placed on stable support.

Bases shall not be installed on:

- Loose debris
- Unstable soil
- Unapproved blocks
- Damaged lumber
- Materials that may crush
- Uneven surfaces

Sills and base plates shall be used as required.

6.13.2 SHORE REMOVAL

Shoring shall not be removed until authorized.

Authorization shall consider:

- Concrete strength
- Engineering requirements
- Loading
- Reshoring plan
- Weather
- Structural condition

Employees shall not assume concrete is ready merely because it looks hard.

6.14 FORM STRIPPING

Form stripping presents hazards involving:

- Falling material
- Stored energy
- Nails
- Pinch points
- Heavy lifting
- Unstable components

- Elevated work
- Premature removal

A stripping plan shall be established when necessary.

6.14.1 STRIPPING PROCEDURE

Employees shall:

1. Confirm authorization.
2. Establish an exclusion zone.
3. Remove components in planned sequence.
4. Maintain stable footing.
5. Use proper tools.
6. Avoid standing beneath loosened material.
7. Control falling panels.
8. Remove or bend protruding nails.
9. Stack stripped material safely.
10. Maintain access.

Forms shall not be dropped from height unless the area is controlled and the method is approved.

6.14.2 STORED ENERGY

Employees shall recognize stored energy in:

- Bent panels
- Form ties
- Braces
- Wedges
- Tensioned components
- Compressed supports

Employees shall position themselves out of the release path.

Components shall be loosened gradually.

6.15 EMBEDDED ITEMS AND DOWELS

Embedded items and dowels shall be installed securely.

Hazards include:

- Impalement
- Trips
- Sharp edges
- Drill exposure
- Adhesive chemicals
- Incorrect placement
- Unprotected protrusions

Protruding dowels shall be guarded or protected when they create a hazard.

6.15.1 DRILLED DOWELS

Drilled dowel installation shall address:

- Silica controls
- Electrical hazards
- Drill kickback
- Bit condition
- Dust collection
- Hole cleaning
- Adhesive exposure
- Cure time
- Manufacturer instructions

Employees shall wear required eye, hand, hearing, and respiratory protection.

6.15.2 ADHESIVE ANCHORS

Adhesive anchors shall be installed by trained employees.

Employees shall follow requirements for:

- Hole diameter
- Hole depth
- Cleaning
- Temperature
- Mixing
- Placement
- Cure time
- Loading

Chemicals shall be handled according to the Safety Data Sheet.

Expired or improperly stored adhesive shall not be used.

6.16 CONCRETE CURING

Curing methods may include:

- Water curing
- Wet coverings
- Plastic sheeting
- Curing compounds
- Insulated blankets
- Heated enclosures

Hazards may include:

- Slips
 - Chemicals
 - Manual handling
 - Wind-blown coverings
 - Heat
 - Electrical equipment
 - Restricted access
-

6.16.1 CURING COMPOUNDS

Employees applying curing compounds shall use appropriate PPE.

The work plan shall address:

- Ventilation
- Ignition sources
- Overspray
- Public exposure
- Wind
- Respiratory requirements
- Storage
- Spill response

Employees shall not spray curing compounds toward coworkers, occupied areas, vehicles, or public walkways.

6.16.2 PLASTIC SHEETING

Plastic sheeting shall be installed to reduce:

- Trip hazards
- Wind uplift
- Public exposure
- Equipment entanglement

Ballast shall be stable and shall not create additional hazards.

Employees shall use caution when walking on wet plastic.

6.17 CONCRETE WASHOUT

Concrete washout shall be planned before placement.

Washout areas shall be:

- Designated
- Contained
- Accessible
- Away from drains

- Away from waterways
 - Away from public access
 - Large enough for expected use
 - Maintained
-

6.17.1 WASHOUT RULES

Employees shall:

- Direct trucks to approved washout
- Prevent overflow
- Keep hoses within containment
- Clean spills
- Maintain access
- Barricade when necessary
- Report failures
- Dispose of hardened material properly

Washout water shall not be discharged into storm systems or unapproved areas.

6.17.2 PUMP WASHOUT

Concrete-pump washout shall be coordinated with the pump operator.

The area shall account for:

- Boom movement
- Hose discharge
- Pressurized material
- Cleaning balls
- Water
- Public access
- Equipment stability

Employees shall remain clear of discharge paths.

6.18 SAW CUTTING

Concrete saw cutting presents hazards from:

- Silica dust
- Flying debris
- Blade failure
- Noise
- Kickback
- Water
- Electricity
- Fuel
- Traffic
- Hidden utilities

Only trained employees shall operate concrete saws.

6.18.1 PRE-CUT PLANNING

Before cutting, employees shall identify:

- Cut location
- Depth
- Reinforcing steel
- Post-tension cables
- Electrical systems
- Plumbing
- Embedded conduits
- Utility lines
- Slab support
- Public exposure
- Dust control
- Water control

Cutting shall not begin when hidden conditions are unknown and may create serious hazards.

6.18.2 SAW INSPECTION

Saws shall be inspected for:

- Blade condition
- Blade compatibility
- Guard
- Arbor
- Controls
- Water delivery
- Fuel system
- Cords
- Grounding
- Wheels
- Handles
- Emergency shutoff

Damaged or incorrect blades shall not be used.

6.18.3 SAW OPERATION

Operators shall:

- Wear required PPE
- Maintain stable footing
- Keep guards in place
- Use water or dust collection
- Keep others clear
- Avoid forcing the blade
- Follow blade direction
- Shut down before adjustment
- Refuel when cool
- Control slurry
- Maintain two-hand control when required

Employees shall not stand in line with a rotating blade.

6.19 CORE DRILLING

Core drilling shall be performed by trained employees.

Hazards include:

- Binding
 - Rotating equipment
 - Electrical exposure
 - Falling cores
 - Water
 - Silica
 - Hidden utilities
 - Elevated work
-

6.19.1 CORE-DRILL SETUP

The drill shall be secured according to manufacturer instructions.

Vacuum bases shall only be used on suitable surfaces and under approved conditions.

Employees shall not rely on damaged anchors, unstable bases, or improvised supports.

The area below elevated core drilling shall be barricaded.

6.19.2 CORE REMOVAL

Concrete cores shall be controlled during removal.

Employees shall:

- Anticipate core weight
- Prevent falling
- Use lifting assistance
- Keep hands clear
- Barricade below

- Dispose of cores safely

Large cores may require mechanical handling.

6.20 GRINDING AND SURFACE PREPARATION

Grinding and surface preparation may create:

- Silica dust
- Noise
- Flying particles
- Vibration
- Electrical hazards
- Trip hazards
- Chemical exposure

Engineering controls shall be used.

6.20.1 GRINDER SAFETY

Employees shall:

- Inspect wheels
- Use guards
- Use side handles
- Wear eye and face protection
- Use hearing protection
- Use dust collection
- Maintain two-hand control
- Allow the wheel to reach operating speed
- Keep cords clear
- Stop before adjustment

Damaged wheels shall not be used.

Grinding wheels shall be compatible with the tool's speed rating.

6.21 PATCHING AND REPAIR

Concrete repair may involve:

- Chipping
- Grinding
- Epoxy
- Mortar
- Overhead work
- Silica
- Falling debris
- Restricted areas

The repair plan shall address:

- Surface preparation
- Dust control
- Chemical exposure
- Falling debris
- Access
- Cure time
- Public protection

Overhead repair areas shall be barricaded.

6.22 POST-TENSIONING AWARENESS

Post-tensioning systems may store extreme energy.

Employees shall not:

- Cut
- Drill
- Core
- Chip
- Grind
- Anchor
- Saw

into post-tensioned concrete without authorization and reliable location information.

Only qualified personnel shall perform post-tensioning work.

Areas around stressing operations shall be controlled.

Employees shall stay clear of tendon ends and potential release paths.

6.23 PRECAST AND TILT-UP AWARENESS

Precast and tilt-up operations require specialized planning.

Work involving panels shall address:

- Engineering
- Rigging
- Bracing
- Cranes
- Exclusion zones
- Wind
- Temporary stability
- Connection sequence
- Qualified personnel

Employees shall not enter beneath suspended panels.

Temporary braces shall not be removed without authorization.

6.24 WEATHER DURING CONCRETE OPERATIONS

Weather shall be considered during concrete work.

Hazards include:

- Lightning
- High winds
- Heavy rain
- Extreme heat

- Cold
- Reduced visibility
- Flooding
- Slippery surfaces

Pump booms, elevated work, and exposed reinforcing steel increase lightning risk.

Work shall stop when weather creates unsafe conditions.

6.25 END-OF-POUR PROCEDURES

At the end of placement, supervision shall ensure:

- Equipment is shut down
- Tools are cleaned
- Hoses are secured
- Washout is contained
- Openings are protected
- Guardrails are restored
- Rebar is protected
- Forms are inspected
- Lighting remains adequate
- Public access is controlled
- Spills are cleaned
- Equipment routes are clear
- Shift handoff is completed

Incomplete work areas shall be left in a stable and protected condition.

6.26 CONCRETE-OPERATIONS TRAINING

Employees shall receive training appropriate to their assigned work.

Training may include:

- Wet-concrete hazards
- Cement burns

- Pump safety
- Hose handling
- Buggy operation
- Saw safety
- Silica
- Power trowels
- Vibrators
- Formwork
- Fall protection
- Rebar hazards
- Chemical handling
- Emergency procedures

Equipment-specific training shall be documented.

6.27 CONCRETE-OPERATIONS INSPECTIONS

Supervisors shall inspect concrete operations for:

- PPE
- Access
- Equipment condition
- Form stability
- Hose connections
- Pump setup
- Rebar protection
- Fall protection
- Silica controls
- Housekeeping
- Electrical safety
- Public protection
- Washout
- Employee positioning

Unsafe conditions shall be corrected before work continues.

6.28 INCIDENT AND NEAR-MISS REVIEW

Concrete-related incidents and near misses shall be reviewed.

Examples include:

- Hose movement
- Form leaks
- Form shifting
- Truck backing events
- Buggy near-rollovers
- Pump-line failures
- Concrete burns
- Slab-edge exposure
- Saw kickback
- Equipment contact
- Washout spills

Lessons learned shall be communicated to affected crews.

The absence of an injury does not mean the event was harmless. Sometimes luck simply clocks in for one shift.

SECTION 7

REINFORCING STEEL

7.1 GENERAL REINFORCING-STEEL SAFETY

Reinforcing-steel work presents hazards involving:

- Sharp edges
- Heavy lifting
- Impalement
- Pinch points
- Stored energy
- Cutting and bending equipment
- Rigging

- Suspended loads
- Falls
- Trips
- Strains
- Welding
- Mechanical splices
- Elevated work
- Unstable reinforcing cages

Reinforcing steel shall be handled, stored, fabricated, installed, and supported in a manner that protects employees from injury.

Only trained and authorized employees shall operate powered rebar-cutting or bending equipment.

Supervisors shall evaluate:

1. Material weight.
2. Bar length.
3. Storage location.
4. Delivery method.
5. Rigging requirements.
6. Employee access.
7. Impalement hazards.
8. Fall hazards.
9. Cage stability.
10. Mechanical equipment.
11. Weather conditions.
12. Public exposure.
13. Coordination with formwork and concrete crews.

Employees shall wear appropriate gloves, eye protection, work boots, hard hats, and other required PPE.

7.2 REBAR DELIVERY AND UNLOADING

Reinforcing-steel deliveries shall be coordinated before arrival.

The unloading plan shall address:

- Delivery location
- Ground conditions
- Truck access
- Crane or equipment access
- Load weight
- Bundle size
- Traffic control
- Public protection
- Rigging
- Taglines
- Storage location

Employees shall remain clear of unstable or suspended loads.

7.2.1 DELIVERY-AREA CONTROL

The delivery area shall be controlled using:

- Cones
- Barricades
- Spotters
- Warning signs
- Restricted access
- Traffic-control personnel

Unauthorized employees shall not enter the unloading area.

Employees shall not stand:

- Between the truck and equipment
 - Beneath suspended bundles
 - In the path of shifting material
 - Near unsupported stack edges
 - Where they may be pinned against structures
-

7.2.2 LOAD INSPECTION

Before unloading, the responsible person shall inspect the load for:

- Shifted bundles
- Broken bands
- Loose bars
- Damaged dunnage
- Unstable stacking
- Protruding material
- Improper securement

Employees shall not remove load securement until the load is stable and the release sequence is understood.

Stored energy may cause bands, chains, or bars to move suddenly.

7.2.3 BAND AND STRAP REMOVAL

Employees cutting metal bands or straps shall:

1. Wear eye and hand protection.
2. Stand clear of the release path.
3. Use appropriate cutting tools.
4. Control loose strap ends.
5. Avoid placing the face or body over the band.
6. Remove sharp waste promptly.

Cut straps shall not be left on the ground.

7.2.4 MECHANICAL UNLOADING

Rebar bundles should be unloaded mechanically when practical.

Equipment may include:

- Cranes
- Telehandlers
- Forklifts
- Excavators equipped for approved lifting
- Material-handling equipment

Lifting shall be performed using approved rigging and qualified personnel.

Forks shall be positioned to support the load adequately.

Employees shall not ride on bundles or equipment attachments.

7.3 REBAR STORAGE

Reinforcing steel shall be stored on stable supports.

Storage areas shall be:

- Level
- Accessible
- Away from traffic routes
- Away from excavation edges
- Away from public access
- Clear of standing water
- Suitable for the expected load

Rebar shall not be stored directly on unstable soil when shifting or settlement may occur.

7.3.1 DUNNAGE AND SUPPORTS

Dunnage shall:

- Be of adequate strength
- Be arranged evenly
- Support the entire bundle
- Resist rolling or shifting
- Remain in sound condition

Broken block, loose scrap, unstable cribbing, or damaged lumber shall not be used when failure could create a hazard.

7.3.2 STACK HEIGHT

Stacks shall be kept to a stable height.

Stacking shall consider:

- Bar diameter
- Bar length
- Bundle weight
- Ground slope
- Access
- Equipment clearance
- Wind
- Potential shifting

Employees shall not climb unstable rebar stacks.

7.3.3 SEPARATION BY SIZE

Rebar should be organized by:

- Diameter
- Length
- Mark number
- Placement area
- Fabrication sequence

Organized storage reduces repeated handling and exposure.

Rebar shall not block:

- Walkways
 - Ladders
 - Emergency exits
 - Fire extinguishers
 - Equipment routes
 - Public access
-

7.4 MANUAL REBAR HANDLING

Manual handling shall be minimized when mechanical assistance is available.

Before lifting, employees shall consider:

- Bar length
- Weight
- Balance
- Sharp ends
- Travel route
- Number of employees required
- Wind
- Nearby workers
- Destination

Long bars may create leverage and swing hazards even when the weight appears manageable.

7.4.1 INDIVIDUAL LIFTING

Employees shall:

- Wear gloves
- Maintain stable footing
- Keep the load close
- Avoid sudden twisting
- Watch both ends
- Communicate before turning
- Set material down carefully
- Request help when needed

Employees shall not carry bars in a manner that creates a striking hazard to others.

7.4.2 TEAM CARRYING

One employee shall coordinate team carries.

Commands may include:

- Lift
- Walk
- Turn
- Stop
- Lower
- Release

All employees shall respond to the designated leader.

Long bars shall be carried so both ends remain controlled.

Employees shall not release their end without warning.

7.4.3 SHOULDER CARRYING

When bars are carried on the shoulder:

- The forward end shall be controlled.
- Employees shall maintain separation.
- Turns shall be communicated.
- Doorways and blind corners shall be approached carefully.
- Overhead lines shall be considered.
- Employees shall avoid crowding.

Bars shall not be carried vertically near power lines.

7.5 IMPALEMENT PROTECTION

Employees shall be protected from falling onto or against protruding reinforcing steel.

Protection may include:

- Approved rebar caps
- Trough systems
- Wooden covers
- Guardrails

- Barricades
- Bending bars away from exposure
- Other engineered protective systems

Protection shall be capable of preventing impalement, not merely improving visibility.

7.5.1 APPROVED REBAR CAPS

Caps used for impalement protection shall be designed and rated for that purpose.

Decorative or mushroom-style caps that provide only scratch protection shall not be treated as fall-impalement protection unless specifically approved.

Caps shall:

- Fit securely
- Remain in place
- Be inspected
- Be replaced when damaged
- Protect all exposed hazardous ends

Employees shall not remove caps without authorization.

7.5.2 HORIZONTAL REBAR HAZARDS

Horizontal or angled bars may create:

- Trip hazards
- Puncture hazards
- Eye hazards
- Snagging hazards

Protection may include:

- Barricades
- Caps
- Covers

- Increased visibility
 - Rerouting access
 - Bending or repositioning when approved
-

7.5.3 CAP INSPECTION

Supervisors shall inspect rebar protection:

- Before work begins
- After material movement
- After concrete placement
- After equipment contact
- At shift changes
- When weather may displace protection

Missing protection shall be replaced promptly.

7.6 REBAR CUTTING

Rebar shall be cut using equipment suitable for the bar size and material.

Cutting methods may include:

- Hydraulic cutters
- Mechanical shears
- Abrasive saws
- Band saws
- Approved torch cutting
- Hand-operated cutters

Only trained employees shall use powered cutting equipment.

7.6.1 CUTTING-AREA CONTROL

The cutting area shall be:

- Stable
- Well lit
- Free of unnecessary employees
- Organized
- Protected from flying material
- Clear of flammables when hot work is involved

Cut ends shall be controlled.

Employees shall not stand in the projected path of material.

7.6.2 CUTTER INSPECTION

Before use, employees shall inspect:

- Guards
- Blades
- Jaws
- Hydraulic hoses
- Controls
- Emergency stops
- Power cords
- Grounding
- Mounting
- General condition

Defective equipment shall be removed from service.

7.6.3 POWERED CUTTING

Employees shall:

1. Position bars correctly.
2. Keep hands clear of jaws or blades.
3. Support long material.
4. Wear eye and face protection.
5. Maintain stable footing.
6. Shut down before clearing jams.

7. Follow lockout procedures when required.
8. Remove scrap promptly.

Employees shall not bypass guards or use hands to hold material inside danger zones.

7.6.4 ABRASIVE CUTTING

Abrasive saw operation shall follow applicable saw and hot-work requirements.

Employees shall use:

- Eye protection
- Face protection
- Hearing protection
- Gloves
- Respiratory protection when required
- Fire protection

Sparks shall be directed away from:

- Employees
 - Fuel
 - Chemicals
 - Dry debris
 - Vehicles
 - Structures
-

7.6.5 TORCH CUTTING

Torch cutting shall be performed only by trained and authorized employees.

Hot-work requirements shall include:

- Fire extinguisher
- Fire watch when required
- Cylinder control
- Hose inspection

- Flashback protection
- Ventilation
- Removal of combustibles
- Hot-material control

Recently cut steel shall be marked or isolated to prevent burns.

7.7 REBAR BENDING

Rebar bending shall be performed using approved equipment and procedures.

Hazards include:

- Pinch points
- Bar springback
- Machine movement
- Flying material
- Stored energy
- Sharp ends

Employees shall remain outside the bar's swing and release path.

7.7.1 BENDING-MACHINE INSPECTION

Before use, inspect:

- Guards
- Pins
- Rollers
- Bending table
- Controls
- Emergency stop
- Electrical system
- Hydraulic system
- Foot pedals
- Mounting

Damaged machines shall not be used.

7.7.2 OPERATING RULES

Employees shall:

- Use the correct pins and settings
- Keep hands clear
- Support long bars
- Keep others outside the swing area
- Avoid loose clothing
- Shut down before adjustment
- Use tools rather than hands to clear jams
- Follow manufacturer capacity limits

Bars shall not be bent beyond machine capacity.

7.7.3 FIELD BENDING

Field bending shall be authorized.

Employees shall not heat, rebend, or modify reinforcing steel when such changes may affect structural requirements without approval.

Makeshift leverage methods shall not be used when they create uncontrolled release hazards.

7.8 REBAR TYING

Rebar tying may expose employees to:

- Repetitive motion
- Sharp wire
- Awkward posture
- Trips
- Falls
- Hand injuries

- Eye injuries

Employees shall use appropriate tools and gloves.

7.8.1 TIE-WIRE CONTROL

Tie-wire ends shall be:

- Bent inward
- Trimmed
- Positioned away from access
- Managed to reduce puncture hazards

Loose wire shall be removed from walking surfaces.

Employees shall not leave wire coils where they create trip hazards.

7.8.2 POWERED TYING TOOLS

Powered tying tools shall be inspected before use.

Employees shall:

- Follow manufacturer instructions
 - Keep hands clear
 - Use approved wire
 - Remove batteries before maintenance
 - Store tools safely
 - Avoid bypassing guards
-

7.8.3 ERGONOMIC CONTROLS

Supervisors should consider:

- Task rotation
- Extension tying tools

- Adjustable work height
- Kneeling pads
- Work platforms
- Mechanical assistance
- Rest periods

Employees shall report persistent hand, wrist, shoulder, back, or knee symptoms.

7.9 REINFORCING MATS

Reinforcing mats shall be installed in a sequence that maintains safe access and stability.

Employees shall use designated walk paths when practical.

Hazards include:

- Trips
 - Falls
 - Foot entrapment
 - Unstable chairs
 - Sharp ties
 - Openings
 - Elevated edges
-

7.9.1 WALKING ON REBAR

Employees shall avoid unnecessary walking on reinforcing steel.

When access over rebar is required:

- Stable walk boards or platforms should be provided when practical.
- Openings shall be protected.
- Fall protection shall be used where required.
- Loose bars shall be secured.
- Chairs shall be stable.
- Employees shall wear appropriate footwear.

Employees shall move slowly and maintain balance.

7.9.2 REBAR CHAIRS AND SUPPORTS

Chairs and supports shall be:

- Correct for the application
- Stable
- Properly spaced
- Installed on suitable surfaces
- Capable of supporting expected loads

Broken or displaced chairs shall be corrected.

Employees shall not intentionally step on unstable supports.

7.9.3 MAT STABILITY

Rebar mats shall be tied and supported sufficiently to prevent movement during:

- Employee access
- Concrete placement
- Hose movement
- Equipment operation
- Vibration

Loose mats shall not be used as walking surfaces.

7.10 VERTICAL REINFORCING STEEL

Vertical reinforcing steel shall be secured against movement or collapse.

Hazards include:

- Impalement
- Falling bars

- Unstable assemblies
- Wind
- Equipment contact
- Elevated work

Vertical bars shall be braced, tied, or otherwise supported.

7.10.1 WALL REBAR

Wall reinforcing shall be installed according to the planned sequence.

The plan shall address:

- Temporary support
- Access
- Scaffolding
- Fall protection
- Bar placement
- Splice locations
- Material staging
- Crane or equipment use

Employees shall not climb unsecured reinforcing steel.

7.10.2 COLUMN REBAR

Column reinforcing shall be stabilized before employees work around or within the assembly.

Column cages shall not be left unsupported.

Temporary bracing shall remain until permanent stability is achieved.

7.11 REINFORCING CAGES

Reinforcing cages may be used for:

- Footings
- Grade beams
- Columns
- Piers
- Drilled shafts
- Walls
- Structural elements

Cages shall be fabricated, lifted, positioned, and supported under a planned procedure.

7.11.1 CAGE FABRICATION

Fabrication areas shall be organized and stable.

Cages shall be assembled to prevent:

- Rolling
- Collapse
- Uncontrolled movement
- Employee entrapment

Employees shall maintain clear access around the cage.

7.11.2 CAGE STABILITY

Before lifting or moving, the responsible person shall verify:

- Ties are complete
- Temporary bracing is adequate
- Lift points are suitable
- Loose material is removed
- Rigging is appropriate
- The cage can support handling forces

Cages shall not be assumed stable merely because they hold their shape on the ground.

7.11.3 LIFTING CAGES

Only qualified riggers shall rig reinforcing cages.

The lift plan shall address:

- Cage weight
- Center of gravity
- Lift points
- Rigging angles
- Taglines
- Crane capacity
- Travel path
- Wind
- Exclusion zones
- Final support

Employees shall not stand beneath or inside suspended cages.

7.11.4 SETTING CAGES

Employees guiding cages shall:

- Use taglines when appropriate
- Keep hands clear of pinch points
- Remain outside the fall zone
- Avoid standing between the cage and excavation wall
- Maintain communication with the operator
- Use tools to guide final placement when practical

The cage shall be secured before rigging is released.

7.12 RIGGING REINFORCING STEEL

Rigging shall be performed by qualified persons.

Slings, hooks, shackles, and other hardware shall be inspected before use.

Damaged rigging shall be removed from service.

7.12.1 BUNDLE RIGGING

Rebar bundles shall be rigged to prevent:

- Sliding
- Rotation
- Uneven loading
- Bar loss
- Sling damage

Choker placement shall account for bundle length and balance.

Employees shall not use loose tie wire as lifting rigging.

7.12.2 TAGLINES

Taglines may be used to control rotation.

Employees using taglines shall:

- Remain clear of the load
 - Avoid wrapping the line around the hand or body
 - Maintain stable footing
 - Avoid standing beneath the boom
 - Release the tagline if continued control creates danger
-

7.12.3 SUSPENDED LOADS

Employees shall not stand, walk, or work beneath suspended reinforcing steel.

The lift area shall be controlled.

Employees shall remain outside the fall zone until the load is landed and stable.

7.13 MECHANICAL SPLICES AND COUPLERS

Mechanical splices shall be installed according to:

- Manufacturer instructions
- Project specifications
- Approved procedures

Employees shall be trained in the required installation method.

7.13.1 COUPLER INSTALLATION

The work area shall be arranged to reduce:

- Hand injuries
- Pinch points
- Awkward lifting
- Dropped material
- Improper engagement

Threads shall be protected from damage and contamination.

Tools shall be appropriate for the coupler system.

7.13.2 TORQUE REQUIREMENTS

Where torque requirements apply, approved torque tools shall be used.

Tools shall be maintained and calibrated when required.

Improvised extension bars shall not be used when they may damage tools, components, or employees.

7.14 WELDED REINFORCEMENT

Welding reinforcing steel shall be performed only when:

- The steel is weldable
- Welding is approved
- Procedures are established
- Qualified personnel are assigned

Welding shall comply with applicable hot-work requirements.

7.14.1 WELDING HAZARDS

Controls shall address:

- Fire
- Fumes
- Burns
- Ultraviolet exposure
- Electrical shock
- Gas cylinders
- Falling sparks
- Nearby employees

Screens shall be used when needed to protect others from arc flash.

7.14.2 VENTILATION

Welding in enclosed or restricted areas shall be evaluated for ventilation.

Coatings, contaminants, and nearby chemicals shall be considered.

Employees shall not weld unknown or contaminated material without evaluation.

7.15 REBAR NEAR POWER LINES

Long reinforcing bars and cages may contact overhead power lines.

Before handling near electrical lines:

1. Identify the lines.
2. Establish safe clearance.
3. Plan the travel route.
4. Assign spotters when required.
5. Use mechanical handling when safer.
6. Maintain bars in a controlled orientation.

Employees shall not carry long bars upright near energized lines.

All lines shall be treated as energized unless confirmed otherwise by the utility.

7.16 ELEVATED REBAR WORK

Employees installing reinforcing steel at elevation shall be protected from falls.

Controls may include:

- Scaffolds
- Guardrails
- Personal fall-arrest systems
- Positioning systems
- Work platforms
- Aerial lifts

Employees shall not climb unsupported rebar mats, cages, or formwork as a substitute for proper access.

7.16.1 POSITIONING SYSTEMS

Positioning systems shall be used only under approved procedures.

Equipment shall be:

- Inspected
- Properly anchored
- Compatible
- Used by trained employees

Positioning systems shall not be confused with complete fall-arrest protection when additional fall exposure exists.

7.16.2 ACCESS

Safe access shall be provided using:

- Ladders
- Stair towers
- Scaffolds
- Aerial lifts
- Approved platforms

Rebar, form ties, and braces shall not be used as ladders.

7.17 REBAR IN EXCAVATIONS

Reinforcing work inside excavations shall comply with excavation-safety requirements.

The plan shall address:

- Protective systems
- Safe access
- Water
- Equipment
- Material handling
- Cage stability
- Impalement
- Emergency response

Employees shall not enter an excavation to guide a suspended cage unless the excavation is safe and the procedure is controlled.

7.18 DOWELS

Dowels shall be installed, protected, and maintained to prevent:

- Impalement
- Trips
- Eye injuries
- Equipment damage
- Public exposure

Protruding dowels shall be protected.

7.18.1 STARTER BARS

Starter bars shall be:

- Properly supported
- Protected
- Visible
- Kept clear of access routes when practical

Protection shall remain until the hazard is eliminated.

7.18.2 DRILLED AND EPOXIED DOWELS

Installation shall address:

- Silica
- Drilling
- Hole cleaning
- Chemical exposure
- Adhesive cure time
- Manufacturer requirements
- Eye protection
- Hand protection
- Ventilation

Employees shall not load adhesive anchors before the required cure time.

7.19 WELDED-WIRE REINFORCEMENT

Welded-wire reinforcement may spring, shift, or roll when released.

Employees shall:

- Control rolls during cutting
 - Wear gloves
 - Use sufficient personnel
 - Keep faces clear of release paths
 - Secure partially unrolled material
 - Maintain safe storage
 - Use mechanical handling when appropriate
-

7.19.1 UNROLLING WIRE MESH

Wire mesh shall be unrolled under control.

Weights, stakes, equipment, or approved methods may be used to prevent springback.

Employees shall not stand directly in front of a roll being released.

7.19.2 CUTTING WIRE MESH

Employees shall use appropriate cutters.

Cut ends shall be controlled and protected.

Scrap pieces shall be removed promptly.

7.20 FIBER-REINFORCED MATERIALS

Employees handling synthetic, steel, glass, or other reinforcing fibers shall review product hazards.

Controls may include:

- Gloves
- Eye protection
- Long sleeves
- Dust control
- Respiratory protection
- Controlled mixing
- Proper disposal

Employees shall avoid placing hands near operating mixer components.

7.21 POST-TENSIONING AWARENESS

Post-tensioning systems contain stored energy.

Only qualified and authorized persons shall perform stressing, cutting, repair, or detensioning.

Employees shall not:

- Stand behind tendon ends
 - Enter stressing exclusion zones
 - Cut tendons
 - Drill unknown slabs
 - Core unknown slabs
 - Damage anchors
 - Remove protective covers
-

7.21.1 STRESSING ZONES

Stressing areas shall be barricaded.

Employees shall remain clear of:

- Tendon ends
- Jacking equipment
- Anchorages

- Potential release paths

Only assigned personnel shall enter.

7.21.2 SLAB SCANNING

Before drilling, cutting, or coring post-tensioned slabs, reliable location methods shall be used.

Approval shall be obtained before work begins.

When location is uncertain, work shall stop.

7.22 HOUSEKEEPING

Rebar work areas shall be maintained to control:

- Tie-wire scrap
- Cut bar ends
- Metal straps
- Mud
- Trip hazards
- Sharp material
- Blocked access

Cutoff pieces shall be collected and stored or disposed of promptly.

Magnetic sweepers may be used where appropriate.

7.23 PUBLIC PROTECTION

Reinforcing steel near occupied areas shall be:

- Barricaded
- Capped
- Covered

- Removed from access
- Monitored

Deliveries and long-bar movement shall be coordinated to protect pedestrians, residents, customers, and motorists.

Employees shall not leave exposed reinforcing hazards accessible after work hours.

7.24 WEATHER

Weather may affect rebar operations through:

- Lightning
- Wind
- Heat
- Rain
- Slippery steel
- Reduced visibility

Work shall stop when weather creates unsafe handling, rigging, fall, or electrical conditions.

Long bars and cages shall be secured against wind.

7.25 END-OF-SHIFT REQUIREMENTS

At the end of the shift, supervision shall ensure:

- Exposed bars are protected
- Cages are stable
- Loose materials are secured
- Tools are stored
- Scrap is removed
- Access routes are clear
- Rigging is stored
- Equipment is shut down
- Public access is controlled

- Shift handoff is completed
-

7.26 REINFORCING-STEEL TRAINING

Training shall be appropriate to assigned duties.

Topics may include:

- Manual handling
- Impalement protection
- Cutting and bending
- Rigging
- Cage stability
- Elevated work
- Tie-wire hazards
- Power-line awareness
- Mechanical splices
- Post-tension awareness
- Equipment operation
- Emergency procedures

Training shall be documented.

7.27 REINFORCING-STEEL INSPECTIONS

Supervisors shall inspect for:

- Missing caps
- Unstable cages
- Improper storage
- Damaged cutting equipment
- Inadequate access
- Fall hazards
- Suspended-load exposure
- Poor housekeeping
- Unsafe manual handling
- Power-line hazards
- Unsecured wall or column steel

Deficiencies shall be corrected before work continues.

7.28 INCIDENT AND NEAR-MISS REVIEW

Rebar-related incidents and near misses shall be reviewed.

Examples include:

- Dropped bundles
- Near impalement
- Cage movement
- Machine pinch points
- Band release
- Suspended-load exposure
- Wire punctures
- Bar contact with equipment
- Electrical near misses
- Trip and fall events

Lessons learned shall be shared with affected employees.

A bar does not need to fall very far to rewrite the entire day.

SECTION 8

MASONRY OPERATIONS

8.1 GENERAL MASONRY SAFETY

Masonry operations present hazards involving:

- Heavy block and brick
- Repetitive lifting
- Silica dust
- Mortar and cement exposure
- Masonry saws
- Scaffolds
- Falling objects

- Wall instability
- Grouting
- Reinforcing steel
- Elevated work
- Electrical equipment
- Manual handling
- Heat
- Limited access around incomplete walls

Masonry work shall be planned before materials are delivered or work begins.

Planning shall address:

1. Material-storage locations.
2. Scaffold requirements.
3. Wall-bracing requirements.
4. Limited-access zones.
5. Mortar-mixing areas.
6. Masonry-saw locations.
7. Silica controls.
8. Grout placement.
9. Reinforcing steel.
10. Access and egress.
11. Equipment routes.
12. Public protection.
13. Weather conditions.
14. Fall protection.
15. Material-handling methods.
16. Housekeeping.
17. Emergency response.

Only trained and authorized employees shall operate masonry saws, mixers, forklifts, telehandlers, grout pumps, and other powered equipment.

8.2 MATERIAL DELIVERY AND STORAGE

Masonry materials shall be delivered and stored in a manner that prevents collapse, shifting, damage, and employee exposure.

Materials may include:

- Concrete masonry units
- Brick
- Mortar
- Cement
- Sand
- Grout
- Reinforcing steel
- Lintels
- Bond-beam block
- Accessories
- Scaffolding components

Delivery areas shall be evaluated for:

- Ground stability
 - Equipment access
 - Overhead hazards
 - Public traffic
 - Excavations
 - Slopes
 - Drainage
 - Slab capacity
 - Proximity to the wall
 - Future work access
-

8.2.1 BLOCK AND BRICK STORAGE

Block and brick shall be stacked on stable, level surfaces.

Stacks shall be arranged to prevent:

- Tipping
- Sliding
- Collapse
- Damage
- Blocked access
- Excessive floor loading

Employees shall not climb unstable pallets or stacks.

Damaged pallets shall be handled carefully and shall not be relied upon for continued storage.

Loose block shall not be stored near:

- Slab edges
 - Excavation edges
 - Stairways
 - Openings
 - Public walkways
 - Vehicle routes
-

8.2.2 BAGGED MATERIAL STORAGE

Bagged cement, mortar, and grout shall be stored:

- In dry areas
- On stable pallets
- Away from standing water
- Away from ignition sources
- In stacks that resist collapse
- According to manufacturer instructions

Employees shall not remove bags from the bottom of unstable stacks.

Damaged bags shall be controlled to prevent dust exposure.

8.2.3 LINTELS AND LONG MATERIALS

Lintels, rebar, and other long materials shall be stored on stable supports.

Materials shall be secured against:

- Rolling
- Sliding
- Tipping
- Vehicle contact
- Wind movement

Employees shall use mechanical assistance when material weight or length creates a handling hazard.

8.3 MANUAL BLOCK HANDLING

Masonry units are heavy, repetitive loads that may cause:

- Back injuries
- Shoulder injuries
- Hand injuries
- Finger crushing
- Strains
- Fatigue
- Dropped-object incidents

Employees shall use proper lifting methods and mechanical assistance when practical.

8.3.1 LIFTING BLOCK

Employees shall:

1. Inspect the block for cracks or sharp edges.
2. Establish a secure grip.
3. Keep the load close to the body.
4. Lift with controlled movement.
5. Avoid twisting.
6. Turn with the feet.
7. Set the block down carefully.
8. Keep fingers clear of pinch points.

Employees shall not carry more block than they can safely control.

8.3.2 TEAM LIFTING

Large units, lintels, precast components, and awkward materials shall be team-lifted when necessary.

One employee shall coordinate:

- Lift
- Movement
- Turning
- Placement
- Release

Employees shall communicate before setting material.

8.3.3 REPETITIVE LIFTING

Supervisors should consider:

- Task rotation
- Material lifts
- Scaffold hoists
- Forklifts
- Telehandlers
- Raised material platforms
- Rest periods
- Reduced carrying distance

Materials should be positioned near the work and at practical heights.

Employees shall report persistent pain, tingling, weakness, or reduced grip.

8.4 MORTAR MIXING

Mortar mixing presents hazards involving:

- Cement exposure
- Silica dust
- Rotating equipment
- Electricity

- Fuel
- Manual lifting
- Chemicals
- Noise
- Pinch points

The mixing area shall be organized, stable, and separated from unnecessary traffic.

8.4.1 MIXER INSPECTION

Before use, employees shall inspect:

- Guards
- Drum or paddles
- Controls
- Emergency stop
- Power cord
- Grounding
- Engine
- Fuel system
- Tires
- Tow connections
- General condition

Mixers with damaged guards or controls shall not be used.

8.4.2 MIXER OPERATION

Employees shall:

- Keep guards in place
- Keep hands and tools away from moving parts
- Use appropriate PPE
- Avoid loose clothing
- Maintain stable footing
- Control dust while loading
- Shut down before cleaning or adjustment

- Follow lockout procedures when required
- Keep others clear

Employees shall not reach into an operating mixer.

8.4.3 LOADING BAGGED MATERIAL

Bagged material shall be opened and poured in a manner that reduces dust.

Employees should:

- Position themselves upwind
- Lower bags close to the opening
- Pour slowly
- Avoid shaking empty bags
- Use dust controls
- Wear required respiratory protection

Empty bags shall be disposed of promptly.

8.4.4 MIXING CHEMICALS

Admixtures, pigments, cleaners, and other chemicals shall be handled according to:

- Safety Data Sheets
- Manufacturer instructions
- Label requirements
- Required PPE
- Ventilation requirements

Employees shall not mix incompatible products.

8.4.5 MIXER CLEANING

Before cleaning:

1. Shut down the mixer.
2. Disconnect or isolate energy.
3. Prevent restart.
4. Relieve stored energy.
5. Use proper tools.
6. Keep hands clear of blades and paddles.

Employees shall not clean the mixer while components are moving.

8.5 MASONRY SAWS

Masonry saws present hazards involving:

- Silica dust
- Blade contact
- Blade failure
- Noise
- Flying particles
- Water
- Electricity
- Fuel
- Pinch points
- Manual handling

Only trained employees shall operate masonry saws.

8.5.1 SAW LOCATION

The saw shall be located:

- On stable ground
- Away from public access
- Away from congested work areas
- With adequate lighting
- With drainage control
- With sufficient ventilation
- Away from flammable materials

The area shall be arranged to allow safe material handling.

8.5.2 PRE-USE INSPECTION

Inspect:

- Blade
- Blade rating
- Guard
- Arbor
- Table
- Water system
- Controls
- Power cord
- Grounding
- Fuel system
- Emergency shutoff

Damaged or incompatible blades shall not be used.

8.5.3 SAW OPERATION

Operators shall:

- Wear eye and face protection
- Wear hearing protection
- Use required respiratory protection
- Maintain guards
- Use water or approved dust collection
- Keep hands clear of the blade
- Feed material steadily
- Avoid forcing the cut
- Keep others clear
- Shut down before adjustment

Employees shall not reach across a moving blade.

8.5.4 SLURRY AND WATER CONTROL

Saw water and slurry shall be controlled to prevent:

- Slips
- Environmental discharge
- Electrical hazards
- Public exposure
- Drying into airborne silica dust

Slurry shall be collected or managed according to project requirements.

8.5.5 DRY CUTTING

Dry cutting shall be minimized.

When dry cutting is permitted, the work shall include:

- Approved dust collection
- Restricted access
- Respiratory protection when required
- Ventilation
- Silica controls
- Housekeeping procedures

Visible dust shall not be allowed to spread through occupied areas.

8.6 MASONRY WALL CONSTRUCTION

Masonry walls shall be constructed according to:

- Project drawings
- Specifications
- Engineering requirements
- Approved procedures
- Manufacturer instructions

Wall construction shall be sequenced to maintain stability.

8.6.1 WALL STABILITY

Incomplete masonry walls may be vulnerable to collapse from:

- Wind
- Impact
- Improper bracing
- Excessive height
- Equipment contact
- Premature loading
- Foundation movement

Employees shall report:

- Cracking
- Movement
- Leaning
- Loose units
- Damaged braces
- Settlement
- Unexpected openings

Work shall stop when wall stability is uncertain.

8.6.2 DAILY WALL HEIGHT

Wall height constructed during a shift shall be controlled based on:

- Mortar condition
- Weather
- Unit type
- Wall thickness
- Bracing
- Engineering requirements
- Manufacturer recommendations

Employees shall not exceed established lift heights merely to maintain production.

8.6.3 OPENINGS AND LINTELS

Openings shall be constructed according to approved details.

Lintels shall be:

- Correctly sized
- Properly supported
- Installed in the correct orientation
- Protected from displacement
- Loaded only after required support is established

Temporary supports shall remain until authorized for removal.

8.7 LIMITED-ACCESS ZONES

A limited-access zone shall be established on the unscaffolded side of masonry walls when required.

The zone shall:

- Run the length of the wall
- Be established before wall construction
- Be restricted to employees actively engaged in masonry work
- Remain in place until the wall is adequately supported

The width and configuration shall meet applicable requirements and site conditions.

8.7.1 ZONE CONTROL

Limited-access zones may be controlled using:

- Barricades
- Warning tape
- Signs

- Cones
- Physical barriers
- Supervision

Materials and equipment shall not be stored in a manner that creates additional hazards within the zone.

8.7.2 AUTHORIZED ENTRY

Only authorized employees performing necessary work may enter.

Other trades, visitors, and members of the public shall be kept out.

The zone shall not be treated as a convenient shortcut.

8.8 MASONRY WALL BRACING

Masonry walls shall be braced when required to resist wind and construction loads.

Bracing shall follow:

- Engineered plans
- Manufacturer instructions
- Project requirements
- Approved bracing procedures

Braces shall be installed by trained employees.

8.8.1 BRACE COMPONENTS

Bracing systems may include:

- Wall braces
- Anchors
- Strongbacks

- Base plates
- Bolts
- Stakes
- Connections
- Deadmen

Components shall be inspected before use.

Damaged or incompatible components shall not be installed.

8.8.2 BRACE INSTALLATION

Employees shall verify:

- Proper spacing
- Correct angle
- Secure wall connection
- Secure base connection
- Suitable substrate
- Proper hardware
- Adequate tightening
- Clear access

Improvised braces shall not be used unless approved.

8.8.3 BRACE INSPECTION

Braces shall be inspected:

- After installation
- At the beginning of each shift
- After high winds
- After heavy rain
- After equipment impact
- After nearby excavation
- Before grout placement
- Before removal

Loose, damaged, or displaced braces shall be corrected immediately.

8.8.4 BRACE REMOVAL

Braces shall not be removed until authorized.

Authorization shall consider:

- Wall strength
- Grout strength
- Roof or floor connection
- Engineering requirements
- Weather
- Permanent structural support

Employees shall not remove braces merely because they obstruct another activity.

8.9 SCAFFOLDING FOR MASONRY

Scaffolds shall be erected, used, inspected, and dismantled under the direction of qualified and competent persons.

Masonry scaffolds shall provide:

- Adequate capacity
 - Stable support
 - Proper access
 - Complete platforms
 - Fall protection
 - Safe material loading
 - Protection from falling objects
-

8.9.1 SCAFFOLD INSPECTION

A competent person shall inspect scaffolds:

- Before each shift
- After alteration
- After severe weather
- After impact
- After movement
- When conditions change

The inspection shall include:

- Base plates
 - Mud sills
 - Frames
 - Bracing
 - Pins
 - Platforms
 - Guardrails
 - Toeboards
 - Access
 - Ties
 - Loads
 - Damage
-

8.9.2 PLATFORM LOADING

Scaffold platforms shall not be overloaded.

Loads may include:

- Employees
- Block
- Mortar
- Tools
- Equipment
- Debris

Materials shall be distributed evenly.

Block and mortar shall not be stacked in a manner that obstructs access or overloads the platform.

8.9.3 ACCESS

Employees shall use approved ladders, stair towers, or built-in access.

Employees shall not climb:

- Cross braces
- Guardrails
- Masonry walls
- Unapproved scaffold frames
- Material stacks

Access points shall be kept clear.

8.9.4 FALLING-OBJECT PROTECTION

Protection may include:

- Toeboards
- Screens
- Barricades
- Canopies
- Debris control
- Exclusion zones

Employees shall not throw block, tools, mortar, or debris from scaffolds.

8.10 FALL PROTECTION DURING MASONRY WORK

Employees shall be protected from falls at elevations where protection is required.

Controls may include:

- Guardrails
- Scaffolds

- Personal fall-arrest systems
- Positioning systems
- Aerial lifts
- Covers

Employees shall not stand on:

- Loose block
 - Buckets
 - Makeshift platforms
 - Scaffold guardrails
 - Wall tops
-

8.10.1 WORKING FROM WALL TOPS

Working from wall tops is prohibited unless a specifically approved method provides:

- Safe access
 - Stable footing
 - Fall protection
 - Adequate wall capacity
 - Qualified supervision
-

8.10.2 FLOOR AND WALL OPENINGS

Openings shall be guarded or covered.

Covers shall be:

- Secured
- Marked
- Capable of supporting expected loads
- Maintained

Employees shall not remove protection without authorization.

8.11 GROUTING OPERATIONS

Grouting presents hazards from:

- Pump pressure
- Hose movement
- Form or wall failure
- Wet cement
- Elevated work
- Heavy material
- Spills
- Equipment
- Restricted access

A grout-placement plan shall be established.

8.11.1 PRE-GROUT INSPECTION

Before grouting, inspect:

- Wall alignment
- Reinforcement
- Cleanouts
- Bracing
- Lift height
- Openings
- Access
- Grout equipment
- Hose connections
- Fall protection
- Restricted zones

Deficiencies shall be corrected before placement.

8.11.2 GROUT-PUMP SETUP

The pump shall be located on stable ground.

Setup shall account for:

- Delivery access
- Hose routing
- Public protection
- Washout
- Power lines
- Equipment traffic
- Emergency shutdown

Only trained employees shall operate the pump.

8.11.3 HOSE CONTROL

Grout hoses shall be:

- Inspected
- Properly connected
- Routed safely
- Controlled by trained employees
- Kept clear of sharp edges
- Protected from vehicle traffic

Connections shall not be opened under pressure.

8.11.4 GROUT LIFT CONTROL

Grout shall be placed in a sequence and lift height that does not overload the wall.

Employees shall monitor for:

- Bulging
- Leaking
- Cracking
- Movement
- Brace failure
- Blowouts

Placement shall stop immediately if instability is observed.

8.11.5 CLEANOUTS

Cleanouts shall be opened and closed carefully.

Employees shall wear:

- Eye protection
- Face protection when needed
- Gloves
- Protective clothing

Employees shall remain clear of potential pressure release.

8.12 BOND BEAMS AND LINTELS

Bond-beam and lintel work may involve:

- Elevated access
- Rebar
- Grout
- Heavy block
- Temporary support
- Open cells
- Cutting

Employees shall maintain secure footing and protect exposed reinforcing steel.

8.12.1 BOND-BEAM BLOCK

Bond-beam block shall be handled carefully due to open webs and sharp edges.

Employees shall inspect units before lifting.

Damaged units shall not be installed where integrity is required.

8.12.2 REINFORCEMENT

Bond-beam reinforcement shall be:

- Correctly placed
- Supported
- Tied
- Protected
- Installed according to plans

Employees shall avoid placing hands beneath unsupported steel.

8.12.3 LINTEL SUPPORT

Temporary support shall remain in place until:

- Required strength is achieved
- Permanent support is complete
- Authorization is provided

Supports shall not be struck by equipment or removed early.

8.13 MASONRY CLEANING

Masonry cleaning may involve:

- Acids
- Detergents
- Pressure washing
- Abrasive methods
- Elevated work
- Chemical vapors

Only trained employees shall perform chemical cleaning.

8.13.1 CHEMICAL REVIEW

Before use, review:

- Safety Data Sheet
- Dilution
- PPE
- Ventilation
- First aid
- Spill response
- Surface compatibility
- Environmental controls

Chemicals shall not be mixed unless the manufacturer specifically permits it.

8.13.2 REQUIRED PPE

PPE may include:

- Chemical-resistant gloves
- Goggles
- Face shield
- Protective clothing
- Rubber boots
- Respiratory protection

Emergency eyewash and water shall be available where required.

8.13.3 PRESSURE WASHING

Pressure-washing hazards include:

- Injection injuries
- Slips
- Flying debris
- Electrical exposure
- Chemical splash
- Public exposure

Employees shall not direct spray toward themselves or others.

The area shall be barricaded when necessary.

8.14 POINTING AND PATCHING

Pointing and patching may involve:

- Elevated work
- Dust
- Chemicals
- Hand tools
- Repetitive movement
- Falling debris

Employees shall use safe access and control debris.

Overhead work areas shall be restricted.

8.15 MASONRY DEMOLITION

Masonry demolition shall be planned.

The plan shall address:

- Structural stability
- Wall collapse
- Falling debris
- Silica
- Utilities
- Equipment
- Public protection
- Debris handling
- Access
- Emergency procedures

Demolition shall proceed in a controlled sequence.

8.15.1 WALL REMOVAL

Employees shall not work on the unsupported side of a wall being demolished.

Walls shall not be allowed to fall into uncontrolled areas.

Mechanical demolition shall maintain exclusion zones.

8.15.2 DEBRIS CHUTES AND DROPS

Debris shall not be dropped from elevation without controlled methods.

Chutes, barricades, containers, or designated drop zones shall be used.

Employees shall remain clear below.

8.16 ELECTRICAL SAFETY

Electrical tools used in masonry operations shall be protected from wet conditions and damage.

Requirements include:

- Ground-fault protection
- Inspected cords
- Protected connections
- Proper grounding
- Dry connection points
- Removal of damaged tools

Employees shall not use electrical tools while standing in water unless specifically designed and protected.

8.17 HOUSEKEEPING

Masonry work areas shall be maintained to control:

- Broken block
- Mortar droppings
- Tie wire
- Empty bags
- Wood
- Nails
- Cords
- Hoses
- Scaffold debris
- Slurry

Debris shall be removed regularly.

Walkways and access points shall remain clear.

8.17.1 MORTAR DROPPINGS

Mortar droppings shall not be allowed to create:

- Slip hazards
- Scaffold overload
- Blocked access
- Falling-object hazards

Droppings shall be cleaned at appropriate intervals.

8.17.2 EMPTY PALLETS

Empty pallets shall be:

- Stacked safely
- Removed from access routes
- Inspected before reuse
- Secured against wind

Broken pallets shall not be used as work platforms.

8.18 WEATHER

Masonry work may be affected by:

- Wind
- Lightning
- Heat
- Heavy rain
- Cold
- Reduced visibility

Supervisors shall monitor conditions.

Wall construction, scaffold use, lifting, and elevated work shall stop when conditions become unsafe.

Incomplete walls shall be secured before severe weather.

8.19 PUBLIC PROTECTION

Masonry work near occupied buildings, sidewalks, roads, and residences shall include:

- Barricades
- Falling-object protection
- Dust control
- Safe access
- Material control
- Delivery coordination
- Noise management
- Cleanup

Unstable walls and scaffolds shall not be left accessible to the public.

8.20 END-OF-SHIFT REQUIREMENTS

Before leaving, supervision shall ensure:

- Walls are stable
 - Braces are secure
 - Scaffolds are inspected
 - Materials are stacked safely
 - Saws are shut down
 - Mixers are secured
 - Chemicals are stored
 - Access routes are clear
 - Limited-access zones remain in place
 - Public areas are protected
 - Debris is removed
 - Shift handoff is completed
-

8.21 MASONRY TRAINING

Employees shall receive training appropriate to their duties.

Training topics may include:

- Manual handling
- Silica
- Saw operation
- Mixer operation
- Scaffold use
- Wall bracing
- Limited-access zones
- Grouting
- Wet-cement hazards
- Chemical cleaning
- Fall protection
- Equipment operation

Training shall be documented.

8.22 MASONRY INSPECTIONS

Supervisors shall inspect for:

- Wall stability
- Brace condition
- Scaffold condition
- Material stacking
- Saw controls
- Silica controls
- Mortar-mixer guarding
- PPE
- Housekeeping
- Limited-access zones
- Fall hazards
- Public protection

Deficiencies shall be corrected promptly.

8.23 INCIDENT AND NEAR-MISS REVIEW

Masonry-related incidents and near misses shall be reviewed.

Examples include:

- Wall movement
- Falling block
- Scaffold overload
- Saw kickback
- Chemical splash
- Grout-line failure
- Dropped lintels
- Brace damage
- Manual-handling injuries
- Silica-control failure

Lessons learned shall be communicated to affected crews.

A masonry wall can look permanent long before it is ready to behave that way.

SECTION 9

EXCAVATION AND SITEWORK

9.1 GENERAL EXCAVATION SAFETY

Excavation and trenching operations present hazards involving:

- Cave-ins
- Falling soil and materials
- Underground utilities
- Water accumulation
- Hazardous atmospheres
- Mobile equipment
- Spoil piles
- Restricted access
- Traffic
- Adjacent structures
- Unstable soil
- Falls into excavations
- Electrical contact
- Struck-by hazards
- Entrapment

No employee shall enter an excavation unless it has been evaluated and determined safe by a competent person.

Excavation work shall be planned before digging begins.

Planning shall address:

- 1. Utility locating.**
- 2. Soil conditions.**
- 3. Excavation depth.**
- 4. Protective systems.**
- 5. Safe access.**
- 6. Water control.**
- 7. Spoil placement.**
- 8. Equipment location.**
- 9. Adjacent structures.**
- 10. Traffic exposure.**
- 11. Atmospheric hazards.**
- 12. Emergency response.**

- 13. Public protection.**
- 14. Weather.**
- 15. Inspection requirements.**
- 16. Material handling.**
- 17. Work sequencing.**
- 18. Night conditions.**
- 19. Communication.**
- 20. Backfilling.**

Employees shall not enter an excavation simply because the walls appear stable.

Soil can look calm right up until it decides otherwise.

9.2 EXCAVATION COMPETENT PERSON

A competent person shall be designated for excavation and trenching operations.

The competent person shall be capable of:

- Identifying existing hazards
- Anticipating foreseeable hazards
- Classifying soil
- Selecting protective systems
- Inspecting excavations
- Recognizing water hazards
- Evaluating adjacent structures
- Identifying atmospheric concerns
- Stopping work
- Ordering corrective action
- Restricting entry

The competent person shall have authority to remove employees from danger and suspend excavation work.

9.3 PRE-EXCAVATION PLANNING

Before excavation begins, the responsible supervisor and competent person shall review:

- Scope of work
- Plans
- Utility information
- Soil conditions
- Excavation dimensions
- Protective-system requirements
- Equipment needs
- Access and egress
- Spoil placement
- Adjacent structures
- Public exposure
- Weather
- Emergency procedures
- Permits
- Traffic-control needs

A Job Hazard Analysis shall be completed when required.

Changes to the excavation plan shall be reviewed before work continues.

9.4 UNDERGROUND UTILITY LOCATING

Underground utilities shall be identified before excavation begins.

Possible utilities include:

- Electrical
- Gas
- Water
- Sewer
- Storm drainage
- Communication
- Irrigation
- Fuel
- Fire-service lines
- Private site utilities

Required utility-locating procedures shall be completed before mechanized excavation.

9.4.1 UTILITY MARKINGS

Utility markings shall be:

- Reviewed
- Maintained
- Protected
- Reestablished when damaged
- Confirmed before digging

Employees shall understand that markings indicate approximate locations and may not show exact depth.

Old, private, abandoned, or undocumented utilities may still be present.

9.4.2 TOLERANCE ZONES

Mechanical excavation shall be controlled when working near known or suspected utilities.

Hand digging, vacuum excavation, or other approved methods shall be used when required to expose utilities safely.

Employees shall not assume a utility is inactive without confirmation.

9.4.3 UTILITY CONTACT

If equipment contacts or damages a utility:

- 1. Stop work.**
- 2. Keep employees away.**
- 3. Shut down equipment when safe.**
- 4. Notify emergency services when necessary.**
- 5. Notify the utility owner.**
- 6. Notify NCC management.**
- 7. Control ignition sources.**

8. Do not touch equipment involved in electrical contact.
 9. Evacuate the area when gas or other hazardous release is suspected.
 10. Resume work only after authorization.
-

9.5 EXCAVATION INSPECTIONS

A competent person shall inspect excavations:

- Before employees enter
- At the beginning of each shift
- After rain
- After water intrusion
- After blasting
- After equipment impact
- After soil movement
- After freezing or thawing
- After changes in loading
- After protective-system changes
- When conditions may have changed

The inspection shall include:

- Soil condition
- Cracks
- Sloughing
- Bulging
- Water
- Spoil placement
- Protective systems
- Access
- Equipment location
- Atmospheric hazards
- Adjacent structures
- Utilities
- Barricades
- Employee exposure

Unsafe excavations shall be evacuated immediately.

9.6 SOIL CLASSIFICATION

Soil shall be classified by a competent person when classification is necessary for protective-system selection.

Classification shall consider:

- Soil type
- Cohesion
- Moisture
- Layering
- Vibration
- Previously disturbed soil
- Fissures
- Water
- Adjacent loading
- Weather
- Utility trenches
- Fill material

Previously disturbed soil shall be treated cautiously.

Visual and manual tests shall be used as appropriate.

Employees shall not make their own informal soil classification and enter based on appearance.

9.7 PROTECTIVE SYSTEMS

Employees in excavations shall be protected from cave-ins by an approved protective system when required.

Protective systems may include:

- Sloping
- Benching
- Shoring
- Shielding
- Engineered systems
- Other approved methods

The system shall be selected based on:

- Depth
 - Soil classification
 - Water
 - Vibration
 - Adjacent structures
 - Surface loads
 - Space limitations
 - Utility locations
 - Manufacturer requirements
-

9.7.1 SLOPING

Sloped excavations shall be cut to an approved angle.

Slopes shall be inspected for:

- Cracking
- Sloughing
- Erosion
- Water
- Unsupported material
- Changes in soil
- Surface loading

Employees shall not work beneath loose or unstable soil.

9.7.2 BENCHING

Benching shall only be used when suitable for the soil and excavation conditions.

Benches shall be:

- Properly proportioned
- Stable
- Free of loose material
- Maintained

- Inspected

Benching shall not be used where prohibited by soil conditions.

9.7.3 SHORING

Shoring systems shall be installed, used, and removed according to:

- Manufacturer instructions
- Tabulated data
- Engineering requirements
- Approved procedures

Only trained employees shall install or remove shoring.

Components shall be inspected before use.

Damaged components shall not be used.

9.7.4 TRENCH SHIELDS

Trench shields shall be used according to manufacturer instructions.

The shield shall:

- Be rated for the excavation depth
- Be properly positioned
- Be protected from damage
- Extend appropriately
- Be entered only through safe access
- Remain free of suspended loads

Employees shall work within the protected area.

Employees shall not work between the shield and excavation wall unless protected by another approved system.

9.7.5 SHIELD MOVEMENT

Employees shall exit the shield before it is moved unless the system and procedure specifically permit otherwise.

Before movement:

- Clear employees
- Remove unsecured material
- Confirm rigging
- Verify equipment capacity
- Control the travel path

Employees shall not ride on or inside a moving trench shield.

9.8 EXCAVATION ACCESS AND EGRESS

Safe access and egress shall be provided when required.

Access may include:

- Ladders
- Ramps
- Stairs
- Steps
- Engineered access systems

Access shall be located so employees do not have to travel excessive distances within the excavation.

9.8.1 LADDERS

Ladders shall:

- Extend above the landing when required
- Be secured
- Be placed on stable footing
- Be maintained

- Be positioned clear of equipment
- Be free of mud and damage

Employees shall face ladders and maintain three points of contact.

Rebar, shoring, pipe, and trench shields shall not be used as ladders.

9.8.2 RAMPS

Structural ramps used by employees shall be designed and built by qualified persons when required.

Ramps shall have:

- Stable surfaces
- Adequate width
- Proper slope
- Cleats when necessary
- Guardrails when required

Vehicle ramps shall support expected loads.

9.9 SPOIL PILES AND MATERIAL PLACEMENT

Spoil, tools, materials, and equipment shall be kept far enough from excavation edges to reduce collapse and falling-object hazards.

Controls may include:

- Setback
- Retaining devices
- Barricades
- Benching
- Removal from the area

Spoil piles shall be arranged to prevent material from rolling or sliding into the excavation.

9.9.1 SURFACE LOADS

Surface loads may include:

- Spoil
- Trucks
- Cranes
- Concrete pumps
- Materials
- Structures
- Equipment
- Traffic

The competent person shall evaluate how these loads affect excavation stability.

Heavy equipment shall not operate near edges without approval.

9.9.2 FALLING MATERIAL

Employees shall not work beneath:

- Suspended buckets
- Excavator loads
- Pipes
- Materials
- Loose soil
- Equipment attachments

Material shall not be dropped into excavations where employees are exposed.

9.10 MOBILE EQUIPMENT NEAR EXCAVATIONS

Equipment operating near excavations creates hazards involving:

- Edge collapse
- Blind spots
- Rollovers
- Struck-by events

- Falling loads
- Vibration

Equipment routes shall be planned.

9.10.1 EDGE PROTECTION

When operators cannot clearly see the excavation edge, controls may include:

- Barricades
- Stop logs
- Spotters
- Warning lines
- Grade separation
- Lighting

Stop logs shall be substantial enough for the equipment involved.

9.10.2 SPOTTERS

Spotters shall:

- Remain visible
- Stay clear of equipment
- Use agreed signals
- Monitor edges
- Warn pedestrians
- Stop movement when visibility is lost

If the operator loses sight of the spotter, equipment movement shall stop.

9.10.3 EQUIPMENT SWING RADIUS

Employees shall remain outside the swing radius of excavators and similar equipment.

Swing areas shall be barricaded when practical.

Employees shall not enter the danger zone without the operator's knowledge and acknowledgment.

9.11 WATER ACCUMULATION

Employees shall not work in excavations with accumulated or accumulating water unless adequate controls are implemented.

Controls may include:

- Pumps
- Drainage
- Diversion ditches
- Well points
- Shoring
- Shields
- Monitoring
- Emergency procedures

Water can weaken soil, hide hazards, and rapidly change conditions.

9.11.1 PUMPING OPERATIONS

Pumps shall be:

- Properly sized
- Maintained
- Positioned safely
- Protected electrically
- Monitored

Discharge shall not create erosion, flooding, or environmental violations.

Fuel-powered pumps shall not create carbon-monoxide exposure.

9.11.2 RAIN AND FLOODING

After rain, the excavation shall be reinspected before entry.

Employees shall exit immediately when:

- Water rises
 - Soil begins moving
 - Pumps fail
 - Stormwater enters
 - Protective systems shift
 - Visibility becomes inadequate
-

9.12 HAZARDOUS ATMOSPHERES

Excavations may contain hazardous atmospheres, particularly when:

- Deep
- Near landfills
- Near sewers
- Near fuel systems
- In contaminated soil
- In enclosed spaces
- Near leaking utilities
- Oxygen deficiency is possible

Atmospheric testing shall be conducted when conditions indicate a potential hazard.

9.12.1 AIR MONITORING

Monitoring may include:

- Oxygen
- Flammable gases
- Toxic gases
- Carbon monoxide
- Hydrogen sulfide

Testing equipment shall be:

- Appropriate
- Calibrated
- Maintained
- Used by trained persons

Employees shall not enter hazardous atmospheres without appropriate controls and rescue planning.

9.12.2 VENTILATION

Ventilation may be used to control hazardous atmospheres.

Ventilation equipment shall be positioned so contaminated air is not directed toward employees or occupied areas.

Air quality shall be monitored as necessary.

9.13 ADJACENT STRUCTURES

Excavations near structures may affect:

- Foundations
- Slabs
- Walls
- Roads
- Sidewalks
- Utilities
- Poles
- Retaining walls

A qualified person shall evaluate support requirements.

Underpinning, bracing, or engineering may be required.

Employees shall report:

- Cracking
 - Settlement
 - Movement
 - Unexpected gaps
 - Leaning structures
 - Utility movement
-

9.14 SIDEWALKS, PAVEMENT, AND UNDERMINING

Employees shall not work beneath undermined pavement, sidewalks, curbs, or structures unless they are supported.

Overhanging material shall be removed or secured.

Barricades shall protect the public from undermined surfaces.

9.15 FALL PROTECTION AROUND EXCAVATIONS

Excavations shall be guarded when employees, visitors, or the public may fall into them.

Controls may include:

- Guardrails
- Barricades
- Fencing
- Covers
- Warning lines
- Attendants
- Lighting

Protection shall be appropriate to the depth and exposure.

Caution tape alone may not be sufficient.

9.15.1 CROSSINGS

Walkways or bridges crossing excavations shall:

- Be stable
- Be wide enough
- Have guardrails when required
- Be maintained
- Be free of trip hazards

Employees shall not jump across excavations.

9.15.2 NIGHT PROTECTION

Excavations left open at night shall be:

- Barricaded
- Lighted or marked
- Secured
- Protected from public access

Reflective devices may be used where vehicle exposure exists.

9.16 PIPE AND UTILITY INSTALLATION

Pipe and utility installation shall be planned to protect employees from:

- Suspended loads
- Pinch points
- Cave-ins
- Rolling pipe
- Stored energy
- Equipment movement

9.16.1 PIPE STORAGE

Pipe shall be stored to prevent rolling.

Controls may include:

- Chocks
- Racks
- Dunnage
- Level storage
- Separation by size

Employees shall not stand downhill from unsecured pipe.

9.16.2 PIPE LOWERING

Pipe shall be lowered using approved equipment and rigging.

Employees shall:

- Remain clear of suspended loads
- Use taglines when appropriate
- Keep hands clear
- Avoid standing between pipe and trench walls
- Maintain communication

Employees shall not ride pipe into the excavation.

9.16.3 FINAL POSITIONING

Tools or mechanical methods should be used for final alignment when practical.

Hands and feet shall be kept out of pinch points.

Pipe shall be stabilized before rigging is removed.

9.17 MANHOLES, CATCH BASINS, AND STRUCTURES

Installation of precast structures shall be planned.

The plan shall address:

- Weight
- Rigging
- Excavation stability
- Access
- Bedding
- Crane or equipment capacity
- Pinch points
- Final alignment
- Confined-space hazards

Employees shall not stand beneath suspended structures.

9.17.1 PRECAST LIFTING POINTS

Only approved lifting points shall be used.

Lifting hardware shall be:

- Compatible
- Inspected
- Properly engaged
- Rated

Damaged inserts or hardware shall not be used.

9.17.2 STRUCTURE ENTRY

Employees shall not enter manholes, vaults, or similar structures without evaluating whether confined-space requirements apply.

Atmospheric testing, ventilation, permits, attendants, and rescue planning may be required.

9.18 TRENCH BACKFILLING

Backfilling shall be coordinated to protect employees and installed work.

Before backfilling:

- Employees shall exit danger areas.
 - Utilities shall be supported.
 - Materials shall be removed.
 - Protective systems shall be removed safely.
 - Equipment routes shall be controlled.
 - Structures shall be inspected.
-

9.18.1 REMOVAL OF PROTECTIVE SYSTEMS

Shoring and shielding shall be removed under an approved procedure.

Removal shall proceed from the bottom upward when appropriate and shall avoid exposing employees to collapse hazards.

Employees shall not remain in unprotected areas during removal.

9.18.2 COMPACTION

Compaction equipment shall be operated by trained employees.

Hazards include:

- Vibration
- Noise
- Exhaust
- Pinch points
- Equipment movement

- Trench-wall impact

Employees shall maintain safe spacing and ventilation.

9.19 SITE GRADING

Site grading operations shall account for:

- Equipment traffic
- Blind spots
- Slopes
- Utilities
- Soft ground
- Pedestrians
- Dust
- Public roads
- Drainage

Operators shall maintain safe speed and use seatbelts when provided.

9.19.1 SLOPE OPERATION

Equipment shall be operated on slopes according to manufacturer limitations.

Operators shall:

- Avoid sudden turns
 - Keep loads low
 - Travel in the safest direction
 - Maintain traction
 - Avoid unstable edges
 - Stop when conditions deteriorate
-

9.19.2 GRADE CHECKERS

Employees checking grade near equipment shall:

- Remain visible
- Establish communication
- Stay outside blind spots
- Avoid turning their backs
- Use high-visibility clothing
- Maintain escape routes

Operators shall acknowledge employees before approaching.

9.20 COMPACTION EQUIPMENT

Compaction equipment may include:

- Plate compactors
- Rammers
- Rollers
- Trench compactors
- Ride-on compactors

Only trained employees shall operate equipment.

9.20.1 PRE-USE INSPECTION

Inspect:

- Controls
- Guards
- Handles
- Tires or drums
- Hydraulic systems
- Fuel systems
- Emergency stops
- Alarms
- General condition

Defective equipment shall be removed from service.

9.20.2 SAFE OPERATION

Employees shall:

- Wear hearing protection
- Maintain stable footing
- Avoid pinch points
- Keep others clear
- Control equipment on slopes
- Shut down before maintenance
- Avoid exhaust buildup
- Use mechanical assistance for loading

Remote-controlled trench compactors shall be operated from safe positions.

9.21 DUST CONTROL

Sitework may generate dust from:

- Grading
- Excavation
- Backfilling
- Hauling
- Compaction
- Dry soil
- Demolition

Dust controls may include:

- Water
- Reduced speed
- Covered loads
- Stabilized entrances
- Sweeping with dust control
- Work sequencing

Dust shall not be allowed to create unsafe visibility or public exposure.

9.22 TRAFFIC CONTROL

Sitework near roads, parking lots, or occupied properties shall include traffic-control planning.

Controls may include:

- Signs
- Cones
- Barricades
- Flaggers
- Spotters
- Detours
- High-visibility clothing
- Lighting
- Vehicle separation

Employees shall not stand in active traffic lanes without appropriate control.

9.23 PUBLIC PROTECTION

Excavations accessible to the public shall be secured.

Protection may include:

- Fencing
- Guardrails
- Covers
- Barricades
- Lighting
- Watch personnel
- Locked gates

Children and residents shall be considered foreseeable entrants around occupied properties.

9.24 WEATHER

Weather may rapidly change excavation conditions.

Hazards include:

- Rain
- Flooding
- Lightning
- High winds
- Heat
- Reduced visibility
- Erosion

The competent person shall reinspect after weather events.

Work shall stop when conditions become unsafe.

9.25 END-OF-SHIFT REQUIREMENTS

Before leaving the excavation area, supervision shall ensure:

- Employees are out
- Protective systems remain stable
- Ladders are secured
- Spoil is controlled
- Equipment is parked safely
- Utilities are protected
- Water is controlled
- Barricades are maintained
- Public access is secured
- Materials are stable
- Lighting is provided when needed
- Shift handoff is completed

9.26 EMERGENCY RESPONSE

Excavation emergency planning shall address:

- Cave-in
- Utility strike
- Flooding
- Equipment rollover
- Hazardous atmosphere
- Medical emergency
- Fire
- Rescue coordination

Employees shall know:

- Project address
- Emergency contacts
- Site access
- Assembly area
- Who will meet responders

9.26.1 CAVE-IN RESPONSE

If a cave-in occurs:

1. Call 911.
2. Stop equipment.
3. Keep employees away from the edge.
4. Shut down vibration sources.
5. Identify the victim's last known location.
6. Prevent additional material from entering.
7. Await trained rescuers.
8. Do not enter the collapsed excavation.

Untrained rescue attempts may create additional victims.

9.26.2 UTILITY EMERGENCY

For gas, electrical, water, or other utility emergencies:

- Stop work.
 - Evacuate as necessary.
 - Avoid ignition sources.
 - Contact emergency services.
 - Contact the utility owner.
 - Keep others away.
 - Follow utility instructions.
-

9.27 EXCAVATION TRAINING

Employees shall receive training appropriate to their duties.

Training may include:

- Cave-in hazards
- Competent-person authority
- Protective systems
- Access and egress
- Utility locating
- Equipment hazards
- Water accumulation
- Atmospheric hazards
- Emergency response
- Public protection
- Spoil placement

Training shall be documented.

9.28 EXCAVATION INSPECTION RECORDS

Documented excavation inspections should include:

- Date

- Time
- Project
- Location
- Depth
- Soil conditions
- Protective system
- Water conditions
- Weather
- Access
- Spoil placement
- Utilities
- Corrective actions
- Competent-person name

Inspection records shall be maintained according to company policy.

9.29 INCIDENT AND NEAR-MISS REVIEW

Excavation-related incidents and near misses shall be reviewed.

Examples include:

- Soil movement
- Utility strikes
- Water intrusion
- Equipment near-rollovers
- Missing access
- Falling material
- Shield movement
- Employees entering unprotected areas
- Public-access events
- Atmospheric alarms

Lessons learned shall be communicated to affected crews.

A trench is one of the few workplaces where the walls are made from the hazard itself.

SECTION 10

FALL PROTECTION

10.1 GENERAL FALL-PROTECTION REQUIREMENTS

Falls are among the most serious hazards in construction.

Fall hazards may exist around:

- Roof edges
- Elevated slabs
- Leading edges
- Wall openings
- Floor openings
- Excavations
- Scaffolds
- Formwork
- Reinforcing steel
- Aerial lifts
- Ladders
- Stairways
- Equipment
- Loading areas
- Unprotected balconies
- Mezzanines
- Temporary platforms

NCC shall plan work to eliminate or control fall hazards before employees are exposed.

Fall protection shall be selected based on:

1. Work location.
2. Fall distance.
3. Task duration.
4. Available anchorages.
5. Equipment being used.
6. Rescue requirements.
7. Nearby hazards.
8. Weather.
9. Employee movement.
10. Applicable regulatory and project requirements.

Employees shall not begin elevated work until required fall protection is installed and inspected.

10.2 FALL-PROTECTION HIERARCHY

Fall hazards should be controlled in the following order when practical:

- 1. Eliminate the exposure.**
- 2. Install permanent protection.**
- 3. Use guardrail systems.**
- 4. Use covers or barriers.**
- 5. Use travel-restraint systems.**
- 6. Use personal fall-arrest systems.**
- 7. Use approved alternative methods when permitted.**

Systems that prevent a fall are preferred over systems that stop a fall after it begins.

10.3 FALL-PROTECTION PLAN

A project-specific fall-protection plan shall be developed when required.

The plan may identify:

- Fall hazards
- Protection methods
- Anchor locations
- Rescue procedures
- Restricted areas
- Equipment requirements
- Competent persons
- Training requirements
- Inspection procedures
- Special work methods

Changes in scope or conditions shall be reviewed before work continues.

10.4 FALL-PROTECTION COMPETENT PERSON

A competent person shall oversee fall-protection activities when required.

Responsibilities may include:

- Identifying hazards
- Selecting systems
- Inspecting equipment
- Approving anchorages
- Monitoring employees
- Correcting deficiencies
- Stopping unsafe work
- Coordinating rescue planning

The competent person shall have authority to remove employees from exposure.

10.5 GUARDRAIL SYSTEMS

Guardrails shall be installed where required to protect employees from falls.

Guardrail systems may include:

- Top rails
- Midrails
- Posts
- Toeboards
- Screens
- Mesh
- Gates
- Equivalent protective systems

Guardrails shall be constructed and maintained to withstand anticipated loads.

10.5.1 TOP RAILS

Top rails shall be installed at the required height and remain continuous except at approved access points.

Top rails shall be:

- Smooth
- Free of sharp edges
- Securely connected
- Visible
- Maintained

Employees shall not sit, stand, climb, or store materials on guardrails.

10.5.2 MIDRAILS

Midrails or equivalent protection shall be installed when required.

Midrails shall prevent employees from passing beneath the top rail.

Cables, mesh, screens, or intermediate members may be used when properly installed.

10.5.3 TOEBOARDS

Toeboards shall be installed where falling tools or materials may strike persons below.

Toeboards shall be:

- Secure
- Adequate in height
- Free of excessive openings
- Maintained

Additional screening may be required when materials are stacked above the toeboard.

10.5.4 GUARDRAIL OPENINGS

Access openings shall be protected using:

- Gates
- Chains
- Removable rails
- Offset access
- Other approved systems

Protection shall be restored immediately after access.

Employees shall not leave open guardrail sections unattended.

10.5.5 GUARDRAIL INSPECTION

Guardrails shall be inspected:

- Before use
- After installation
- After alteration
- After impact
- After high winds
- After material handling
- At the beginning of shifts when conditions may have changed

Damaged or loose guardrails shall be repaired before exposure continues.

10.6 FLOOR OPENINGS AND HOLES

Floor openings and holes shall be protected by:

- Covers
- Guardrails
- Barricades
- Other approved systems

Protection shall be installed as soon as the opening is created.

10.6.1 OPENING COVERS

Covers shall be:

- Capable of supporting expected loads
- Secured against displacement
- Clearly marked
- Maintained
- Free of excessive gaps

Covers shall not create trip hazards when practical.

Employees shall not remove covers without authorization.

10.6.2 TEMPORARY REMOVAL

When a cover must be removed:

- 1. Barricade or guard the opening.**
 - 2. Assign an attendant when necessary.**
 - 3. Complete the task promptly.**
 - 4. Replace and secure the cover.**
 - 5. Verify protection before leaving.**
-

10.6.3 SHAFTS AND LARGE OPENINGS

Elevator shafts, stair openings, mechanical openings, and large floor penetrations shall receive substantial protection.

Warning tape alone shall not be considered adequate protection.

10.7 WALL OPENINGS

Wall openings that expose employees to a fall shall be protected.

Protection may include:

- Guardrails
- Gates
- Covers
- Personal fall-protection systems
- Restricted access

Materials shall not be stacked in a manner that forces employees toward openings.

10.8 LEADING EDGES

Leading-edge work shall be planned and supervised.

Controls may include:

- Guardrails
- Travel restraint
- Personal fall-arrest systems
- Controlled-access zones when permitted
- Safety monitoring when specifically allowed
- Work sequencing

Employees shall remain connected when required.

Leading-edge anchorages and equipment shall be selected for the direction and force of a potential fall.

10.9 PERSONAL FALL-ARREST SYSTEMS

A personal fall-arrest system may include:

- Full-body harness
- Connector
- Lanyard
- Self-retracting lifeline
- Lifeline
- Anchorage
- Energy absorber
- Approved hardware

Only approved components shall be used.

Components from different systems shall be compatible.

Body belts shall not be used for fall arrest.

10.9.1 FULL-BODY HARNESSES

Harnesses shall:

- Fit the employee properly
- Be adjusted before use
- Be inspected
- Be worn according to manufacturer instructions
- Remain free of unauthorized modifications

Employees shall not tie knots in harness straps or alter components.

Loose straps shall be secured.

10.9.2 HARNESS FITTING

A properly fitted harness should:

- Sit correctly on the shoulders
- Position the dorsal connection properly
- Keep leg straps snug

- Avoid twisted webbing
- Allow safe movement
- Prevent excessive slack

Employees shall receive hands-on fitting instruction.

10.9.3 LANYARDS

Lanyards shall be selected based on:

- Fall clearance
- Anchorage location
- Sharp-edge exposure
- Work movement
- Connection type
- Manufacturer limitations

Employees shall not:

- Tie lanyards in knots
 - Connect snap hooks to incompatible objects
 - Wrap standard lanyards around structural members
 - Use damaged lanyards
 - Connect two lanyards together unless specifically designed
-

10.9.4 SELF-RETRACTING LIFELINES

Self-retracting lifelines shall be used according to manufacturer instructions.

Before use, employees shall evaluate:

- Anchorage position
- Maximum working length
- Swing-fall exposure
- Leading-edge compatibility
- Fall clearance
- Lifeline condition
- Retraction and locking

The lifeline shall not be allowed to pass over sharp edges unless rated and protected.

10.9.5 DOUBLE-LEG LANYARDS

Double-leg lanyards may be used to maintain continuous connection.

Employees shall:

- Keep at least one leg connected when required
- Avoid connecting the unused leg to an improper location
- Avoid creating excessive slack
- Follow manufacturer instructions

Both legs shall not be connected in a manner that defeats the energy absorber.

10.10 ANCHORAGES

Fall-protection anchorages shall be capable of supporting required loads or shall be designed as part of a complete system by a qualified person.

Anchorage shall be:

- Approved
- Compatible
- Located to reduce fall distance
- Protected from damage
- Inspected
- Separate from systems used to support suspended platforms when required

Employees shall not connect to:

- Conduit
- Guardrails not designed as anchors
- Small piping
- Ductwork
- Temporary bracing
- Unsupported rebar

- Equipment controls
 - Unapproved scaffolding components
-

10.10.1 TEMPORARY ANCHORS

Temporary anchors shall be installed according to:

- Manufacturer instructions
- Approved plans
- Substrate requirements
- Fastener requirements

Employees shall not use anchors installed in damaged, cracked, or unsuitable material.

10.10.2 CONCRETE ANCHORS

Concrete anchors shall be installed only after verifying:

- Concrete strength
- Anchor type
- Embedment
- Edge distance
- Spacing
- Installation method
- Cure time where applicable

Improperly installed anchors shall not be used.

10.10.3 STRUCTURAL ANCHORS

Structural members used for anchorage shall be approved.

Beam straps, clamps, and similar devices shall be compatible with the member and expected loading.

10.11 HORIZONTAL LIFELINES

Horizontal lifeline systems shall be designed, installed, and used under appropriate qualified-person oversight.

The system shall account for:

- Number of users
- Line deflection
- Anchorage loads
- Fall clearance
- Intermediate supports
- Rescue
- Component compatibility

Employees shall not add users or alter the system without authorization.

10.12 VERTICAL LIFELINES

Vertical lifelines shall be:

- Approved
- Properly anchored
- Protected from damage
- Used with compatible rope grabs
- Assigned according to applicable requirements

Employees shall not use improvised knots or incompatible rope grabs.

10.13 TRAVEL-RESTRAINT SYSTEMS

Travel-restraint systems shall prevent employees from reaching the fall hazard.

The system shall be adjusted so the employee cannot reach:

- An unprotected edge

- An opening
- A fall-through surface
- Another uncontrolled fall hazard

Travel restraint shall not be configured so that a free fall can occur.

10.14 POSITIONING SYSTEMS

Positioning systems may support employees while allowing hands-free work.

Positioning systems shall:

- Use approved equipment
- Be connected to suitable anchorages
- Limit fall distance
- Be inspected
- Be used by trained employees

Positioning equipment may not provide complete fall arrest where additional exposure exists.

10.15 FALL CLEARANCE

Before using fall-arrest equipment, the employee and supervisor shall evaluate available clearance.

Clearance calculations may include:

- Lanyard length
- Deceleration distance
- Harness stretch
- Employee height
- Anchorage position
- Lifeline deflection
- Safety margin
- Lower-level obstructions

A system shall not be used when insufficient clearance exists.

A harness cannot stop a worker from striking the floor when the mathematics runs out of room.

10.16 SWING FALLS

Swing falls occur when an employee falls away from an anchorage positioned to the side.

Anchorage should be located overhead and as close to the work as practical.

Employees shall avoid working far to either side of an anchorage.

Swing-fall exposure shall be considered near:

- Columns
 - Walls
 - Equipment
 - Lower roofs
 - Structural steel
 - Formwork
 - Reinforcing steel
-

10.17 FALL-PROTECTION EQUIPMENT INSPECTION

Employees shall inspect personal fall-protection equipment before each use.

Inspections shall include:

- Webbing
- Stitching
- Hardware
- Snap hooks
- Carabiners
- D-rings
- Labels
- Energy absorbers
- Lifelines
- Rope grabs

- Self-retracting devices
- Connectors
- Anchor devices

Equipment shall be removed from service when:

- Damaged
 - Cut
 - Burned
 - Chemically contaminated
 - Excessively worn
 - Missing labels
 - Involved in a fall
 - Unable to function properly
-

10.17.1 FORMAL INSPECTIONS

Formal documented inspections shall be performed at intervals required by:

- Manufacturer instructions
- Company policy
- Project rules
- Applicable regulations

Inspections shall be performed by a competent or qualified person as required.

10.17.2 EQUIPMENT INVOLVED IN A FALL

Fall-protection equipment involved in arresting a fall shall be removed from service immediately.

It shall not be reused unless inspected and specifically approved according to manufacturer and company requirements.

10.18 EQUIPMENT STORAGE

Fall-protection equipment shall be stored:

- Clean
- Dry
- Away from sunlight
- Away from chemicals
- Away from sharp objects
- Away from excessive heat
- In a manner that prevents damage

Harnesses shall not be left on the ground, in wet gang boxes, or loose in truck beds.

10.19 FALL PROTECTION ON FORMWORK

Employees working on formwork shall use approved access and fall protection.

Employees shall not:

- Climb braces
- Walk unsupported wall forms
- Stand on narrow walers without protection
- Use form ties as footholds
- Disconnect while exposed

Work platforms shall be installed when required.

10.20 FALL PROTECTION AROUND REINFORCING STEEL

Employees working above reinforcing steel shall be protected from both falls and impalement.

Controls may include:

- Guardrails
- Personal fall-arrest systems
- Rebar caps

- Trough systems
- Covers
- Work platforms

Fall protection does not eliminate the need for impalement protection.

10.21 ROOF WORK

Roof work shall be planned before access.

Planning shall address:

- Roof slope
- Edge protection
- Openings
- Fragile surfaces
- Weather
- Material handling
- Access
- Rescue
- Public protection

Employees shall not access roofs until the surface and structure are evaluated.

10.21.1 LOW-SLOPE ROOFS

Low-slope roof protection may include:

- Guardrails
- Personal fall-arrest systems
- Travel restraint
- Warning lines with permitted supplemental controls
- Approved safety-monitoring systems where allowed

Warning lines shall not be used where more protective measures are required.

10.21.2 STEEP ROOFS

Employees working on steep roofs shall use required fall protection.

Roof brackets, ladders, anchors, and walking surfaces shall be inspected.

Materials shall be secured against sliding.

10.21.3 FRAGILE SURFACES

Skylights, roof panels, deteriorated decking, and translucent panels may not support employee weight.

Fragile surfaces shall be:

- Guarded
- Covered
- Barricaded
- Clearly identified
- Avoided

Employees shall not step on skylights.

10.22 SCAFFOLD FALL PROTECTION

Scaffold fall protection shall comply with scaffold requirements.

Employees shall use:

- Guardrails
- Personal fall-arrest systems
- Both systems when required

Employees shall not remove scaffold rails to load material without approved alternative protection.

10.23 AERIAL-LIFT FALL PROTECTION

Employees using aerial lifts shall follow manufacturer and company requirements.

Employees shall:

- Stand on the platform floor
- Use required restraint or fall-arrest equipment
- Connect only to approved lift anchor points
- Keep gates closed
- Avoid climbing rails
- Maintain clearance from overhead hazards

Employees shall not connect from the lift to an external structure unless an approved transfer procedure exists.

10.24 FALL PROTECTION DURING CONCRETE PLACEMENT

Concrete-placement fall hazards may exist around:

- Slab edges
- Openings
- Form decks
- Pump hoses
- Elevated walls
- Foundations
- Stair openings

Placement plans shall preserve guardrails and access.

Hoses, cords, and equipment shall not be allowed to force employees toward edges.

10.25 FALL PROTECTION DURING MASONRY WORK

Masonry employees shall use proper scaffold platforms and guardrails.

Employees shall not use:

- Block stacks
- Buckets
- Loose planks
- Wall tops
- Guardrails
- Forklift pallets

as work platforms.

10.26 FALL PROTECTION DURING EXCAVATION WORK

Excavation edges shall be guarded or barricaded when employees or the public are exposed.

Employees shall not stand at unstable edges.

Equipment, materials, and spoil shall be kept away from edges.

10.27 CONTROLLED-ACCESS ZONES

Controlled-access zones shall only be used where specifically permitted.

Zones shall be:

- Clearly marked
- Properly established
- Supervised
- Restricted to authorized employees
- Maintained

Controlled-access zones shall not become a substitute for fall protection simply because guardrails are inconvenient.

10.28 SAFETY-MONITORING SYSTEMS

Safety-monitoring systems shall only be used where specifically permitted.

The safety monitor shall:

- Be competent to recognize fall hazards
- Remain on the same level
- Maintain clear communication
- Have no duties that interfere with monitoring
- Warn employees
- Control access

Employees shall follow monitor instructions immediately.

10.29 FALL-RESCUE PLANNING

A rescue plan shall be established before employees use personal fall-arrest systems.

The plan shall address:

- Prompt rescue
- Emergency communication
- Equipment access
- Employee location
- Lowering or retrieval methods
- Suspension trauma
- Emergency medical response
- Rescuer protection

Calling 911 alone may not be a complete rescue plan.

10.29.1 SELF-RESCUE

Where practical, systems should permit employees to:

- Regain footing

- Reach a platform
- Use a ladder
- Deploy approved descent equipment
- Assist rescuers

Employees shall receive training in applicable self-rescue methods.

10.29.2 ASSISTED RESCUE

Assisted rescue may involve:

- Aerial lifts
- Ladders
- Rescue kits
- Rope systems
- Trained rescue personnel
- Fire-rescue services

Rescuers shall not be exposed to uncontrolled fall hazards.

10.29.3 SUSPENSION TRAUMA

An employee suspended after a fall may experience serious medical complications.

The suspended employee should:

- Remain calm
- Move the legs when able
- Use suspension-relief straps when available
- Follow rescue instructions

The employee shall receive medical evaluation after a fall arrest.

10.30 FALL-HAZARD TRAINING

Employees exposed to fall hazards shall receive training covering:

- Hazard recognition
- Protection systems
- Equipment limitations
- Inspection
- Proper connection
- Anchorage selection
- Fall clearance
- Swing falls
- Rescue procedures
- Restricted areas

Training shall be conducted by a qualified person and documented.

Retraining shall occur when:

- Knowledge is inadequate
- Unsafe use is observed
- Equipment changes
- Work conditions change
- Systems change

10.31 FALL-PROTECTION ENFORCEMENT

Failure to use required fall protection is a serious safety violation.

Supervisors shall stop work when employees are exposed without protection.

Employees shall not:

- Disconnect for convenience
 - Modify equipment
 - Ignore open edges
 - Remove guardrails without replacement controls
 - Use unapproved anchors
 - Work beyond system limits
-

10.32 END-OF-SHIFT REQUIREMENTS

Before leaving elevated work areas, supervision shall ensure:

- Openings are covered
 - Guardrails are restored
 - Equipment is stored
 - Anchors are protected
 - Access is secured
 - Materials are controlled
 - Public exposure is prevented
 - Incomplete areas are barricaded
 - Shift handoff is completed
-

10.33 INCIDENT AND NEAR-MISS REVIEW

Fall-related incidents and near misses shall be reviewed.

Examples include:

- Unprotected edges
- Missing covers
- Damaged harnesses
- Anchor failures
- Employees disconnecting
- Dropped materials
- Slips near openings
- Guardrail impacts
- Rescue events
- Insufficient fall clearance

Lessons learned shall be communicated to affected employees.

A fall hazard does not become smaller because the task will only take a minute.

SECTION 11

LADDERS AND STAIRWAYS

11.1 GENERAL LADDER SAFETY

Ladders shall be selected, inspected, set up, and used according to manufacturer instructions and applicable requirements.

Ladder hazards include:

- Falls
- Slipping
- Tipping
- Electrical contact
- Overreaching
- Improper setup
- Damaged components
- Carrying materials
- Unstable surfaces
- Vehicle impact

Employees shall use stairs, scaffolds, aerial lifts, or work platforms when those methods provide safer access.

11.2 LADDER SELECTION

Ladders shall be selected based on:

- Required height
- Task
- Load
- Work duration
- Ground conditions
- Electrical hazards
- Access needs
- Material being carried

Employees shall not use a ladder that is too short and shall not stand above the manufacturer's permitted level.

11.2.1 LADDER DUTY RATING

The ladder's duty rating shall support:

- Employee weight
- Tools
- Materials
- Equipment
- Clothing and PPE

Ladders shall not be overloaded.

11.2.2 NONCONDUCTIVE LADDERS

Nonconductive ladders shall be used where electrical exposure exists.

Metal ladders shall not be used near energized electrical systems or overhead power lines.

All electrical lines shall be treated as energized unless confirmed otherwise.

11.3 LADDER INSPECTION

Employees shall inspect ladders before use.

Inspection shall include:

- Rails
- Rungs
- Steps
- Feet
- Locks
- Spreaders
- Ropes
- Pulleys
- Hardware
- Labels
- Cleanliness

- General condition

Ladders shall be removed from service when they are:

- Bent
- Cracked
- Split
- Missing parts
- Contaminated with oil or concrete
- Improperly repaired
- Structurally damaged
- Missing required labels

Defective ladders shall be tagged and secured against use.

11.4 LADDER SETUP

Ladders shall be placed on stable, level surfaces.

Ladders shall not be placed on:

- Loose block
- Buckets
- Pallets
- Scrap lumber
- Scaffolds
- Unstable soil
- Equipment
- Other ladders

The setup area shall be clear of:

- Doors
- Vehicles
- Equipment
- Traffic
- Openings
- Electrical hazards
- Slippery material

11.4.1 LADDER ANGLE

Non-self-supporting ladders shall be set at a safe angle.

Employees shall follow the manufacturer's setup instructions and the appropriate horizontal-to-vertical relationship.

Excessively steep or shallow angles are prohibited.

11.4.2 LADDER SECUREMENT

Ladders shall be secured when they may shift.

Securing methods may include:

- Tying the top
- Securing the base
- Using a second employee during setup
- Installing ladder stabilizers
- Barricading the area

Employees shall not rely solely on another person holding a ladder as a permanent setup method.

11.4.3 ACCESS LADDERS

Ladders used to access upper levels shall extend above the landing as required or shall provide an approved handhold.

The access area shall remain clear.

Employees shall not step around exposed edges without fall protection.

11.5 LADDER CLIMBING

Employees shall:

- Face the ladder
- Maintain three points of contact
- Use clean footwear
- Keep the body centered
- Climb one rung at a time
- Maintain control
- Keep hands available

Employees shall not slide down rails or jump from ladders.

11.5.1 TOOLS AND MATERIALS

Tools and materials shall be carried in a manner that allows safe climbing.

Controls may include:

- Tool belts
- Hoisting lines
- Buckets
- Mechanical lifts
- Assistance from another employee

Employees shall not carry bulky or heavy materials while climbing.

11.5.2 OVERREACHING

Employees shall keep their belt buckle or torso between the ladder rails.

The ladder shall be repositioned when the work cannot be reached safely.

Employees shall not lean sideways until only one shoe and a prayer remain on the ladder.

11.6 STEPLADDERS

Stepladders shall be fully opened and locked before use.

Employees shall not:

- Lean closed stepladders against walls unless specifically designed
- Stand on the top cap
- Stand on prohibited steps
- Sit on the ladder
- Straddle the ladder
- Move the ladder while occupied

Spreaders shall remain locked.

11.6.1 STEPLADDER POSITIONING

Stepladders shall be positioned so employees do not have to work sideways or overreach.

The area around the ladder shall remain clear.

11.7 EXTENSION LADDERS

Extension ladders shall be used according to manufacturer instructions.

Employees shall inspect:

- Rung locks
- Rope
- Pulley
- Overlap
- Feet
- Rails
- Top contact points

Required section overlap shall be maintained.

11.7.1 RAISING EXTENSION LADDERS

Employees shall consider:

- Ladder length
- Ladder weight
- Wind
- Power lines
- Nearby structures
- Ground conditions

Long ladders may require two employees.

Employees shall maintain clearance from electrical lines.

11.7.2 EXTENDING LADDERS

Employees shall not climb above the ladder's permitted height.

Extension mechanisms shall not be adjusted while the ladder is occupied.

11.8 FIXED LADDERS

Fixed ladders shall be inspected and maintained.

The surrounding area shall be free of:

- Obstructions
- Sharp edges
- Electrical hazards
- Falling-object exposure
- Slippery contaminants

Required fall-protection systems shall be installed and used.

11.8.1 LADDER-SAFETY SYSTEMS

Ladder-safety systems may include:

- Vertical lifelines
- Rigid rails
- Sleeves
- Harness connections
- Approved climbing systems

Employees shall be trained before use.

Components shall be inspected.

11.9 JOB-MADE LADDERS

Job-made ladders shall be constructed only when necessary and according to approved requirements.

They shall use:

- Suitable lumber
- Proper rung spacing
- Secure connections
- Adequate width
- Sound materials

Job-made ladders shall be inspected by a competent person.

Scrap lumber with nails, splits, or concrete contamination shall not be used.

11.10 DOUBLE-CLEAT LADDERS

Double-cleat ladders shall be provided when required by traffic volume or access needs.

They shall be constructed and maintained according to applicable requirements.

11.11 LADDER USE NEAR DOORS

Ladders placed near doors shall be protected by:

- Locking the door
- Blocking the door
- Posting an attendant
- Barricading the area
- Redirecting access

A warning sign alone may not be sufficient.

11.12 LADDER USE NEAR TRAFFIC

Ladders near vehicles or equipment shall be protected.

Controls may include:

- Cones
- Barricades
- Spotters
- Temporary closure
- Relocation

High-visibility clothing shall be worn when appropriate.

11.13 LADDER USE ON SCAFFOLDS

Ladders shall not be placed on scaffold platforms to gain additional height unless the system is specifically designed and approved.

Employees shall not use buckets, block, boxes, or makeshift devices on scaffolds.

11.14 LADDER USE AROUND EXCAVATIONS

Access ladders shall be positioned within protected excavation areas.

They shall:

- Be secured
- Extend appropriately
- Remain free of mud
- Avoid equipment routes
- Be accessible

Employees shall not climb trench shields, shoring, or pipe.

11.15 LADDER USE AROUND CONCRETE AND MASONRY

Ladders used around wet concrete, mortar, or masonry dust shall be cleaned and inspected.

Concrete buildup shall not be allowed to:

- Hide defects
 - Reduce traction
 - Prevent locks from operating
 - Damage moving parts
-

11.16 PROHIBITED LADDER PRACTICES

Employees shall not:

- Use damaged ladders
- Use metal ladders near electricity
- Stand on top caps
- Tie ladders together
- Use ladders horizontally as platforms
- Move occupied ladders

- Use ladders as bridges
 - Leave tools on ladder steps
 - Paint wooden ladders in a way that hides defects
 - Use improvised repairs
 - Exceed load ratings
-

11.17 STAIRWAY REQUIREMENTS

Stairways shall be provided where required for regular access between levels.

Temporary stairways shall be:

- Stable
 - Properly supported
 - Adequately lighted
 - Free of debris
 - Equipped with required rails
 - Maintained
-

11.17.1 STAIR RAILS AND HANDRAILS

Stair rails and handrails shall be installed where required.

They shall be:

- Secure
- Smooth
- Free of sharp edges
- Maintained
- Positioned for safe use

Employees shall not remove stair rails without authorization.

11.17.2 TEMPORARY TREADS

Temporary treads shall be:

- Secure
- Uniform where practical
- Capable of supporting expected loads
- Free of excessive gaps
- Maintained

Pan stairs shall not be used before temporary or permanent treads are installed when required.

11.17.3 STAIRWAY HOUSEKEEPING

Stairways shall remain free of:

- Cords
- Hoses
- Debris
- Tools
- Material
- Mud
- Standing water

Stairs shall not be used for material storage.

11.18 LIGHTING

Ladders, stairs, and access routes shall have adequate lighting.

Temporary lighting shall be:

- Protected
- Positioned safely
- Maintained
- Arranged to reduce glare and shadows

Employees shall not use dark access routes where footing cannot be seen.

11.19 WEATHER CONDITIONS

Outdoor ladder and stair use may be affected by:

- Rain
- Wind
- Lightning
- Mud
- Heat
- Reduced visibility

Employees shall stop use when conditions create unsafe footing or control.

Long ladders shall not be raised during high winds or near lightning hazards.

11.20 LADDER TRANSPORT AND STORAGE

Ladders shall be transported carefully.

Employees carrying ladders shall:

- Watch both ends
- Use help when necessary
- Avoid power lines
- Communicate at corners
- Maintain clear visibility

Ladders transported on vehicles shall be secured.

Stored ladders shall be protected from:

- Damage
 - Vehicle contact
 - Weather
 - Chemicals
 - Unauthorized use
-

11.21 LADDER AND STAIRWAY TRAINING

Employees shall receive training covering:

- Ladder selection
- Inspection
- Setup
- Climbing
- Electrical hazards
- Load limits
- Access requirements
- Prohibited practices
- Stairway protection

Retraining shall occur when unsafe use or inadequate knowledge is observed.

11.22 LADDER AND STAIRWAY INSPECTIONS

Supervisors shall inspect for:

- Damaged ladders
- Improper setup
- Missing rails
- Blocked stairs
- Slippery surfaces
- Electrical exposure
- Unsecured access ladders
- Makeshift elevation devices
- Inadequate lighting

Deficiencies shall be corrected promptly.

11.23 INCIDENT AND NEAR-MISS REVIEW

Ladder and stairway incidents and near misses shall be reviewed.

Examples include:

- Ladder movement
- Overreaching
- Missing handrails
- Damaged rungs
- Slips
- Improper access
- Ladder contact with equipment
- Electrical near misses
- Employees carrying excessive materials

Lessons learned shall be communicated to affected employees.

Most ladder incidents begin several seconds before the fall, when someone decides moving the ladder is more trouble than leaning another six inches.

SECTION 12

SCAFFOLDING

12.1 GENERAL SCAFFOLD SAFETY

Scaffolds shall be designed, erected, moved, altered, used, inspected, and dismantled in accordance with applicable requirements, manufacturer instructions, and approved procedures.

Scaffold hazards include:

- Falls
- Scaffold collapse
- Falling objects
- Overloading
- Electrical contact
- Improper access
- Missing guardrails
- Unstable foundations
- Incomplete platforms
- Vehicle impact
- Weather
- Improper modification

- Material congestion

Employees shall not use a scaffold unless it has been inspected and released for use by a competent person.

Scaffolds shall be selected based on:

- 1. Work scope.**
 - 2. Required height.**
 - 3. Load.**
 - 4. Surface conditions.**
 - 5. Access needs.**
 - 6. Fall-protection requirements.**
 - 7. Material-storage needs.**
 - 8. Electrical exposure.**
 - 9. Weather.**
 - 10. Public exposure.**
 - 11. Duration of use.**
 - 12. Manufacturer limitations.**
-

12.2 SCAFFOLD COMPETENT PERSON

A competent person shall oversee scaffold activities.

The competent person shall be capable of:

- Identifying scaffold hazards
- Evaluating structural conditions
- Directing erection and dismantling
- Inspecting completed scaffolds
- Determining access requirements
- Evaluating foundations
- Recognizing overloading
- Ordering corrective action
- Stopping unsafe work
- Removing scaffolds from service

The competent person shall have authority to restrict access.

12.3 QUALIFIED PERSON RESPONSIBILITIES

A qualified person shall perform or oversee scaffold design when required.

Qualified-person involvement may be necessary for:

- Complex scaffolds
- High scaffolds
- Suspended scaffolds
- Cantilevered scaffolds
- Custom systems
- Loading platforms
- Enclosures
- Unusual support conditions
- Engineered tie patterns
- Multiple-level configurations

Employees shall not alter engineered scaffold systems without approval.

12.4 SCAFFOLD CLASSIFICATION

Scaffold types may include:

- Supported frame scaffolds
- System scaffolds
- Tube-and-coupler scaffolds
- Mobile scaffolds
- Pump-jack scaffolds
- Ladder-jack scaffolds
- Suspended scaffolds
- Mast-climbing platforms
- Specialty scaffolds

Only scaffold systems appropriate for the work shall be used.

Improvised platforms are prohibited.

12.5 PRE-ERECTION PLANNING

Before scaffold erection begins, the competent person shall evaluate:

- Ground conditions
- Scaffold height
- Intended loads
- Tie-in points
- Electrical hazards
- Access
- Public protection
- Vehicle exposure
- Fall protection for erectors
- Material-handling methods
- Weather
- Scaffold configuration
- Nearby excavations
- Overhead work
- Emergency access

A restricted work area shall be established during erection and dismantling.

12.6 SCAFFOLD COMPONENT INSPECTION

Components shall be inspected before use.

Inspection shall include:

- Frames
- Standards
- Ledgers
- Cross braces
- Diagonal braces
- Base plates
- Screw jacks
- Casters
- Couplers
- Pins
- Planks

- Platforms
- Guardrails
- Toeboards
- Ladders
- Ties
- Outriggers
- Hardware

Components shall be removed from service when they are:

- Bent
- Cracked
- Split
- Corroded
- Improperly repaired
- Missing parts
- Contaminated
- Incompatible
- Structurally damaged

Components from different systems shall not be mixed unless compatibility has been confirmed.

12.7 SCAFFOLD FOUNDATIONS

Supported scaffolds shall rest on stable, load-bearing foundations.

Foundations shall be evaluated for:

- Soil strength
- Compaction
- Settlement
- Drainage
- Slope
- Underground utilities
- Nearby excavations
- Surface loading
- Weather effects

Scaffolds shall not be supported on:

- Loose block
 - Buckets
 - Scrap lumber
 - Unstable pallets
 - Bricks
 - Debris
 - Soft soil
 - Unapproved objects
-

12.7.1 BASE PLATES

Base plates shall be used where required.

Base plates shall sit fully on mud sills or other suitable support.

Base plates shall not hang over unsupported edges.

12.7.2 MUD SILLS

Mud sills shall be:

- Of adequate size
- Sound
- Level
- Fully supported
- Positioned to distribute loads

Damaged or split lumber shall not be used.

12.7.3 SCREW JACKS

Screw jacks shall be adjusted within manufacturer limits.

Excessive extension is prohibited.

Improvised extensions shall not be used.

12.8 SCAFFOLD ERECTION

Scaffolds shall be erected under the direction of the competent person.

Erection shall follow:

- Manufacturer instructions
- Approved drawings
- Required tie patterns
- Proper bracing sequence
- Fall-protection procedures
- Access requirements

Employees not involved in erection shall remain outside the work zone.

12.8.1 FRAME ALIGNMENT

Frames and standards shall be:

- Plumb
- Level
- Properly spaced
- Fully connected
- Secured with required pins
- Braced

Misaligned frames shall be corrected before additional levels are installed.

12.8.2 CROSS BRACING

Cross braces and diagonal braces shall be installed as required.

Employees shall not remove braces to improve access without approval.

Cross braces shall not be used as ladders.

12.8.3 CONNECTION PINS

Connection pins, locking devices, and couplers shall be fully installed.

Improvised wire, nails, or unapproved fasteners shall not replace required hardware.

12.8.4 SCAFFOLD PLUMBING

The scaffold shall be checked for plumb and level during erection.

Out-of-plumb scaffolds shall not be loaded or used.

12.9 SCAFFOLD TIES, GUYS, AND BRACES

Scaffolds shall be tied, guyed, or braced when required.

Tie systems shall follow:

- Manufacturer requirements
- Engineered drawings
- Height-to-base criteria
- Wind conditions
- Enclosure conditions
- Loading

Tie locations shall be maintained.

Employees shall not remove ties without authorization and replacement controls.

12.9.1 TIE-IN LOCATIONS

Tie-ins shall be made to suitable structural elements.

Scaffold ties shall not be connected to:

- Loose masonry
 - Unverified railings
 - Conduit
 - Ductwork
 - Temporary partitions
 - Unsupported framing
 - Unapproved anchors
-

12.9.2 ENCLOSED SCAFFOLDS

Tarps, shrink wrap, netting, or other enclosures increase wind loading.

Enclosures shall not be installed without evaluating:

- Tie capacity
- Wind exposure
- Scaffold design
- Anchor capacity
- Emergency removal

The fact that a tarp fits does not mean the scaffold is ready to become a sail.

12.10 WORKING PLATFORMS

Scaffold platforms shall be fully decked or planked as required.

Platforms shall:

- Support expected loads
- Remain stable
- Be free of large gaps
- Be secured against movement
- Extend properly over supports
- Remain free of trip hazards
- Be maintained

Incomplete platform areas shall be blocked from use.

12.10.1 SCAFFOLD PLANKS

Scaffold planks shall be:

- Scaffold-grade or otherwise approved
- Free of serious defects
- Properly supported
- Correctly overlapped or restrained
- Used within span limits

Damaged or split planks shall be removed from service.

12.10.2 PLATFORM EXTENSIONS

Platform ends shall not extend excessively beyond supports.

Short overhangs that may tip are prohibited.

Platform arrangement shall follow system requirements.

12.10.3 PLATFORM GAPS

Openings between planks and scaffold members shall be minimized.

Where openings are necessary, they shall not create fall or trip hazards.

12.11 SCAFFOLD LOAD CAPACITY

Scaffolds shall not be loaded beyond their rated capacity.

Loads include:

- Employees
- Block
- Brick
- Mortar
- Concrete
- Tools
- Equipment
- Debris
- Wind loads
- Enclosures

The competent person shall evaluate intended loading.

12.11.1 MATERIAL DISTRIBUTION

Materials shall be distributed to prevent concentrated loading.

Employees shall avoid stacking large quantities in one area.

Access routes shall remain open.

12.11.2 CHANGES IN LOAD

Changes in material type, crew size, equipment, or enclosure may require reevaluation.

Employees shall not assume a scaffold rated for light work is suitable for masonry loading.

12.12 SCAFFOLD ACCESS

Safe access shall be provided.

Access methods may include:

- Built-in ladders

- Attach-on ladders
- Stair towers
- Ramps
- Walkways
- Direct access from structures when approved

Employees shall not climb:

- Cross braces
 - Guardrails
 - Outside frames not designed for climbing
 - Masonry walls
 - Material stacks
-

12.12.1 LADDER ACCESS

Scaffold ladders shall be:

- Secure
- Properly positioned
- Free of damage
- Clear of platform obstructions
- Extended or configured to provide safe entry

Employees shall maintain three points of contact.

12.12.2 STAIR TOWERS

Stair towers shall be:

- Properly connected
- Guarded
- Lighted
- Maintained
- Free of debris

Stair landings shall remain clear.

12.12.3 DIRECT ACCESS

Direct access from a structure shall be used only when the transition is safe.

Gaps, height differences, and edge exposure shall be controlled.

Employees shall not jump between structures and scaffolds.

12.13 SCAFFOLD FALL PROTECTION

Employees shall be protected from falls from scaffold platforms.

Protection may include:

- Guardrail systems
- Personal fall-arrest systems
- Both systems when required

Protection shall be installed before the scaffold is released for use.

12.13.1 GUARDRAILS

Guardrails shall include required:

- Top rails
- Midrails
- Posts
- Toeboards
- Gates
- Equivalent protection

Employees shall not lean materials against guardrails in a manner that overloads them.

12.13.2 PERSONAL FALL-ARREST SYSTEMS

Employees shall use personal fall-arrest systems where required.

Scaffold anchorages shall be approved.

Employees shall not connect to unapproved scaffold components.

12.13.3 ERECTOR FALL PROTECTION

Fall protection for employees erecting or dismantling scaffolds shall be evaluated by the competent person.

Protection shall be used when feasible and required.

The evaluation shall consider:

- Anchor availability
 - Scaffold configuration
 - Work sequence
 - System compatibility
 - Additional hazards
-

12.14 FALLING-OBJECT PROTECTION

Employees and persons below shall be protected from falling objects.

Controls may include:

- Toeboards
- Screens
- Mesh
- Canopies
- Barricades
- Exclusion zones
- Tool tethering
- Material restraints

Employees shall not throw materials or tools from scaffolds.

12.14.1 MATERIAL STORAGE

Materials shall be stored away from platform edges.

Loose materials shall be secured when wind or movement may displace them.

12.14.2 OVERHEAD WORK

Areas below scaffold work shall be barricaded when necessary.

Employees below shall wear hard hats.

12.15 MOBILE SCAFFOLDS

Mobile scaffolds shall be used on firm, level surfaces.

Before use, verify:

- Casters are locked
 - Outriggers are installed when required
 - Platforms are complete
 - Guardrails are installed
 - Height-to-base ratio is acceptable
 - Travel path is clear
 - Overhead clearance is adequate
-

12.15.1 MOVING MOBILE SCAFFOLDS

Employees shall not remain on mobile scaffolds while they are moved unless the scaffold and conditions specifically permit it.

Before movement:

1. Remove or secure loose materials.
 2. Clear the travel path.
 3. Check overhead hazards.
 4. Lower the scaffold when necessary.
 5. Unlock casters.
 6. Move slowly.
 7. Relock casters.
 8. Reinspect before use.
-

12.15.2 CASTER LOCKS

Caster locks shall function properly.

Damaged casters shall be replaced.

Improvised wheel chocks shall not substitute for required locking systems.

12.16 PUMP-JACK SCAFFOLDS

Pump-jack scaffolds shall be installed and used according to manufacturer instructions.

Poles shall be:

- Sound
- Properly joined
- Secured
- Braced
- Positioned on stable support

Employees shall use required fall protection.

12.16.1 PUMP-JACK PLATFORMS

Platforms shall be:

- Properly supported
- Secured
- Within load limits
- Fully planked
- Equipped with guardrails when required

Employees shall not overload work benches or material platforms.

12.17 LADDER-JACK SCAFFOLDS

Ladder-jack scaffolds shall be used only for light-duty work and within applicable limits.

Ladders shall be:

- Heavy-duty
- Properly angled
- Secured
- Compatible with jacks
- Positioned on stable surfaces

Employees shall not use ladder-jack scaffolds for heavy masonry, concrete, or material loading.

12.18 TUBE-AND-COUPLER SCAFFOLDS

Tube-and-coupler scaffolds shall be erected by trained employees.

Couplers shall be:

- Correctly selected
- Tightened
- Inspected
- Compatible

Spacing and bracing shall follow approved design requirements.

12.19 SYSTEM SCAFFOLDS

System scaffolds shall be erected according to manufacturer requirements.

Connections shall be fully seated and locked.

Rosettes, wedges, cups, and pins shall be inspected.

12.20 SUSPENDED SCAFFOLDS

Suspended scaffolds require specialized planning and qualified oversight.

The system shall address:

- Suspension points
- Counterweights
- Rigging
- Hoists
- Lifelines
- Tiebacks
- Fall protection
- Rescue
- Power
- Public protection

Only trained and authorized employees shall use suspended scaffolds.

12.20.1 SUPPORTING DEVICES

Outrigger beams, parapet clamps, hooks, and suspension devices shall be installed according to approved design.

Supporting surfaces shall be evaluated.

12.20.2 COUNTERWEIGHTS

Counterweights shall be:

- Designed for the system
- Secured
- Identified
- Resistant to removal
- Of known weight

Sandbags, masonry units, and loose construction materials shall not be used as counterweights unless specifically designed and approved.

12.20.3 TIEBACKS

Tiebacks shall be:

- Independent
 - Secured to suitable anchors
 - Properly tensioned
 - Protected from damage
 - Installed according to system requirements
-

12.20.4 HOISTS

Hoists shall be inspected before use.

Employees shall verify:

- Controls
- Brakes
- Cables
- Power supply
- Emergency descent
- Connections
- Rated capacity

Defective hoists shall not be used.

12.20.5 INDEPENDENT LIFELINES

Employees on suspended scaffolds shall use independent lifelines where required.

Lifelines shall not be connected to the same point supporting the scaffold unless specifically approved.

12.21 MAST-CLIMBING WORK PLATFORMS

Mast-climbing platforms shall be installed, operated, and maintained by trained and authorized personnel.

Planning shall include:

- Foundation
 - Mast ties
 - Platform configuration
 - Load distribution
 - Travel limits
 - Overhead hazards
 - Rescue
 - Weather
 - Public protection
-

12.21.1 DAILY INSPECTION

Inspect:

- Mast sections
- Ties
- Drive systems
- Controls
- Platforms
- Guardrails

- Gates
 - Emergency stops
 - Power cables
 - Limit switches
-

12.22 SCAFFOLDS NEAR POWER LINES

Scaffolds shall maintain required clearance from energized power lines.

Before erection:

1. Identify lines.
2. Determine required clearance.
3. Plan component handling.
4. Assign spotters when necessary.
5. Coordinate de-energization or protection when required.

Metal scaffold components shall be handled with extreme caution near electrical lines.

12.23 SCAFFOLD USE DURING MASONRY WORK

Masonry scaffolds shall be planned for:

- Block loading
- Mortar loading
- Material lifts
- Wall access
- Guardrails
- Toeboards
- Debris
- Limited-access zones

Platforms shall not be overloaded with block or mortar.

12.24 SCAFFOLD USE DURING CONCRETE WORK

Concrete-related scaffold use may involve:

- Formwork
- Wall placement
- Patching
- Elevated finishing
- Inspection
- Repair

Concrete pumps, hoses, and chutes shall not impose unplanned loads on scaffolds.

12.25 WEATHER

Scaffold use shall be evaluated during:

- High winds
- Lightning
- Heavy rain
- Extreme heat
- Reduced visibility
- Flooding
- Cold conditions

Employees shall not use scaffolds when surfaces are dangerously slippery or wind creates instability.

Enclosed scaffolds require additional wind review.

12.26 SCAFFOLD MODIFICATION

Only authorized employees shall modify scaffolds.

Employees shall not:

- Remove braces

- Move planks
- Remove guardrails
- Alter ties
- Add makeshift platforms
- Change access
- Attach equipment
- Enclose the scaffold

without approval.

12.27 SCAFFOLD TAGGING

A scaffold tagging or status system may be used.

Tags may indicate:

- Ready for use
- Restricted use
- Incomplete
- Out of service
- Inspection status

Tags shall not replace physical inspection.

Employees shall understand the tagging system.

12.28 SCAFFOLD INSPECTIONS

The competent person shall inspect scaffolds:

- Before each work shift
- After modification
- After relocation
- After weather events
- After impact
- After prolonged inactivity
- When conditions change

Inspection shall include:

- Foundation
 - Plumb and level
 - Bracing
 - Ties
 - Platforms
 - Guardrails
 - Access
 - Loads
 - Electrical clearance
 - Damage
 - Housekeeping
 - Public protection
-

12.29 SCAFFOLD HOUSEKEEPING

Platforms shall remain free of:

- Excess mortar
- Broken block
- Concrete buildup
- Tie wire
- Tools
- Cords
- Packaging
- Slurry
- Standing water

Debris shall be removed regularly.

Materials shall not block access.

12.30 SCAFFOLD DISMANTLING

Scaffolds shall be dismantled under the direction of the competent person.

Dismantling shall proceed in a controlled sequence.

Employees shall:

- Establish a restricted area
- Remove materials first
- Maintain required ties
- Use fall protection
- Lower components safely
- Avoid dropping parts
- Stack components securely
- Inspect components during removal

Ties shall not be removed prematurely.

12.30.1 COMPONENT LOWERING

Components shall be lowered using:

- Hand lines
- Hoists
- Cranes
- Controlled handoff
- Other approved methods

Components shall not be thrown.

12.31 PUBLIC PROTECTION

Scaffolds near public areas shall include appropriate:

- Barricades
- Fencing
- Overhead protection
- Lighting
- Access control
- Debris containment
- Signage

Public walkways shall remain safe.

12.32 EMERGENCY RESPONSE

Emergency planning shall address:

- Employee fall
- Scaffold collapse
- Electrical contact
- Suspended-platform failure
- Medical emergency
- Severe weather
- Rescue from elevation

Employees shall know how to stop work and summon assistance.

12.33 SCAFFOLD TRAINING

Employees who use scaffolds shall be trained by a qualified person.

Training shall cover:

- Electrical hazards
- Fall hazards
- Falling-object hazards
- Proper use
- Load limits
- Access
- Material handling
- Tagging
- Weather
- Prohibited modifications

Employees involved in erection, dismantling, movement, or inspection shall receive additional training.

Retraining shall occur when:

- Scaffold type changes
- Work conditions change

- Unsafe use is observed
 - Knowledge is inadequate
-

12.34 END-OF-SHIFT REQUIREMENTS

Before leaving scaffold areas, supervision shall ensure:

- Access is secured
 - Platforms are clear
 - Materials are stable
 - Guardrails are complete
 - Ties remain installed
 - Casters are locked
 - Ladders are secure
 - Public areas are protected
 - Incomplete scaffolds are tagged and barricaded
 - Shift handoff is completed
-

12.35 INCIDENT AND NEAR-MISS REVIEW

Scaffold incidents and near misses shall be reviewed.

Examples include:

- Missing guardrails
- Scaffold movement
- Overloading
- Foundation settlement
- Dropped materials
- Improper access
- Electrical near misses
- Unauthorized alterations
- Caster movement
- Tie failure

Lessons learned shall be communicated to affected employees.

A scaffold is temporary, but its consequences are perfectly capable of becoming permanent.

SECTION 13

FORKLIFTS, TELEHANDLERS, AND POWERED INDUSTRIAL TRUCKS

13.1 GENERAL REQUIREMENTS

Forklifts, telehandlers, rough-terrain forklifts, and other powered industrial trucks shall be operated, inspected, maintained, and stored in accordance with:

- Manufacturer instructions
- Applicable regulations
- Equipment load charts
- Approved attachments
- Project requirements
- NCC safety procedures

Only trained, evaluated, and authorized employees shall operate powered industrial trucks.

Common hazards include:

- Tip-overs
- Struck-by incidents

- Crushing
- Falling loads
- Equipment collisions
- Overloading
- Unstable ground
- Blind spots
- Improper attachments
- Elevated personnel
- Electrical contact
- Pedestrian exposure
- Roll-away incidents
- Mechanical failure

Operators shall maintain control of the equipment at all times.

Production schedules shall not justify overloaded forks, unstable loads, unsafe travel, or unauthorized riders.

13.2 SCOPE

This section applies to:

- Warehouse forklifts
- Rough-terrain forklifts
- Telehandlers
- Reach trucks
- Pallet trucks
- Side loaders
- All-terrain forklifts
- Truck-mounted forklifts
- Powered pallet equipment
- Fork-mounted work platforms
- Approved lifting attachments

Requirements shall be applied according to equipment type and work conditions.

13.3 OPERATOR AUTHORIZATION

Operators shall be:

- Formally trained
- Evaluated through practical demonstration
- Familiar with the specific equipment
- Authorized by NCC
- Capable of understanding operating instructions
- Physically able to operate safely

Authorization shall be limited to the equipment classifications for which the employee has been trained and evaluated.

Experience operating one type of forklift does not automatically qualify an employee to operate a telehandler or another substantially different machine.

13.4 OPERATOR TRAINING

Training shall include:

- Equipment controls
- Steering characteristics
- Visibility limitations
- Stability principles
- Load capacity
- Load centers
- Attachments
- Fork positioning
- Traveling with loads
- Pedestrian control
- Surface conditions
- Ramps and slopes
- Parking
- Fueling or charging
- Inspection requirements
- Emergency procedures
- Tip-over response

Training shall include:

1. Formal instruction.

2. Practical training.
3. Workplace evaluation.

Operator training and evaluations shall be documented.

13.4.1 REFRESHER TRAINING

Refresher training and reevaluation shall be provided when:

- Unsafe operation is observed
 - An accident occurs
 - A near miss occurs
 - The operator receives a different equipment assignment
 - Workplace conditions change
 - The operator demonstrates inadequate knowledge
 - The operator's evaluation indicates deficiencies
-

13.4.2 PERIODIC EVALUATION

Operator performance shall be reevaluated at required intervals.

The evaluation shall verify that the operator can:

- Inspect the equipment
 - Control the machine
 - Handle loads safely
 - Recognize hazards
 - Follow site rules
 - Park and secure the equipment
-

13.5 EQUIPMENT FAMILIARIZATION

Before operating an unfamiliar make, model, or configuration, the operator shall review:

- Control locations
- Load charts
- Warning indicators
- Emergency controls
- Steering modes
- Attachment controls
- Parking brake
- Shutdown procedures
- Manufacturer limitations

The operator shall have access to the operating manual.

13.6 PRE-USE INSPECTION

The operator shall inspect the equipment before each shift.

The inspection shall include, as applicable:

- Tires
- Wheels
- Lug nuts
- Forks
- Carriage
- Mast
- Boom
- Chains
- Rollers
- Hydraulic hoses
- Cylinders
- Attachments
- Pins
- Quick-connect systems
- Seatbelt
- Operator restraint
- Horn
- Backup alarm
- Lights
- Mirrors
- Steering

- Brakes
- Parking brake
- Controls
- Gauges
- Fluid levels
- Leaks
- Overhead guard
- Load backrest
- Warning labels
- Fire extinguisher
- General structural condition

Defects affecting safe operation shall be reported immediately.

Unsafe equipment shall be tagged and removed from service.

13.6.1 FUNCTION TEST

Before entering active work areas, the operator shall test:

- Service brakes
- Parking brake
- Steering
- Horn
- Backup alarm
- Forward and reverse travel
- Lift and tilt controls
- Boom extension and retraction
- Attachment operation
- Emergency functions

The test shall be performed in a clear area.

13.7 FORKS

Forks shall be inspected for:

- Cracks

- Bending
- Uneven height
- Wear
- Damaged heels
- Locking-pin condition
- Improper repairs
- Excessive tip damage

Forks shall be properly spaced for the load.

Fork-positioning locks shall be engaged before lifting.

Employees shall not weld, drill, heat, bend, or modify forks without manufacturer or qualified engineering approval.

13.7.1 FORK CAPACITY

Fork capacity shall be adequate for the load and attachment configuration.

Forks shall not be used beyond their rated capacity.

Load length and center of gravity shall be considered.

13.7.2 FORK EXTENSIONS

Fork extensions shall:

- Be approved
- Fit the base forks
- Be secured
- Remain within manufacturer limitations
- Be rated for the load

Loose pipe, lumber, or improvised sleeves shall not be used as fork extensions.

13.8 LOAD CAPACITY

The rated capacity of the equipment shall not be exceeded.

Capacity shall be evaluated based on:

- Load weight
- Load center
- Lift height
- Boom angle
- Boom extension
- Attachment
- Tire configuration
- Outrigger position
- Equipment levelness
- Travel conditions

The capacity marked on the machine may change when attachments are installed.

13.8.1 LOAD CHARTS

Telehandlers and other equipment requiring load charts shall have the correct chart available to the operator.

The chart shall match:

- Machine model
- Attachment
- Outrigger configuration
- Boom position
- Tire requirements
- Operating mode

Operators shall not guess at capacity.

13.8.2 LOAD CENTER

Loads positioned farther from the fork face increase leverage against the machine.

Operators shall consider:

- Load depth
- Uneven shape
- Long materials
- Attachment length
- Suspended-load position
- Offset center of gravity

A load within the stated weight rating may still exceed capacity when the load center is increased.

13.9 STABILITY

Forklift stability depends on:

- Load weight
- Load center
- Lift height
- Equipment speed
- Turning
- Surface condition
- Slope
- Tire condition
- Attachment
- Braking
- Operator actions

Operators shall avoid sudden starts, stops, turns, and direction changes.

The stability triangle is not visible on the ground, but every movement of the machine negotiates with it.

13.10 SEATBELTS AND OPERATOR RESTRAINTS

Operators shall wear seatbelts or other provided restraints.

Seatbelts shall be:

- Inspected
- Properly adjusted
- Maintained
- Replaced when damaged

Operators shall not bypass restraint systems.

13.10.1 TIP-OVER RESPONSE

If a seated forklift begins to tip, the operator shall generally:

- Remain in the seat
- Keep the seatbelt fastened
- Brace firmly
- Lean away from the direction of impact
- Hold the steering wheel

Operators shall not attempt to jump from a tipping seated forklift.

Procedures may differ for stand-up equipment, and operators shall follow equipment-specific training.

13.11 SAFE MOUNTING AND DISMOUNTING

Operators shall:

- Use steps and handholds
- Face the equipment
- Maintain three points of contact
- Keep footwear clean
- Avoid jumping

Controls, steering wheels, and hydraulic levers shall not be used as handholds unless designed for that purpose.

13.12 PEDESTRIAN SAFETY

Pedestrians shall be separated from powered industrial trucks whenever practical.

Controls may include:

- Designated walkways
- Barricades
- Spotters
- Warning signs
- High-visibility clothing
- Restricted zones
- Traffic plans
- Delivery scheduling

Operators shall yield to pedestrians.

Pedestrians shall not assume the operator sees them.

13.12.1 PEDESTRIAN ACKNOWLEDGMENT

Before a pedestrian enters the equipment's working zone:

- 1. Eye contact or another clear acknowledgment shall be established.**
 - 2. The machine shall be stopped when necessary.**
 - 3. The pedestrian shall remain outside pinch points.**
 - 4. The operator shall not resume until the area is clear.**
-

13.12.2 BLIND CORNERS

At blind corners and intersections, operators shall:

- Slow down
 - Sound the horn
 - Maintain a clear path
 - Use mirrors or spotters when available
 - Be prepared to stop
-

13.13 TRAVEL SPEED

Equipment shall be operated at a speed that allows safe stopping.

Speed shall be reduced for:

- Pedestrian areas
- Corners
- Intersections
- Rough terrain
- Wet surfaces
- Slopes
- Limited visibility
- Congested areas
- Elevated loads
- Trailer loading

Posted site speed limits shall be followed.

13.14 TRAVEL WITH LOADS

Loads shall be carried:

- As low as practical
- Tilted back when appropriate
- Stable
- Centered
- Within capacity
- Clear of the ground

The operator shall maintain a clear view in the direction of travel.

13.14.1 OBSTRUCTED VISION

When a load blocks forward visibility, the operator shall:

- Travel in reverse when safe
- Use a spotter

- Reconfigure the load
- Use an alternate route
- Stop when visibility is lost

The operator shall not drive forward while peering around a load with inadequate control.

13.14.2 REVERSE TRAVEL

When traveling in reverse, operators shall:

- Look in the direction of travel
- Sound warnings when appropriate
- Maintain safe speed
- Check overhead and side clearance
- Watch the equipment's front swing

Mirrors and cameras are aids and shall not replace direct observation.

13.15 TURNING

Operators shall slow before turning.

Sharp turns may cause:

- Tip-over
- Load shift
- Pedestrian impact
- Tire damage
- Equipment collision

Elevated loads increase instability and shall not be carried through unnecessary turns.

13.16 RAMPS AND SLOPES

Operators shall follow manufacturer requirements for slope operation.

General controls include:

- Travel slowly
- Avoid turning on slopes
- Maintain traction
- Keep the load positioned uphill when required
- Avoid side-slope travel
- Stay within grade limits
- Keep the boom or mast in the recommended position

Unloaded equipment may require a different travel orientation than loaded equipment.

13.17 ROUGH TERRAIN

Rough-terrain equipment shall be used only on ground capable of supporting the machine.

Operators shall inspect for:

- Holes
- Soft soil
- Debris
- Drop-offs
- Excavation edges
- Utilities
- Uncompacted fill
- Mud
- Standing water
- Steep cross slopes

Travel routes shall be maintained when practical.

13.18 EXCAVATION EDGES

Forklifts and telehandlers shall be kept away from excavation edges unless the area has been evaluated.

The evaluation shall consider:

- Excavation depth
- Soil stability
- Equipment weight
- Load weight
- Vibration
- Spoil
- Protective systems
- Surface cracks

Stop blocks, barricades, spotters, or alternate routes may be required.

13.19 OVERHEAD HAZARDS

Operators shall inspect for:

- Electrical lines
- Building structures
- Door headers
- Beams
- Sprinkler piping
- Trees
- Scaffolds
- Cranes
- Temporary power
- Low ceilings

Booms and masts shall be lowered before travel when practical.

13.20 ELECTRICAL SAFETY

Required clearance shall be maintained from energized electrical lines and equipment.

Before operation near electrical hazards:

- 1. Identify the hazard.**
- 2. Determine required clearance.**
- 3. Establish a controlled work zone.**
- 4. Use a dedicated spotter when necessary.**
- 5. Coordinate de-energization or protective measures when required.**

All lines shall be treated as energized unless confirmed otherwise.

13.20.1 ELECTRICAL CONTACT

If the equipment contacts an energized line:

- The operator should remain in the cab unless fire or immediate danger requires exit.
 - Ground personnel shall stay away.
 - No person shall touch the machine or load.
 - Emergency services and the utility shall be contacted.
 - The equipment shall be treated as energized until released by qualified personnel.
-

13.21 LOAD PICKUP

Before lifting a load, the operator shall verify:

- Load weight
- Load stability
- Fork spacing
- Fork engagement
- Pallet condition
- Equipment capacity
- Travel route
- Landing area
- Nearby personnel

Forks shall be inserted sufficiently beneath the load.

Loads shall not be lifted with only the fork tips unless the task and equipment are specifically designed for that method.

13.22 LOAD SECUREMENT

Loads that may shift, roll, slide, or separate shall be secured.

Controls may include:

- Straps
- Bands
- Blocking
- Cradles
- Approved attachments
- Load backrests
- Wrapping

Banding shall not automatically be treated as lifting support unless designed for that purpose.

13.23 LONG AND IRREGULAR LOADS

Long or irregular loads require additional planning.

Examples include:

- Rebar bundles
- Lumber
- Pipe
- Wall forms
- Trusses
- Precast components
- Scaffolding
- Reinforcing mesh

Controls may include:

- Wider fork spacing

- Multiple pick points
- Taglines
- Spotters
- Reduced speed
- Restricted routes
- Load securement
- Approved attachments

The operator shall consider both ends of the load during turning.

13.24 STACKING AND UNSTACKING

Loads shall be stacked on stable, level surfaces.

Stacks shall be:

- Straight
- Secure
- Within safe height limits
- Protected from vehicle contact
- Arranged to prevent rolling or collapse

Operators shall not place loads on damaged pallets or unstable materials.

13.25 ELEVATED LOADS

Employees shall not stand or pass beneath elevated forks, attachments, or loads.

An elevated load shall not be left unattended.

Before an operator leaves the controls, the load-engaging means shall be fully lowered unless an approved maintenance procedure requires otherwise.

13.26 SUSPENDED LOADS

Forklifts and telehandlers shall only handle suspended loads when:

- The manufacturer permits the operation
- An approved attachment is installed
- The proper load chart is available
- The operator is trained
- Rigging is inspected
- The load is controlled
- The work zone is restricted

Forks shall not be used as improvised crane booms.

13.26.1 SUSPENDED-LOAD CONTROL

Suspended-load operations shall address:

- Load weight
- Rigging weight
- Attachment capacity
- Load radius
- Boom extension
- Swing
- Taglines
- Travel
- Ground conditions
- Personnel exposure

Suspended loads shall be carried slowly and as low as practical.

13.27 ATTACHMENTS

Attachments may include:

- Buckets
- Jibs
- Hooks
- Clamps
- Rotators
- Fork positioners

- Work platforms
- Truss booms
- Material baskets

Attachments shall be:

- Approved for the equipment
 - Properly installed
 - Inspected
 - Secured
 - Included in capacity calculations
 - Used according to manufacturer instructions
-

13.27.1 QUICK-ATTACH SYSTEMS

Quick-attach systems shall be checked before use.

The operator shall verify:

- Pins are fully engaged
- Locks are secured
- Hydraulic connections are complete
- Attachment identification is correct
- No visible gap or misalignment exists

A visual check alone may not be sufficient when the manufacturer requires a functional verification.

13.28 PERSONNEL WORK PLATFORMS

Employees shall only be elevated on approved personnel work platforms designed for the equipment.

Work platforms shall be used according to:

- Manufacturer requirements
- Applicable regulations
- Approved procedures

- Project rules

Pallets, material baskets, job-built boxes, and forks alone shall not be used to elevate personnel.

13.28.1 PLATFORM REQUIREMENTS

Personnel platforms shall include, as required:

- Guardrails
- Midrails
- Toeboards
- Secure gates
- Nonslip flooring
- Equipment attachment points
- Platform identification
- Capacity markings
- Fall-protection anchorages

The platform shall be secured to the carriage or forks using the designed method.

13.28.2 PRE-LIFT MEETING

Before elevating personnel, the operator and occupants shall review:

- Work task
 - Platform capacity
 - Communication
 - Emergency lowering
 - Fall protection
 - Overhead hazards
 - Electrical hazards
 - Travel restrictions
 - Ground conditions
-

13.28.3 PLATFORM OPERATION

Before elevation:

- The equipment shall be level.
- The parking brake shall be applied.
- Stabilizers shall be deployed when required.
- The platform shall be secured.
- Controls shall be tested.
- The area shall be barricaded when necessary.

Employees shall remain inside the platform.

Employees shall not climb guardrails or use ladders inside the platform.

13.28.4 OPERATOR ATTENDANCE

The operator shall remain at the controls while employees are elevated unless the approved system provides alternate controls and procedures.

The operator shall maintain communication with platform occupants.

13.28.5 TRAVEL WITH OCCUPIED PLATFORM

Travel with an occupied elevated platform is prohibited unless the equipment and platform are specifically designed and approved for that operation.

When permitted, travel shall comply with manufacturer requirements and site-specific controls.

13.29 LOADING AND UNLOADING TRUCKS

Truck loading and unloading shall be planned to control:

- Trailer movement
- Driver location

- Forklift access
- Load stability
- Dock edges
- Ground conditions
- Pedestrians
- Overhead clearance

Truck drivers shall remain in a designated safe area or maintain clear communication with the operator.

13.29.1 TRAILER SECUREMENT

Before entering a trailer, verify:

- Brakes are set
 - Wheels are chocked or a restraint system is engaged
 - Trailer support is adequate
 - Dock plate is secured
 - Trailer floor can support the equipment
 - The driver understands the loading status
-

13.29.2 FLATBED LOADING

During flatbed loading:

- Employees shall remain clear of the opposite side.
 - Loads shall not pass over the driver or other personnel.
 - Dunnage shall be stable.
 - Load-placement communication shall be clear.
 - Securement shall not begin beneath suspended loads.
-

13.30 DOCKS AND TRAILER EDGES

Forklifts shall be operated cautiously near dock edges.

Controls may include:

- Guarding
- Wheel stops
- Dock lights
- Trailer restraints
- Spotters
- Painted edge markings

Operators shall verify dock plates are rated and secured.

13.31 PARKING

When parking, the operator shall:

- 1. Lower forks or attachments fully.**
- 2. Place controls in neutral.**
- 3. Apply the parking brake.**
- 4. Shut off power when unattended.**
- 5. Remove the key when required.**
- 6. Park on stable ground.**
- 7. Avoid emergency routes and access points.**
- 8. Chock wheels on slopes when required.**

Equipment shall not be parked with forks elevated.

13.31.1 UNATTENDED EQUIPMENT

Equipment shall be considered unattended according to applicable requirements and site conditions.

When unattended, it shall be shut down and secured against unauthorized use.

13.32 UNAUTHORIZED RIDERS

Riders are prohibited unless the equipment provides an approved passenger seat and restraint.

Employees shall not ride:

- On forks
 - On pallets
 - On steps
 - On counterweights
 - On attachments
 - Outside the operator compartment
-

13.33 PUSHING AND PULLING

Forklifts shall not be used to push or pull vehicles, equipment, structures, or materials unless:

- The equipment is designed for the task
- Approved attachment points are used
- Capacity is adequate
- The operation is planned

Fork tips shall not be used as pry bars.

13.34 TOWING

Towing shall only be performed according to manufacturer instructions.

Before towing:

- Verify towing capacity.
- Use approved connection points.
- Inspect tow devices.
- Control personnel.
- Plan the route.
- Establish communication.

Chains, straps, and rigging shall not be connected to unapproved parts.

13.35 FUELING

Fueling shall occur in designated or suitable areas.

Operators shall:

- Shut down the engine
- Control ignition sources
- Avoid smoking
- Use approved fuel containers
- Prevent spills
- Maintain fire extinguishers
- Clean spills promptly

Fuel caps shall be replaced before operation.

13.36 PROPANE CYLINDERS

Propane cylinders shall be:

- Inspected
- Secured
- Installed correctly
- Protected from damage
- Stored in approved areas
- Kept away from ignition sources

Employees changing cylinders shall wear required PPE.

Leaking cylinders shall be isolated and reported.

13.37 BATTERY CHARGING

Battery charging areas shall provide:

- Ventilation
- Ignition control
- Electrical protection
- Spill response
- Required PPE
- Safe charging equipment

Employees shall not place metal tools on batteries.

Damaged cables and connectors shall not be used.

13.38 INDOOR OPERATION

Indoor operation shall consider:

- Carbon monoxide
- Ventilation
- Floor loading
- Pedestrians
- Door clearance
- Sprinkler systems
- Narrow aisles
- Lighting
- Noise
- Battery hazards

Fuel-powered equipment shall not be used where exhaust may accumulate to unsafe levels.

13.39 WEATHER

Operation shall be reevaluated during:

- Heavy rain
- Lightning
- High winds
- Fog
- Extreme heat

- Flooding
- Mud
- Reduced visibility

High winds may affect:

- Long loads
- Elevated loads
- Personnel platforms
- Suspended loads
- Machine stability

Work shall stop when conditions exceed safe limits.

13.40 MAINTENANCE

Maintenance shall be performed by qualified personnel.

Before maintenance:

- Park on stable ground.
- Lower attachments.
- Shut down power.
- Remove or control stored energy.
- Apply lockout procedures when required.
- Block elevated components.
- Relieve hydraulic pressure.
- Follow manufacturer instructions.

Employees shall not work beneath unsupported forks, booms, masts, or attachments.

13.40.1 ELEVATED COMPONENT SUPPORT

When maintenance requires elevated components, approved supports or blocking shall be installed.

Hydraulic pressure alone shall not support equipment during maintenance.

13.41 MODIFICATIONS

Powered industrial trucks shall not be modified without manufacturer or qualified engineering approval.

Prohibited unauthorized modifications include:

- Added counterweights
- Drilled forks
- Welded attachments
- Changed controls
- Removed guards
- Bypassed alarms
- Homemade personnel platforms
- Altered load backrests
- Unapproved lights or structures

Updated capacity plates shall be installed when required after approved modifications.

13.42 RENTAL EQUIPMENT

Rental equipment shall be inspected before use.

NCC shall verify:

- Equipment condition
- Correct manuals
- Capacity information
- Attachment compatibility
- Safety devices
- Inspection status
- Operator familiarization

Rental status does not reduce NCC inspection or training requirements.

13.43 SECURITY AND KEY CONTROL

Equipment shall be protected from unauthorized use.

Controls may include:

- Key removal
- Locked storage
- Controlled access
- Supervisor authorization
- Parking in secured areas

Operators shall not loan keys to unauthorized employees.

13.44 PROHIBITED PRACTICES

Employees shall not:

- Operate without authorization
 - Exceed rated capacity
 - Carry unauthorized riders
 - Stand beneath elevated loads
 - Travel with excessively elevated loads
 - Bypass alarms or safety systems
 - Use damaged equipment
 - Lift personnel on pallets
 - Use forks as pry bars
 - Push employees against fixed objects
 - Use makeshift attachments
 - Leave elevated loads unattended
 - Operate while distracted or impaired
 - Use phones while driving
 - Engage in horseplay
 - Jump from moving equipment
 - Travel with obstructed visibility without controls
-

13.45 EMERGENCY RESPONSE

Emergency planning shall address:

- Tip-over
- Dropped load
- Pedestrian impact
- Electrical contact
- Fuel leak
- Fire
- Hydraulic failure
- Equipment collision
- Employee entrapment

Employees shall:

- 1. Stop work.**
 - 2. Secure the area.**
 - 3. Call emergency services when necessary.**
 - 4. Shut down equipment when safe.**
 - 5. Notify NCC supervision.**
 - 6. Preserve the scene when required.**
 - 7. Resume work only after authorization.**
-

13.46 DAILY DOCUMENTATION

Where required, inspection documentation shall include:

- Equipment identification
- Date
- Shift
- Operator
- Work location
- Inspection status
- Defects
- Corrective actions
- Removal-from-service status

Records shall be maintained according to company policy.

13.47 SUPERVISOR RESPONSIBILITIES

Supervisors shall verify:

- Operators are authorized
- Equipment is inspected
- Attachments are approved
- Pedestrian controls are maintained
- Load capacities are followed
- Unsafe equipment is removed
- Work areas are suitable
- Training records are current

Supervisors shall stop unsafe equipment operation immediately.

13.48 END-OF-SHIFT REQUIREMENTS

Before leaving equipment areas, supervision shall ensure:

- Forks and attachments are lowered
 - Equipment is parked safely
 - Keys are secured
 - Parking brakes are applied
 - Defects are reported
 - Fuel and charging areas are safe
 - Pedestrian routes are clear
 - Loads are stable
 - Public access is controlled
 - Shift handoff is completed
-

13.49 INCIDENT AND NEAR-MISS REVIEW

Powered industrial truck incidents and near misses shall be reviewed.

Examples include:

- Load shifts
- Pedestrian close calls
- Tip-over warnings
- Fork damage
- Trailer movement
- Electrical encroachment
- Ground settlement
- Unauthorized riders
- Dropped materials
- Overload events
- Attachment disengagement
- Equipment collisions

Lessons learned shall be communicated to affected employees.

A forklift can lift far more than a person, but it cannot replace the judgment the person behind the controls is required to bring.

SECTION 14

MOTOR VEHICLES, HEAVY EQUIPMENT, AND MOBILE EQUIPMENT

14.1 GENERAL REQUIREMENTS

Motor vehicles, heavy equipment, and mobile equipment shall be operated, inspected, maintained, transported, and parked in accordance with:

- Applicable regulations
- Manufacturer instructions
- Project requirements
- Traffic-control plans
- NCC safety procedures
- Equipment-specific operating limitations

Only trained, qualified, and authorized employees shall operate company vehicles or mobile equipment.

This section applies to equipment including:

- Pickup trucks
- Service trucks
- Dump trucks
- Flatbed trucks
- Tractor-trailers
- Skid-steer loaders
- Compact track loaders
- Wheel loaders
- Excavators
- Mini excavators
- Backhoes
- Bulldozers
- Motor graders
- Rollers
- Compactors
- Water trucks
- Concrete buggies
- Utility vehicles
- All-terrain vehicles
- Tractors
- Sweeper trucks
- Vacuum trucks
- Company-owned, leased, and rented vehicles

Common hazards include:

- Struck-by incidents
- Backing incidents
- Rollovers
- Blind spots
- Equipment collisions
- Pedestrian exposure
- Unstable ground
- Excavation-edge collapse
- Falling loads
- Vehicle ejection
- Traffic exposure
- Mechanical failure
- Improper towing
- Load loss
- Power-line contact

- Carbon-monoxide exposure
- Fatigue and distraction

Operators shall maintain control of their vehicles and equipment at all times.

14.2 OPERATOR QUALIFICATIONS

Operators shall possess the training, experience, licenses, endorsements, and medical qualifications required for the vehicle or equipment being operated.

Operators shall not operate equipment unless they:

- Understand the controls
- Know the equipment limitations
- Can recognize hazards
- Have completed required training
- Have been evaluated when required
- Are authorized by NCC
- Are physically and mentally capable of safe operation

Supervisors shall verify operator qualifications before assigning equipment.

14.2.1 DRIVER'S LICENSE REQUIREMENTS

Employees operating road vehicles shall maintain a valid driver's license appropriate for the vehicle.

Commercial driver's licenses and endorsements shall be maintained when required.

Employees shall promptly report:

- License suspension
- License revocation
- Restricted driving status
- Disqualifying citations
- Medical restrictions
- Loss of required endorsements

Employees shall not operate company vehicles with an invalid or suspended license.

14.2.2 EQUIPMENT-SPECIFIC AUTHORIZATION

Authorization shall be limited to equipment types for which the employee has demonstrated competency.

Experience with one machine does not automatically qualify an employee to operate another machine with different:

- Controls
 - Steering
 - Stability characteristics
 - Attachments
 - Visibility
 - Operating limits
-

14.3 OPERATOR FITNESS FOR DUTY

Operators shall report to work fit for duty.

Employees shall not operate vehicles or equipment while impaired by:

- Alcohol
- Illegal drugs
- Misused medication
- Fatigue
- Illness
- Heat stress
- Emotional distress
- Distraction
- Any condition affecting judgment or coordination

Employees using prescription or over-the-counter medication shall follow company fitness-for-duty requirements when the medication may affect safe operation.

14.4 SEATBELTS AND RESTRAINTS

Seatbelts and manufacturer-provided restraint systems shall be worn whenever the vehicle or equipment is in operation.

Operators shall not:

- Disable seatbelt alarms
- Sit on fastened seatbelts
- Tie back restraint systems
- Operate with damaged restraints
- Carry occupants without approved seating

Doors, gates, lap bars, and restraint bars shall be closed or engaged as required.

14.4.1 ENCLOSED-CAB EQUIPMENT

Cab doors and windows shall be maintained in safe condition.

When required for rollover protection, cab doors shall remain installed and closed according to manufacturer instructions.

Damaged doors, latches, or glass that create a hazard shall be repaired.

14.5 PASSENGERS

Passengers shall only ride in designated seats equipped with required restraints.

Employees shall not ride:

- In truck beds
- On steps
- On bumpers
- On fenders
- On equipment attachments
- On trailers

- On loads
- Outside operator compartments
- Inside excavator buckets
- On skid-steer attachments

Unauthorized riders are prohibited.

14.6 PRE-USE INSPECTIONS

Operators shall inspect vehicles and equipment before each shift or use.

The inspection shall include, as applicable:

- Tires
- Tracks
- Wheels
- Lug nuts
- Brakes
- Parking brake
- Steering
- Lights
- Horn
- Backup alarm
- Mirrors
- Cameras
- Windshield
- Wipers
- Seatbelt
- Rollover protection
- Falling-object protection
- Hydraulic hoses
- Cylinders
- Attachments
- Pins
- Couplers
- Fluid levels
- Leaks
- Fire extinguisher
- Warning labels

- Steps
- Handholds
- Load-securement equipment
- Trailer connections
- General structural condition

Defects shall be documented and reported.

Equipment with safety-critical defects shall be removed from service.

14.6.1 FUNCTION TEST

Before entering an active work area, the operator shall test:

- Service brakes
- Parking brake
- Steering
- Horn
- Backup alarm
- Lights
- Forward and reverse movement
- Hydraulic functions
- Attachment controls
- Emergency shutdown
- Cameras or warning systems

Function testing shall occur in a controlled area.

14.6.2 FLUID LEAKS

Leaking equipment shall be evaluated before use.

Leaks involving:

- Fuel
- Brake fluid
- Hydraulic fluid
- Coolant

- Engine oil
- Transmission fluid

shall be corrected when they affect safety or create environmental hazards.

Operators shall not place hands near suspected high-pressure hydraulic leaks.

Cardboard, wood, or another safe method shall be used to check for leaks.

14.7 CAB HOUSEKEEPING

Operator compartments shall remain free of:

- Loose tools
- Trash
- Bottles
- Mud
- Grease
- Unsecured equipment
- Objects near pedals
- Materials blocking controls
- Excessive paperwork

Objects shall not be stored where they may interfere with steering, braking, visibility, or emergency exit.

14.8 SAFE MOUNTING AND DISMOUNTING

Employees shall:

- Face the equipment
- Use provided steps and handholds
- Maintain three points of contact
- Keep footwear clean
- Avoid jumping
- Check the ground before stepping down

Steering wheels, control levers, hoses, and mirrors shall not be used as handholds unless specifically designed for that purpose.

14.9 STARTUP PROCEDURES

Before starting equipment, the operator shall:

- 1. Complete the inspection.**
- 2. Adjust the seat and mirrors.**
- 3. Fasten the seatbelt.**
- 4. Confirm controls are in neutral.**
- 5. Verify the parking brake is set.**
- 6. Sound a warning when appropriate.**
- 7. Confirm the area is clear.**
- 8. Start according to manufacturer procedures.**

Equipment shall not be started from outside the operator station unless specifically designed for remote operation.

14.10 SPEED CONTROL

Vehicles and equipment shall be operated at speeds appropriate for:

- Site conditions
- Traffic
- Pedestrians
- Visibility
- Weather
- Load
- Surface condition
- Equipment type
- Stopping distance
- Posted limits

Operators shall reduce speed near:

- Buildings
- Blind corners

- Excavations
- Intersections
- Workers
- Material storage
- Parking areas
- Gates
- Public roads
- Congested work zones

An operator shall always be able to stop within the visible and clear travel path.

14.11 DISTRACTED DRIVING

Operators shall not use handheld mobile devices while driving or operating mobile equipment.

Prohibited activities include:

- Texting
- Reading messages
- Entering addresses
- Viewing videos
- Taking photographs
- Scrolling applications
- Holding extended telephone conversations
- Completing paperwork while moving

Operators shall park safely before using a handheld device.

Hands-free communication shall be minimized when conditions require full attention.

14.12 BACKING OPERATIONS

Backing shall be minimized through planning.

Preferred controls include:

- Pull-through parking
- One-way routes
- Turnaround areas
- Forward-facing loading and unloading
- Dedicated staging plans

When backing is necessary, the operator shall ensure the path is clear.

14.12.1 BACKUP ALARMS

Required backup alarms shall be operational.

A backup alarm does not eliminate the need to:

- Look
 - Use mirrors
 - Use cameras
 - Control pedestrians
 - Use a spotter
 - Stop when visibility is inadequate
-

14.12.2 SPOTTERS

A spotter shall be used when:

- Rear visibility is obstructed
 - The area is congested
 - Employees are nearby
 - The vehicle is near structures
 - The vehicle is near excavation edges
 - The operator requests assistance
 - Project rules require one
 - The backing path cannot be confirmed clear
-

14.12.3 SPOTTER POSITIONING

Spotters shall:

- Remain visible to the operator
- Stay out of the vehicle path
- Avoid pinch points
- Wear high-visibility clothing
- Use standardized signals
- Maintain a safe escape route
- Focus exclusively on the backing operation

If the operator loses sight of the spotter, the operator shall stop immediately.

14.12.4 BACKING COMMUNICATION

Before movement, the operator and spotter shall agree on:

- Hand signals
- Radio use
- Stop signals
- Final positioning
- Blind areas
- Pedestrian control

Anyone may give an emergency stop signal.

14.13 BLIND SPOTS

Operators shall understand the machine's blind spots.

Blind-spot controls may include:

- Mirrors
- Cameras
- Proximity alarms
- Spotters
- Restricted zones
- Pedestrian barriers
- Machine orientation

- Lighting
- High-visibility clothing

Employees shall not approach mobile equipment until the operator has acknowledged them and stopped movement when necessary.

14.14 PEDESTRIAN EXCLUSION ZONES

Exclusion zones shall be established around operating equipment.

The zone shall account for:

- Equipment movement
- Tail swing
- Boom swing
- Load movement
- Blind spots
- Attachment movement
- Material discharge
- Rollover area

Employees shall not enter an equipment operating zone without operator acknowledgment.

14.15 EQUIPMENT SWING RADIUS

Swing-radius areas shall be barricaded or otherwise controlled where employees may be struck or crushed.

This applies to:

- Excavators
- Backhoes
- Cranes
- Rotating telehandlers
- Material handlers
- Other rotating machinery

Employees shall not enter the space between rotating equipment and a fixed object.

14.16 SAFE TRAVEL

Before traveling, the operator shall:

- Lower attachments
- Secure the load
- Check the route
- Verify clearance
- Confirm the ground is stable
- Control pedestrians
- Use lights when needed
- Maintain visibility

Buckets, blades, forks, and attachments shall be carried low enough to maintain stability but high enough to clear the ground.

14.17 TRAVEL ON SLOPES

Equipment shall only be operated on slopes within manufacturer limits.

Operators shall:

- Avoid side-hill travel when practical
- Avoid sharp turns
- Reduce speed
- Maintain proper machine orientation
- Keep loads low
- Use the recommended gear
- Avoid sudden braking
- Evaluate traction

Equipment shall not be parked on a slope unless necessary and properly secured.

14.17.1 CROSS-SLOPE OPERATION

Cross-slope operation increases rollover risk.

Before operating across a slope, the operator shall evaluate:

- Slope angle
 - Machine width
 - Attachment position
 - Load
 - Surface conditions
 - Soft shoulders
 - Ground failure
 - Manufacturer limitations
-

14.17.2 SLOPE PARKING

When parking on a slope:

- Lower attachments.
 - Apply the parking brake.
 - Place controls in neutral or park.
 - Chock wheels or tracks when required.
 - Orient equipment to reduce movement.
 - Avoid unattended parking when practical.
-

14.18 ROUGH AND UNSTABLE GROUND

Operators shall inspect travel and work areas for:

- Holes
- Soft soil
- Mud
- Loose fill
- Voids
- Buried structures
- Uncompacted backfill

- Debris
- Standing water
- Drop-offs
- Slope changes
- Underground utilities

Equipment shall not enter unstable areas until conditions are corrected or evaluated.

14.19 EXCAVATION AND TRENCH EDGES

Mobile equipment shall maintain a safe distance from excavation edges.

The safe distance shall account for:

- Excavation depth
- Soil classification
- Protective system
- Equipment weight
- Load weight
- Vibration
- Spoil placement
- Ground cracks
- Weather
- Competent-person direction

Operators shall not assume the edge of pavement or compacted-looking soil is structurally sound.

14.19.1 EDGE WARNING SYSTEMS

When operators cannot clearly see excavation edges, controls may include:

- Stop logs
- Barricades
- Spotters
- Warning lines
- Berms

- Lighting
- Defined travel lanes

Stop logs shall be substantial enough for the equipment and conditions.

14.20 OVERHEAD CLEARANCE

Before travel or operation, the operator shall inspect for:

- Power lines
- Trees
- Bridges
- Roofs
- Doorways
- Scaffolds
- Temporary structures
- Signs
- Pipes
- Crane booms
- Building projections

Raised beds, booms, buckets, and attachments shall be lowered before travel when practical.

14.21 POWER-LINE SAFETY

Required clearance shall be maintained from energized overhead and underground electrical systems.

Before work near power lines:

- 1. Identify the lines.**
- 2. Determine required clearance.**
- 3. Plan equipment movement.**
- 4. Establish barriers or warning lines.**
- 5. Use a dedicated spotter when necessary.**
- 6. Coordinate de-energization or protection when required.**

All lines shall be treated as energized unless confirmed otherwise.

14.21.1 DUMP BEDS AND POWER LINES

Dump trucks shall not raise beds near overhead power lines unless required clearance has been confirmed.

Operators shall:

- Inspect the dump location
 - Confirm overhead clearance
 - Lower beds fully before travel
 - Use spotters when visibility is limited
 - Follow warning signs
-

14.21.2 ELECTRICAL CONTACT RESPONSE

If equipment contacts an energized line:

- The operator should remain inside the cab unless fire or another immediate danger requires exit.
 - Ground personnel shall stay away.
 - No one shall touch the equipment or load.
 - Emergency services and the utility shall be notified.
 - The area shall remain restricted until released by qualified personnel.
-

14.22 SKID-STEER AND COMPACT TRACK LOADER SAFETY

Skid-steer and compact track loader operators shall:

- Wear the seatbelt
- Engage the restraint bar
- Keep limbs inside the cab
- Enter and exit safely

- Use approved attachments
- Lower lift arms before exit
- Follow manufacturer procedures

Operators shall not exit beneath raised lift arms unless approved lift-arm supports are installed.

14.22.1 SKID-STEER ENTRY AND EXIT

Before exiting:

1. Lower the attachment.
2. Place controls in neutral.
3. Engage the parking brake.
4. Shut down the engine.
5. Remove the key when required.
6. Release the restraint system only after movement has stopped.

Employees shall not climb over raised attachments.

14.22.2 SKID-STEER ATTACHMENTS

Attachment couplers shall be checked before use.

The operator shall verify:

- Locking pins are engaged
 - Hydraulic connections are secure
 - The attachment is compatible
 - The attachment is within capacity
 - A functional connection check has been completed
-

14.23 EXCAVATORS AND MINI EXCAVATORS

Excavator operators shall maintain control of:

- Swing radius
- Counterweight clearance
- Bucket movement
- Boom movement
- Ground stability
- Nearby employees
- Underground utilities
- Overhead hazards

Employees shall remain outside the operating envelope unless the operator has stopped and acknowledged them.

14.23.1 EXCAVATOR BUCKETS

Employees shall not:

- Ride in buckets
- Work under raised buckets
- Stand between the bucket and a structure
- Use bucket teeth as lifting points
- Place hands near couplers
- Enter pinch zones during attachment changes

Buckets shall be lowered when the equipment is unattended.

14.23.2 QUICK COUPLERS

Quick couplers shall be inspected and verified before use.

The operator shall:

- Confirm engagement
 - Engage safety locks
 - Perform the manufacturer's connection test
 - Keep employees clear
 - Stop use if the attachment does not seat properly
-

14.24 BACKHOES

Backhoe stabilizers shall be deployed according to manufacturer instructions before digging.

Operators shall:

- Evaluate ground support
- Maintain clearance from edges
- Control swing areas
- Lower attachments before travel
- Use the correct seat position
- Avoid equipment movement with stabilizers lowered unless permitted

Employees shall not stand between stabilizers and fixed objects.

14.25 DOZERS AND LOADERS

Operators shall:

- Maintain clear travel routes
- Keep blades and buckets low during travel
- Avoid excessive side slopes
- Control material at drop-offs
- Use seatbelts
- Avoid undercutting banks
- Maintain safe distance from employees

Employees shall not work directly in front of or behind operating equipment.

14.26 ROLLERS AND COMPACTION EQUIPMENT

Operators shall evaluate:

- Slope
- Edge stability
- Vibration effects
- Nearby trenches

- Pedestrians
- Reversing routes
- Visibility
- Surface strength

Ride-on rollers shall not operate near unsupported edges without controls.

Walk-behind equipment shall be operated to prevent employees from being pinned against walls, vehicles, or structures.

14.27 CONCRETE BUGGIES AND POWER CARTS

Concrete buggies and powered carts shall be operated according to manufacturer requirements.

Operators shall:

- Inspect brakes and controls
- Maintain safe speed
- Avoid overloading
- Use designated travel paths
- Keep loads stable
- Avoid steep slopes
- Control pedestrians
- Maintain safe footing

Employees shall not ride on equipment not designed for passengers.

14.27.1 BUGGY ROUTES

Buggy routes shall be:

- Firm
- Level where practical
- Free of debris
- Wide enough
- Protected at edges
- Clear of hoses and cords

- Maintained during placement

Ramps shall be capable of supporting the equipment and load.

14.28 UTILITY VEHICLES AND ALL-TERRAIN VEHICLES

Utility vehicles and all-terrain vehicles shall be operated only by authorized employees.

Operators shall:

- Wear provided restraints
- Follow occupancy limits
- Maintain safe speed
- Avoid excessive slopes
- Secure tools and materials
- Use helmets when required
- Avoid public roads unless legally permitted
- Follow manufacturer terrain limits

Recreational operation and horseplay are prohibited.

14.29 DUMP TRUCKS

Dump-truck operators shall inspect:

- Tailgates
- Bed controls
- Hydraulic systems
- Tires
- Brakes
- Lights
- Tarps
- Alarms
- Bed supports
- Frame condition

Dumping shall occur on stable and reasonably level ground.

14.29.1 DUMPING OPERATIONS

Before raising the bed, the operator shall:

- Confirm the area is clear.
- Check overhead clearance.
- Confirm the truck is stable.
- Check ground conditions.
- Verify the tailgate will operate safely.
- Maintain communication with the spotter when used.
- Ensure the load will release properly.

The operator shall stop if the truck begins to lean or the load hangs up.

14.29.2 STUCK LOADS

Employees shall not stand beneath raised beds or strike truck bodies to release stuck loads without an approved procedure.

Controls may include:

- Lowering the bed
- Repositioning the truck
- Mechanical assistance
- Manufacturer-approved methods
- Isolation of the area

Raised beds shall be supported with approved body-prop devices before maintenance or entry beneath them.

14.29.3 TAILGATES

Employees shall remain clear of tailgate swing and discharge areas.

Tailgate latches shall be inspected.

Employees shall not stand directly behind a loaded dump body during release.

14.30 LOADING VEHICLES

During loading:

- The operator shall remain in a designated safe location.
- The loading-equipment operator shall maintain visibility.
- Loads shall be distributed properly.
- Capacity limits shall not be exceeded.
- Materials shall not strike the cab.
- Personnel shall remain clear of the load path.
- Communication shall be established.

Truck drivers shall not enter the loading zone without acknowledgment from the equipment operator.

14.31 LOAD SECUREMENT

Loads transported on public roads or project sites shall be secured against:

- Shifting
- Rolling
- Sliding
- Falling
- Blowing
- Leaking

Securement equipment may include:

- Chains
- Binders
- Straps
- Tarps
- Blocking
- Dunnage
- Stakes
- Cradles

Securement equipment shall be rated and inspected.

14.31.1 SECUREMENT INSPECTIONS

Drivers shall inspect load securement:

- Before departure
- After initial travel when required
- At required intervals
- After sudden braking
- After sharp turns
- After road or site conditions may have shifted the load

Loose securement shall be corrected before travel continues.

14.31.2 CHAIN AND BINDER SAFETY

Employees shall:

- Use properly rated chains and binders
- Inspect hooks and links
- Avoid standing in the binder release path
- Use controlled force
- Secure excess chain
- Protect straps from sharp edges

Improvised cheater bars shall not be used unless specifically approved for the binder.

14.32 TARPING

Tarping shall be performed using methods that minimize climbing and fall exposure.

Preferred methods include:

- Automatic tarp systems
- Ground-operated systems
- Designated tarping platforms
- Fall-protected access

Employees shall not climb unstable loads to install tarps without approved protection.

14.33 TOWING AND RECOVERY

Towing and recovery operations shall be planned and performed using approved equipment and connection points.

Before towing:

- Determine equipment weight.
 - Select rated tow equipment.
 - Inspect chains, straps, cables, and shackles.
 - Establish exclusion zones.
 - Determine the travel path.
 - Assign personnel.
 - Maintain communication.
 - Control stored energy.
-

14.33.1 RECOVERY ZONES

Employees shall remain outside the recoil path of:

- Tow straps
- Chains
- Wire ropes
- Winch lines
- Shackles
- Connection points

No employee shall straddle or step over a tensioned recovery line.

14.33.2 IMPROVISED CONNECTIONS

Tow lines shall not be attached to:

- Bumpers
- Handrails
- Axles not approved for towing
- Hydraulic cylinders
- Buckets
- Forks
- Temporary structures
- Unrated points

Manufacturer-approved recovery points shall be used.

14.34 TRAILER CONNECTIONS

Before towing a trailer, the driver shall verify:

- Hitch compatibility
- Coupler engagement
- Safety chains
- Breakaway cable
- Electrical connection
- Brake operation
- Jack position
- Tire condition
- Lights
- Load securement
- Trailer capacity

The trailer shall be connected on stable ground.

14.34.1 SAFETY CHAINS

Safety chains shall:

- Be properly rated
- Cross beneath the tongue when appropriate
- Be attached to approved points
- Have sufficient turning length
- Remain clear of the ground

Hooks shall be secured to prevent accidental disengagement.

14.34.2 BREAKAWAY SYSTEMS

Required breakaway systems shall be:

- Connected
- Charged
- Tested
- Attached to a point separate from the hitch connection

The breakaway cable shall not be looped around the safety chain as a substitute for proper attachment.

14.35 TRAILER LOADING AND UNLOADING

Loading and unloading equipment from trailers shall be performed on stable, level ground when practical.

Planning shall address:

- Trailer capacity
- Ramp capacity
- Equipment weight
- Ramp angle
- Traction
- Machine alignment
- Spotters
- Pinch points
- Trailer movement
- Overhead clearance

14.35.1 RAMPS

Ramps shall be:

- Properly rated
- Secured
- Clean
- Aligned
- Free of damage
- Supported as designed

Loose lumber or improvised ramps shall not be used.

14.35.2 TRAILER STABILITY

Before loading:

- The tow vehicle shall be connected when required.
 - Brakes shall be set.
 - Wheels shall be chocked when necessary.
 - Stabilizers shall be used when provided.
 - The ground shall be evaluated.
 - Personnel shall remain clear.
-

14.36 PUBLIC-ROAD DRIVING

Employees operating company vehicles on public roads shall:

- Obey traffic laws
- Wear seatbelts
- Maintain safe following distance
- Adjust for weather
- Avoid aggressive driving
- Secure loads
- Perform required vehicle inspections

- Stop when fatigued
- Avoid distracted driving
- Report collisions promptly

Traffic citations resulting from unsafe or unlawful operation may be subject to company review.

14.37 DEFENSIVE DRIVING

Drivers shall anticipate:

- Sudden stops
- Merging traffic
- Pedestrians
- Cyclists
- Motorcycles
- Construction zones
- Emergency vehicles
- Poor visibility
- Road debris
- Changing weather

Following distance shall increase for:

- Heavy vehicles
 - Trailers
 - Rain
 - Darkness
 - Congestion
 - Loose surfaces
 - Reduced visibility
-

14.38 FATIGUE MANAGEMENT

Drivers and operators shall not continue operating when fatigue affects safe performance.

Supervisors shall consider:

- Shift length
- Night work
- Travel time
- Heat exposure
- Physical workload
- Rest periods
- Consecutive workdays
- Medication
- Sleep opportunity

Employees shall report unsafe fatigue without retaliation.

14.39 WEATHER CONDITIONS

Vehicle and equipment operation shall be reevaluated during:

- Heavy rain
- Lightning
- Fog
- High winds
- Flooding
- Extreme heat
- Reduced visibility
- Soft ground
- Hurricanes or tropical storms

Operators shall reduce speed or stop when conditions cannot be managed safely.

Standing water shall not be entered unless depth, ground conditions, and hazards have been evaluated.

14.40 NIGHT OPERATIONS

Night operations shall provide adequate lighting for:

- Travel paths
- Equipment
- Pedestrians

- Loading zones
- Excavation edges
- Spotters
- Parking areas
- Access routes

Lighting shall be positioned to minimize glare and deep shadows.

Operators shall clean windows, cameras, mirrors, and lights as needed.

14.41 PARKING AND SHUTDOWN

When parking equipment, the operator shall:

- 1. Select stable ground.**
- 2. Lower attachments.**
- 3. Place controls in neutral or park.**
- 4. Apply the parking brake.**
- 5. Shut down the engine.**
- 6. Relieve stored hydraulic pressure when required.**
- 7. Remove the key when appropriate.**
- 8. Secure doors and controls.**
- 9. Chock wheels when required.**
- 10. Avoid emergency routes and public access.**

Equipment shall not be left with elevated attachments.

14.42 UNATTENDED EQUIPMENT

Unattended equipment shall be secured against:

- Unauthorized operation
- Rolling
- Attachment movement
- Theft
- Public access
- Accidental startup

Keys shall be controlled.

Equipment parked near public areas shall be barricaded or secured when necessary.

14.43 IDLING

Unnecessary idling shall be minimized.

Engines shall not idle in enclosed or poorly ventilated areas where exhaust may accumulate.

Operators shall consider:

- Carbon monoxide
 - Diesel exhaust
 - Fuel use
 - Noise
 - Heat
 - Nearby employees
 - Building air intakes
-

14.44 FUELING

Fueling shall be performed in designated or suitable areas.

Employees shall:

- Shut down engines
- Control ignition sources
- Prohibit smoking
- Use approved containers
- Prevent spills
- Bond and ground systems when required
- Maintain fire extinguishers
- Clean spills promptly

Fuel caps shall be replaced before operation.

14.45 BATTERY CHARGING AND JUMP-STARTING

Battery work shall be performed according to manufacturer procedures.

Employees shall:

- Wear required eye and hand protection
- Control sparks and ignition sources
- Verify polarity
- Use rated cables or chargers
- Keep metal tools away from terminals
- Ventilate charging areas
- Inspect batteries for damage

Employees shall not lean directly over batteries during connections.

14.45.1 JUMP-STARTING

Before jump-starting:

- Verify voltage compatibility.
- Inspect cables.
- Position vehicles safely.
- Set parking brakes.
- Keep employees clear.
- Follow the correct connection sequence.
- Avoid contact between vehicles when prohibited.

Damaged or frozen batteries shall not be jump-started.

14.46 MAINTENANCE AND REPAIR

Maintenance shall be performed by qualified personnel.

Before work begins:

- Park on stable ground.
- Lower attachments.
- Shut down the engine.
- Remove keys.
- Apply lockout procedures when required.
- Block elevated components.
- Relieve hydraulic pressure.
- Secure moving parts.
- Chock wheels.
- Follow manufacturer instructions.

Employees shall not work beneath unsupported dump beds, booms, buckets, blades, or attachments.

14.46.1 BLOCKING AND SUPPORT

Only approved stands, supports, locks, or cribbing shall be used.

Hydraulic pressure alone shall not support elevated equipment during maintenance.

Jacks shall not be relied upon as the sole support.

14.46.2 TIRE SERVICE

Large tire and rim service shall be performed by trained personnel.

Hazards include:

- Stored pressure
- Split-rim components
- Equipment movement
- Heavy components
- Explosive separation

Tire inflation shall use appropriate restraints and remote inflation methods when required.

14.47 MODIFICATIONS

Vehicles and equipment shall not be modified without manufacturer or qualified engineering approval.

Unauthorized modifications include:

- Added counterweights
- Altered rollover protection
- Removed guards
- Disabled alarms
- Homemade hitches
- Drilled structural members
- Improvised seats
- Bypassed interlocks
- Unapproved attachments
- Modified exhaust systems

Required capacity or warning labels shall be updated following approved modifications.

14.48 RENTAL EQUIPMENT

Rental equipment shall meet the same safety requirements as company-owned equipment.

Before use, NCC shall verify:

- General condition
- Inspection status
- Manuals
- Safety devices
- Equipment capacity
- Attachment compatibility
- Operator familiarization
- Emergency controls

Rental paperwork shall not substitute for an NCC pre-use inspection.

14.49 FIRE PROTECTION

Required fire extinguishers shall be:

- Present
- Accessible
- Inspected
- Properly secured
- Appropriate for expected hazards

Operators shall know how to report fires and evacuate safely.

Fuel or hydraulic leaks near hot surfaces shall be corrected.

14.50 VEHICLE COLLISIONS

Following a collision, employees shall:

- 1. Stop immediately.**
- 2. Protect the scene.**
- 3. Call emergency services when necessary.**
- 4. Provide reasonable assistance.**
- 5. Notify NCC supervision.**
- 6. Exchange required information.**
- 7. Avoid admitting fault or speculating.**
- 8. Photograph conditions when safe.**
- 9. Complete required reports.**
- 10. Participate in post-incident procedures.**

Vehicles shall not be moved when prohibited by law or when movement would create additional danger.

14.51 EQUIPMENT CONTACT INCIDENTS

Equipment contact with:

- Structures
- Utilities
- Vehicles
- Scaffolds
- Excavation systems
- Cranes
- Employees
- Public property

shall be reported promptly.

The equipment and affected structure or system shall be inspected before work resumes.

14.52 PROHIBITED PRACTICES

Employees shall not:

- Operate without authorization
 - Ignore seatbelt requirements
 - Carry unauthorized passengers
 - Use handheld phones while moving
 - Exceed site speed limits
 - Back without adequate visibility
 - Disable alarms or cameras
 - Operate defective equipment
 - Work beneath raised attachments
 - Park with attachments elevated
 - Ride in buckets or truck beds
 - Operate while impaired
 - Engage in horseplay
 - Jump from equipment
 - Tow from unapproved points
 - Exceed load or towing capacities
 - Travel with unsecured loads
 - Leave keys available to unauthorized persons
-

14.53 EMERGENCY RESPONSE

Emergency planning shall address:

- Vehicle collisions
- Equipment rollover
- Pedestrian impact
- Electrical contact
- Fire
- Fuel spills
- Hydraulic failure
- Equipment entrapment
- Load loss
- Brake failure
- Severe weather

Employees shall:

- Stop operations.
 - Secure the area.
 - Call emergency services when necessary.
 - Avoid entering unstable or energized areas.
 - Notify NCC supervision.
 - Preserve the scene when appropriate.
 - Resume only after authorization.
-

14.54 TRAINING

Training shall be appropriate to the employee's duties and equipment.

Training topics may include:

- Defensive driving
- Equipment operation
- Backing safety
- Spotter communication
- Blind spots
- Load securement
- Trailer towing

- Slope operation
- Power-line safety
- Excavation-edge hazards
- Inspection procedures
- Emergency response
- Fueling and charging
- Pedestrian control

Training and authorization records shall be maintained.

14.55 DOCUMENTATION

Required documentation may include:

- Driver's license verification
- Operator authorization
- Inspection forms
- Maintenance records
- Vehicle registrations
- Insurance records
- Load-securement inspections
- Trailer inspections
- Collision reports
- Equipment repair records
- Training records

Records shall be maintained according to NCC policy and applicable requirements.

14.56 SUPERVISOR RESPONSIBILITIES

Supervisors shall verify:

- Operators are qualified
- Vehicles are inspected
- Seatbelts are used
- Backing controls are implemented

- Spotters are trained
- Travel routes are maintained
- Defective equipment is removed
- Pedestrian zones are controlled
- Loads are secured
- Keys are controlled
- Equipment is parked safely

Supervisors shall immediately stop unsafe operation.

14.57 END-OF-SHIFT REQUIREMENTS

Before leaving the work area, supervision shall ensure:

- Vehicles are parked safely
 - Attachments are lowered
 - Parking brakes are set
 - Keys are secured
 - Loads are stable
 - Trailers are connected or chocked
 - Defects are reported
 - Fuel and charging areas are safe
 - Public access is controlled
 - Travel routes are clear
 - Shift handoff is completed
-

14.58 INCIDENT AND NEAR-MISS REVIEW

Vehicle and mobile-equipment incidents and near misses shall be reviewed.

Examples include:

- Backing close calls
- Pedestrian encroachment
- Equipment rollaway
- Load loss
- Trailer separation

- Tip-over warnings
- Ground failure
- Power-line encroachment
- Excavation-edge approach
- Seatbelt nonuse
- Equipment collision
- Failed brakes
- Improper towing
- Blind-spot events

Lessons learned shall be communicated to affected employees.

Heavy equipment amplifies human decisions. A careful decision moves tons of material; a careless one moves the investigation team.

SECTION 15 – ENVIRONMENTAL PROTECTION

15.1 Purpose & Scope

NCC – National Concrete & Construction is committed to conducting all operations in a manner that protects the environment, complies with all applicable federal, state, and local environmental regulations, and minimizes the impact of construction activities on surrounding communities, waterways, wildlife, and natural resources.

This section establishes the environmental protection requirements applicable to all employees, subcontractors, temporary workers, visitors, and suppliers working on behalf of NCC. Environmental protection is the responsibility of every employee and shall be incorporated into daily planning, job execution, and project closeout.

Environmental protection shall be considered with the same level of importance as employee safety, quality, and production.

15.2 Roles & Responsibilities

Management

Management shall:

- Provide resources necessary to comply with environmental regulations.
- Ensure environmental requirements are incorporated into project planning.
- Support corrective actions for environmental deficiencies.
- Promote environmental stewardship throughout the organization.

Project Managers

Project Managers shall:

- Review project-specific environmental requirements before work begins.
- Coordinate environmental compliance with owners, general contractors, and regulatory agencies.
- Ensure subcontractors comply with NCC environmental policies.
- Verify required permits and environmental controls are maintained.

Superintendents and Foremen

Field supervision shall:

- Inspect environmental controls daily.
- Ensure employees understand environmental requirements.
- Correct deficiencies immediately.
- Stop work whenever an environmental hazard presents an unacceptable risk.

Employees

Employees shall:

- Protect the environment while performing assigned work.
 - Report spills immediately.
 - Use designated washout and waste disposal locations.
 - Follow all environmental procedures.
 - Prevent pollutants from entering storm drains, waterways, and surrounding property.
-

15.3 Environmental Planning

Environmental considerations shall be incorporated into every project before work begins.

Planning shall include:

- Identification of nearby storm drains, canals, ponds, wetlands, lakes, rivers, and protected areas.
- Identification of environmentally sensitive locations.
- Concrete washout planning.
- Spill prevention planning.
- Fuel storage locations.
- Material storage areas.
- Waste disposal methods.
- Dust control measures.
- Noise mitigation measures.
- Stormwater Best Management Practices (BMPs).

Environmental controls shall be inspected before work begins and maintained throughout the duration of the project.

15.4 Concrete Washout

Concrete wash water contains highly alkaline materials capable of damaging vegetation, contaminating waterways, and violating environmental regulations.

Employees shall:

- Wash concrete trucks, pumps, hoses, tools, screeds, buckets, and equipment only within approved washout areas.
- Never discharge concrete slurry onto soil, pavement, drainage structures, streets, or waterways.
- Keep washout containers properly lined and maintained.
- Prevent washout overflow during rain events.
- Dispose of hardened concrete in approved disposal locations.
- Maintain washout areas until project completion.

Washout areas shall be clearly identified and located away from drainage systems whenever practical.

15.5 Spill Prevention & Response

Every effort shall be made to prevent releases of fuels, oils, chemicals, hydraulic fluids, curing compounds, solvents, paints, and other hazardous materials.

The following requirements apply:

- Spill kits shall remain readily available.
- Containers shall remain closed when not in use.
- Materials shall be properly labeled.
- Equipment leaks shall be repaired promptly.
- Drip pans shall be used whenever leakage is possible.
- Employees shall immediately report every spill regardless of size.

If a spill occurs:

1. **Stop the source.**
2. **Protect personnel.**
3. **Contain the spill.**
4. **Prevent migration into waterways or storm drains.**
5. **Notify supervision immediately.**
6. **Clean the spill using approved materials.**
7. **Properly dispose of contaminated materials.**
8. **Complete required documentation.**

No employee shall intentionally wash spilled materials into drainage systems.

15.6 Fuel Storage & Handling

Fuel storage areas shall be designed to minimize fire hazards and environmental contamination.

Requirements include:

- Approved fuel containers only.
- Clearly labeled containers.
- Secondary containment where required.
- Secure storage away from ignition sources.

- Protection from vehicle impact.
- Fire extinguishers available during fueling operations.
- Spill kits located nearby.
- No smoking within fueling areas.

Equipment shall not be left unattended while fueling.

Fuel spills shall be cleaned immediately.

15.7 Stormwater Protection

Construction activities shall be conducted to prevent sediment, concrete, chemicals, fuels, or debris from entering stormwater systems.

Environmental controls may include:

- Silt fence
- Inlet protection
- Sediment barriers
- Straw wattles
- Rock construction entrances
- Berms
- Drain protection devices
- Erosion control blankets

Stormwater controls shall be inspected regularly and after significant rainfall events.

Any damaged BMP shall be repaired immediately.

No construction material shall obstruct drainage systems.

15.8 Dust Control

Construction dust shall be controlled to protect employees, the public, neighboring properties, and the environment.

Dust control methods may include:

- Water application.
- Vacuum dust collection systems.
- Wet cutting methods.
- Material covering.
- Stabilized haul roads.
- Reduced vehicle speeds.
- Wind barriers where practical.

Dry sweeping and compressed-air cleaning shall be avoided unless no feasible alternative exists and appropriate controls are implemented.

Special attention shall be given to controlling respirable crystalline silica generated during concrete cutting, grinding, drilling, and demolition activities.

15.9 Waste Management & Disposal

Project sites shall remain clean and free of unnecessary waste.

Waste shall be separated when required, including:

- General construction debris.
- Concrete waste.
- Metal.
- Wood.
- Cardboard.
- Plastic.
- Hazardous waste.
- Contaminated absorbents.
- Chemical containers.

Waste shall only be disposed of at approved facilities.

Open burning, burying, dumping, or unauthorized disposal is prohibited.

15.10 Noise Control

Noise generated during construction activities shall be minimized whenever practical.

Project supervision shall:

- Schedule high-noise activities during approved work hours.
- Maintain equipment mufflers.
- Reduce unnecessary equipment idling.
- Limit unnecessary horn usage.
- Position generators and compressors to minimize community impact when practical.
- Address noise complaints promptly.

Employees required to work in high-noise environments shall comply with NCC's Hearing Conservation Program.

15.11 Hazardous Materials Management

Hazardous materials shall be stored, handled, transported, and disposed of in accordance with manufacturer recommendations and applicable regulations.

Requirements include:

- Proper labeling of all containers.
- Availability of Safety Data Sheets (SDS).
- Secure storage.
- Separation of incompatible materials.
- Protection from weather.
- Routine inspections for leaks or deterioration.
- Appropriate personal protective equipment during handling.

Unauthorized transfer of hazardous materials into unlabeled containers is prohibited.

15.12 Environmental Incident Reporting

Any employee discovering an environmental incident shall immediately notify their supervisor.

Environmental incidents include, but are not limited to:

- Fuel spills.
- Hydraulic fluid leaks.
- Chemical releases.
- Concrete washout failures.
- Stormwater contamination.
- Sediment discharges.
- Improper waste disposal.
- Environmental complaints from regulatory agencies, clients, or the public.

Incident reports shall include:

- Date and time.
- Location.
- Description of incident.
- Material involved.
- Estimated quantity released.
- Immediate corrective actions.
- Notifications made.
- Photographs when available.
- Long-term corrective actions.

Environmental incidents shall be investigated to identify root causes and prevent recurrence.

15.13 Regulatory Compliance

NCC shall comply with all applicable environmental laws, regulations, permit requirements, owner specifications, and contractual obligations.

Employees shall cooperate with environmental inspections conducted by regulatory agencies, owners, or general contractors.

No employee shall knowingly violate environmental regulations or conceal an environmental incident.

15.14 Training Requirements

Employees shall receive environmental training appropriate to their assigned duties.

Training topics may include:

- Spill prevention and response.
- Concrete washout procedures.
- Stormwater BMPs.
- Dust control.
- Waste management.
- Hazard communication.
- Hazardous material handling.
- Environmental reporting procedures.
- Project-specific environmental requirements.

Additional training shall be provided whenever work conditions or regulations change.

15.15 Documentation & Recordkeeping

Environmental records shall be maintained in accordance with company policy and project requirements.

Documentation may include:

- Inspection reports.
- Spill reports.
- Corrective action records.
- Waste disposal manifests.
- Environmental permits.
- Stormwater inspection reports.
- Training records.
- Regulatory correspondence.
- Environmental audit reports.

Environmental documentation shall be retained for the period required by applicable regulations, project specifications, or company policy.

SECTION 16 – TRAINING AND RECORDKEEPING

16.1 Purpose

NCC – National Concrete & Construction recognizes that effective training, accurate documentation, and reliable recordkeeping are essential components of a successful Safety, Health & Environmental Program.

The purpose of this section is to establish minimum requirements for:

- New-hire safety orientation.
- Employee safety and health training.
- Competent-person designation.
- Equipment and vehicle operator training.
- Toolbox talks and continues safety communication.
- Documentation of training and qualifications.
- Incident and injury records.
- Safety inspection records.
- OSHA injury and illness records.
- Record retention, security, access, and disposal.

Employees shall receive appropriate instruction before performing work that may expose them or others to recognized hazards. Training shall be presented in a language and vocabulary the employee can understand.

No employee shall be assigned to perform work for which the employee lacks the required training, knowledge, skill, qualification, certification, or authorization.

16.2 Scope

This section applies to:

- All NCC employees.
- Temporary and leased workers under NCC supervision.
- Supervisors, foremen, project managers, and safety personnel.
- Equipment and vehicle operators.
- Employees designated as competent persons or qualified persons.
- Subcontractors when required by contract or when working under NCC's direct control.

- All NCC-controlled projects, shops, yards, offices, vehicles, and equipment.

Subcontractors remain responsible for training and documenting the qualifications of their employees. NCC may review subcontractor training records and prohibit any subcontractor employee from performing work when acceptable documentation is unavailable.

16.3 Responsibilities

16.3.1 Company Management

Company management shall:

- 1. Establish and support the NCC training and recordkeeping program.**
- 2. Provide adequate resources for required training.**
- 3. Assign qualified individuals to administer or coordinate training.**
- 4. Ensure required safety records are created, maintained, and protected.**
- 5. Review training performance and program effectiveness.**
- 6. Ensure corrective action is taken when training deficiencies are identified.**
- 7. Authorize competent-person and operator designations.**
- 8. Ensure recordkeeping responsibilities are assigned to appropriate personnel.**
- 9. Require compliance with applicable regulatory, contractual, and company requirements.**

16.3.2 Safety Department or Safety Coordinator

The Safety Department or designated Safety Coordinator shall:

- 1. Develop and maintain safety training materials.**
- 2. Coordinate new-hire orientation.**
- 3. Maintain the company training matrix.**
- 4. Verify qualifications and expiration dates where applicable.**
- 5. Assist management with competent-person designations.**
- 6. Review operator training and evaluation records.**
- 7. Maintain or oversee required OSHA records.**
- 8. Review incident and inspection documentation for completeness.**
- 9. Monitor record-retention requirements.**
- 10. Conduct or arrange refresher training when needed.**

11. Protect confidential and personally identifiable information.
12. Provide records to authorized individuals when legally or contractually required.

16.3.3 Project Managers

Project Managers shall:

1. Identify project-specific training requirements.
2. Coordinate owner and general-contractor orientation requirements.
3. Verify that required competent persons are assigned.
4. Ensure subcontractor training documentation is available when required.
5. Communicate project-specific hazards, procedures, and restrictions.
6. Ensure training deficiencies are resolved before affected work proceeds.
7. Submit required project safety records to the designated record custodian.

16.3.4 Superintendents and Foremen

Superintendents and foremen shall:

1. Confirm that employees are trained before assigning hazardous work.
2. Conduct or arrange project-specific orientations.
3. Conduct regular toolbox talks.
4. Document attendance and training subjects.
5. Observe employees to verify that training is understood and applied.
6. Stop work when an employee demonstrates insufficient knowledge or ability.
7. Request retraining when unsafe performance is observed.
8. Confirm that only authorized employees operate vehicles or equipment.
9. Maintain inspection and training records required at the project.
10. Submit completed records promptly.

16.3.5 Employees

Employees shall:

1. Participate in required training.
2. Pay attention, ask questions, and demonstrate understanding.
3. Follow all procedures covered during training.
4. Notify supervision when they do not understand an assignment or procedure.
5. Refuse to operate equipment for which they are not trained and authorized.

6. Report expired, suspended, damaged, or missing credentials.
 7. Sign training records honestly.
 8. Immediately report incidents, injuries, illnesses, near misses, unsafe conditions, and equipment damage.
 9. Participate in refresher or corrective training when directed.
 10. Protect company records from alteration, loss, or unauthorized disclosure.
-

16.1 NEW-HIRE ORIENTATION

16.1.1 General Requirements

Every newly hired NCC employee shall complete a documented safety orientation before beginning field work or being exposed to project hazards.

The orientation may be completed at the company office, yard, shop, training facility, or project location. Employees may receive general company orientation followed by a separate project-specific orientation.

New employees shall not be permitted to perform unsupervised work until required orientation and initial task training have been completed.

The new-hire orientation shall be conducted by a person who is knowledgeable about NCC policies, applicable hazards, emergency procedures, and the employee's anticipated duties.

16.1.2 Orientation Content

New-hire orientation shall address, as applicable:

1. NCC's Safety, Health & Environmental Policy.
2. Employee safety responsibilities.
3. Management and supervisory responsibilities.
4. Stop-work authority.
5. Employee rights and responsibilities.
6. Injury, illness, near-miss, and hazard reporting.
7. Prohibition against retaliation for good-faith safety reporting.
8. Emergency alarms and communication.
9. Emergency evacuation and assembly procedures.

10. First-aid and medical-response procedures.
11. Fire prevention and extinguisher awareness.
12. Personal protective equipment requirements.
13. Hazard Communication and Safety Data Sheets.
14. Silica exposure prevention.
15. Heat illness prevention.
16. Wet-concrete and cement-burn hazards.
17. Fall-protection requirements.
18. Ladder and scaffold awareness.
19. Excavation and trench awareness.
20. Electrical and power-tool safety.
21. Lockout/tagout awareness.
22. Equipment and vehicle safety.
23. Concrete pumping and ready-mix truck hazards.
24. Rebar and impalement hazards.
25. Housekeeping requirements.
26. Substance-abuse and fitness-for-duty policies.
27. Workplace violence and harassment reporting.
28. Environmental protection requirements.
29. Disciplinary policy for safety violations.
30. Project-specific rules when known.
31. Required licenses, certifications, or qualifications.
32. Location and use of required safety forms.

The orientation shall be supplemented with hands-on demonstrations when knowledge cannot be adequately verified through verbal instruction alone.

16.1.3 Language and Literacy

Training shall be communicated in a language and vocabulary the employee understands.

When employees have limited English proficiency or limited reading ability, NCC shall use appropriate methods such as:

- Bilingual instructors.
- Qualified interpreters.
- Translated materials.
- Demonstrations.
- Photographs and diagrams.
- Videos.

- Verbal questioning.
- Hands-on exercises.

An employee's signature alone shall not be treated as proof that the employee understood the training.

16.1.4 Verification of Understanding

The instructor shall verify understanding using one or more of the following:

- Verbal questions.
- Written quizzes.
- Demonstration of procedures.
- Hands-on evaluation.
- Observation of work.
- Employee explanation of required steps.
- Review of incorrect answers.
- Follow-up coaching.

Employees who cannot demonstrate adequate understanding shall receive additional instruction before being assigned affected work.

16.1.5 Project-Specific Orientation

Before beginning work on a new project, employees shall receive information regarding:

- Project address and emergency access.
- Project supervision.
- Emergency contact information.
- First-aid and fire-extinguisher locations.
- Assembly areas.
- Site access and parking.
- Required PPE.
- Restricted areas.
- Traffic patterns.
- Delivery routes.
- Utility hazards.
- Overhead and underground power hazards.
- Fall exposures.
- Excavations.

- Public-protection requirements.
- Environmental controls.
- Owner or general-contractor rules.
- Project-specific reporting requirements.

Completion of the company orientation does not replace required project-specific orientation.

16.2 EMPLOYEE TRAINING

16.2.1 General Policy

NCC shall instruct employees in the recognition and avoidance of unsafe conditions and in the procedures applicable to their work.

Training shall occur:

- 1. Before an employee performs a task requiring specific training.**
- 2. Before an employee is exposed to a new hazard.**
- 3. When an employee is assigned new duties.**
- 4. When new equipment, materials, or processes are introduced.**
- 5. When regulations or company procedures change.**
- 6. When an inspection reveals insufficient knowledge.**
- 7. Following an incident or near miss when training is identified as a contributing factor.**
- 8. When an employee demonstrates unsafe or incorrect performance.**
- 9. When required training or credentials expire.**
- 10. At periodic intervals required by regulation, manufacturer instructions, client requirements, or company policy.**

16.2.2 Training Program Elements

Training programs shall contain, as applicable:

- Learning objectives.
- Regulatory or company requirements.
- Hazard recognition.
- Safe operating procedures.

- Required PPE.
- Equipment limitations.
- Emergency procedures.
- Prohibited practices.
- Hands-on instruction.
- Practical evaluation.
- Written or verbal knowledge checks.
- Corrective coaching.
- Documentation requirements.

16.2.3 Task-Specific Training

Employees shall receive task-specific instruction before performing work involving, as applicable:

- Concrete placement and finishing.
- Concrete pumps and placing systems.
- Ready-mix truck interaction.
- Formwork and reshoring.
- Reinforcing steel.
- Masonry.
- Silica-generating activities.
- Excavation and trenching.
- Fall protection.
- Scaffolding.
- Ladders and stairways.
- Aerial lifts.
- Telehandlers and forklifts.
- Cranes, hoisting, signaling, and rigging.
- Power tools and electrical equipment.
- Lockout/tagout.
- Welding, cutting, and hot work.
- Confined spaces.
- Demolition.
- Hazardous chemicals.
- Respiratory protection.
- Hearing protection.
- Heat exposure.
- Traffic control.
- Environmental protection.

16.2.4 Refresher Training

Refresher training shall be provided whenever:

- An employee is observed working unsafely.
- An employee violates a safety procedure.
- An incident or near miss indicates a lack of knowledge or skill.
- Workplace conditions change in a manner that affects safe performance.
- New equipment or attachments are introduced.
- The employee has not performed the task for an extended period and management determines that proficiency may have declined.
- A certification or company authorization requires renewal.
- The employee's evaluation reveals a deficiency.
- Directed by company management, the Safety Department, an owner, a general contractor, or a regulatory authority.

Refresher training shall address the specific deficiency and shall include practical evaluation when the deficiency relates to equipment operation or physical performance.

16.2.5 Training Effectiveness

Training shall be considered effective only when the employee can demonstrate the required knowledge and ability.

Training effectiveness may be evaluated through:

- Field observation.
- Written testing.
- Verbal questioning.
- Practical demonstration.
- Inspection results.
- Incident trends.
- Employee feedback.
- Supervisor feedback.
- Follow-up audits.

Repeated unsafe behavior may indicate that training methods, supervision, procedures, or enforcement require improvement.

16.2.6 Training Matrix

NCC shall maintain a training matrix identifying:

- Employee name.
- Position or job classification.
- Required training.
- Completion dates.
- Expiration or reevaluation dates.
- Instructor or training provider.
- Credential numbers where applicable.
- Restrictions or limitations.
- Refresher-training requirements.
- Current qualification status.

The training matrix shall be reviewed periodically and before assigning employees to regulated or specialized work.

16.3 COMPETENT-PERSON DESIGNATION

16.3.1 General Requirements

A competent person is an individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate those hazards.

Competent-person status shall not be based solely on job title, seniority, or completion of a training class.

To be designated, an individual must possess:

1. Appropriate knowledge of the applicable work.
2. Knowledge of relevant hazards.
3. Knowledge of applicable safety requirements.
4. Experience sufficient to identify existing and predictable hazards.
5. Authority to stop work.
6. Authority to remove employees from hazardous areas.
7. Authority to correct hazards or obtain immediate corrective action.
8. The ability to conduct required inspections.

9. The ability to communicate instructions effectively.
10. The judgment necessary to act without delay.

16.3.2 Areas Requiring Designation

NCC may designate competent persons for activities including:

- Excavations and trenching.
- Scaffolding.
- Fall-protection systems.
- Concrete formwork and shoring.
- Reinforcing steel operations.
- Demolition.
- Silica exposure control.
- Confined spaces.
- Cranes, rigging, and hoisting.
- Material handling.
- Electrical work where applicable.
- Lead, asbestos, or other regulated materials when within NCC's scope.
- Other activities requiring competent-person oversight.

One employee may be designated for multiple areas only when the employee is qualified for each area.

16.3.3 Designation Process

Before designation, NCC shall evaluate:

- Training completed.
- Relevant experience.
- Knowledge of company procedures.
- Knowledge of applicable regulations.
- Ability to identify hazards.
- Ability to select corrective measures.
- Previous supervisory performance.
- Demonstrated willingness to stop work.
- Communication ability.
- Any required certification or license.

The designation shall be documented in writing and shall state:

- Employee's name.
- Specific area of designation.
- Effective date.
- Projects or locations covered.
- Limitations of authority, if any.
- Required inspections or duties.
- Name and signature of the authorizing manager.
- Employee acknowledgment.

16.3.4 Authority

A designated competent person shall have authority to:

- Stop affected work.
- Remove employees from hazardous conditions.
- Require correction of unsafe conditions.
- Reject defective equipment or protective systems.
- Order evacuation of an excavation, scaffold, formwork area, or other hazardous location.
- Request engineering or technical assistance.
- Prevent work from resuming until acceptable controls are established.

No supervisor or employee shall retaliate against or overrule a competent person for exercising legitimate stop-work authority. Disagreements shall be elevated to management before work resumes.

16.3.5 Revocation or Suspension

A competent-person designation may be suspended or revoked when:

- The employee no longer performs the applicable duties.
- Required training expires.
- The employee demonstrates insufficient knowledge.
- The employee fails to conduct required inspections.
- The employee knowingly permits unsafe work.
- Conditions exceed the employee's level of qualification.
- Management determines that reassignment is necessary.

Revocation shall be documented.

16.4 OPERATOR TRAINING

16.4.1 General Requirements

Only employees who are trained, evaluated, and authorized by NCC may operate company vehicles, powered industrial trucks, construction equipment, aerial lifts, or other equipment requiring specialized knowledge.

Possession of a driver's license, certification card, or prior-employer authorization does not automatically authorize an employee to operate equipment for NCC.

Authorization shall be equipment-specific or equipment-category-specific.

16.4.2 Equipment Covered

Operator training and authorization may be required for:

- Forklifts.
- Telehandlers.
- Skid-steer loaders.
- Compact track loaders.
- Front-end loaders.
- Excavators.
- Backhoes.
- Motor graders.
- Rollers and compactors.
- Dump trucks.
- Company pickup trucks and service vehicles.
- Concrete buggies.
- Power buggies.
- Aerial lifts.
- Scissor lifts.
- Boom lifts.
- Cranes when operated by NCC personnel.
- Concrete pumps.
- Laser screeds.
- Ride-on power trowels.
- Other mobile or powered equipment.

16.4.3 Training Components

Operator training shall include, as applicable:

Formal Instruction

- Equipment operating principles.
- Manufacturer instructions.
- Controls and instrumentation.
- Capacity and stability.
- Load charts.
- Attachments and their limitations.
- Inspection requirements.
- Site hazards.
- Pedestrian safety.
- Traveling and parking.
- Slopes and unstable surfaces.
- Blind spots.
- Overhead power lines.
- Underground utilities.
- Refueling or charging.
- Emergency procedures.
- Prohibited uses.

Practical Training

- Pre-use inspection.
- Mounting and dismounting.
- Startup and shutdown.
- Control operation.
- Travel.
- Steering.
- Braking.
- Load handling.
- Attachment operation.
- Parking and securing.
- Operation under representative workplace conditions.

Evaluation

The operator shall be evaluated while operating the equipment under conditions representative of the intended work.

The evaluator shall document whether the operator can:

- Conduct the inspection.
- Control the machine safely.
- Recognize hazards.
- Maintain stability.
- Follow signaling and traffic rules.
- Protect pedestrians.
- Park and secure the equipment.
- Respond to abnormal conditions.

16.4.4 Operator Authorization

Written authorization shall identify:

- Operator's name.
- Equipment type or category.
- Equipment-specific limitations.
- Completion date.
- Evaluation date.
- Evaluator.
- Expiration or reevaluation date, if applicable.
- Restrictions.
- Company authorization signature.

An operator shall not use equipment outside the scope of the authorization.

16.4.5 Refresher Training and Reevaluation

Refresher training or reevaluation shall be required following:

- Unsafe operation.
- An accident or near miss.
- Equipment damage.
- A supervisor's observation of deficient performance.
- Assignment to a substantially different type of equipment.
- A significant change in workplace conditions.

- Introduction of a new attachment.
- Extended absence from operating duties when proficiency is uncertain.
- Expiration of a required certification.
- Suspension of authorization.

Powered industrial truck operators shall be evaluated at the interval required by the applicable standard and company policy.

16.4.6 Suspension of Operating Privileges

Operating privileges may be immediately suspended for:

- Reckless operation.
- Unauthorized operation.
- Failure to wear a seat belt.
- Operating under the influence of drugs or alcohol.
- Bypassing safety devices.
- Carrying unauthorized passengers.
- Exceeding equipment capacity.
- Failure to inspect equipment.
- Using a phone or other distracting device while operating.
- Leaving equipment unsecured.
- Repeated violation of operating procedures.
- Medical or physical conditions that prevent safe operation.

Suspended privileges shall not be restored until management authorizes reinstatement and any required retraining has been completed.

16.5 TOOLBOX TALKS

16.5.1 Purpose

Toolbox talks provide short, focused safety instruction related to current work, recent observations, seasonal hazards, incidents, or changing site conditions.

Toolbox talks supplement, but do not replace, required formal training.

16.5.2 Frequency

Each active field crew should receive a documented toolbox talk at least weekly and more frequently when warranted by:

- High-hazard work.
- Changing conditions.
- New project phases.
- Recent incidents or near misses.
- Repeated unsafe observations.
- Severe weather.
- Introduction of unfamiliar equipment.
- Owner or general-contractor requirements.

16.5.3 Topic Selection

Topics shall relate to actual or reasonably anticipated work and may include:

- Current project hazards.
- Recent incidents or near misses.
- Concrete burns.
- Silica exposure.
- Heat illness.
- Fall protection.
- Ladder safety.
- Scaffold safety.
- Excavation safety.
- Equipment blind spots.
- Backing procedures.
- Rebar impalement.
- Pumping hazards.
- Electrical hazards.
- Hand and power tools.

- Housekeeping.
- PPE.
- Environmental controls.
- Emergency procedures.
- Safe lifting.
- Severe weather.
- Stop-work authority.

Generic topics should be connected to the crew's current operations whenever possible.

16.5.4 Conducting Toolbox Talks

The person conducting the talk shall:

1. **Select a relevant topic.**
2. **Explain the hazard and required controls.**
3. **Encourage employee participation.**
4. **Ask questions to verify understanding.**
5. **Use demonstrations when appropriate.**
6. **Discuss project-specific examples.**
7. **Identify corrective actions.**
8. **Record employee attendance.**
9. **Document questions or concerns.**
10. **Submit the completed form.**

Employees shall be given a reasonable opportunity to raise safety concerns without retaliation.

16.5.5 Attendance

Each attendee shall print and sign their name or otherwise acknowledge participation using an approved electronic system.

The instructor shall not sign for absent employees.

Employees who miss a required toolbox talk shall receive the information before performing work directly affected by the topic.

16.6 TRAINING DOCUMENTATION

16.6.1 Required Information

Training documentation shall include, as applicable:

- Training title.
- Subject matter.
- Date.
- Start and end time or duration.
- Location.
- Employee name.
- Employee identification number, when used.
- Employee signature or electronic acknowledgment.
- Instructor name.
- Instructor qualifications or organization.
- Training method.
- Language used.
- Written-test score.
- Practical-evaluation results.
- Equipment type.
- Certification or credential number.
- Expiration or reevaluation date.
- Restrictions.
- Corrective training provided.
- Supporting documents.

16.6.2 Accuracy

Training records shall be completed promptly and accurately.

No person shall:

- Falsify a training record.
- Sign for another employee.
- Backdate training.
- Record training that did not occur.
- Alter test results.
- Issue authorization without evaluation.
- Conceal expired credentials.

Falsification of training records may result in disciplinary action, up to and including termination.

16.6.3 Electronic Records

Electronic training records are acceptable when the system:

- Identifies the employee.
- Identifies the training completed.
- Records the completion date.
- Protects records from unauthorized alteration.
- Allows retrieval and reproduction.
- Preserves required supporting documentation.
- Provides reasonable backup and recovery.

16.6.4 Credential Verification

Copies or verified records of required licenses and credentials shall be maintained when applicable, including:

- Driver's licenses.
- Commercial driver's licenses.
- Medical cards.
- Equipment certifications.
- Crane certifications.
- First-aid and CPR cards.
- OSHA Outreach cards.
- Respirator fit-test records.
- Competent-person training.
- Rigging or signaling qualifications.
- Other required credentials.

Expired credentials shall be flagged, and the affected employee shall not perform work requiring the credential until it is renewed.

16.6.5 Training Record Access

Training records may be reviewed by:

- The employee.
- Authorized NCC management.

- The Safety Department.
- Project owners or general contractors when contractually permitted.
- Regulatory authorities.
- Other authorized representatives.

Confidential information shall be protected and disclosed only as permitted or required.

16.7 INCIDENT RECORDS

16.7.1 Incidents Requiring Documentation

NCC shall document, as applicable:

- Injuries.
- Occupational illnesses.
- First-aid cases.
- Medical-treatment cases.
- Lost-time cases.
- Restricted-duty cases.
- Fatalities.
- Near misses.
- Property damage.
- Vehicle accidents.
- Equipment damage.
- Utility strikes.
- Environmental releases.
- Public incidents.
- Fire events.
- Security events.
- Employee complaints involving safety or health.
- Other significant unplanned events.

16.7.2 Immediate Reporting

Employees shall immediately report incidents to supervision.

Supervision shall ensure:

1. Emergency care is provided.
2. The area is secured.
3. Additional injury or damage is prevented.
4. Management and safety personnel are notified.
5. Required photographs and evidence are preserved.
6. Witnesses are identified.
7. Required client notifications are made.
8. Regulatory reporting is evaluated.
9. The incident report is completed.
10. Corrective actions are assigned and tracked.

16.7.3 Incident Record Contents

Incident records should include:

- Employee or person involved.
- Date and time.
- Project and exact location.
- Work being performed.
- Detailed description.
- Injury or damage.
- Medical treatment.
- Witnesses.
- Equipment involved.
- Environmental conditions.
- Photographs.
- Immediate causes.
- Contributing factors.
- Root causes.
- Corrective actions.
- Responsible persons.
- Completion dates.
- OSHA recordability determination.
- Workers' compensation information, where applicable.
- Regulatory or client notifications.
- Management review.

16.7.4 Privacy

Medical information, personal identifiers, and privacy-sensitive incident information shall be protected.

Access shall be limited to persons with a legitimate business or legal need.

Privacy cases shall be handled in accordance with applicable OSHA recordkeeping requirements.

16.7.5 Corrective-Action Tracking

Corrective actions shall be:

- Specific.
- Assigned to a responsible person.
- Given a completion date.
- Tracked until closure.
- Verified for effectiveness.
- Communicated to affected employees.

An incident shall not be considered fully closed merely because the report form has been completed.

16.8 INSPECTION RECORDS

16.8.1 Required Inspections

Inspection records shall be completed when required by:

- OSHA standards.
- Company policy.
- Manufacturer instructions.
- Project specifications.
- Contract requirements.
- A competent person.
- The Safety Department.
- The general contractor or owner.

Inspection records may include:

- Daily project inspections.
- Equipment inspections.
- Vehicle inspections.
- Scaffold inspections.
- Excavation inspections.
- Fall-protection inspections.
- Formwork inspections.
- Rigging inspections.
- Ladder inspections.
- Fire-extinguisher inspections.
- First-aid kit inspections.
- Environmental inspections.
- PPE inspections.
- Shop and yard inspections.
- Corrective-action follow-up inspections.

16.8.2 Inspection Documentation

Inspection records shall identify:

- Date and time.
- Project or location.
- Area or equipment inspected.
- Inspector.
- Inspector's title or designation.
- Conditions observed.
- Deficiencies.
- Immediate controls.
- Corrective actions.
- Responsible persons.
- Due dates.
- Completion dates.
- Verification of closure.
- Work stoppages, if applicable.

16.8.3 Deficiencies

Deficiencies presenting an imminent or serious hazard shall be corrected immediately or the affected work shall stop.

Equipment found unsafe shall be removed from service, tagged, locked out, or otherwise controlled to prevent use.

Inspection forms shall not be completed as a paperwork exercise. The inspector shall physically evaluate the applicable conditions and accurately report findings.

16.8.4 Record Submission

Completed inspection forms shall be:

- Maintained at the project when required.
 - Submitted to the designated record custodian.
 - Reviewed for incomplete corrective actions.
 - Retained according to the applicable schedule.
 - Made available to authorized persons.
-

16.9 OSHA RECORDS

16.9.1 General Requirements

NCC shall evaluate work-related injuries and illnesses to determine whether they must be recorded under applicable OSHA recordkeeping requirements.

When required, NCC shall maintain:

- OSHA Form 300, Log of Work-Related Injuries and Illnesses.
- OSHA Form 300A, Summary of Work-Related Injuries and Illnesses.
- OSHA Form 301, Injury and Illness Incident Report, or an equivalent form.
- A privacy case list, when required.
- Supporting documentation.

The company shall assign a person knowledgeable in OSHA recordkeeping requirements to make or review recordability determinations.

16.9.2 Recording Versus Reporting

Recording an injury or illness on OSHA forms is separate from reporting a severe event directly to OSHA.

An incident may be:

- Internally reportable but not OSHA recordable.
- OSHA recordable but not immediately reportable to OSHA.
- Both recordable and reportable.
- Neither recordable nor reportable under OSHA, while still requiring company documentation.

Employees and supervisors shall not independently decide that an incident is too minor to report internally.

16.9.3 Severe-Event Reporting

All potential fatalities, inpatient hospitalizations, amputations, and losses of an eye shall be immediately communicated to executive management and the Safety Department.

NCC shall evaluate and complete required OSHA notification within the legally required period.

No employee shall contact OSHA on behalf of NCC regarding a reportable event unless authorized, except where an employee is exercising an individual legal right.

16.9.4 Annual Summary

When applicable, NCC shall:

1. Review the OSHA Form 300 Log for completeness.
2. Prepare the OSHA Form 300A.
3. Have the summary certified by an authorized company executive.
4. Post the summary during the required annual posting period.
5. Maintain the posting in a conspicuous location where employee notices are normally posted.
6. Protect employee privacy.
7. Complete required electronic submission when applicable.

16.9.5 Employee Reporting and Access

Employees shall be informed how to report work-related injuries and illnesses.

NCC shall maintain a reasonable reporting procedure that does not discourage or deter reporting.

Employees, former employees, personal representatives, and authorized employee representatives shall be provided access to applicable OSHA records as required by law.

Retaliation against an employee for reporting an injury, illness, hazard, or safety concern is prohibited.

16.9.6 Record Updates

During the required OSHA retention period, the OSHA 300 Log shall be updated when necessary to reflect:

- Newly discovered recordable cases.
- Changes in case classification.
- Changes in outcome.
- Additional days away from work.
- Additional restricted or transferred days.

Updates shall be made by an authorized recordkeeper.

16.9.7 Regulatory Requests

Requests from OSHA or another regulatory authority shall be immediately forwarded to executive management and the Safety Department.

Required records shall be produced within the period established by applicable law.

No employee shall destroy, alter, conceal, or remove records after receiving notice of an inspection, investigation, subpoena, litigation hold, claim, or regulatory request.

16.10 RECORD RETENTION

16.10.1 General Policy

NCC shall retain safety, health, environmental, training, inspection, and incident records for the period required by:

- Applicable law or regulation.
- Project contract.
- Owner or general-contractor requirements.
- Insurance requirements.
- Workers' compensation requirements.
- Manufacturer requirements.
- Company policy.
- Litigation or legal-hold instructions.

When multiple retention periods apply, the longest applicable period shall govern unless directed otherwise by legal counsel.

16.10.2 Minimum Company Retention Schedule

Unless a longer period is required, NCC shall use the following minimum retention periods:

Record Type	Minimum NCC Retention
New-hire orientation records	Duration of employment plus 5 years
General employee training records	Duration of employment plus 5 years
Toolbox-talk records	5 years
Competent-person designations	Duration of designation plus 5 years

Operator training and evaluation records	Duration of employment plus 5 years
Equipment authorization records	Duration of authorization plus 5 years
Employee qualification and certification records	Duration of employment plus 5 years
Daily and routine safety inspections	5 years
Equipment and vehicle inspection records	5 years, unless another requirement applies
Corrective-action records	5 years after closure
Incident and near-miss reports	10 years
Serious injury and fatality investigation files	Permanent, subject to legal direction
OSHA Forms 300, 300A, 301, and privacy case lists	At least 5 years following the end of the calendar year covered
Respiratory-protection medical and exposure records	According to applicable regulatory requirements
Employee exposure and medical records	According to applicable regulatory requirements
Environmental incident records	10 years, unless a longer period applies
Regulatory inspection and citation records	10 years after final resolution
Safety committee records	5 years
Subcontractor safety documentation	Project completion plus 5 years
Project-specific safety records	Project completion plus 5 years
Safety manual revisions and superseded policies	Permanent master copy

The company retention schedule is an internal minimum and does not shorten any longer legal requirement.

16.10.3 Storage and Security

Records may be maintained electronically or in hard-copy form.

Records shall be:

- Legible.
- Identifiable.
- Organized.
- Retrievable.
- Protected from damage.
- Protected from unauthorized alteration.
- Backed up when stored electronically.
- Secured against unauthorized access.
- Stored in a manner that protects confidential information.

16.10.4 Record Custody

The company shall designate responsible custodians for:

- Training records.
- OSHA records.
- Medical records.
- Incident records.
- Inspection records.
- Equipment records.
- Environmental records.
- Project safety files.

Employees leaving NCC shall transfer company records to the appropriate custodian.

16.10.5 Legal Holds

Normal destruction schedules shall be suspended when records may relate to:

- Pending or anticipated litigation.
- Workers' compensation claims.
- Insurance claims.
- OSHA inspections.
- Regulatory investigations.
- Employee complaints.
- Subpoenas.
- Government requests.
- Contract disputes.
- Serious incidents.
- Legal-hold instructions.

Records subject to a legal hold shall not be destroyed until written release is provided by authorized management or legal counsel.

16.10.6 Record Disposal

Records approved for disposal shall be destroyed in a manner appropriate to their sensitivity.

Methods may include:

- Secure shredding.
- Approved document-destruction services.
- Secure deletion.
- Destruction of storage media.
- Other methods prevent reconstruction or unauthorized disclosure.

No employee may independently destroy company safety records.

SECTION 16 FORMS

FORM 16-A

NEW-HIRE SAFETY ORIENTATION ACKNOWLEDGMENT

Employee Name: _____

Employee ID: _____ Hire Date: _____

Job Classification: _____

Supervisor: _____

Orientation Date: _____

Instructor: _____

Language Used: _____

Topics Reviewed

Topic	Completed	Additional Training Needed
NCC safety policy and employee responsibilities	☐	☐
Stop-work authority	☐	☐
Injury, illness, and near-miss reporting	☐	☐
Emergency procedures and assembly area	☐	☐
First aid and medical response	☐	☐
Fire prevention	☐	☐
Personal protective equipment	☐	☐

Hazard Communication and SDS access	☐	☐
Silica hazards and controls	☐	☐
Heat illness prevention	☐	☐
Wet concrete and cement burns	☐	☐
Fall protection	☐	☐
Ladders and scaffolds	☐	☐
Excavations and trenches	☐	☐
Electrical and power-tool safety	☐	☐
Lockout/tagout awareness	☐	☐
Vehicle and mobile-equipment safety	☐	☐
Concrete-pumping hazards	☐	☐
Rebar and impalement protection	☐	☐
Housekeeping	☐	☐
Environmental protection	☐	☐
Substance-abuse and fitness-for-duty policy	☐	☐
Disciplinary policy	☐	☐
Project-specific requirements	☐	☐

Verification of Understanding

Method used:

- ☐ **Verbal questioning**
- ☐ **Written quiz**
- ☐ **Demonstration**
- ☐ **Hands-on evaluation**
- ☐ **Other:** _____

Employee demonstrated satisfactory understanding: ☐ Yes ☐ No

Additional training required:

Restrictions until training is completed:

Employee Acknowledgment

I acknowledge that I received the orientation identified above. I understand that I am responsible for following NCC safety requirements, reporting hazards and incidents, using required PPE, and stopping work when conditions present an immediate danger.

Employee Signature: _____

Date: _____

Instructor Signature: _____

Date: _____

FORM 16-B

EMPLOYEE SAFETY TRAINING RECORD

Training Title: _____

Training Date: _____ Duration: _____

Location: _____

Instructor: _____

Instructor Organization/Qualification: _____

Training Type:

- ☐ Initial
- ☐ Refresher
- ☐ Corrective
- ☐ Project-Specific
- ☐ Annual
- ☐ Hands-On
- ☐ Other: _____

Training Method:

- ☐ Classroom
- ☐ Video
- ☐ Demonstration
- ☐ Hands-On
- ☐ Written Material
- ☐ Online
- ☐ Other: _____

Subjects Covered:

Knowledge or Practical Evaluation Used:

Employee Name	Employee ID	Test Score/Result	Signature	Additional Training Required
---------------	-------------	-------------------	-----------	------------------------------

Instructor Comments:

Instructor Signature: _____

Date: _____

FORM 16-C

COMPETENT-PERSON DESIGNATION

Employee Name: _____

Job Title: _____

Designation Area:

- ☐ Excavation and Trenching
- ☐ Scaffolding
- ☐ Fall Protection
- ☐ Formwork and Shoring
- ☐ Reinforcing Steel
- ☐ Silica Exposure Control
- ☐ Demolition
- ☐ Confined Space
- ☐ Rigging and Hoisting
- ☐ Other: _____

Effective Date: _____

Project or Locations Covered:

Qualification Review

Qualification	Verified
Applicable formal training completed	☐
Relevant field experience	☐
Knowledge of applicable hazards	☐
Knowledge of NCC procedures	☐
Ability to conduct required inspections	☐
Ability to select corrective measures	☐
Authority to stop work	☐
Authority to remove employees from danger	☐

Ability to communicate instructions ☐

Required certification or license verified ☐

Training and Experience Supporting Designation:

Authority Granted

The employee named above is authorized to:

- Identify existing and predictable hazards.
- Stop affected work.
- Remove employees from hazardous conditions.
- Require prompt corrective action.
- Reject unsafe equipment or protective systems.
- Prevent work from resuming until acceptable controls are established.

Limitations or Special Conditions:

Authorizing Manager: _____

Manager Signature: _____

Date: _____

Employee Acceptance

I understand the duties and authority associated with this designation. I agree to conduct required inspections, act promptly when hazards are identified, and stop work when necessary.

Employee Signature: _____

Date: _____

FORM 16-D

EQUIPMENT OPERATOR TRAINING AND AUTHORIZATION

Employee Name: _____

Employee ID: _____

Equipment Type: _____

Manufacturer/Model, if applicable: _____

Formal Training

Date Completed: _____

Instructor: _____

Topics covered:

- ☐ Controls and instrumentation
- ☐ Capacity and stability
- ☐ Manufacturer instructions
- ☐ Attachments
- ☐ Pre-use inspections
- ☐ Pedestrian safety
- ☐ Worksite hazards
- ☐ Slopes and surfaces
- ☐ Parking and shutdown
- ☐ Refueling or charging
- ☐ Emergency procedures
- ☐ Prohibited practices

Practical Evaluation

Evaluation Date: _____

Evaluator: _____

Evaluation Item	Satisfactory	Unsatisfactory	N/A
Pre-use inspection	☐	☐	☐
Mounting and dismounting	☐	☐	☐
Startup and shutdown	☐	☐	☐

Control operation	☐	☐	☐
Steering and braking	☐	☐	☐
Travel and positioning	☐	☐	☐
Load or attachment control	☐	☐	☐
Hazard recognition	☐	☐	☐
Pedestrian protection	☐	☐	☐
Parking and securing	☐	☐	☐
Emergency response	☐	☐	☐

Evaluation Result: ☐ Satisfactory ☐ Additional Training Required

Restrictions:

Authorization

The employee is authorized to operate:

Authorization Effective Date: _____

Reevaluation/Expiration Date: _____

Evaluator Signature: _____

Manager Signature: _____

Employee Signature: _____

FORM 16-E

TOOLBOX TALK RECORD

Project: _____

Date: _____ Time: _____

Topic: _____

Conducted By: _____

Current Work Activities:

Hazards Discussed:

Required Controls:

Employee Questions or Concerns:

Corrective Actions Identified:

Employee Name

FORM 16-H

TRAINING DEFICIENCY AND CORRECTIVE TRAINING FORM

Employee: _____

Supervisor: _____

Date Deficiency Identified: _____

Deficiency Identified Through:

- ☐ Field Observation
- ☐ Incident
- ☐ Near Miss
- ☐ Inspection
- ☐ Test
- ☐ Employee Request
- ☐ Expired Qualification
- ☐ Other: _____

Description of Deficiency:

Immediate Restrictions Applied:

Corrective Training Required:

Training Completed Date: _____

Instructor: _____

Verification Method:

- ☐ **Written Test**
- ☐ **Verbal Questions**
- ☐ **Practical Evaluation**
- ☐ **Field Observation**
- ☐ **Other:** _____

Employee Demonstrated Satisfactory Understanding: ☐ **Yes** ☐ **No**

Employee Cleared to Resume Work: ☐ **Yes** ☐ **No**

Restrictions Remaining:

Employee Signature: _____

Instructor Signature: _____

Supervisor Approval: _____

Date: _____

SECTION 17

FORMS AND APPENDICES

17.0 PURPOSE AND ADMINISTRATION

17.0.1 Purpose

National Concrete & Construction, hereafter referred to as “NCC,” shall use the forms contained in this section to document safety planning, employee training, inspections, incident reporting, corrective actions, equipment condition, and other elements of the NCC Safety and Health Program.

These forms are intended to:

- 1. Create consistent safety documentation across all NCC projects and operations.**
- 2. Identify hazards before employees are exposed.**
- 3. Assign responsibility for correcting unsafe conditions.**
- 4. Verify that required inspections, orientations, and communications have occurred.**
- 5. Provide records for management review, incident analysis, regulatory compliance, insurance administration, and continuous improvement.**
- 6. Establish clear accountability among employees, supervisors, competent persons, subcontractors, operators, and project management.**
- 7. Preserve evidence that safety concerns were identified, communicated, and addressed.**

Completion of a form does not, by itself, make an operation safe. The person completing the form shall conduct an actual inspection, evaluation, discussion, or verification. Forms shall never be completed in advance, backdated, copied from prior days without verification, or signed by a person who did not perform or participate in the documented activity.

17.0.2 General Completion Requirements

All forms shall be completed legibly in ink or through an NCC-approved electronic system.

Each form shall contain, as applicable:

- Project name and address.
- Date and time.
- Employee, supervisor, operator, or inspector name.
- Description of the work or equipment evaluated.
- Identified hazards or deficiencies.
- Corrective measures.
- Person responsible for corrective action.
- Target completion date.
- Verification that corrective action was completed.
- Required signatures.

Check marks shall represent actual verification. A blank field shall not be interpreted as approval.

When an item does not apply, the person completing the form shall mark it “N/A.” The individual shall not leave required inspection fields blank.

Corrections shall be made by drawing a single line through the incorrect information, entering the correct information, and initialing the correction. Original information shall remain readable. Correction fluid, deletion, concealment, or alteration of safety records is prohibited.

17.0.3 Stop-Work Authority

Every NCC employee has authority to stop work when the employee reasonably believes that:

- An imminent danger exists.
- A required protective system is missing or defective.
- Equipment is unsafe.
- Conditions have changed since the work was planned.
- Employees have not been properly trained or authorized.
- Required PPE is unavailable or unsuitable.
- A lift, excavation, formwork operation, concrete placement, traffic operation, or other activity cannot be performed safely.

No employee shall be disciplined or retaliated against for making a good-faith safety report or exercising stop-work authority.

Work may resume only after the hazard has been evaluated and an authorized supervisor or competent person confirms that adequate corrective measures have been implemented.

17.0.4 Record Storage and Retention

Completed forms shall be submitted to the employee's supervisor, project manager, Safety Director, or designated office representative.

Records shall be maintained in the project safety file, company safety management system, personnel file, equipment file, vehicle file, or confidential medical file, as appropriate.

NCC shall establish and maintain a written record-retention schedule consistent with:

- Applicable OSHA requirements.
- Workers' compensation requirements.
- Insurance requirements.
- Contract requirements.
- Manufacturer requirements.
- Applicable federal, state, and local laws.
- NCC legal counsel's recommendations.

Medical information and return-to-work documentation shall be maintained separately from routine personnel and project safety records. Access shall be limited to individuals with a legitimate business or legal need.

17.0.5 Regulatory Records

The forms in this section are NCC operational forms. They do not replace any legally required record, including:

- OSHA Form 300, Log of Work-Related Injuries and Illnesses.
- OSHA Form 301, Injury and Illness Incident Report, or an acceptable equivalent.
- OSHA Form 300A, Summary of Work-Related Injuries and Illnesses.
- Fatality, inpatient hospitalization, amputation, or loss-of-eye reporting required by OSHA.
- Workers' compensation first reports of injury.
- Medical surveillance records.
- Respiratory-protection medical evaluations and fit-testing records.
- Exposure-monitoring records.
- Manufacturer-required inspection and maintenance records.
- Commercial motor vehicle records, when applicable.
- Crane, rigging, aerial-lift, forklift, excavation, scaffold, or other records specifically required by applicable standards.

The Safety Director or authorized management representative shall determine whether an incident is OSHA-recordable or reportable.

Employees and supervisors shall not make independent promises concerning OSHA recordability, workers' compensation acceptance, insurance coverage, fault, liability, or payment of medical expenses.

17.1 EMPLOYEE SAFETY ACKNOWLEDGMENT

NATIONAL CONCRETE & CONSTRUCTION

EMPLOYEE SAFETY MANUAL ACKNOWLEDGMENT

Employee name: _____

Employee identification number: _____

Job title: _____

Department or crew: _____

Supervisor: _____

Hire date: _____

Date acknowledgment completed: _____

Employee Acknowledgment

By signing below, I acknowledge and agree that:

1. I have received or been provided access to the NCC Safety Manual.
2. I understand that I am responsible for reading, understanding, and following the safety rules applicable to my work.
3. The Safety Manual has been explained to me in a language and vocabulary that I understand.
4. I have been given an opportunity to ask questions concerning the Safety Manual and my assigned duties.
5. I understand that the Safety Manual does not contain every possible safety rule or describe every hazard that may arise.
6. I will follow NCC policies, project rules, manufacturer instructions, competent-person directions, supervisor instructions, and applicable safety regulations.
7. I will not perform work that I have not been trained, qualified, authorized, and physically able to perform safely.
8. I will inspect my work area, tools, equipment, and PPE before use.

9. I will immediately report unsafe conditions, defective equipment, injuries, illnesses, property damage, environmental releases, utility strikes, and near misses.
10. I understand that I have stop-work authority when I reasonably believe an unsafe condition exists.
11. I will not remove, bypass, defeat, alter, or misuse guards, alarms, barricades, fall-protection systems, grounding systems, protective systems, or other safety devices.
12. I will use required PPE and maintain it in serviceable condition.
13. I will report to work fit for duty and will not work while impaired by alcohol, illegal drugs, misused medication, extreme fatigue, or another condition that could make my work unsafe.
14. I understand that horseplay, fighting, threats, harassment, intentional unsafe conduct, and reckless behavior are prohibited.
15. I understand that violations of safety requirements may result in corrective action, removal from the project, suspension of equipment authorization, or discipline up to and including termination, subject to applicable law and NCC policy.
16. I understand that signing this acknowledgment does not waive any legal right or alter the at-will employment relationship where that relationship is recognized by law.
17. I understand that I may request additional training or clarification at any time.

Employee questions or comments:

- ☐ I have no unresolved safety questions.
- ☐ I have questions requiring follow-up, described above.

Employee signature: _____

Date: _____ **Time:** _____

Trainer or supervisor name: _____

Trainer or supervisor signature: _____

Date: _____

Language used during review:

☐ English ☐ Spanish ☐ Other: _____

Interpreter used: ☐ No ☐ Yes

Interpreter name: _____

Interpreter signature: _____

17.2 NEW-HIRE SAFETY CHECKLIST

NATIONAL CONCRETE & CONSTRUCTION

NEW-HIRE SAFETY ORIENTATION CHECKLIST

Employee name: _____

Job title: _____

Hire date: _____

Supervisor: _____

Trainer: _____

Orientation date: _____

Primary language: _____

Project assignment: _____

For each item, mark:

- C = Completed and understood
- N/A = Not applicable
- F/U = Follow-up training required

Orientation Item	C	N/A	F/U	Trainer Initials
Company safety policy and management commitment	☐	☐	☐	_____
Employee safety responsibilities	☐	☐	☐	_____
Supervisor and competent-person authority	☐	☐	☐	_____
Stop-work authority and non-retaliation policy	☐	☐	☐	_____
Hazard reporting procedures	☐	☐	☐	_____

Injury, illness, property-damage, and near-miss reporting	☐	☐	☐	_____
Emergency notification procedures	☐	☐	☐	_____
Emergency contacts and site address	☐	☐	☐	_____
Evacuation routes and assembly points	☐	☐	☐	_____
Severe-weather and lightning procedures	☐	☐	☐	_____
Heat-illness prevention and acclimatization	☐	☐	☐	_____
First-aid and medical-response procedures	☐	☐	☐	_____
Fire prevention and extinguisher locations	☐	☐	☐	_____
Housekeeping and access requirements	☐	☐	☐	_____
Slip, trip, and fall prevention	☐	☐	☐	_____
Minimum PPE requirements	☐	☐	☐	_____
PPE inspection, care, limitations, and replacement	☐	☐	☐	_____
Eye and face protection	☐	☐	☐	_____
Hearing protection	☐	☐	☐	_____
Hand protection	☐	☐	☐	_____
High-visibility apparel	☐	☐	☐	_____
Respiratory-protection restrictions and authorization	☐	☐	☐	_____
Silica-exposure controls	☐	☐	☐	_____
Hazard Communication Program	☐	☐	☐	_____
Safety Data Sheet access	☐	☐	☐	_____
Chemical labeling and secondary containers	☐	☐	☐	_____
Cement burns and wet-concrete exposure	☐	☐	☐	_____

Hand and power tool safety	☐	☐	☐	_____
Electrical and extension-cord safety	☐	☐	☐	_____
Lockout, tagout, and stored-energy restrictions	☐	☐	☐	_____
Ladder safety	☐	☐	☐	_____
Scaffold restrictions	☐	☐	☐	_____
Fall-protection requirements	☐	☐	☐	_____
Excavation and trench restrictions	☐	☐	☐	_____
Reinforcing-steel and impalement hazards	☐	☐	☐	_____
Formwork and reshoring hazards	☐	☐	☐	_____
Concrete placement and hose hazards	☐	☐	☐	_____
Concrete pump exclusion zones	☐	☐	☐	_____
Masonry wall bracing and restricted zones	☐	☐	☐	_____
Crane and suspended-load restrictions	☐	☐	☐	_____
Forklift and telehandler pedestrian safety	☐	☐	☐	_____
Heavy-equipment blind spots and swing radius	☐	☐	☐	_____
Vehicle and trailer safety	☐	☐	☐	_____
Backing and spotter procedures	☐	☐	☐	_____
Mobile-phone and distracted-driving restrictions	☐	☐	☐	_____
Seatbelt requirements	☐	☐	☐	_____
Public and traffic protection	☐	☐	☐	_____
Drug-, alcohol-, and impairment-free workplace	☐	☐	☐	_____
Workplace violence and anti-harassment requirements	☐	☐	☐	_____

Disciplinary policy ☐ ☐ ☐ _____

Project-specific owner or GC requirements ☐ ☐ ☐ _____

PPE Issued During Orientation

PPE Item	Quantity	Size	Condition	Employee Initials
Hard hat	_____	_____	New / Used	_____
Safety glasses	_____	_____	New / Used	_____
High-visibility vest or shirt	_____	_____	New / Used	_____
Gloves	_____	_____	New / Used	_____
Hearing protection	_____	_____	New / Used	_____
Other: _____	_____	_____	New / Used	_____

Additional Training Required Before Assignment

☐ No additional training required for initial assignment.

☐ Additional training is required:

Training Required	Responsible Trainer	Due Date	Completion Date
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Verification

I acknowledge that the orientation topics marked complete were explained to me and that I had an opportunity to ask questions.

Employee signature: _____

Date: _____

Trainer signature: _____

Date: _____

Supervisor approval: _____

Date: _____

17.3 JOB HAZARD ANALYSIS

NATIONAL CONCRETE & CONSTRUCTION

JOB HAZARD ANALYSIS

Project: _____

Project address: _____

JHA number: _____

Date prepared: _____

Prepared by: _____

Competent person, when applicable: _____

Supervisor: _____

Trade or crew: _____

Task or operation: _____

Applicable drawing, specification, or procedure: _____

Planned start date: _____

Required Planning Information

Work location: _____

Number of employees exposed: _____

Other contractors affected: _____

Tools and equipment required:

Materials and chemicals required:

Required permits or authorizations:

- ☐ **Excavation permit**
- ☐ **Hot-work permit**
- ☐ **Confined-space permit**
- ☐ **Critical-lift plan**
- ☐ **Utility clearance**
- ☐ **Traffic-control plan**
- ☐ **Lockout/tagout**
- ☐ **Respiratory-protection authorization**
- ☐ **Other:** _____

Hazard Analysis

Step	Task Step	Hazard or Potential Exposure	Possible Consequence	Initial Risk	Required Controls	Responsible Person	Residual Risk
1							
2							
3							
4							
5							
6							
7							
8							

Control Hierarchy Review

Controls shall be selected in the following order whenever feasible:

- 1. Eliminate the hazard.**
- 2. Substitute a safer material, process, or method.**
- 3. Install engineering controls.**
- 4. Establish administrative controls and safe-work procedures.**
- 5. Use PPE as the final layer of protection.**

Elimination or substitution considered:

Engineering controls:

Administrative controls:

Required PPE:

- ☐ Hard hat
- ☐ Safety glasses
- ☐ Face shield
- ☐ High-visibility apparel
- ☐ Hearing protection
- ☐ Work gloves
- ☐ Chemical-resistant gloves
- ☐ Cut-resistant gloves
- ☐ Safety-toe footwear
- ☐ Fall-arrest equipment
- ☐ Respiratory protection
- ☐ Welding protection
- ☐ Other: _____

Specific Hazard Review

Check all hazards evaluated:

- ☐ Falls
- ☐ Falling objects
- ☐ Excavation or cave-in
- ☐ Struck-by equipment
- ☐ Caught-in or between
- ☐ Pinch points
- ☐ Electrical contact
- ☐ Underground utilities
- ☐ Overhead utilities
- ☐ Silica dust
- ☐ Wet concrete or cement burns

- ☐ Chemicals
- ☐ Noise
- ☐ Heat stress
- ☐ Lightning or severe weather
- ☐ Lifting and ergonomics
- ☐ Fire or explosion
- ☐ Traffic or public exposure
- ☐ Stored energy
- ☐ Suspended loads
- ☐ Formwork failure
- ☐ Masonry wall instability
- ☐ Concrete hose movement
- ☐ Impalement hazards
- ☐ Other: _____

Emergency and Rescue Considerations

Emergency access maintained: ☐ Yes ☐ No ☐ N/A

Rescue plan required: ☐ Yes ☐ No

Rescue method or emergency precautions:

First-aid equipment location: _____

Emergency assembly point: _____

Approval

- ☐ Hazards have been reduced to an acceptable level.
 - ☐ Work may begin subject to the controls listed.
 - ☐ Work may not begin until the following items are corrected:
- _____

Prepared by signature: _____

Date: _____

Supervisor approval: _____

Date: _____

Safety approval, when required: _____

Date: _____

Employee Review

By signing, each employee confirms that the JHA was reviewed, questions were answered, and the employee agrees to follow the listed controls.

Employee Printed Name	Signature	Date	Time
-----------------------	-----------	------	------

JHA Revision Record

The JHA shall be revised when work methods, personnel, equipment, weather, site conditions, sequence, or hazards change.

Revision Date and Time	Change Identified	Additional Controls	Approved By
---------------------------	-------------------	---------------------	-------------

17.4 DAILY PRE-TASK PLAN

NATIONAL CONCRETE & CONSTRUCTION

DAILY PRE-TASK SAFETY PLAN

Project: _____

Date: _____ Shift: _____

Crew or subcontractor: _____

Supervisor or foreman: _____

Competent person present: _____

Expected weather: _____

Temperature or heat index concerns: _____

Lightning or severe-weather concerns: _____

Work Planned Today

Work Locations

Crew Members

Equipment and Vehicles

Deliveries and Other Contractors Affecting the Work

Today's Hazard Review

Hazard	Present	Controls Discussed
Slips, trips, or housekeeping	☐	
Falls from elevation	☐	
Floor or wall openings	☐	
Excavations or trenches	☐	
Mobile equipment or backing	☐	
Traffic or public exposure	☐	
Suspended loads	☐	
Concrete pump and hose movement	☐	
Wet concrete and cement burns	☐	
Silica dust	☐	
Reinforcing-steel impalement	☐	
Formwork or bracing	☐	
Masonry wall stability	☐	
Electrical hazards	☐	

Underground or overhead utilities	☐	_____

Hand and power tools	☐	_____

Noise	☐	_____

Heat stress	☐	_____

Lightning or severe weather	☐	_____

Material handling or lifting	☐	_____

Chemicals or fuels	☐	_____

Other:	☐	_____
_____		_____

Required PPE

- ☐ Hard hat
- ☐ Safety glasses
- ☐ High-visibility apparel
- ☐ Work gloves
- ☐ Hearing protection
- ☐ Face shield
- ☐ Chemical-resistant gloves
- ☐ Fall protection
- ☐ Respiratory protection
- ☐ Welding protection
- ☐ Other: _____

Required Inspections Completed

- ☐ Tools
- ☐ Extension cords and electrical equipment
- ☐ Ladders

- ☐ Scaffold
- ☐ Fall-protection equipment
- ☐ Vehicle and trailer
- ☐ Mobile equipment
- ☐ Concrete pump
- ☐ Excavation
- ☐ Rigging
- ☐ Formwork and bracing
- ☐ Other: _____

Emergency Information

Site address confirmed with crew: ☐ Yes

Emergency access clear: ☐ Yes ☐ No

First-aid kit available: ☐ Yes ☐ No

Fire extinguisher available: ☐ Yes ☐ No ☐ N/A

Water and heat controls available: ☐ Yes ☐ No

Changes From Original Plan

Employee Questions or Safety Concerns

Foreman Authorization

- ☐ Work may begin.
- ☐ Work may begin after listed corrections are completed.
- ☐ Work is stopped pending further evaluation.

Foreman signature: _____

Time completed: _____

Crew Acknowledgment

Printed Name	Signature or Initials	Time
--------------	-----------------------	------

17.5 TOOLBOX TALK RECORD

NATIONAL CONCRETE & CONSTRUCTION

TOOLBOX SAFETY TALK RECORD

Project: _____

Date: _____ Start time: _____

Topic: _____

Presented by: _____

Language used: ☐ English ☐ Spanish ☐ Other: _____

Interpreter: _____

Key Points Discussed

1. _____
2. _____
3. _____
4. _____
5. _____

Site-Specific Examples or Hazards Discussed

Demonstration Conducted

☐ No

☐ Yes. Description: _____

Employee Questions and Answers

Corrective Actions Identified

Issue	Responsible Person	Due Date	Completion Verification
-------	--------------------	----------	-------------------------

Attendance

By signing, attendees acknowledge that they attended the toolbox talk, were permitted to ask questions, and understand their responsibility to follow the requirements discussed.

Printed Name	Signature	Employer	Trade
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Presenter signature: _____

Supervisor signature: _____

17.6 SAFETY INSPECTION

NATIONAL CONCRETE & CONSTRUCTION

PROJECT SAFETY INSPECTION

Project: _____

Project address: _____

Inspection date: _____ Time: _____

Inspector: _____

Supervisor present: _____

Weather and site conditions: _____

Rate each item:

- S = Satisfactory
- D = Deficient
- N/A = Not applicable
- C = Corrected immediately

Inspection Item	S	D	N/A	C	Comments
Site access and emergency address posted	☐	☐	☐	☐	
Emergency access maintained	☐	☐	☐	☐	
First-aid supplies available	☐	☐	☐	☐	
Fire extinguishers accessible and inspected	☐	☐	☐	☐	
Emergency contacts posted	☐	☐	☐	☐	
Housekeeping acceptable	☐	☐	☐	☐	
Walkways and access routes clear	☐	☐	☐	☐	

Adequate lighting	☐	☐	☐	☐
Required PPE being used	☐	☐	☐	☐
PPE in serviceable condition	☐	☐	☐	☐
Drinking water and sanitation available	☐	☐	☐	☐
Heat controls implemented	☐	☐	☐	☐
Hazard Communication requirements met	☐	☐	☐	☐
Containers labeled	☐	☐	☐	☐
SDS access available	☐	☐	☐	☐
Silica controls implemented	☐	☐	☐	☐
Dust collection or water delivery working	☐	☐	☐	☐
Hand tools inspected	☐	☐	☐	☐
Power tools guarded	☐	☐	☐	☐
Electrical cords and GFCIs acceptable	☐	☐	☐	☐
Ladders inspected and properly used	☐	☐	☐	☐
Scaffolds tagged and inspected	☐	☐	☐	☐
Fall hazards protected	☐	☐	☐	☐
Fall-protection equipment inspected	☐	☐	☐	☐
Excavations inspected	☐	☐	☐	☐
Excavation access and protective systems adequate	☐	☐	☐	☐
Spoil and equipment setback maintained	☐	☐	☐	☐
Reinforcing steel guarded	☐	☐	☐	☐
Formwork and shoring acceptable	☐	☐	☐	☐
Masonry walls braced	☐	☐	☐	☐

Limited-access zones established	☐	☐	☐	☐
Concrete placement hazards controlled	☐	☐	☐	☐
Concrete pump exclusion zones maintained	☐	☐	☐	☐
Washout location controlled	☐	☐	☐	☐
Mobile equipment inspected	☐	☐	☐	☐
Seatbelts used	☐	☐	☐	☐
Backup alarms or spotters provided	☐	☐	☐	☐
Swing-radius zones protected	☐	☐	☐	☐
Vehicles and trailers inspected	☐	☐	☐	☐
Loads properly secured	☐	☐	☐	☐
Rigging inspected	☐	☐	☐	☐
Employees clear of suspended loads	☐	☐	☐	☐
Public and traffic controls adequate	☐	☐	☐	☐
Barricades and signs maintained	☐	☐	☐	☐
Fuel and flammables properly stored	☐	☐	☐	☐
Waste and environmental controls adequate	☐	☐	☐	☐

Deficiencies and Corrective Actions

Item	Hazard or Deficiency	Risk Level	Immediate Action	Responsible Person	Due Date	Closed Date
		Low / Med / High / Imminent				
		Low / Med / High / Imminent				

Low / Med / High
/ Imminent

Was work stopped? ☐ No ☐ Yes

Area or activity stopped: _____

Conditions required before restart: _____

Inspector signature: _____

Supervisor signature: _____

Corrective actions verified by: _____

Verification date: _____

17.7 EQUIPMENT INSPECTION

NATIONAL CONCRETE & CONSTRUCTION

DAILY EQUIPMENT INSPECTION

Equipment type: _____

Make: _____ Model: _____

Unit number: _____ Serial number: _____

Hour-meter reading: _____

Project or location: _____

Date: _____ Shift: _____

Operator: _____

Mark: OK, Deficient, or N/A.

Inspection Item	OK	Deficient	N/A	Comments
Manufacturer manual available or accessible	☐	☐	☐	
General condition	☐	☐	☐	
Fluid levels	☐	☐	☐	
Visible leaks	☐	☐	☐	
Tires, tracks, wheels, and lug nuts	☐	☐	☐	
Steps, ladders, and handholds	☐	☐	☐	
Cab and operator station	☐	☐	☐	
Seat and seatbelt	☐	☐	☐	
ROPS or FOPS	☐	☐	☐	

Windows and mirrors	☐	☐	☐
Cameras and proximity devices	☐	☐	☐
Horn	☐	☐	☐
Backup alarm	☐	☐	☐
Lights and warning beacons	☐	☐	☐
Gauges and warning indicators	☐	☐	☐
Steering	☐	☐	☐
Service brakes	☐	☐	☐
Parking brake	☐	☐	☐
Controls and interlocks	☐	☐	☐
Guards and shields	☐	☐	☐
Pins, retainers, and locking devices	☐	☐	☐
Hydraulic hoses and cylinders	☐	☐	☐
Attachments	☐	☐	☐
Quick-coupler engagement	☐	☐	☐
Forks, bucket, blade, or working components	☐	☐	☐
Fire extinguisher, when required	☐	☐	☐
Safety decals and capacity information	☐	☐	☐
No unauthorized modifications	☐	☐	☐

Function Test

Function	Acceptable	Deficient	N/A	Comments
Engine startup	☐	☐	☐	

Steering	☐	☐	☐
Service brake	☐	☐	☐
Parking brake	☐	☐	☐
Hydraulic functions	☐	☐	☐
Safety interlocks	☐	☐	☐
Emergency shutdown	☐	☐	☐
Alarm systems	☐	☐	☐

Inspection Determination

- ☐ Equipment is acceptable for service.
- ☐ Minor deficiency recorded. Equipment may be used with supervisor approval.
- ☐ Equipment is unsafe and has been removed from service.

Out-of-service tag number: _____

Deficiency description:

Operator signature: _____

Supervisor or mechanic notified: _____

Date and time notified: _____

Repair and Return to Service

Repairs performed: _____

Performed by: _____

Completion date: _____

Return-to-service authorization: _____

Signature: _____

17.8 VEHICLE AND TRAILER INSPECTION

NATIONAL CONCRETE & CONSTRUCTION

VEHICLE AND TRAILER PRE-TRIP INSPECTION

Driver: _____

Date: _____ Time: _____

Vehicle unit number: _____

Trailer unit number: _____

Vehicle mileage: _____

Project or destination: _____

Vehicle Inspection

Item	OK	Deficient	N/A	Comments
Driver license and authorization current	☐	☐	☐	
Registration and insurance documentation	☐	☐	☐	
Windshield and windows	☐	☐	☐	
Mirrors	☐	☐	☐	
Wipers and washer	☐	☐	☐	
Headlights	☐	☐	☐	
Brake lights	☐	☐	☐	
Turn signals	☐	☐	☐	

Hazard flashers	☐	☐	☐
Horn	☐	☐	☐
Seatbelts	☐	☐	☐
Service brakes	☐	☐	☐
Parking brake	☐	☐	☐
Steering	☐	☐	☐
Tires and tread	☐	☐	☐
Wheels and lug nuts	☐	☐	☐
Fluid levels	☐	☐	☐
Leaks	☐	☐	☐
Backup alarm or camera	☐	☐	☐
Fire extinguisher	☐	☐	☐
First-aid kit	☐	☐	☐
Warning triangles or roadside devices	☐	☐	☐
Cab and bed free of loose material	☐	☐	☐

Trailer Inspection

Item	OK	Deficient	N/A	Comments
Correct hitch and ball size	☐	☐	☐	
Coupler fully seated and locked	☐	☐	☐	
Coupler pin or lock installed	☐	☐	☐	
Safety chains crossed and secured	☐	☐	☐	

Breakaway cable properly connected	☐	☐	☐
Electrical connector secured	☐	☐	☐
Trailer lights operational	☐	☐	☐
Electric or surge brakes operational	☐	☐	☐
Jack fully raised and secured	☐	☐	☐
Tires and tread	☐	☐	☐
Tire pressure	☐	☐	☐
Wheels, lug nuts, and hubs	☐	☐	☐
Fenders and frame	☐	☐	☐
Ramps secured	☐	☐	☐
Doors, gates, and latches secured	☐	☐	☐
Load distributed appropriately	☐	☐	☐
Cargo securement adequate	☐	☐	☐
Chains, straps, and binders inspected	☐	☐	☐
Equipment attachments secured	☐	☐	☐
Trailer not visibly overloaded	☐	☐	☐

Load-Securement Verification

Cargo or equipment transported: _____

Number of securement devices: _____

Securement rechecked after initial travel: ☐ Yes ☐ No ☐ N/A

Recheck time or location: _____

Determination

- ☐ **Vehicle and trailer are acceptable for operation.**
- ☐ **Deficiency corrected before departure.**
- ☐ **Vehicle or trailer removed from service.**

Deficiencies: _____

Driver signature: _____

Supervisor notification: _____

17.9 CONCRETE PUMP INSPECTION

NATIONAL CONCRETE & CONSTRUCTION

CONCRETE PUMP PRE-OPERATION INSPECTION

Pump company: _____

Pump operator: _____

Pump type: ☐ Boom ☐ Line ☐ Trailer ☐ Other: _____

Unit number: _____

Make and model: _____

Date: _____ Project: _____

Setup location: _____

Concrete supplier: _____

Placement description: _____

Documentation and Personnel

Item	Yes	No	N/A	Comments
Operator trained and authorized	☐	☐	☐	
Manufacturer manual available	☐	☐	☐	
Annual or required inspection current	☐	☐	☐	
Daily inspection completed	☐	☐	☐	
Hose-end worker identified	☐	☐	☐	
Signal or communication method established	☐	☐	☐	
Emergency stop procedure reviewed	☐	☐	☐	

Washout method and location established	☐	☐	☐
---	--------------------------	--------------------------	--------------------------

Setup and Ground Conditions

Item	Yes	No	N/A	Comments
Ground evaluated for stability	☐	☐	☐	
Underground hazards evaluated	☐	☐	☐	
Outriggers fully deployed as required	☐	☐	☐	
Outrigger pads or cribbing adequate	☐	☐	☐	
Pump level within manufacturer limits	☐	☐	☐	
Safe distance from excavation edges	☐	☐	☐	
Safe distance from overhead power lines	☐	☐	☐	
Swing and boom area controlled	☐	☐	☐	
Public and traffic exposure controlled	☐	☐	☐	
Lighting adequate	☐	☐	☐	

Pump and Delivery System

Item	Yes	No	N/A	Comments
Boom and structural components visually acceptable	☐	☐	☐	
Hydraulic components free of significant leakage	☐	☐	☐	

Safety devices operational	☐	☐	☐
Emergency stops tested	☐	☐	☐
Hopper grate installed and secured	☐	☐	☐
Agitator guarded	☐	☐	☐
Pipeline appropriately supported	☐	☐	☐
Pipe clamps compatible and secured	☐	☐	☐
Gaskets installed and serviceable	☐	☐	☐
Hoses rated and free of visible damage	☐	☐	☐
End hose appropriate for application	☐	☐	☐
Restraints or whip checks installed where required	☐	☐	☐
Reducers and elbows inspected	☐	☐	☐
Pipeline protected from vehicle damage	☐	☐	☐
Exclusion zone established during priming	☐	☐	☐
Employees protected during blockage clearing	☐	☐	☐

Placement Controls

- ☐ **No employee will stand directly beneath the boom or suspended hose.**
- ☐ **Employees will remain clear of hose-coupling and pinch-point areas.**
- ☐ **Hopper grate will remain in place during operation.**
- ☐ **No clamp, hose, pipe, or fitting will be opened while the system is pressurized.**
- ☐ **Line pressure will be relieved and zero energy verified before blockage work.**
- ☐ **Communication will be maintained between the operator and placement crew.**
- ☐ **The operator has authority to stop pumping when conditions become unsafe.**

Weather and Electrical Conditions

Wind conditions acceptable: ☐ Yes ☐ No

Lightning observed or forecast: ☐ No ☐ Yes

Minimum electrical clearance established: ☐ Yes ☐ No ☐ N/A

Dedicated spotter required: ☐ No ☐ Yes

Spotter name: _____

Determination

☐ Pump setup and system are acceptable for operation.

☐ Deficiencies corrected before pumping.

☐ Pumping prohibited until corrective action is completed.

Deficiencies or special instructions:

Pump operator signature: _____

NCC supervisor signature: _____

Time pumping authorized: _____

17.10 EXCAVATION INSPECTION

NATIONAL CONCRETE & CONSTRUCTION

DAILY EXCAVATION AND TRENCH INSPECTION

Project: _____

Excavation location or identification: _____

Date: _____ Time: _____

Competent person: _____

Weather: _____

Rain or hazard-increasing event since last inspection:

☐ No ☐ Yes: _____

Excavation dimensions

- Depth: _____
- Width: _____
- Length: _____

Soil classification:

☐ Stable rock ☐ Type A ☐ Type B ☐ Type C ☐ Not yet determined

Method used to classify soil: _____

Protective system:

☐ Sloping ☐ Benching ☐ Shoring ☐ Trench shield ☐ Engineered system

☐ Less than 5 feet with competent-person determination

☐ Other: _____

Inspection Checklist

Item	Ye s	N o	N/A	Corrective Action or Comment
Competent person has authority to remove employees	☐	☐	☐	

Utilities identified and marked	☐	☐	☐
Utility clearances verified	☐	☐	☐
Excavation and adjacent areas inspected	☐	☐	☐
Protective system installed as designed	☐	☐	☐
Protective system free from visible damage	☐	☐	☐
Evidence of cave-in, cracking, sloughing, or bulging absent	☐	☐	☐
Adjacent structures evaluated	☐	☐	☐
Surface encumbrances supported or removed	☐	☐	☐
Spoil, materials, and equipment set back	☐	☐	☐
Water accumulation controlled	☐	☐	☐
Water-removal equipment monitored	☐	☐	☐
Runoff diverted or controlled	☐	☐	☐
Safe access and egress provided	☐	☐	☐
Ladder extends adequately above landing	☐	☐	☐
Travel distance to access acceptable	☐	☐	☐
Employees protected from falling materials	☐	☐	☐
Employees protected from mobile equipment	☐	☐	☐
Warning system provided near excavation edge	☐	☐	☐

Hazardous atmosphere evaluation completed, if needed	☐	☐	☐
Atmospheric testing performed, if required	☐	☐	☐
Rescue equipment available, if required	☐	☐	☐
Traffic and public barricades adequate	☐	☐	☐
Underground installation supports adequate	☐	☐	☐
No employee beneath suspended loads	☐	☐	☐
Trench shield used within manufacturer limits	☐	☐	☐
Employees protected while entering or exiting shield	☐	☐	☐
Excavated face above shield adequately protected	☐	☐	☐
Conditions unchanged from protective-system design	☐	☐	☐

Atmospheric Testing, When Required

Test Location	Time	Oxygen %	LEL %	H₂S	CO	Tester
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Competent-Person Determination

- ☐ **Excavation is acceptable for employee entry.**
- ☐ **Entry is allowed only after the listed corrections are completed.**
- ☐ **Entry is prohibited. Employees have been removed.**

Deficiencies and required corrections:

Reinspection required: ☐ No ☐ Yes

Reinspection time: _____

Competent-person signature: _____

Reinspection

Corrections verified: _____

☐ Entry authorized.

☐ Entry remains prohibited.

Competent-person signature: _____

Date and time: _____

17.11 INCIDENT REPORT

NATIONAL CONCRETE & CONSTRUCTION

INCIDENT REPORT

Complete this report as soon as practical after any injury, illness, property damage, vehicle collision, equipment damage, utility strike, environmental release, public incident, or other unplanned event.

Do not delay emergency medical treatment to complete this form.

General Information

Incident number: _____

Project or location: _____

Exact incident location: _____

Date of incident: _____

Time of incident: _____

Date reported: _____

Time reported: _____

Reported to: _____

Incident type:

- ☐ Injury
- ☐ Occupational illness or exposure
- ☐ First aid
- ☐ Medical treatment
- ☐ Property damage
- ☐ Vehicle collision
- ☐ Equipment damage
- ☐ Utility strike
- ☐ Environmental release
- ☐ Public or third-party incident

- ☐ Fire
☐ Other: _____

Injured or Affected Person

Name: _____

Employer: _____

Job title: _____

Employee identification number: _____

Supervisor: _____

Contact number: _____

Date of hire: _____

Task at time of incident: _____

Injury or Exposure Information

Body part affected: _____

Type of injury or exposure: _____

PPE being worn: _____

First aid provided: ☐ No ☐ Yes

Provided by: _____

Emergency medical services called: ☐ No ☐ Yes

Transported for evaluation: ☐ No ☐ Yes

Transport method: _____

Medical facility: _____

Do not include diagnoses, unrelated medical history, or unnecessary confidential information in the general project copy.

Incident Description

Describe what occurred in chronological order. Include the work being performed, employee position, tools or equipment involved, environmental conditions, and events immediately before and after the incident.

Immediate Actions

- ☐ **Work stopped**
- ☐ **Area secured**
- ☐ **First aid provided**
- ☐ **Emergency services contacted**
- ☐ **Equipment removed from service**
- ☐ **Hazard corrected**
- ☐ **Photographs taken**
- ☐ **Witnesses identified**
- ☐ **Management notified**
- ☐ **Owner or GC notified**
- ☐ **Utility owner notified**
- ☐ **Environmental response initiated**
- ☐ **Other:** _____

Equipment, Vehicle, or Property Involved

Owner: _____

Description: _____

Unit, serial, license, or VIN information: _____

Estimated damage: _____

Witnesses

Name	Employer	Contact Information	Statement Obtained
-------------	-----------------	----------------------------	---------------------------

Preliminary Causal Factors

Check all that may have contributed. This is preliminary and shall not be treated as a final conclusion.

- ☐ Work planning
- ☐ Inadequate hazard identification
- ☐ Changed conditions
- ☐ Training or qualification
- ☐ Communication
- ☐ Supervision
- ☐ Procedure not followed
- ☐ Procedure inadequate
- ☐ Equipment condition
- ☐ Equipment selection
- ☐ Guard or safety device
- ☐ PPE selection or use
- ☐ Housekeeping
- ☐ Weather or lighting
- ☐ Fatigue or impairment concern
- ☐ Third-party action
- ☐ Design or engineering issue
- ☐ Material failure
- ☐ Other: _____

Notifications

Person or Organization	Name	Date	Time	Notified By
NCC supervisor				
Project manager				
Safety Director				
Senior management				
Owner or GC				
Insurance representative				

Other

Reporting Review

Potential OSHA-recordable event: ☐ Yes ☐ No ☐ Under review

Potential immediate OSHA reporting requirement:

☐ Yes ☐ No ☐ Under review

Workers' compensation report initiated:

☐ Yes ☐ No ☐ N/A ☐ Under review

The determination shall be made by an authorized NCC representative. Checking a box does not constitute a final legal determination.

Prepared By

Name: _____

Title: _____

Signature: _____

Date: _____

Supervisor review: _____

Safety review: _____

17.12 NEAR-MISS REPORT

NATIONAL CONCRETE & CONSTRUCTION

NEAR-MISS AND SAFETY-OBSERVATION REPORT

A near miss is an unplanned event that did not cause injury, illness, or damage but had the potential to do so.

Project or location: _____

Date: _____ Time: _____

Reported by: _____

Reporter may request confidential handling: ☐ Yes ☐ No

Type of Near Miss

- ☐ Fall or falling object
- ☐ Vehicle or mobile equipment
- ☐ Excavation
- ☐ Electrical
- ☐ Concrete pump or hose
- ☐ Formwork
- ☐ Reinforcing steel
- ☐ Masonry wall
- ☐ Tool or equipment
- ☐ Rigging or suspended load
- ☐ Chemical exposure
- ☐ Heat or weather
- ☐ Public or traffic
- ☐ Property or utility damage
- ☐ Other: _____

What Happened?

What Could Have Happened?

Immediate Action Taken

Conditions or Behaviors That Contributed

Recommended Prevention Measures

Supervisor Review

Risk potential: ☐ Low ☐ Moderate ☐ High ☐ Serious or imminent

Additional corrective action required: ☐ No ☐ Yes

**Corrective
Action**

**Responsible
Person**

**Due
Date**

**Completion
Date**

Supervisor signature: _____

Safety review: _____

Lessons communicated to workforce: ☐ Yes ☐ No ☐ N/A

Communication method: _____

17.13 WITNESS STATEMENT

NATIONAL CONCRETE & CONSTRUCTION

WITNESS STATEMENT

Incident or near-miss number: _____

Project or location: _____

Incident date: _____ Incident time: _____

Witness Information

Witness name: _____

Employer: _____

Job title: _____

Telephone or email: _____

Interview date: _____ Interview time: _____

Interviewer: _____

Instructions to Witness

Describe only what you personally saw, heard, or experienced. Do not guess. Clearly identify anything you learned from another person rather than observing directly.

Witness Location

Where were you when the event occurred?

Statement

Describe what you were doing before the incident, what you observed, the sequence of events, and what occurred afterward.

Conditions Observed

Weather: _____

Lighting: _____

Ground or floor condition: _____

Noise level: _____

Equipment operating nearby: _____

Warnings, alarms, or instructions heard: _____

Sketch

Use the space below to identify people, equipment, direction of movement, distances, and relevant objects.

Additional Information

Did you discuss the incident with anyone before giving this statement?

☐ No ☐ Yes

Name: _____

Information discussed: _____

Certification

I certify that this statement is true and accurate to the best of my knowledge. I understand that I should notify NCC if I later remember additional relevant information.

Witness signature: _____

Date: _____

Interviewer signature: _____

Date: _____

Interpreter used: ☐ No ☐ Yes

Interpreter name and signature: _____

17.14 CORRECTIVE ACTION REPORT

NATIONAL CONCRETE & CONSTRUCTION

SAFETY CORRECTIVE ACTION REPORT

Corrective-action number: _____

Project or department: _____

Date opened: _____

Source:

- ☐ Inspection
- ☐ Incident
- ☐ Near miss
- ☐ Employee report
- ☐ Client or GC observation
- ☐ Regulatory inspection
- ☐ Audit
- ☐ Equipment inspection
- ☐ Other: _____

Condition Requiring Correction

Immediate Risk

- ☐ Low
- ☐ Moderate
- ☐ High
- ☐ Serious or imminent danger

Was work stopped? ☐ No ☐ Yes

Interim controls: _____

Root-Cause Review

Direct cause: _____

Contributing causes: _____

Underlying management or system cause: _____

Consider:

- ☐ Planning
- ☐ Procedure
- ☐ Training
- ☐ Supervision
- ☐ Communication
- ☐ Staffing
- ☐ Equipment selection
- ☐ Maintenance
- ☐ Procurement
- ☐ Scheduling pressure
- ☐ Design coordination
- ☐ Contractor coordination
- ☐ Enforcement
- ☐ Other: _____

Corrective Action Plan

Corrective Action	Action Level	Responsible Person	Target Date	Completion Date
	Immediate / Short / Long			
	Immediate / Short / Long			
	Immediate / Short / Long			

Effectiveness Verification

Correction shall not be closed merely because an item was purchased, a memo was sent, or an employee was disciplined. NCC shall verify that the corrective measure actually controls the hazard.

Verification method:

- ☐ Reinspection
- ☐ Observation
- ☐ Employee interview
- ☐ Document review
- ☐ Equipment test

☐ Training evaluation

☐ Trend review

☐ Other: _____

Verification findings: _____

☐ Corrective action effective.

☐ Additional action required.

Verified by: _____

Signature: _____

Date: _____

Management closure approval: _____

Closure date: _____

17.15 PPE ISSUANCE RECORD

NATIONAL CONCRETE & CONSTRUCTION

PERSONAL PROTECTIVE EQUIPMENT ISSUANCE RECORD

Employee name: _____

Employee identification number: _____

Job title: _____

Supervisor: _____

Date	PPE Item	Brand or Model	Size	Quantity	New or Replacement	Employee Initials
------	----------	----------------	------	----------	--------------------	-------------------

PPE Training Verification

The employee has been instructed concerning:

- ☐ When PPE is necessary.
- ☐ What PPE is necessary.
- ☐ How to properly put on, remove, adjust, and wear PPE.
- ☐ PPE limitations.
- ☐ Proper care, maintenance, useful life, inspection, and disposal.
- ☐ The requirement to report damaged, defective, contaminated, lost, or unsuitable PPE.
- ☐ The prohibition against modifying PPE without authorization.

Employee Responsibilities

I acknowledge receipt of the PPE listed above. I agree to:

1. Inspect PPE before use.
2. Use PPE as trained and required.
3. Keep reusable PPE reasonably clean and serviceable.
4. Immediately report defective, damaged, contaminated, or missing PPE.
5. Not intentionally damage, alter, misuse, or lend assigned PPE without authorization.
6. Return reusable company-owned PPE when requested or when my employment ends, subject to applicable law and NCC policy.

Employee signature: _____

Date: _____

Issuer or trainer signature: _____

Date: _____

Replacement Record

Reason for replacement:

- ☐ Normal wear
- ☐ Damage during work
- ☐ Contamination
- ☐ Lost
- ☐ Improper fit
- ☐ Defect
- ☐ Other: _____

Comments: _____

17.16 COMPETENT-PERSON DESIGNATION

NATIONAL CONCRETE & CONSTRUCTION

COMPETENT-PERSON DESIGNATION

A competent-person designation is task- and hazard-specific. Designation for one activity does not automatically authorize the individual to act as the competent person for another activity.

Employee name: _____

Job title: _____

Date designated: _____

Designation applies to:

- ☐ Excavations and trenches
- ☐ Scaffolds
- ☐ Fall-protection systems
- ☐ Silica-exposure controls
- ☐ Cranes or rigging
- ☐ Steel erection
- ☐ Demolition
- ☐ Confined spaces
- ☐ Formwork or concrete operations
- ☐ Other: _____

Basis of Qualification

Relevant training completed:

Course or Training	Provider	Completion Date	Expiration, if any
--------------------	----------	-----------------	--------------------

Relevant experience:

Knowledge or evaluation completed:

Authority Granted

The designated competent person is authorized and required to:

1. Identify existing and predictable hazards related to the designated operation.
2. Conduct required inspections.
3. Stop affected work.
4. Remove employees from hazardous areas.
5. Require immediate correction of unsafe conditions.
6. Reject defective tools, equipment, systems, or materials.
7. Modify work sequencing or methods when necessary for safety.
8. Request engineering, manufacturer, management, or Safety Department assistance.
9. Prevent work from resuming until adequate controls are implemented.
10. Document findings and corrective actions.

Production demands, schedules, customer pressure, or cost considerations shall not override this authority.

Limitations

This designation:

- Applies only to the operations checked above.
- Does not authorize the individual to approve engineered designs unless separately qualified and legally authorized.
- May be suspended or revoked if qualifications lapse or responsibilities are not properly performed.
- Does not relieve supervisors, employees, or management of their safety responsibilities.

Acceptance

I understand the scope and responsibilities of this designation. I agree to exercise the authority provided and to stop work when required.

Designated employee signature: _____

Date: _____

Designated by: _____

Title: _____

Signature: _____

Date: _____

Safety Director approval: _____

Review or expiration date: _____

17.17 EMERGENCY CONTACT SHEET

NATIONAL CONCRETE & CONSTRUCTION

PROJECT EMERGENCY CONTACT SHEET

Post this form where it is visible and provide the information during employee orientation and daily planning.

Project name: _____

Project address: _____

Nearest cross street or access instructions: _____

GPS coordinates, when useful: _____

Project gate or entry instructions: _____

Emergency Numbers

Emergency services: 911

NCC Project Manager: _____

Telephone: _____

NCC Superintendent or Foreman: _____
Telephone: _____

NCC Safety Director: _____
Telephone: _____

Owner or General Contractor: _____
Telephone: _____

Property owner or client: _____
Telephone: _____

Medical Information

Nearest hospital or emergency department: _____

Address: _____

Telephone: _____

Estimated travel time: _____

Urgent-care facility: _____

Address and telephone: _____

First-aid kit location: _____

AED location: _____

Designated first-aid provider: _____

Utility Contacts

Electric utility: _____

Gas utility: _____

Water utility: _____

Sewer authority: _____

Utility-locate reference number: _____

Other Contacts

Poison Control: 1-800-222-1222

Equipment-rental emergency contact: _____

Concrete supplier: _____

Concrete pump contact: _____

Environmental-response contact: _____

Towing or recovery contact: _____

Emergency Locations

Primary assembly point: _____

Alternate assembly point: _____

Emergency vehicle access route: _____

Severe-weather shelter: _____

Utility shutoff locations: _____

Project-Specific Emergency Instructions

Prepared by: _____

Date posted: _____

Last verified or updated: _____

17.18 DISCIPLINARY NOTICE

NATIONAL CONCRETE & CONSTRUCTION

SAFETY CORRECTIVE COUNSELING AND DISCIPLINARY NOTICE

This form shall be administered consistently and without retaliation. Discipline shall not be issued merely because an employee reported an injury, near miss, hazard, or safety concern. The focus shall be on the employee's conduct, the applicable rule, prior instruction, and surrounding circumstances.

Employee name: _____

Job title: _____

Supervisor: _____

Project or department: _____

Date of event: _____ Time: _____

Date notice issued: _____

Level of Action

- ☐ Coaching or verbal counseling
- ☐ Written warning
- ☐ Final written warning
- ☐ Suspension
- ☐ Removal from equipment operation
- ☐ Removal from project
- ☐ Termination recommendation
- ☐ Other: _____

Safety Requirement Involved

Description of Conduct

State objective facts. Avoid assumptions, insults, diagnoses, or unsupported conclusions.

Employee's Prior Training or Instruction

Training or instruction date: _____

Provided by: _____

Documentation reviewed: _____

Potential or Actual Consequences

Required Corrective Measures

- ☐ Retraining
- ☐ Demonstration of competency
- ☐ Increased supervision
- ☐ Equipment authorization suspended
- ☐ Removal from particular task
- ☐ Written improvement plan
- ☐ Other: _____

Completion deadline: _____

Employee Statement

- ☐ Employee declined to provide a statement.

Expectations

The employee is expected to immediately comply with all NCC safety requirements. Further violations may result in additional corrective action, up to and including termination, subject to applicable law and company policy.

Supervisor signature: _____

Date: _____

Management or HR review: _____

Date: _____

Employee Acknowledgment

My signature confirms receipt of this notice, not necessarily agreement with its contents.

Employee signature: _____

Date: _____

☐ Employee declined to sign.

Witness to refusal: _____

Date: _____

Follow-Up

Retraining completed: ☐ Yes ☐ No ☐ N/A

Date: _____ Trainer: _____

Follow-up performance acceptable: ☐ Yes ☐ No

Supervisor comments: _____

17.19 RETURN-TO-WORK DOCUMENTATION

NATIONAL CONCRETE & CONSTRUCTION

RETURN-TO-WORK AND WORK-RESTRICTION FORM

This form is intended to document an employee's functional work status. Medical providers should not include diagnoses, unrelated medical history, genetic information, or other information unnecessary to determine the employee's ability to work safely.

Employee Information

Employee name: _____

Job title: _____

Supervisor: _____

Regular job duties: _____

Date of injury or condition, when applicable: _____

Proposed return date: _____

Work Status

To be completed by an authorized healthcare provider when medical documentation is required.

☐ Employee may return to regular duty without restrictions on:

Date: _____

☐ Employee may return with temporary restrictions on:

Date: _____

☐ Employee is unable to work through:

Date: _____

☐ Re-evaluation is required on:

Date: _____

Functional Restrictions

Activity	No Restriction	Restrict ed	Prohibit ed	Specific Limit
Standing	☐	☐	☐	
Walking	☐	☐	☐	
Sitting	☐	☐	☐	
Climbing ladders	☐	☐	☐	
Climbing stairs	☐	☐	☐	
Bending or stooping	☐	☐	☐	
Kneeling or squatting	☐	☐	☐	
Reaching overhead	☐	☐	☐	
Gripping or grasping	☐	☐	☐	
Repetitive hand use	☐	☐	☐	
Lifting from floor	☐	☐	☐	_____ lb
Lifting waist-high	☐	☐	☐	_____ lb
Carrying	☐	☐	☐	_____ lb
Pushing or pulling	☐	☐	☐	_____ lb
Operating vehicles	☐	☐	☐	
Operating equipment	☐	☐	☐	
Working at elevation	☐	☐	☐	
Working in heat	☐	☐	☐	
Exposure to dust or chemicals	☐	☐	☐	
Other	☐	☐	☐	

Maximum hours per shift: _____

Required rest breaks: _____

Other functional restrictions:

Expected duration of restrictions: _____

Healthcare Provider

Provider name: _____

Facility: _____

Telephone: _____

Provider signature: _____

Date: _____

NCC Transitional-Duty Review

Restrictions received by: _____

Date: _____

Restrictions can be accommodated:

☐ Yes ☐ No ☐ Additional information required

Temporary assignment:

Assignment location: _____

Temporary supervisor: _____

Start date: _____ **Review date:** _____

Employee instructed not to exceed restrictions: ☐ Yes

Employee Acknowledgment

I understand the temporary restrictions and assignment described above. I agree to:

1. Work only within the established restrictions.
2. Immediately notify my supervisor if an assigned task conflicts with a restriction.
3. Report any material change in my ability to perform the assigned work safely.
4. Attend required follow-up appointments and provide updated work-status documentation when requested and permitted by law.
5. Not operate vehicles or equipment unless specifically authorized.

Employee signature: _____

Date: _____

Supervisor signature: _____

Date: _____

Management, HR, or claims representative: _____

Date: _____

Final Release

☐ Employee released to regular duty.

Effective date: _____

Documentation reviewed by: _____

Signature: _____

17.20 ENGLISH AND SPANISH EMPLOYEE ACKNOWLEDGMENTS

17.20A ENGLISH SAFETY ACKNOWLEDGMENT

NATIONAL CONCRETE & CONSTRUCTION

EMPLOYEE SAFETY ACKNOWLEDGMENT

Employee name: _____

Job title: _____

Date: _____

I acknowledge that:

1. I received or was given access to the NCC Safety Manual.
2. The safety rules applicable to my work were explained in a language and vocabulary I understand.
3. I had an opportunity to ask questions.
4. I understand that I must follow NCC safety policies, project rules, supervisor instructions, manufacturer instructions, and applicable safety requirements.
5. I will not perform work unless I am trained, authorized, and able to perform it safely.
6. I will use required PPE and inspect it before use.
7. I will immediately report injuries, illnesses, unsafe conditions, damaged equipment, property damage, environmental releases, and near misses.
8. I have authority to stop work when I reasonably believe that an unsafe condition exists.
9. I will not remove or bypass safety devices.
10. I understand that safety violations may result in corrective action or discipline, subject to company policy and applicable law.
11. I understand that signing this acknowledgment does not waive my legal rights.
12. I may request additional explanation or training at any time.

Employee signature: _____

Supervisor or trainer signature: _____

Interpreter, if used: _____

17.20B RECONOCIMIENTO DE SEGURIDAD DEL EMPLEADO EN ESPAÑOL

NATIONAL CONCRETE & CONSTRUCTION

RECONOCIMIENTO DE SEGURIDAD DEL EMPLEADO

Nombre del empleado: _____

Puesto de trabajo: _____

Fecha: _____

Por medio de mi firma, reconozco lo siguiente:

1. Recibí, o se me proporcionó acceso, al Manual de Seguridad de NCC.
2. Las reglas de seguridad aplicables a mi trabajo me fueron explicadas en un idioma y con palabras que entiendo.
3. Tuve la oportunidad de hacer preguntas.
4. Entiendo que debo cumplir con las políticas de seguridad de NCC, las reglas del proyecto, las instrucciones de los supervisores, las instrucciones de los fabricantes y los requisitos de seguridad aplicables.
5. No realizaré ningún trabajo a menos que esté capacitado, autorizado y en condiciones de realizarlo de manera segura.
6. Usaré el equipo de protección personal requerido y lo inspeccionaré antes de utilizarlo.
7. Informaré inmediatamente cualquier lesión, enfermedad, condición insegura, equipo dañado, daño a la propiedad, derrame, liberación ambiental o incidente que casi haya causado una lesión o daño.
8. Tengo autoridad para detener el trabajo cuando razonablemente considere que existe una condición insegura.
9. No retiraré, desactivaré, modificaré ni evitaré el uso de dispositivos de seguridad.
10. Entiendo que una violación de las reglas de seguridad puede resultar en medidas correctivas o disciplinarias, de acuerdo con las políticas de la compañía y las leyes aplicables.
11. Entiendo que mi firma en este documento no significa que renuncio a ningún derecho legal.
12. Puedo solicitar capacitación o explicaciones adicionales en cualquier momento.

Firma del empleado: _____

Firma del supervisor o instructor: _____

Intérprete, si fue utilizado: _____

APPENDIX 17-A

FORM-CONTROL MATRIX

Form	Primary User	Minimum Recommended Frequency or Trigger	Filing Location
Employee Safety Acknowledgment	Employee and trainer	At hire and after major manual revision	Personnel or training file
New-Hire Safety Checklist	Trainer and supervisor	Before initial assignment	Personnel or training file
Job Hazard Analysis	Supervisor and crew	Before nonroutine or hazardous work and when conditions change	Project safety file
Daily Pre-Task Plan	Foreman and crew	Each shift and when work changes	Project safety file
Toolbox Talk Record	Presenter	After each toolbox talk	Training file
Safety Inspection	Supervisor or safety representative	Based on project inspection schedule	Project safety file
Equipment Inspection	Authorized operator	Before use or shift, as applicable	Equipment file
Vehicle and Trailer Inspection	Driver	Before trip or shift	Vehicle file
Concrete Pump Inspection	Pump operator and supervisor	Before setup and operation	Project or pump file
Excavation Inspection	Excavation competent person	Before work, throughout shift as needed, and after hazard-increasing events	Project safety file
Incident Report	Supervisor or manager	Immediately following covered event	Incident file
Near-Miss Report	Any employee or supervisor	Following near miss	Safety file
Witness Statement	Witness and interviewer	As soon as practical after event	Incident file

Corrective Action Report	Assigned manager	When significant deficiency requires tracking	Corrective-action log
PPE Issuance Record	Issuer and employee	At issuance and replacement	Personnel or PPE file
Competent-Person Designation	Management	Upon designation and periodic review	Qualification file
Emergency Contact Sheet	Project management	At mobilization and whenever information changes	Posted and project file
Disciplinary Notice	Supervisor and management	As needed	Confidential personnel file
Return-to-Work Documentation	Management and employee	Following medical restriction or release	Confidential medical file
Bilingual Acknowledgment	Employee and trainer	At hire or major policy revision	Personnel or training file

APPENDIX 17-B

FORM REVISION AND CONTROL LOG

Form Number	Form Title	Revision Number	Effective Date	Approve d By	Superseded Version Removed
17.1	Employee Safety Acknowledgment				☐
17.2	New-Hire Safety Checklist				☐
17.3	Job Hazard Analysis				☐
17.4	Daily Pre-Task Plan				☐
17.5	Toolbox Talk Record				☐
17.6	Safety Inspection				☐
17.7	Equipment Inspection				☐
17.8	Vehicle and Trailer Inspection				☐
17.9	Concrete Pump Inspection				☐
17.10	Excavation Inspection				☐
17.11	Incident Report				☐
17.12	Near-Miss Report				☐
17.13	Witness Statement				☐
17.14	Corrective Action Report				☐
17.15	PPE Issuance Record				☐

17.16	Competent-Person Designation	☐
17.17	Emergency Contact Sheet	☐
17.18	Disciplinary Notice	☐
17.19	Return-to-Work Documentation	☐
17.20	English and Spanish Acknowledgments	☐

SECTION 17 CLOSING PRINCIPLE

A form is not paperwork armor. Its value comes from the conversation, inspection, decision, and correction it documents. A checked box cannot hold up a trench wall, secure a trailer, stop a concrete hose, or protect an employee. The people using the form must do that.