Texas Region Health and Safety Manual





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MESSAGE FROM MANAGEMENT

The Texas Region is committed to providing a safe, healthful workplace for our employees and subcontractors. Safety is at the forefront when designing, planning, and executing all work activities. Our goal is always to ensure consistent, effective management of safety and health matters through the use of a structured approach which includes:

- Demonstrating management commitment to Human and Organizational Performance Principles
- · Integrating EHS considerations into all our business decisions
- · Promoting line management responsibility for EHS performance
- Evaluating performance against established, measurable objectives
- · Engaging in continuous improvement activities
- Utilizing best management practices to minimize environmental impacts
- Correcting conditions and behaviors that create unnecessary risk
- Providing training to reduce potential for injuries and environmental damage
- · Meeting or exceeding all applicable regulatory requirements
- · Promoting individual engagement and contribution of all employees to EHS
- · Selecting subcontractors who are committed to and aligned with this policy
- · Providing appropriate resources to implement this policy
- · Communicating this policy to all employees, subcontractors, and stakeholders

The Texas Region firmly believes this commitment adds value to our customers, employees, and neighboring communities.

SAFETY CORE VALUES

CRH Americas Materials has identified three safety core values that we believe drive world class safety performance. At a minimum, every CRH Americas Materials Company safety program shall include these safety core values.

- Eliminate Serious Harm
- Become a Learning Organization
- Cultivate an Employee Driven Safety Culture

Eliminate Serious Harm

Provide our employees, contractors, visitors, and the motoring public with a workplace/work zone free of recognized hazards. The primary system driving this initiative is the CRH AMAT Life Saving Rules.

Become a Learning Organization

Become a safer organization through building trust, being fair and just, engaging all employees, and creating greater capacity to succeed utilizing systems that are more error tolerant and allow employees to fail safely.

Cultivate an Employee Driven Safety Culture

Create a workplace where employees actively participate and feel ownership in the safety program.

MANAGEMENT AND SUPERVISOR RESPONSIBILITIES

Responsibilities for safety and health include the establishment and maintenance of an effective communication system between workers, supervisors, and management teams. Specific safety and health responsibilities for Company personnel are as follows:

<u>Leadership Teams</u> – Active participation in and support of safety and health programs is essential. Management teams will engage in safety and health matters at every opportunity. Managers will participate in the safety and health committee meetings, accident investigations, incident reviews, etc. relevant to their line of business. Each manager is responsible for communicating the safety and health policies of the Company and monitoring their overall effectiveness to prevent the occurrence of occupational injuries and illnesses.

<u>Supervisors</u> – The safety and health of the employees they supervise are primary responsibilities of the supervisors. How well each supervisor carries out this responsibility is an important measure of his/her ability to perform their operational duties.

To accomplish our safety objectives, Supervisors will:

- Assure that safety and health rules, regulations, policies, and procedures are understood and observed.
- Require the proper care and use of all needed protective equipment.
- Identify and eliminate job hazards promptly by completing thorough risk assessments prior to assigning or conducting tasks.
- Receive and take initial action on employee suggestions and concerns.
- Conduct and/or observe and actively participate in safety meetings on a weekly basis.
- Train employees (new and experienced) in safe and efficient methods of accomplishing each job or task as necessary.
- Report all accidents and injuries to safety teams as per Incident and Injury Reporting Policy.
- Participate in investigations and inspections.
- Promote employee participation and engagement in the safety and health program.
- Actively follow the progress of injured workers and display an interest in their rapid recovery and return to work.

EMPLOYEE RESPONSIBILITIES

Each member of the Texas Region has the following responsibilities:

- Understand and observe all Company safety and health rules and apply the principles of accident prevention in day-to-day duties such as using proper safety devices and personal protective equipment as required by the Company.
- Reporting any job-related injury, illness, or property damage to a supervisor as soon as possible following the Incident and Injury Reporting Policies.
- Promptly reporting hazardous conditions (unsafe equipment, materials, etc.) to a supervisor or safety representative.
- Do not report to work under the influence of alcoholic beverages or drugs.
- Refrain from fighting, horseplay, or distracting fellow workers.
- No employee shall take on a task or operate equipment unless trained and qualified to do so.
- Seat belts must always be worn by all people in all vehicles and equipment. The driver is
 responsible to ensure that all passengers are wearing seat belts prior to putting the vehicle in
 motion.
- Actively support and participate in the Company's safety program.

WHEN I SEE SOMETHING, I WILL STOP AND DO SOMETHING

We all play a role in the safety of our fellow employees. Throughout the day there may be times when you encounter hazards, unsafe conditions, or people working in an unsafe manner. We are responsible in those situations to do the right thing and make sure that the hazard is corrected. We are all human and sometimes lose our situational awareness as we perform our tasks. In the event a fellow co-worker may be in danger, we ask that you speak up and bring the hazard or risk to their attention. Leaving a hazard unaddressed instead of correcting the unsafe condition could mean the difference between someone going home to their family or not.



GENERAL SAFETY RULES

The following Safety Rules apply to ALL persons working for CRH Texas Region Companies:

- All safety standards and procedures will be followed at all times.
- All injuries and incidents shall be reported to the Supervisor as soon as possible following the Texas Region Incident and Injury Reporting Guidelines.
- No employee shall knowingly be permitted to work while his/her abilities or alertness are impaired by excessive fatigue, illness or other causes (i.e. prescribed medication).
- Risk assessments must be conducted prior to performing tasks to reduce the potential for injuries and accidents.
- All posted safety signs shall be obeyed.
- Personal protective equipment (PPE) will be worn in areas where it is required and as appropriate for the task(s) being conducted.
- Safety Data Sheets (SDS) should be reviewed before handling any unfamiliar chemicals to understand hazards and related PPE that may be required.
- Use of improper or defective tools or equipment is prohibited.
- When not in use, vehicles and equipment should be secured with ignition keys removed to prevent unauthorized use or theft.

REPORTING REQUIREMENTS AND CLASSIFICATIONS

Incident Reporting Procedures

Prompt reporting of workplace incidents, injuries, near-misses, etc. is a key element toward continuous improvement of the safety of our operations, facilities and processes. The following types of events must be captured and reported to ensure that steps are taken to appropriately respond and address the event.

- Workplace Injury
- Fleet Incidents
- Yellow Iron Incident
- General Liability Incidents
- Work Zone Incidents
- Utility Strikes
- Near-Misses
- See, Stop, Do Events

WORKPLACE INJURIES

WORKPLACE INJURY AND ILLNESS REPORTING POLICY

It is important that all workplace injuries and illnesses that occur during an employee's course of work are reported to management as soon as reasonably possible. Prompt reporting allows for identification and correction of hazards and immediate medical attention for injuries if such attention is required. In some instances, an employee may not immediately realize that he or she has been injured or made ill. In such circumstances, the employee must report the injury or illness as soon as reasonably possible after becoming aware of the injury or illness. The following policy applies to workplace injury and illness reporting:

- An employee who is at work when he or she becomes aware that they have sustained an injury or illness must report it as soon as reasonably possible, but in no event later than prior to leaving the plant, jobsite, or facility or within 8 hours after becoming aware of the injury or illness, whichever is earlier. The report must be made to the employee's immediate supervisor. If the immediate supervisor cannot be reached, the injury must be reported to the employees next level supervisor or manager, or the safety department. If emergency medical attention is needed emergency services should be contacted immediately.
- 2. An employee who is not at work when he or she becomes aware of an injury or illness that occurred while at work must report the injury or illness as soon as reasonably possible, but in no event later than 8 hours after becoming aware of the injury or illness. The employee must report the injury or illness directly to his or her immediate supervisor. If the employee's immediate supervisor cannot be reached, the injury must be reported to the employees next level supervisor or manager, or the safety department.
- 3. Supervisors and/or managers who have been made aware of a workplace injury or illness reported to them by their employees must report it to the Company's safety manager immediately, regardless if it does not require immediate medical attention.

No Retaliation

No employee who makes a good-faith effort to comply with this policy will be disciplined for promptly reporting a Workplace Injury.

Supervisors and managers must not interfere with or attempt to discourage reporting under this policy.

LIGHT DUTY PROGRAM

In the event that an employee sustains an injury at work in which a medical professional assigns work restrictions, the Company will make every attempt at finding a suitable temporary alternate duty job if the employee is unable to perform their regular job function. This temporary assignment will conform to all medical restrictions/limitations placed on the employee by the treating physician and employees are required to report to the workplace and perform these assignments. A bona fide offer outlining temporary light duty responsibilities and requirements must be completed for all employees before beginning a light duty assignment. During this temporary alternate duty assignment period, the employee's regular pay and benefit contribution will remain unchanged. Management must ensure that assignments given are within the employee's restrictions/limitations given by the treating physician. If the employee is assigned tasks outside of their prescribed limitations, the employee should notify their supervisor and their Safety Department immediately.

Bona Fide Offer Letter



Texas Region CRH Americas Materials

Date: Employee Name: Employee Address:

Dear **EMPLOYEE**

Texas Region is in receipt of a report DATE from DOCTOR NAME at the HOSPITAL/CLINIC NAME relating to your current medical condition and your ability to work. A copy of the report is enclosed with this letter. Texas Region has used guidelines provided by your physician to identify an appropriate modified duty position for you. Texas Region hereby extends to you a bona fide offer of employment pursuant to TWCC rule 129.6

You will be expected to return to work DATE at LOCATION ADDRESS for a LIGHT DUTY WORK DESCRIPTION. This work assignment is in accordance with DOCTOR NAME 's physical restrictions. Your work schedule will be as follows:

Monday - Friday (7:00 am through 3:30 PM).

You will be allowed a thirty (30) minute lunch break from 11:30 am to 12:00 pm. In addition, there will be two (2) fifteen (15) minute breaks that can be taken at 9:30 am and 2:00 pm. Your wage shall remain the same at WAGE.

Your restrictions set forth by **DOCTOR NAME'S** requirements are listed below:

 \checkmark

Please be assured that Texas Region will only assign you tasks consistent with your physician's restrictions, physical abilities, your knowledge and skill.

If you accept this offer, please indicate by signing and dating your name below and returning this to the undersigned. If you choose to decline the offer, please sign and date in the declination section.

Initial Page one: _____

ACCEPTANCE OF BONIFIED OFFER

 Signature_____
 Date: _____

EMPLOYEE NAME

DENIAL OF BONIFIED OFFER

Signature_____ Date: _____

EMPLOYEE NAME

Please contact me with any questions or concerns you may have.

Sincerely,

Safety Manager Name and Contact Information

Enclosure: Medical Report from DOCTOR AND DATE.

NON-INJURY WORKPLACE EVENTS

NON-INJURY WORKPLACE INCIDENT REPORTING POLICY

It is important that workplace incidents that do not involve injury, as defined in this policy, are reported to management as soon as reasonably possible after they occur. Prompt reporting of workplace incidents allows for identification and correction of hazards.

The following policy applies to non-injury workplace incidents:

- Workplace Incident without Injury Defined
- A Workplace Incident without Injury is defined as "an unexpected and undesirable workplace event that results in damage to equipment, facilities, or property."

Incidents involving workplace injuries and illnesses are exclusively governed by the Workplace Injury and Illness Reporting Policy.

Reporting Requirement

Employees are required to report all Workplace Incidents without Injury in which they are involved,

observe, or are aware of. Such Incidents must be reported as soon as reasonably possible, but in no event later than prior to leaving the plant, jobsite, or facility.

Reports must be made to the employee's immediate supervisor. If the employee's immediate supervisor cannot be reached, the Workplace Incident, without injury, must be reported to the employees next level supervisor or manager, or the safety department. If emergency response is needed (fire and rescue, etc.), call 911 immediately.

Supervisors and/or managers who have been made aware of a workplace incident reported to them by their employees must report the incident to the Company's safety manager immediately.

No Retaliation

No employee who makes a good-faith effort to comply with this policy will be disciplined for promptly reporting a Workplace Incident without Injury.

Supervisors and managers must not interfere with or attempt to discourage reporting under this policy.

FLEET RELATED INCIDENT GUIDELINES

Preventable Vehicle Incidents

A "preventable" vehicle incident is defined as any occurrence involving a registered companyowned/ company leased/rented company vehicle (for which we are gathering mileage information) that results in property damage and/or personal injury, in which the employee driver failed to do everything reasonably expected to avoid or prevent the occurrence regardless of who was injured, what property is damaged, and to what extent, or where the incident occurred. The cost to repair or satisfy a claim is not a factor in determining if an incident is preventable. In many cases a driver will be charged with a preventable incident even though he/she is found not to be at fault in a police report. All preventable incidents involving vehicles that are owned/leased/rented to the company will be reported on the CRH Americas Materials safety report according to the Preventable Vehicle Incident definition.

A "preventable" incident might occur on a public roadway, on company property, or on other property such as a construction jobsite or vendor property.

To be considered "preventable", an incident must occur resulting from the motion of the vehicle while the employee is responsible for the vehicle's position.

When the driver is out of a stationary vehicle and engaged in operating and maneuvering auxiliary equipment such as a mechanic's crane or a mixer chute, damage caused by these pieces of auxiliary equipment shall not be reported as a preventable vehicle incident. These types of incidents should be reported as "yellow iron" (equipment damage) incidents.

If a preventable incident occurs while the employee is commuting to and from work, the incident should be reported on the company monthly safety report. A commute begins when the employee/driver exits a jobsite or company facility and enters onto a public roadway with the understanding that he/she is off work (not doing work for the company).

If a preventable incident occurs in a company vehicle while the employee driver was not in the scope of employment, the incident should be reported on the company monthly safety report. Scope of employment should be determined by whether the company benefits from the use of the vehicle at the time of the incident. Additional travel between alternate job sites, plants, and meetings is travel "for" the job, not "to" the job.

If a company allows its employee to utilize a company vehicle to travel to lunches or breaks, the employee driver is responsible for the vehicle. If a preventable incident occurs during travel related to lunches or any type of break during the workday, it should be reported on the monthly safety report.

To be deemed "preventable", an incident may occur because of the following (Note: there may be other incidents not cited here that could deem an incident preventable):

Intersections: An incident can be judged preventable despite complex traffic movements, blind intersections, or failure of another driver to conform to the law or the failure of traffic control devices.

Backing: Practically all-backing incidents are avoidable. Check clearances before moving.

Spotting: The driver is ultimately responsible for the vehicle he/she is operating. If a spotter is needed, the driver is responsible for conducting a risk assessment and leading a discussion with the spotter to identify hazards, clarify hand signals, assure clear communication, and emphasis the importance of good spotting. The driver is responsible for stopping in the event the spotter becomes misplaced or the area hazards change. If the driver has properly identified and discussed all hazards and the spotter has a clear understanding of the hazards, the spotter can be held responsible for improperly backing the vehicle if an incident occurs. If the driver has followed all proper procedures the driver should not be charged with a preventable incident.

Front-end Collisions: A driver must be prepared for obstructions on the roadway. Night speed should permit the vehicle to stop within the distance illuminated by the headlights.

Rear-end Collisions: Drivers must maintain safe following distances.

Passing: Incidents occurring when passing are usually avoidable.

Lane Encroachment: Entrapment in merging traffic and blind spots are not valid excuses for lane changing incidents. Squeezes involving parked cars / other objects are avoidable.

Railroad Grade Crossings: Collisions with fixed-rail vehicles are avoidable.

Turning: Failure to properly signal, check mirrors, check pedestrian crosswalks, or take other defensive measure should be weighed.

<u>Pedestrians</u>: Incidents involving pedestrians are generally avoidable. Reduce speeds in school zones, shopping areas, residential streets, and special pedestrian areas.

Weather: Adverse weather conditions never cause incidents. Adjust to weather conditions.

Fixed Objects: Collisions with fixed objects are avoidable. Check and judge clearances and use spotter(s) when necessary.

<u>Parking</u>: Unconventional parking locations, such as double parking or failure to put out warning devices, will generally be sufficient evidence for finding an incident avoidable.

<u>Mechanical Failure / Pre-Trip Inspections</u>: Drivers are responsible to report mechanical problems particularly when continued operation might result in an incident. Drivers must perform daily checks of tire condition, brake operation, lights, and other vehicle systems. USDOT mandated vehicle inspections must be performed as required. Only unforeseeable failure after a thorough vehicle inspection is justification for not declaring an incident preventable.

Non-collision: Incidents, such as overturns and running off the road, may result from emergency actions by the driver to avoid a collision. The key in evaluating these situations is judging if the REVISED: APRIL 2024

driver made errors or failed to drive defensively prior to the involvement.

<u>Securing of Cargo:</u> Projecting loads, objects falling from the vehicle, loose tarpaulins or chains, door swinging open, etc., resulting in damage to the vehicle, cargo or other is avoidable.

Towing: Items being towed, including light towers, trailers, etc., are considered part of the mobile equipment and damage to, or caused by, the towed object would be considered preventable. If items fall from vehicle while towing due to improper load securement, the incident should be reported as a preventable incident.

Police Ticketing: Preventability is not the same as fault. Our internal investigations are in many cases more thorough that those done by the police. Failure of a police officer to ticket a driver does NOT preclude the incident from being declared "preventable". Our standards of accountability and reporting are in many cases higher than the local authorities. The fact that police have failed to issue a ticket, assign blame, ticket another party or comment as to responsibility should not be a factor in our determination of whether an incident is preventable. In many cases a driver will be charged with a preventable incident even though he/she is found not to be at fault in a police report.

A skilled defensive driver is one who:

- commits no driving errors,
- makes allowances for the driving practices of others,
- adjusts his/her driving practices to compensate for weather, road and traffic conditions,
- is not trapped into an incident by the unsafe actions of pedestrians and other drivers,
- is alert to incident-inducing situations, recognizes the need for preventive action in advance and takes precautions to avoid the incident, and
- knows when it is necessary to slow down, stop, or yield the right-of-way.

Decisions based on these guidelines should be considered when making determinations on preventability. The standard should be the equivalent of a trained, skilled defensive driver and MUST be consistent with these guidelines. Determining "preventability" is not dependent upon any degree of damage or loss. It is based upon the presumed responsibility and expected skillfulness of the Company's employee to operate the vehicle in a manner in which he/she has been trained that minimizes or eliminates the potential for an incident.

Local management is responsible for reviewing the "preventability" of any vehicle-related incident and applying these guidelines consistently to determine preventability. With the goal of "worldclass" fleet safety performance, we must uphold the highest standards for determining whether an incident is preventable and/or unavoidable. When determining if an incident is preventable or not, no individual or review committee shall use guidelines other than those detailed or ignore the intent of these guidelines to fairly evaluate and apply consistent standards for reporting.

We cannot legislate fairness. We must rely on the integrity of our employees serving on Safety Committees, Incident Review Boards, Fleet Managers, Safety Directors, and others charged with determining "preventability".

AUTOMOBILE ACCIDENTS

Auto accidents will be handled like general liability incidents unless they involve a Company vehicle. If a Company vehicle is involved in an accident, an "on-the-spot" report must be filled out and the safety manager will be contacted immediately. The safety managers will notify the Company president and general manager when an incident or accident occurs. Employees will have to provide the following information for a report:

- Name, address and phone numbers of all individuals, including passengers, involved in the accident
- Take photos of the accident scene and damage to all vehicles
- Obtain registration and insurance information from all drivers involved in the accident
- Call the police regardless of the amount of damage done to vehicles or property
- Get a copy of the police report as soon as possible
- Attempt to find out where disabled vehicles were taken
- If an accident involves injuries, find out where the injured people were taken
- If possible, obtain witness statements
- · Complete the supervisory accident report property damage section

Following an accident, all materials related to it must be provided to the safety manager within **12** hours.

NEAR MISS REPORTING

A "near miss" is a close call event that under slightly different conditions and/or timing could have resulted in an injury, property damage, and/or had a detrimental effect to the environment.

Near Miss cards or forms will be supplied for all employees to use to report incidents they are involved in or witness. The employee will provide the following information:

- Hazards observed and addressed
- Location, time, date
- What action can be taken as a result of the event to prevent reoccurrence
- Optional information

Near Misses must be reviewed by supervisors, EHS, and management teams to ensure that any necessary control improvements are made. Information will be distributed to the OpCo, Region and Division teams to share learnings from the event.

INCIDENT AND EVENT REVIEWS

RECORDABLE / PREVENTABLE / SIF / NEAR-MISS REVIEW PROTOCOL

To support our efforts toward continued improvements in our safety culture the following process will be utilized to review all Recordable Injuries, Preventable Fleet Incidents and Significant Near Misses and SIF events experienced by Texas Region Companies. This process will ensure that we effectively review all significant events in order to identify opportunities for improvement and to help prevent incident reoccurrence. To ensure that these reviews are effective and consistent the following guidelines should be followed:

GENERAL EVENT REVIEW INFORMATION:

- Local Company management should review each Recordable Injury, Preventable Fleet and significant Near Miss within 72 hours after the event to learn about each incident and identify potential improvements to prevent reoccurrence. All Recordable injuries and Preventable Fleet incidents should be reported to the Regional Safety and Health Manager.
- Where applicable, Learning Teams should be assembled for complex or serious events to maximize learning.
- OpCo incident reviews should take place weekly, bi-weekly or at a minimum monthly to ensure that events are reviewed in a timely manner so that lessons learned can be put into action and communicated promptly across the Region and shared with Division.
- During these reviews, the immediate supervisor of the affected/injured employee(s) and their next-level manager should review the details of the event, to include lessons learned and recommended improvements.
- SIF and SIF(P) Incidents will be reviewed with the Region President
- Lost-Time Injuries will be reviewed with the Regional President and South Division President
- Additional review calls may be held as needed based on the nature, severity, or potential severity of the event.

REVIEW PARTICIPANTS:

- Company Reviews: Managers and immediate supervisors of the affected/involved or injured employee, Company President, Company Safety Manager.
- Regional Review Calls: Company President/GM, Manager/Supervisor of injured/involved employee, Company Safety Manager, Regional President, Regional Safety Manager.
- Division LTI Review Calls: Company President/GM, Regional President, Regional Safety Manager, Division President, Division VP, Safety.

KEY INFORMATION DISCUSSED:

- Company, Regional and Division reviews should focus on 4 main areas of information:
 - Overview of the incident / accident / injury focus on the facts of the event
 - Information about the affected employee(s) Condition / time in service / training / other accidents, etc.
 - What We Learned from the event specific findings and discoveries by review team and/or Learning Team
 - What corrective actions/improvements were identified including the plan for implementation of the suggested improvements?

RECOMMENDATIONS FOR AN EFFECTIVE REVIEW CALL:

- *Explain* the event and the details of what happened Do not simply read the incident report
- Speak directly to the issues at hand and be concise
- Be candid. Do not withhold information
- Include feedback and information from Learning Team (*if utilized*)
- The corrective actions should include a plan for implementation and follow-up to gauge effectiveness along with person(s) responsible for the effort.

Drug and Alcohol Testing Procedure

Texas Materials Group, Inc. prohibits the use, sale, distribution, and possession of alcohol and drugs by employees, contractors or any other personnel performing work on Company property, on Company project sites or operating Company equipment. Texas Materials Group, Inc. also prohibits employees and contractors from reporting to work, being present on Company property or job sites and operating Company equipment while under the influence of alcohol and/or drugs. **Violation or Refusal of this policy will result in immediate termination of employment.**

<u>Testing Requirements</u>: Texas Materials Group, Inc. enforces a comprehensive alcohol and drug abuse program that includes alcohol and drug testing under the following circumstances.

1. Pre- employment

All applicants for employment are required to submit to a drug test prior to commencing employment at a Company approved clinic

- a. Non-DOT employee Regulated UDS collect Preplacement;
- b. DOT employee Regulated DOT Physical Preplacement; DOT Breath Alcohol Test
- 2. Reasonable Suspicion

All employees may be required to submit to an alcohol and/or drug test based on reasonable suspicion.

- a. Reasonable suspicion testing must be based on specific, contemporaneous, articulable observations concerning:
 - i. Appearance
 - ii. Behavior
 - iii. Speech
 - iv. Body odors
- b. Alcohol/Controlled substances
 - i. Observations shall be made by a trained supervisor or Company official
 - 1. Trained in accordance with 49 CFR 382.603 and 49 CFR 382.307
 - ii. Test must be administered within 2 hours
 - 1. Non-DOT employee Regulated collect; Rapid mCup/10 Panel UDS with Breath Alcohol Test Reasonable Suspicion
 - DOT employee Regulated collect; Rapid mCup/10 Panel UDS with Breath Alcohol Test Reasonable Suspicion
 - 3. If not administered within 8 hours, all attempts will cease
 - iii. Inconclusive/Positive Tests on Rapid
 - 1. Diluted, Temperature, pH, Positive Test
 - a. Employee put on leave until results from Regulated collect
 - iv. Records
 - 1. Supervisor/Company official making the observations must fill out the form in Appendix A (Observed Behavior-Reasonable Suspicion Record)
 - a. Signed by Observer within 24 hours of the observed behavior or before the results of the test are released, whichever is earlier, and maintained by Safety and HR
 - 2. If Testing is not done within 2 hours a record must be prepared stating why it was not properly administered, then maintained by Safety and HR
 - 3. If Testing is not administered within 8 hours a record must be prepared stating why it was not properly administered, then maintained by Safety and HR

3. Post Accident

A drug and alcohol test will be required for any employee who operates a Company vehicle or piece of equipment and has an accident involving one or more of the following criteria:

- a. Non-DOT employee Employee on leave until results from Rapid, if rapid is non-negative the employee will continue to be on leave until results from MRO
 - i. Regulated UDS Collect Post Accident and Breath Alcohol Test Post Accident and Rapid mCup/10panel
 - 1. Fatality
 - 2. Catastrophe
 - 3. Serious injury
 - ii. Non Regulated UDS Collect Post Accident and Rapid m Cup/10 panel
 - 1. All other preventable/non-serious incidents
- b. DOT employee
 - i. DOT Regulated UDS Collect Post Accident with Breath Alcohol Test Post Accident
 - Employee on leave until results from MRO
 - 1. Accident results in fatality
 - 2. Any vehicle/equipment is towed from the scene
 - 3. Medical attention is required away from the scene (transported by ambulance)
 - ii. Non-Regulated UDS Collect Post Accident and Rapid m Cup/10 panel Employee on leave until results from Rapid, if rapid is non-negative the employee will continue to be on leave until results from MRO
 - 1. All other preventable incidents
- c. Non-Preventable fleet incidents in which our employee is not at fault
 - i. Case by case basis
 - 1. No drug screen required
- 4. Random
 - a. Non-DOT employee 10 % of non-DOT employee will be subject to Random Alcohol and Drug Testing every quarter
 - i. Random List provided by third party
 - ii. Tests must be conducted within 2 hours of the supervisor notifying the employee
 - 1. Supervisors have 24 hours to coordinate testing for employees
 - 2. If testing clinic distance poses a time constraint, supervisor must communicate with Safety Team to allow for extended time
 - 3. Non Regulated UDS Collect Random with Rapid mCup/10 panel
 - b. DOT employee –All employees who possess a CDL license and drive a Company vehicle shall be subject to random and unannounced alcohol and/or drug testing in accordance with the Department of Transportation (DOT) Federal Motor Carrier Safety Regulations (10 % Alcohol and 50% Drug).
 - i. Random List provided by third party
 - ii. Tests must be conducted within 2 hours of the supervisor notifying the employee
 - 1. Supervisors have 24 hours to coordinate testing for employees
 - 2. If testing clinic distance poses a time constraint, supervisor must communicate with Safety Team to allow for extended time
 - iii. DOT Regulated UDS Collection Random
 - iv. Inconclusive/Positive Tests on Rapid
 - 1. Diluted, Temperature, pH, Positive Test
 - a. Employee put on leave until results from Regulated collect

5. Return to Work

Any employee who has participated in a course of treatment for alcohol and/or drug dependency will be required to submit to an alcohol and/or drug test prior to returning to work. Employees who return to work shall be subject to unannounced testing up to six (6) times over a period of twelve (12) to sixty (60) months, or pursuant to recommendations made by the designated Substance Abuse Professional (SAP).

- a. Rapid mCup/10 panel UDS and Breath Alcohol Follow up
- b. Rapid mCup/10 panel UDS and Breath Alcohol Periodic
- 6. Client Specific Testing
 - a. If a client requests additional or specific testing requirements the Company will abide by the most stringent

Reasonable Suspicion Form

	OBSERVED BEHAVIOR-REASONABLE SUSPICION RECORD							
Emp	loyee: Name	:						
	ldent	fication Number:						
Obso	ervation: Date:	Time: (from am/pm: to	_ am/pm)					
	Loca	ion:						
		(Street) (City) (State)	(Zip)					
CAU	SE FOR SUSPI	CION						
1.	Presence of	Drugs, Alcohol, and/or Paraphernalia (<i>specify</i>):						
2.	Appearance:	Normal Flushed Puncture M	arks					
		Disheveled Bloodshot Eyes Inappropria	te use of					
		Dilated/Constricted Pupils Profuse Sweating						
		Dry-mouth Symptoms Runny Nose/Sores						
		Other Body Odor						
3.	Behavior							
	Speech:	Normal Incoherent Slurred Silent						
		Confused Slowed Whispering						
		Other						
	Awareness:	Normal Confused Mood Swings Euphor	ia					
		Lethargic Uncoordinated Paranoid Disorier	nted					
		Other						
4.	Motor Skills							
	Balance:	□ Normal □ Swaving □ Falling □ Stagger	ring					
		□ Other	0					
	Walking &	Normal Surving Arma Paised for Palance						
	Turning:	Stumbling Ealling Reaching for Support						
		Other						
_								
5.	Other Observ	ed Action or Behavior (specify):						
Witn perfo	essed by: (must l ormance indicato	be a supervisor or company official trained in physical, behavioral, speech, an rs of probably alcohol misuse and use of controlled substances)	đ					
	(Signatu	re) (Title) (Date)	(Time)					
	(Ontiona	(Date) (Title) (Date)	(Time)					

This document must be prepared and signed by the witness within 24 hours of observed behavior or before the results of the test are released, whichever is earlier (49 CFR 382.307(f)).

Proper Testing Administration Form

- □ If Testing is not done within 2 hours of observations
- □ If Testing is not completed within 8 hours of observations

Record Statement of why testing was not properly administered:

Name

Signature

Title

Date

Time

FLEET SAFETY PROGRAM

Defensive Driving

Defensive driving is driving so as to prevent accidents, in spite of the actions of other drivers, or the presence of adverse driving conditions. Remember that the Company vehicle that you operate probably is considerably different in size and complexity than your private vehicle. Understand that it probably does not have the same capabilities as your personal vehicle does and take into account these characteristics.

1. Only Texas Materials Group, Inc. employees are authorized to operate Company owned or leased vehicles.

2. Only licensed and trained drivers who have successfully completed and are current in defensive driver training will operate Company vehicles.

3. Drivers and passengers shall wear seat belts at all times.

4. Drivers must comply with all traffic laws and regulations. Citations received by Company vehicles will become the responsibility of the individual driver.

5. Obey all posted speed limits.

6. If a Company vehicle is left unattended, the vehicle must be in a parked position; the parking brake must be on.

7. Prior to driving away, walk to the back/front of the vehicle. This will give you a clear picture of the area behind your vehicle in case you have to back up without someone assisting you (delivery vehicles). Incorporate **Get Out And Look** (GOAL).

8. If another employee is assigned to ride in the vehicle that you are operating, use this employee to guide you in backing up operations or close quarters driving. It will prevent accidents.

9. Know the condition of your vehicle before starting the day's operations in it. Check all the special operating conditions such as wipers, brakes and brake lights, headlights, fuel, oil, tires, and steering.

10. Promptly report all vehicle deficiencies to your supervisor. Vehicle operator shall insure the vehicle is properly maintained and will schedule PM Service when mileage or hours indicate service is due.

11. When refueling, leave the motor off and do not smoke in the vicinity of the fuel island. Closely follow the fueling procedures.

12. Complete your daily vehicle condition report and forward this report to your supervisor.

13. Keep your vehicle neat and clean. Remove trash from the beds and trailers daily to prevent losing debris out of your vehicle onto a road and causing damage to another vehicle.

14. Many of you drive large trucks while performing Company business. Included in your defensivedriving procedure is the fact that large trucks take longer to stop. Be aware that small cars cut in front of large trucks all of the time. Be alert for this circumstance. Remember that while driving large trucks in neighborhoods to be alert for children darting into the streets after toys and be alert for pedestrians and bicyclists. Driving large trucks requires patience and much more skill.

15. All Company owned/employee allowance vehicles MUST back into spaces provided, when backing is permitted.

This Policy applies to all employees who operate, or may operate, a licensed Company vehicle on public roadways.

- I. GENERAL
 - A. The following minimum qualifications must be met to establish authorization to operate a registered Company motor vehicle.
 - 1. Driver must be an active employee.
 - 2. Driver must hold a current and valid operator's license for the vehicle type in question.
 - 3. Driver must have received training in Smith System® space cushion driving technique.
 - 4. Driver must not be disqualified from driving a Company vehicle as outlined in this chapter.

II. NEW EMPLOYEE DRIVER QUALIFICATION

- A. Each applicant for a position which will require operation of a licensed motor vehicle shall produce a valid motor vehicle operator's license for the applicable type(s) of vehicle(s). Each applicant will in addition provide a copy of their operator's license to HR/Safety Department.
- B. A motor vehicle report (MVR) will be ran to review license status, previous driving violations and risk score.
- C. An applicant shall not be considered eligible for a job, which requires driving if disqualified by Section IV below.

II. CONTINUING DRIVER QUALIFICATION

- A. Charges or convictions for all moving violations must be reported to the EH&S Department in writing immediately.
- B. Annually, an MVR will be run to evaluate driving record.
- C. Annually, or upon request, employees in a position requiring operation of a licensed motor vehicle will complete a "Driving Record Certification". Any omissions or inaccuracies may result in disciplinary actions up to and/or including termination.
- D. All employees involved in a preventable fleet collision are required to attend a full Smith System Driving class within five (3) workdays of having their fleet collision determined to be preventable. The employee cannot drive for the Company after this period until the training is completed. Any division driving restrictions will still apply.

III. COMMERCIAL DRIVERS

A. All employees driving a vehicle governed by the Federal Motor Carrier Safety Regulations are required to meet all applicable provisions of those regulations in addition to the requirements of this chapter.

- B. Drivers of Company trucks which fall under the Federal Motor Carrier's Safety Regulations shall do a pre-trip inspection per 396.13 and a written post-trip inspection at the end of the shift per 396.11
- C. Additional information can be referenced in the Employee Handbook.

IV. DISQUALIFICATION

- A. All charges and convictions for moving violations must be reported to the EH&S Department immediately in writing. The employee's record shall be reviewed following any accident, charge, or conviction.
- B. Any Employee who is charged with eight (8) points or higher from the schedule below in any 24 month period shall be disqualified from driving a Company owned vehicle until there are fewer than eight (8) points within the preceding 24 month period, or longer if deemed necessary by the Company President. Points accrued while operating personal vehicles will apply. Reinstatement will be at the discretion of the Company President.
- C. When more than one violation is cited in a single incident, only the one violation with the greater number of points shall be charged to the driver's record.

Speeding 5-15 MPH over limit	2 Points
Speeding 16-30 MPH over limit	3 Points
Speeding over 30 MPH over limit	4 Points
Other Moving Violations	3 Points
Preventable Fleet Accident	3 Points
DWI	Termination

V. DISCIPLINARY ACTION

Nothing in this policy shall be interpreted to prevent Management from providing stronger disciplinary action up to and including termination when such action is deemed appropriate.

- VI. OPERATION OF VEHICLES
 - A. GENERAL
 - 1. Safe operation and accident prevention is our NUMBER ONE PRIORITY.
 - 2. Company motor vehicles shall be operated in compliance with all Federal and State Laws, County and City Ordinances, and procedures established by the manufacturer. DO NOT EXCEED or make exceptions to these limits.
 - 3. Operate Company vehicles in a manner that is courteous and represents the Company in a positive way.
 - 4. Keys should not be left in unattended vehicles or equipment.

B. SEAT BELTS

Each driver shall insure that he or she uses a seat belt at all times while operating a Company motor vehicle and shall insure that all passengers use seat belts.

C. HEADLIGHTS

All vehicles owned, leased, reimbursed, or rented shall be operated with the headlights on while the vehicle is in motion. This includes operation during the daylight hours and applies both on and off public roadways. New vehicles shall be ordered with the automatic daytime running lights option if available.

D. ACCIDENTS

Fleet accidents shall be reported promptly, from the scene if possible, to the drivers' immediate supervisor and EH&S Department.

Police will investigate all fleet accidents, where applicable. Drivers should make every effort to obtain a report number from police, as well as driver and vehicle information on other vehicles involved in the accident.

All Company vehicles should have a copy of the vehicle registration, proof of insurance, phone cameras, accident incident report and any applicable Hazmat documentation in the vehicle at all times.

E. MAINTENANCE

Vehicle preventive maintenance (servicing, oil change, coolant, tire pressure, etc.) is the responsibility of the assigned driver. Drivers shall maintain, monitor and inspect vehicles for proper operation of safety devices, unusual noise, or handling characteristics, and items that are subject to sudden failure i.e.; tire, hitches, load, etc. Repairs and tire purchases are to be authorized by the Fleet Operations Office. Vehicles are to be kept clean and free from debris

Preventable Fleet Disciplinary Guidance Document



Emergency Action Plan

This Policy applies to all employees and contractors in or around our workplace including roadways.

- I. Medical Emergency
 - a. Minor Injury include injuries that can be treated by first aid alone
 - i. Call the Occupational Nurse
 - b. Major Injury include injuries that require greater treatment than first aid
 - i. If individual is unconscious call 911
 - ii. If individual is conscious and:
 - 1. Requests an ambulance call 911 along with the Occupational Nurse
 - 2. Does not request an ambulance call Occupational Nurse for guidance
 - c. In all cases notify the appropriate supervisor and EHS team and prepare and Injury/Illness report
- II. Fire Emergency
 - a. If a fire is discovered activate the fire alarm system to alert all personnel
 - b. From a safe location call 911
 - i. Do not hang up until 911 staff have already hung up
 - c. Evacuate the building to the muster area for a headcount
 - d. Do not leave the property until advised to do so
- III. Severe Weather
 - a. Tornado
 - i. f indoors seek shelter in a central room with no windows
 - ii. If outdoors lie flat in the nearest depression, such as ditch or ravine
- IV. Active Shooter
 - a. Run
 - i. Have an escape route plan in mind
 - ii. Leave your belongings behind
 - iii. Keep your hands visible
 - b. Hide
 - i. Hide in an area out of the shooter's view
 - ii. Block entry to your hiding place and lock the doors
 - iii. Hide behind furniture if possible
 - iv. Silence your cell phone
 - c. Fight
 - i. If confronted directly and as a last resort when your life is in imminent danger
 - ii. Attempt to incapacitate the shooter
 - iii. Act with physical aggression, throw items at the shooter, yell loudly and commit to the effort
 - iv. Moving people are harder to shoot
 - d. When law enforcement arrive
 - i. Remain calm and follow instructions
 - ii. Put down any items in your hands
 - iii. Raise hands and spread fingers
 - iv. Keep hands visible at all times
 - v. Avoid quick movements toward officers
 - vi. Avoid pointing, screaming, or yelling
 - vii. Do not stop to ask officers for help or direction when evacuating

V. Media – No one is allowed to talk to the media on behalf of the Company without prior approval from the Regional President. A Designated spokesperson from each area is assigned to speak to the media on behalf of the Company. All statements on behalf of the Company to the press shall be released through the President's office.

Risk Assessment

- Each Company must have a policy in place and it must be communicated to all locations D
- Policies must specifically address non-routine tasks, work carried out by contractors and temporary employees, construction work and off-site delivery procedures P
- Each Company must have a process in place to evaluate activities identified as having increased risk D

Equipment Safety

- Each location must have site transport rules in place, that at a minimum, address: D
 - Vehicle-pedestrian segregation
 - Edge protection for slope/benches
 - Driver training rules and assessment
 - Vehicle rules for speed limit and visual/audible waning systems
- All drivers must be trained and regularly assessed, this includes completing daily pre-trip inspections for Company vehicles used on and off-site
- A mobile electronic device usage policy must be in place (2)
- All loads must be secured and within weight limits
- · Seat belts must be worn by all drivers on-site and off-site

Isolation of Operating Machinery and Electrical Safety

Lockout/Tagout/Verify

- Each location must implement and train employees based on a Lockout/Tagout/Verify policy P D A
- Each machine component must have machine-specific written procedures for the safe Lockout/Tagout/Verify isolation of energy sources and all authorized employees must be trained D (A)
- All authorized employees must be observed conducting a task involving Lockout/Tagout/Verify at least annually by an authorized and designated competent employee to ensure system isolation of energy sources as per policy D
- All machine-specific procedures must be inspected for correctness to ensure equipment additions and/or changes have been reviewed and implemented at least annually D
- Written procedures should be developed for Close Proximity Maintenance (CPM) tasks which include a Job Safety Analysis (JSA) outlining the planned CPM procedures
- Sufficient numbers of locks, tags, hasps, etc. must be maintained on-site to conduct all anticipated maintenance activities A
- Electrical and machine/equipment switches cannot be locked in an "ON" position

Electrical Safety - NFPA 70E

- · Arc Flash surveys must be completed by a qualified person for each facility with the corresponding electrical labels installed
- Prior to starting work, all electrical contractors must provide a letter of certification confirming that the attending electrician(s) are properly National Fire Protection Association (NFPA 70E) trained to work around the respective voltage
- All employees who troubleshoot electrical systems, perform voltage testing, operate circuit breakers with covers off or are otherwise exposed to live or potentially live circuits have must be trained in NFPA 70E
- All qualified and/or affected employees must wear appropriate arc-rated Personal Protective Equipment (PPE) during electrical tasks
- All authorized employees and contractors who work on electrical equipment must perform Lockout/Tagout/Verify on the energy source and verify disconnection through use of a voltage tester



Machinery Guarding

- Each location must maintain a system for regular checking of machinery guarding
- No machinery can be operated without all tail pulleys, pinch points, exposed shafts and exposed moving parts properly guarded
- Pad-mounted electrical transformers, tanks, tank and containment valves, gas lines, gas containers/cylinders must be located away from travel ways and adequately protected by bollard, barrier or other measures so they cannot be struck by trucks and/or mobile equipment
- Conveyor return rollers within 7-feet of the ground (or an adjacent working surface) where workers may work or travel under the belt must be guarded

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ds must be secured in a way that a tool is required to remove them

Confined Space Entry

- All locations must have a confined space entry policy and supporting rules and safe entry procedure for each confined space identified on-site D
- Employees must seek prior authorization to enter a confined space, and each location must have safe entry procedures for confined space entry D
- · All affected employees at each Company location must be trained in confined space entry rules
- All permit-required confined spaces must have signs posted at the entryway indicating "Permit- Required Confined Space Do Not Enter"
- Permits must be used for safe entry into permit required confined spaces, including but not limited to, baghouses, cold feed bins, mixer drums, tanks, silos, etc.

Working at Heights

- Each location must have a Fall Protection policy in place and posted P D A
- All employees who may work at heights must be trained in the Fall Protection policy, as well as all applicable means and methods, for preventing falls at their location D
- A fall hazard risk assessment must be conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in the Fall Protection policy
- Employees should be aware of the various tools and devices that can be used to help them achieve 100% fall protection such as fall protection systems, retractable lanyards, beam straps, double lanyards, etc. and these devices must be available
- Fall harnesses/lanyards inspections must be conducted as per manufacturer specifications D
- · A "ladders last" approach must be always applied
- · All ladders must have a visible capacity rating, be in good condition and be used appropriately
- "Three Points of Contact" stickers or signage must be positioned at ladder ways or access points of all plants and mobile equipment

Lifting Operations

- Employees using lifting devices of any capacity (including excavators and loaders) must receive training from a designated competent person in the use of each specific device (including rigging and lifting)
- · Specific areas must be designated as "out of bounds" to personnel when lifting operations take place
- All lifting equipment and implements (straps, cables and chains) must have their safe working load limit identified on the lifting device
- If chains are used for lifting, they must be visually inspected before each use and monthly thereafter with a documented inspection record which includes the date of the inspection, the signature of the person who performed the inspection and an identity of the chain that was inspected D
- Never use chains to tow vehicles or equipment (i.e. stuck in the mud) use tow ropes, recovery straps or other devices of sufficient strength designed for this purpose

Underground and Overhead Utility Dangers

- Risk assessments for underground and overhead work must be in place D
- A site survey for utility lines and underground pipes must be conducted before work is carried out on a project D
- All employees and operators should stay a minimum of 10-feet away from power lines and spotters must be used in situations
 where power lines are nearby to observe and warn operators



Use of Personal Protective Equipment (PPE)

- A PPE policy must be in place for all areas of operations/tasks (P) (D)
- Daily visual inspections of PPE use must be carried out at each location
- No employee or contractor will be permitted to work without the required PPE



Safety of Materials Under Pressure

- Employees must be trained on all applicable safe operating procedures (i.e. loading/unloading)
- Regular checks of pressure relief systems on pressurized conveying systems must be conducted by a designated competent person D
- Compressed gas tanks must be separated and stored properly
- Compressed air must not be used for cleaning (personnel or clothing), compressed air used for cleaning other surfaces or objects must be regulated down to less than 30 PSI
- · Pressurized systems must be fitted with proper relief systems including check valves, etc.

Blasting Operations

- A Blasting policy must be implemented P
- All employees on-site must have training on the site-specific blasting rules D
- All personnel carrying out blasting operations must have training D
- Blasting records must be maintained
- Pre-blast reviews must be conducted D



Work Zone Safety

- All work zone personnel must be properly trained for their specific roles and all work zone employees must receive work zone awareness training
- A copy of the most current Manual on Uniform Traffic Control Devices (MUTCD) state/local/project specific traffic control standards must be readily available for review on all projects (A)
- · All reverse systems, echo location systems, back up alarms (including those of contractors) must be working properly
- An Internal Traffic Control Plan (ITCP) must be created and be in use to minimize backing and control internal movement of equipment, vehicles and personnel
- · Employees must be aware of the 10-foot rule when working around/operating equipment
- All road crews must have knowledge of and understand the Backer Spotter policy P
- Maintenance of Traffic (MOT) personnel and flaggers must be trained according to their duties
- All equipment must be outfitted with sufficient retro-reflective tape that can be seen at night, the tape must be clean and in working order
- All equipment operating in a work zone must be equipped with flashing lights as required
- · All work zone traffic control must be inspected and documented by a designated competent person
- · Work zone employees must be familiar with the Best Practices for Mitigating the Effects of Work Zone Intrusions manual



Employee Engagement

- Employee groups must participate in problem solving and risk reduction tasks to foster employee engagement
- Engagement opportunities such as near-miss reporting, behavior observations and mentoring of others, etc. must be implemented



Contractor Safety Management

- Contractors must be evaluated using a contractor safety management guide/checklist
- Contractors must be included and participate in daily safety huddles (i.e. T5s) and risk assessments
- · Contractors must receive a safety induction and have appropriate oversight when working at facilities or on jobsites
- Contractors must be informed of and follow all PPE requirements

Legend for Specific LSR Requirements

Policy: A dedicated policy is required

D Documented: Requirement for policy, training, implementation, etc. to be documented

A **Accessible:** Requirement for policy to be accessible to employees (i.e. posted or displayed in some way)

Risk Assessment

- Each Company must have a policy in place and it must be communicated to all locations D
- Policies must specifically address non-routine tasks, work carried out by contractors and temporary employees, construction work and off-site delivery procedures P
- Each Company must have a process in place to evaluate activities identified as having increased risk D

All employees must be trained in the approved risk-assessment and risk-reduction processes. The risk-assessment process is designed to help employees identify, analyze and reduce/eliminate the risk associated with each task. This includes constant awareness of our surroundings, environment which can often change during the course of work.

RISK ASSESSMENT POLICY

Risk Assessment Requirements:

It is essential that all jobs, tasks, and work assignments are planned to either eliminate risks or reduce risks to an acceptable level. Texas Region Companies utilize several methods of conducting and communicating Risk Assessments.

<u>T5'S</u>

Every shift will start with a T5. T5 stands for "Take Five for Safety". Typically, these layout the day's schedule but also evaluate the risks associated with that day's tasks. It's important for the entire crew to be involved in this process as any change could affect the safety of the crew.

- Determine the tasks of the Job What are we going to do and how are we going to do it?
- Identify the safety concerns What are the risks and what might go wrong?
- Discuss solutions that will minimize or eliminate the concerns What tools do we need, procedures to follow, etc.?
- Assign persons responsible for addressing each of the solutions Who is responsible for each task?
- As the task or conditions change, STOP and re-evaluate!

Non-Routine Tasks:

Non-routine tasks involving significant or elevated risks, and/or complex job requirements should be pre-planned. Such preplanning should include development of a Job Safety Analysis (JSA). Many JSA's have been developed and are available on the Company intranet. For tasks where JSAs have been created, these documents should be reviewed prior to beginning the task. Where JSAs have not been developed, supervisors should involve safety in the planning process to assist in developing a JSA to document the proper procedures for performing that task.

Prior to performing non-routine tasks, a focused discussion of applicable risks and precautions must be conducted with all relevant employees. This can often be accomplished as part of a T-5 process. While T-5's must be conducted at the start of each shift, they should also be conducted at any time during the shift when non-routine tasks are performed, or when work conditions change. The affected individual(s) shall take appropriate time to think the task through to completion and determine if it is safe to perform the task (i.e. risks mitigated, appropriate PPE available, etc.). Such risk assessments are essential to establishing the safety expectations for non-routine tasks.

Weekly Safety Topics:

Weekly safety meetings are utilized to communicate safety information to all employees. Weekly safety meetings are required and should be performed at the beginning of the first shift of the week and must include a focused discussion of the designated topic with all office, plant, quarry, project, and crew personnel as applicable.

CRH TASKS THAT KILL

Ninety percent of severe incidents are caused by a breakdown in the risk assessment process. For this reason, being proactive and identifying the risks associated with our particular jobs can help eliminate these risks – protecting not just ourselves but our family on the job.

The Tasks that Kill assessment process works as described below and must take place before the task begins.

Identify the Tasks that Kill for each line of business.

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- Discuss how these risks can be eliminated or reduced with those involved in performing the task. •
- Communicate the action needed to everyone involved. .
- Take the necessary action(s) to eliminate and/or reduce the risks. • •

Document and retain this information to use this again. <u>CRH TASKS THAT KILL BY LINE OF BUSINESS</u>

Aggregates	Ready Mix Concrete	Hot Mix Asphalt	Construction	Shop & Equipment
Rigging and Lifting	Hopper Work	Maintenance & LOTO	Interstate Work	Work Away from Shop
Working at Heights	Chipping the Drum	Electrical & Arc Flash	Night Work	Suspended Loads
Clearing Chutes & Bins	Backing Trucks	AC Exposure	Flagging	Working on Hydraulics
Blasting	VPS Planning	Elevated Work	Cell Phone Use	Working at Heights

Risk Assessment Compliance Review

Documented Risk Assessment Policy in place and accessible to all employees.

Risk Assessment Process addresses non-routine and high hazard tasks.

Evidence that the Risk Assessment Program is being followed.

Specific Risk Assessment Process for off-site delivery (if applicable).

Weekly toolbox talks / safety topics discussed and a copy of this documentation kept at your site/local office.

Site safety briefings conducted and documented with contractors when they arrive at facility.

Temporary personnel training is provided commensurate with the risks and this training is documented.

The Company have a process in place to evaluate "Tasks that Kill".

Diesel fuel or gasoline IS NOT allowed to be used for any cleaning purposes at any time.

The Safety Data Sheet for CRH AMAT manufactured products accompanies each load.

Tanks are properly labeled.

Fire extinguishers are inspected regularly with a current annual inspection.

First aid kits stocked with current products.

Equipment Safety

- Each location must have site transport rules in place, that at a minimum, address: D
 - Vehicle-pedestrian segregation
 - Edge protection for slope/benches
 - Driver training rules and assessment
 - Vehicle rules for speed limit and visual/audible waning systems
- All drivers must be trained and regularly assessed, this includes completing daily pre-trip inspections for Company vehicles used on and off-site
- A mobile electronic device usage policy must be in place (2)
- All loads must be secured and within weight limits
- Seat belts must be worn by all drivers on-site and off-site

A majority of our business depends on the safe operation of vehicles and equipment, especially construction. With this area having one of the highest fatality occurrences, we need to make sure that we are well prepared for the hazards and risks associated with our use of the equipment.

WHAT IS EQUIPMENT SAFETY?

Mobile Plant Safety refers to Equipment Safety and related procedures & policies. All locations and jobsites must have documented site transport rules in place which address at a minimum: Vehicle-Pedestrian segregation, edge protection for slopes/benches (berms/barricades), driver training rules, and vehicle rules. Our ITCPs that we discussed in Risk Assessment are a tool we use to address these rules.

EQUIPMENT BLIND SPOTS

Large equipment and trucks have several visual blind spots to the operator. This is especially true in backing scenarios, but in reality there is a halo around all equipment where it is difficult to see. You need to be aware of the blind spots and observe the following.

- Identify places on the ground where an equipment operator cannot see ground personnel for each piece of equipment.
- Avoid blind spots whenever possible.
- Never abruptly enter a blind spot. Always make the equipment operator or truck driver aware you are entering their blind spot with eye contact and verbal communication when possible.
- Be aware that poor lighting can increase blind spots.
- Equipment or truck grouping create new blind spots.
- · Always be alert and aware around equipment and trucks and never assume the driver/operator sees you.

VEHICLE-PEDESTRIAN SEGREGATION

The goal of Vehicle-Pedestrian Segregation (VPS) is to keep the pedestrian traffic and vehicle traffic as separate as possible. It should remove confusion and create needed communication.

The plan should include all of the following: Rules of the Job Site regarding visitors, customers, & employees.





HIGH VISIBILITY APPAREL POLICY

As a Texas Region employee it is important to understand the role that High Visibility PPE plays in keeping us all safe from traffic on our jobsites.

The following are minimum requirements that apply where employees work outside of an office environment. Each site may choose to go above and beyond these minimum requirements based on site specific procedures and/or hazards.

ANSI CLASS 3 GARMENTS

All Texas Region personnel exposed to vehicle or equipment traffic on construction sites, plants or other facilities are required to wear an ANSI approved Class 3 vest, t-shirt, or jacket.

USE AND CARE OF HIGH-VISIBILITY GARMENTS

- The vest, t-shirt, or jacket should be the outermost garment at all times.
- All hi-vis apparel should be worn correctly and properly fastened.
- Employees will be responsible for the upkeep of their garments. In the event that your garment(s) become damaged or their effectiveness is impaired, let your supervisor know.
- The Company will furnish ANSI approved Class 3 vests to all employees exposed to vehicle or equipment traffic.

NIGHTTIME ROAD WORK

- All employees will wear an ANSI approved Class 3 vest, t-shirt, or jacket, AND Class E pants or Class E gaiters.

FLAGGING OPERATIONS

- All employees conducting flagging operations during the day must wear an ANSI approved Class 3 vest
- Employees conducting night shift flagging operations must wear an ANSI approved Class 3 vest, AND Class E pants or gaiters







DEFENSIVE DRIVING

A key component of Equipment Safety is having a program for driver training. All Texas Region employees who operate Company vehicles must successfully complete defensive driver training. Once an employee receives their initial training, they will be required each year to have a refresher class. Additional details explaining the Texas Region Fleet Safety Program can be found on page 11 of this handbook.

PRE-SHIFT EQUIPMENT INSPECTION REPORT

In order to maintain equipment in a safe operating condition, it is important that thorough pre-operational inspections are completed. If safety defects are identified during the inspection the defects should be documented on the inspection form and reported to the equipment department. Equipment that is found to have defects that affect the safe operation of the machine should be removed from service until the defect can be repaired.
HYDROGEN SULFIDE (H2S) SAFETY FOR HMA OPERATIONS

Certain Asphalt Cement (AC) products can release Hydrogen Sulfide (H2S) gas in amounts that may be higher than other AC liquids. In some cases, the amount of H2S released can exceed the OSHA ceiling level (20 ppm) or maximum peak exposure limit (50 ppm) in a worker's breathing zone when they are opening AC tank lids for the purpose of taking manual tank measurements (i.e. sticking the tank) or for other reasons.

Guidance and Control Strategies for H2S

1. Minimize or eliminate the manual measurement of AC tanks whenever possible or opening tank lids for any reason. Mechanical AC gauges often stick in the thick liquid creating the need for manual measurements in order to determine liquid levels. Radar gauges have also been unreliable. As a result, TEXAS REGION companies should consider using pressure gauges in place of mechanical and radar gauges.

Pressure gauges measure the head pressure of the liquid in the tank and can be added to most AC tanks. These gauges appear to be more reliable than mechanical and radar gauges.

2. General Dilution Ventilation is very effective at dissipating H2S and directing all vapors/fumes away from the worker. The use of an outdoor industrial fan affixed near the lid and blowing near perpendicular across the surface away from the worker is an effective means to dissipate and reduce H2S in the worker's breathing zone.

3. A wind sock or flag should be available in close proximity to the tank or containment area so workers are aware of wind direction and can work in concert with a fan, as necessary, to steer vapors/fumes away from the worker.

4. A Hydrogen Sulfide (H2S) meter should be worn by all workers while taking AC liquid measurements. As an alternative, a confined space meter with H2S capability can be used. Ensure the device is properly functioning and calibrated per the manufacturer's instructions. Device should preferably be worn near the worker's breathing zone (1 to 2 foot radius around the nose and mouth) but at a minimum it should be at the beltline or higher.

5. If AC tank lids must be opened, use a 3 foot crowbar or similar to maximize the distance from the opening lid to your breathing zone as the lid is opened.

6. When initially opening the lid, first crack it an inch or two with the crowbar and step back for a minute. This allows head space vapors including H2S to dissipate. Assess your personal alarm to ensure no H2S levels above 10 ppm are present. If H2S is below 10 ppm, proceed to fully open the lid.

7. If the presence of H2S is detected at or above 10 ppm, immediately move away from the lid and stop the operation. Evacuate the area and notify management for directions on how to proceed.

8. Any alarm event at or above 10 ppm should be used as an early warning of potentially hazardous concentrations of H2S and should be reported to the facility manager/supervisor and investigated by area management and the local Safety Professional.

9. Only trained and knowledgeable workers in the risks of H2S exposure and all applicable control measures are allowed to access the tops of AC tanks and perform lid opening procedures.

Safety Best Practices / Guidelines for Vehicle/Pedestrian Segregation

Repositioning/Backing equipment on job sites (Paving, Milling, etc.)

General safety guidelines when repositioning for next pull:

- 1. Avoid backing up equipment and vehicles whenever possible.
 - In the pre-project planning stage, evaluate and develop a work plan that minimizes/eliminates resetting equipment and trucks.
 - Work to schedule repositioning/resetting activities at the beginning or end of shifts when trucks are not on the site.
 - "Racetrack" projects whenever possible in order to eliminate the need the reposition/reset.
 - When repositioning is required, direct the trucks from the job site in a forward direction then circle the trucks to re-enter the job site where the paver, milling machine, or materials transfer device has been repositioned. Field supervisors should evaluate job site conditions and use this method if it will reduce overall risk to the project.
- 2. A risk assessment shall be conducted prior to any movement of equipment, vehicles or personnel. Some of the important points of discussion are listed below.
 - This risk assessment shall include all personnel involved with the repositioning process (Company personnel, subcontractor employee, third-party hired haulers, DOT personnel, and third-party employees such as engineers, quality control technicians, etc.).
 - The personnel shall discuss the means by which pedestrian and vehicle segregation will be accomplished at the job site.
 - No personnel shall be allowed in the travel way of the equipment or vehicles.
 - Take precautions to eliminate any personnel traveling by foot to the reset position. Personnel should be safely transported to the reset position. Any ground personnel on foot (spotting for the machine when repositioning) shall be required to remain to the immediate side of the reversing machine (paver, shuttle buggy, milling machine, material transfer device, etc., not a reversing truck), in clear view of the equipment operator, and out of the travel way of any vehicle and equipment traffic.
 - No work is permitted in the travel way of vehicles or equipment during the repositioning process (quality control work, installation of temporary striping, measurements, inspections, etc.).
 - The personnel shall discuss traffic control and make any necessary adjustments to the traffic control set up during the risk assessment. All personnel should be advised of the points of access and egress of the delineated work zone. If possible, the personnel should discuss the number and time of all anticipated repositioning activities.
- 3. All personnel, equipment, and vehicles in the work zone area must be accounted for before any equipment or vehicles begin the repositioning process. Headsets are not to be used during this activity.
- 4. Once the repositioning process is ready to begin, no equipment or vehicle shall be moved until directed by a designated person. When permitted, the sounding of an air horn should be utilized by the designated person to inform others on the job site that the repositioning process is about to begin. Once the equipment or vehicle operator has been directed to reposition, the vehicle horn should be sounded twice along with the usage of the appropriate hand signals.

- 5. All personnel on job site must be clearly visible to others.
 - The required high visibility clothing and other PPE must be utilized at all times.
 - Additional measures shall be taken to achieve proper visibility at night (Class III clothing, lights attached to hard hats, reflective ankle and wrist bands, reflective tape on hard hats, etc.).
 - Adequate lighting of the work zone, including the vehicle travel way, shall be provided for night work.
- 6. All equipment and vehicles shall be equipped with properly working backup alarms, reversing lights, and horns. The use of backup cameras, echo location sensing devises, etc. should be used as available. For night work, additional devices such as rotating beacons, flashers, light bars, reflective conspicuity tape, etc. should be used on the job site. An escort vehicle equipped with lights should accompany any equipment that is not equipped with lights to the reset position.
- 7. If any person is observed in the travel way of any equipment or vehicle, the person making that observation must immediately take action to stop the operation. If a vehicle or equipment operator observes someone in his/her travel way, he/she must immediately stop his/her equipment or vehicle. The supervisor must be informed of this violation as soon as possible.
- 8. Once the repositioning process (including any staging of trucks) is complete, the designated Backer/Spotter will be responsible for directing the trucks into position to unload or load for the repositioned machine (paver, milling machine, material transfer device, etc.).
- 9. This policy shall be frequently communicated and reinforced by CRH Americas Materials personnel with all persons associated with the project. (CRH Americas Materials personnel, subcontractor employees, third-party hired haulers, DOT personnel, and third-party employees such as engineers, quality control technicians, etc.).
- 10. Violation of these applicable guidelines will result in disciplinary action which may include termination.

Best Practices for Backers/Spotters

We will have a spotter available for any operation involving a truck that is required to back up to a paver, material transfer device, milling/grinding machine, or any area where there are ground personnel and/or hazards inherent to the backing and unloading/loading process.

Each crew will be equipped with a spotter's kit containing:

- Green batons or gloves
- Coned flashlight w/ holster
- Hand signal cards (available for rental trucks with inexperienced drivers)

The person spotting the truck will identify him/herself to the driver upon arrival to the jobsite. As a spotter, ensure you have a complete understanding of the potential hazards on the jobsite.

When there are unusual, complicated or high-risk circumstances involved, review these with the driver before attempting to complete the backing and unloading/loading process.

Confirm with the driver he/she has knowledge of our standard hand signals you will be using. Ensure you have eye contact with the driver while spotting for them.

Be sure to maintain a safe distance between the truck and yourself at all times. Maintain focus on the backing and unloading/loading process while acting as a spotter.

If, at any time a pedestrian enters the path of the backing truck, immediately stop the truck until they are clear of potential harm. Advise the foreman of this situation as soon as possible.

If at any time you divert your attention to anything other than spotting, stop the driver, then restart when you are able to resume spotting.

Be conservative; understand there may be differences in equipment and personnel.

You have a responsibility to ensure all trucks on our jobsites and properties have working backup alarms, if they don't notify your supervisor and ask them not to return until they are functioning properly.

When using hand signals, realize the need for the driver to frequently check other areas surrounding his/her truck for safety. That is, they may not see your hand signals if they are looking out another mirror or towards the side of the truck while backing. Signals need to be slow and decisive.

If at any time you feel the driver is not paying proper attention to you, stop and speak with the driver, then resume after a clear understanding of your requirements as a spotter have been communicated.

During night deliveries use a spotter's flashlight for signals.

Whenever you, as a driver, are required to back up to a paver, material transfer device, milling/grinding machine, or where backing is required around personnel or other potential hazards, a spotter will be available

to assist you.

The spotter will identify him/herself to you upon arrival. He/she may be equipped with a green baton during daytime hours and will be equipped with a flashlight at night.

Knowledge of standard hand signals is expected before backing commences.

Functioning back up alarms is required on all trucks.

Ensure you have eye contact with the spotter before proceeding with backing.

Avoid distractions while being backed and or spotted.

Communicate any abnormalities in equipment that may hinder safe and efficient backing and unloading/loading of material on jobsite/properties.

If you lose sight of your spotter at any time, stop until you regain sight and eye contact with him/her. When

instructed to stop, do not proceed until signaled to proceed.

If, at any time, a pedestrian enters your work zone while backing, stop until they are clear of potential harm.

During night work, the spotter will have a spotter's flashlight to signal with.

Ensure mirrors are adjusted, tightened, and clean before delivery. Utilize mirror check station, if available.

If there are circumstances inhibiting you from backing safely, stop and communicate those concerns with your spotter.

If multiple people attempt to back or spot you with conflicting signals, stop and clarify who your designated spotter is.

NOTE:

These are minimum standards. You may add any action that will improve the safety of the backing and unloading/loading process.

Equipment Safety - Ten Foot Rule

Operators shall use extreme caution at all times to remain aware of the presence of any personnel on foot in the area of their equipment, and to operate the equipment so as not to pose a hazard to those employees. When operating equipment such as backhoes, loaders, motor graders, milling machines, compactors, or similar equipment, the operator should take an additional precaution upon approaching an employee within 10 feet who is engaged in work directly or not directly involved with the work that operator is performing. The operator must engage the horn or otherwise attract the attention of the employee to gain eye contact before s/he proceeds any closer to the employee. If eye contact is not gained, the operator should cease travel until s/he has made contact.

Tire Policy



900 Ashwood Parkway Suite 700 Atlanta, GA 30338

- To: AMAT Division Presidents
- CC: Randy Lake, John Parson, John Keating, Charlie Brown, Lee Cole, Chris Willis.
- Re: CRH Americas Materials Tire Policy
- Date: November 28, 2012 NPC revision March 9, 2017

As part of our continued drive for improved Safety and Performance the Equipment / Shop National Performance Committee has, with the assistance of our vendor partners and industry experts, developed the following tire management policy. The goal is to ensure that certain key components of a tire management program are currently in place. This policy will enhance the safety of our vehicles as well as improve the overall performance of our fleet. Additional appendices that support the policy will be posted on *Interchange* under the Tire Policy section on the Equipment Services home page. If you have any questions in regard to this policy, please contact your equipment manager or National Performance Committee representative.

1. Inspections

a) All tires in operation must be inspected on a regularly scheduled basis with the time period between inspections specified by tire product category as follows:

<u>Light Vehicles – PMA service requirement.</u> Tire inspection performed as part of Preventative Maintenance, basic service interval.

On-Road (Class 5-8 Trucks) - Quarterly minimum with monthly recommended

OTR (Off-Road Equipment) - Quarterly minimum with monthly recommended

Plant - Inspections required prior to asset relocation /

- Wheeled stacker conveyors to be inspected monthly
- If a wheeled conveyor or wheeled plant is moved on a public road it immediately becomes classified as an on-road DOT vehicle and must comply will all aspects of the CRH AMAT Tire Policy

Tire Inflation - Monthly

Inventory – All tires in inventory are subject to quarterly inspection.

b) Tire inspections will record, by unique identifier or by asset number and tire position, each of the following:

Tread Depth

Any tire found to be within 10% of the pull point, per OEM guidelines, will be taken out of service. The tire may be inspected by your third-party vendor for retread consideration.

Age at the time of inspection

Any tire that is more than ten years old must be removed from service.

Inflation pressure

Any tire that is found to be 20% or more underinflated will be considered "flat" and must be removed and inspected by your third-party vendor.

- If pressure is within acceptable range and, after making visual inspection to insure no deficiencies are detected, CRH Company employee with proper

tools and training can adjust air to desired pressure.

- See section 2 & 3 of this document for inflation and training details.
- The underinflated tire will be pulled and inspected at the earliest opportunity

Any tire found to be greater than 10 psi over the recommended (cold) inflation pressure is considered to be "over inflated" and must be adjusted by vendor or Company personal with proper tools and training. • See section 2 & 3 of this document for inflation and training details

General visual condition of the tread, both inner and outer sidewalls with notation of any defects such as; Cuts, Bruises, Cracks, Bulges, Penetrations or Rim Damage. If such deficiencies exist, have the tire inspected by your 3rd party tire vendor.

2. Inflation

- a) Visual Inspection is not an acceptable method of measuring proper inflation
- b) All locations will install and maintain a Master Air Pressure Gauge that complies with established industry standards for each tire product classification. Master Air Pressure Gauge will serve as calibration tool for all tire gauges currently in operation.
- c) Air pressures should be tested before the tire has been run and before the tire has been exposed to radiant heat.
- d) Upon inspection, any tire found to be 20% or greater underinflated will be considered "flat" and removed for inspection.
- e) All TPMS (Tire Pressure Monitoring Systems) equipped vehicles must have the systems in good working order and warning lights reset after rotations and any warnings.

3. Training & Certification

Any employee or 3rd party vendor that breaks down a tire will have knowledge of and adhere to MSHA, OHSA and DOT requirements as well as the standards set forth by the Tire Industry Association (TIA) for all procedures relating to tire and wheel repair and maintenance. TIA 300 Level Certification is the minimum requirement for any employee or 3rd party vendor that breaks down tires within CRH Americas Materials. Mounting a fully assembled tire does not require 300 Level Certification but does require knowledge of MSHA, OHSA and DOT requirements as well as Tire Industry Association recommended procedures.

Inspection Certification Required

- 1. Light Vehicles Comply with Vehicle Manufacturer requirements.
- 2. On-Road (Class 5-8 Trucks) TIA 300 (CTS) Level Certification required.
- 3. OTR (Off-Road) TIA 200 (ETS) Level Certification required.
- 4. Plant Required certification corresponds with tire product classification.
- 5. Inventory TIA 300 Level Certification.

4. Maintenance, Service & Repair

a) All inspection data, air pressure logs and documentation of disposal must be maintained throughout the commercial life of the tire and made available for audit by CRH EHS staff, Equipment Management staff and/or Regulatory agencies upon request.

- b) Two Piece Wheels These units are readily identified as a wheel which comes apart in the middle at the base of the wheel. These types of wheels are <u>extremely unsafe</u> when being serviced and have been taken out of production. Replacement parts are not available. Mounting, dismounting or inflation of any commercial tire on a two-piece wheel assembly must not be attempted. Two-piece wheels must be removed from service and scrapped as service is required. Under no condition should these wheels be allowed to return to the stream of commerce.
- c) Safety Cages OSHA regulation 1910.177 require the use of some form of "restraining device" such as a cage, rack, or other device that will constrain all rim wheel components during an explosive separation of a multi-piece rim wheel, or during the sudden release of the contained air of a single piece rim wheel. Safety cages are mandatory for any/all tire mounting and dismounting operations. This applies to all OHSA, MSHA and DOT operations.

5. Storage & Handling

- a) Do not store tires in direct sunlight.
- b) Avoid storing tires near a heat source or in the path of a direct flow of forced air.
- c) Do not store tires near petroleum products, chemicals or near electric motors or generators which produce ozone.
- d) Vertical stacking of tires will be limited to four (4) feet in height for DOT tires. Off-Road (OTR) tires, only when required, must be stacked on level solid ground.
- e) Inventory tire inspections will be performed by a TIA 300 certified tire technician. Inventory tires will be inspected prior to operational installation. Inventory tires require quarterly inspections.

6. Casing Management

- a) In no case will a tire be in service 10 years after the casing's date of manufacture
- b) In no case will a tire be in service 7 years from date of the first retread
- c) All casings are subject to a maximum of three (3) retreads.
- d) Tires that are candidates for repair and or retread must be visually and tactilely inspected. Casings will be subjected to an electronic inspection to detect and locate any tire punctures. Tires will also be subjected to X-ray, ultra-sonic or Shearographic (non-destructive) inspection to confirm that the tire casing is intact and durable, and a candidate for repair and or retread.
- e) Retreads may never be deployed on steer axles for DOT steering wheel controlled On-Road vehicles. This includes bridge or trailing steerable axles and trailers with steerable axles.
- f) If a tire casing fails to meet any of the casing management criteria or is deemed to be unserviceable by your thirdparty service agent, the tire must be removed from service and disposed of in accordance with the CRH corporate responsibility guidelines.

Policy Effective Date – January 1, 2013

NPC Revision March 2017

Definitions

Light Vehicles – Any vehicle weighing from 0 to 16,000 lbs. GVW (Gross Vehicle Weight).

Class 5-8 Vehicles – Vehicles weighing from 16,001 lbs. to vehicles 33,000 lbs. and above.

OTR – Off- Road Tire, construction & quarry equipment tires are referenced by this classification.

PMA – Viewpoint nomenclature references basic vehicle service interval.

Plant – Asphalt plants, aggregate plants, including portable screening and crushing components, ready-mix plant components.

Pull Point – Tread depth measurement at which tire is considered to be "worn out."

TIA Certification

300 Level - Certified Technician Series

After one year of experience is reached, technicians can participate in a training program to prepare for the TIA Certification Exam. Taught by a TIA Certified Instructor, the 300 Level Certified Technician seminar offers hands-on training whenever necessary or applicable. In-depth materials developed by TIA, the industry and manufacturers become references following the training.

TIA Certified Technicians receive the most comprehensive safety training in the industry. Employee safety is stressed during each module, and students are given the necessary instruction to protect themselves during every step of the process. Component inspection guidelines, installation and repair procedures are thoroughly covered in the curriculum to ensure that the tire and wheel assemblies will perform properly, and safely, once the vehicle is returned to service. TIA Certified Technicians are also taught to recognize potential hazards before they result in accidents.

The ultimate goal of TIA 300 Level Programs is to ensure that tire and wheel assemblies are continuously serviced in a safe and professional manner. By providing technicians with the most comprehensive and thorough education, employers can begin to take the necessary steps to guarantee their customers' vehicles will be safe upon return to service. They also take significant steps toward limiting their own liability by creating an environment where safety and training remain the top priorities through technician recertification every two years.

200 Level - Basic Training Series

Both new hires and experienced employees require documented training. TIA's 200 Level Training and Certificate Programs provide basic safety training on every aspect of the tire and wheel assembly being serviced. The curriculum is intended to provide students with a level of instruction that enables them to achieve the minimum necessary skills. By centering on basic principles and simple step-by-step instructions, 200 Level Programs help new hires become productive shortly after completing the training.

The Training and Certificate option allows the employer to receive documentation from TIA for each student. By returning the necessary paperwork, which includes a Skills Demonstration Form signed by the supervisor, TIA will issue a Certificate of Completion to each technician that successfully completes the final test. 200 Level Programs focus on basic safety guidelines and practices that protect the employee during servicing, as well as the driver of the vehicle once the assembly is returned to service.

100 Level - Orientation Series

In those instances where only an orientation is necessary, TIA provides introductory programs for the most common types of tire and wheel service. Employees that service automotive, commercial, earthmover/ OTR, agricultural and industrial tires have access to valuable safety information related to the general servicing of the assemblies. A standard self-study video or CD-ROM accompanies a student workbook that can be used as a reference following the training.

SEAT BELT POLICY

The seat belt policy applies to employees, visitors, customers, contractors, or other persons who operate equipment or vehicles on Texas Region property, projects, or work sites.

Wearing seat belts is a mandatory requirement in the following circumstances:

- · When operating Company owned, leased, or rented equipment and vehicles in which seat belts are provided
- · Traveling in a vehicle on property that is owned, leased, or rented by The Company
- · Performing business on behalf of The Company

All licensed over-the-road vehicles shall be equipped with seat belts that meet *Federal Motor Vehicle Safety Standards*. Approved stamps that exhibit compliance with the standard are:

- FMVSS
- FMV-209
- FMV-302

All off road vehicles or machines described in **30 CFR & 56.14130** and **56.14131**, including off-road trucks, shall be equipped with seat belts that comply with the requirements of **SAE J386**.

- Applicability of "point of attachment" tethers shall be confirmed with the equipment manufacturer and documented in each respective equipment file. If required, tethers shall be installed and maintained in accordance with standards.
- Motor Grader operators in the standing position shall wear a safety harness and line while the machine is in motion. When seated, motor grader operators shall wear seat belts that comply with requirements of SAE J386.

SEAT BELT MAINTENANCE

Vehicle and equipment operators are responsible for inspecting and ensuring each personal restraint system (seat belts and tethers) is maintained, easily accessible and in good working condition. All worn or damaged seat belts shall be replaced with those meeting the requirements of **SAE J386** and OEM standards. Vehicles or equipment with damaged seat belts shall be tagged and removed from service until they are replaced in accordance with Manufactures Guidelines.

SEAT BELT MONITORING AND ENFORCEMENT

Managers, superintendents, and/or supervisors will monitor and enforce this policy. Employees who refuse to adhere to the requirements of The Company Seat Belt Policy will be subject to termination.

We understand that mobile phones and certain electronic devices are important tools, but there are situations when use must be restricted to keep ourselves and those around us safe. Cell phone use or the use of any electronic device, as described herein, must not distract you from your duties while on the job. Apart from the obvious conversation, cell phone usage also includes text messaging and/or emailing. Electronic devices include, but are not limited to, laptop computers, any music players that require head phones (such as iPOD's), and any personal handheld devices such as a Blackberry, etc.

While business communications are essential to our work, there are times when we should not use the cell phone, personal handheld device, laptop computer, and/or any music playing devices as described above. These times include:

• While driving a Company vehicle at any time, or a personal vehicle used in the line of business.

Note: Certain cell phone conversations may be allowed while driving a vehicle, if a hands-free device is utilized. If the conversation cannot be terminated in a timely manner or postponed to a time when driving is not necessary, then the driver should pull the vehicle over to a safe position and discontinue driving until the call can be terminated.

- While operating equipment.
- While engaged in safety sensitive work.
- Any time a distraction is a potential hazard.

Under the FMCSA, a rule was issued that the following guidelines for Commercial Vehicle Drivers are prohibited by law:

- Reaching for, dialing, or holding a mobile telephone while driving.
- Initiating a call on a mobile telephone while driving, unless initiation of a call can be made by voice activation without the pushing of more than one button.
- Texting, emailing, messaging, and accessing a World Wide Web page or any application on a mobile telephone while driving.
- Answering a call on any mobile telephone while driving that requires the pushing of more than one button.

Commercial Motor Vehicle Mobile Telephone Usage Policy

Purpose: This policy implements the Federal Motor Carrier Safety Administration's (FMCSA) rule restricting the use of hand-held mobile telephones by drivers of commercial motor vehicles* (CMV).

Scope: All drivers of CMVs.

Policy: All drivers of CMVs are prohibited from:

- Reaching for, dialing, or holding a mobile telephone while driving
- Initiating a call on a mobile telephone while driving, unless initiation of a call can be made by voice activation without the pushing of more than one button
- Texting, emailing, messaging, and accessing a World Wide Web page or any application on a mobile telephone while driving
- Answering a call on any mobile telephone while driving that requires the pushing of more than one button

Driving is defined as operating a CMV on a highway, including while temporarily stationary because of traffic, a traffic control device, or other momentary delays. Driving does not include operating a CMV when the driver has moved the vehicle to the side of, or off, a highway and has halted in a location where the vehicle can remain safely stationary. A mobile telephone is defined as a mobile communication device that falls under or uses any commercial mobile radio service as defined by the FCC and does not include two-way or CB radios.

The use of a hands free-device is allowed only if the hands-free headset is within reach while the driver is properly restrained by a seat belt. In addition, the push-to-talk feature is permitted to be used only if the mobile telephone is mounted in a cradle or similar device near the driver, or there is a remote push-to-talk button near the vehicle controls that allows the driver to communicate without reaching for, dialing, or holding the actual mobile telephone in his/her hands while driving.

When one of the above-referenced exceptions applies, all mobile telephone communications while driving must still be limited to business communications that are essential to the job and must be limited in duration so as to allow only for the transmission of necessary information.

Emergency exception: Using a hand-held mobile telephone is allowed when necessary to communicate with law enforcement officials or other emergency services.

Violation of this policy may result in discipline up to and including termination. Drivers may also be subject to penalties, including fines or suspensions, and/or driver disqualification assessed by law enforcement and the FMSCA.

All CMV drivers must also follow any state or local laws regarding mobile telephone usage. This policy shall take precedence over any less stringent state or local regulations.

* A CMV is defined as a vehicle used on a highway to transport passengers or property that has a gross weight rating or gross combination weight rating, or gross vehicle weight rating or gross combination weight of 4,536 kg (10,001 pounds) or more, whichever is greater; or is designed to transport more than 8 passengers, including the driver, for compensation; or is designed to transport more than 15 passengers, including the driver, not for compensation; or is transporting hazardous

Equipment Safety Compliance Review Questions

Pedestrian / Vehicle Segregation measures have been implemented at this Site / Facility and it is adequately signed to provide direction regarding pedestrian walkways, traffic patterns, parking areas, prohibited conduct, etc.

Do you have the following at your facility:

a) Sign indicating where mobile phones are allowed or not allowed.

b) Sign prohibiting trucks from either entering or leaving the facility overloaded.

c) Sign(s) indicating vehicle travel routes, designated parking areas, pedestrian crossings, etc.

d) Sign indicating speed limit are posted near the entrance to the property.

e) If an asphalt plant, a sign is posted listing the required PPE during the loading/offloading of liquid asphalt cement.

f) If an asphalt plant, a sign is in place to warn of H2S hazards and are measures in place to protect against it.

Mobile Equipment

a) All equipment operators are adequately task trained prior to operating mobile equipment.

b) Daily or pre-use inspections are documented on all equipment and off road vehicles prior to use.

c) Powered industrial truck (lift truck / forklift / moffett) operator training is current for all qualified operators. *Trained in accordance with OSHA 1910.178 prior to operation of a forklift and at least once every 3 years.*

e) "Flexible steps" on equipment are sturdy/durable.

f) Seat belts are current.

Company Vehicles

a) All drivers are trained in Company safe driving program (i.e. Smith System) before they drive and at least annually.

b) Motor vehicle records (MVR's) are reviewed prior to a new employee driving and at least annually.

c) Do drivers have a current proof of insurance card and vehicle registration?

DOT regulated vehicles (Below are federal regulations which most states have adopted. Check to ensure that these are applicable in the State(s) of the audit.)

a) Daily or post trip inspections are documented on all DOT regulated vehicles (>10,000lbs).

b) If over 10,001, drivers have a current medical card and annual inspection.

c) If over 26,001, fire extinguisher is charged with a current annual inspection.

The CRH AMAT Tire Policy is being adhered to.

Seat belts are used by all contractors and operators, drivers and passengers of Company vehicles and equipment.

Keys are removed from all vehicles/equipment?

3-point of contact decal is in place on steps on equipment.

At MSHA regulated facilities, equipment/vehicle tires are chocked when not in use.

Ramps are of adequate height and edges are adequately protected.

CRH AMAT drivers have been trained in tie down / load securement requirements for the loads they carry, as applicable.

Employees understand and comply with mobile phone policy.

CRH AMAT drivers know where to find and/or how to determine the maximum weight of the vehicles they operate, as applicable, and maximum weights are strictly complied with.

The Plant Operator can demonstrate that trucks cannot be overloaded.

Vehicle weights are periodically checked to ensure that loads are within vehicle weight limits (CRH AMAT operated vehicles).



Lockout/Tagout/Verify

- Each location must implement and train employees based on a Lockout/Tagout/Verify policy P D A
- Each machine component must have machine-specific written procedures for the safe Lockout/Tagout/Verify isolation of
- energy sources and all authorized employees must be trained **D** A
 All authorized employees must be observed conducting a task involving
- Lockout/Tagout/Verify at least annually by an authorized and designated competent employee to ensure system isolation of energy sources as per policy **D**
- All machine-specific procedures must be inspected for correctness to ensure equipment additions and/or changes have been reviewed and implemented at least annually
- Written procedures should be developed for Close Proximity Maintenance (CPM) tasks which include a Job Safety Analysis (JSA) outlining the planned CPM procedures
- Sufficient numbers of locks, tags, hasps, etc. must be maintained on-site to conduct all anticipated maintenance activities



- Arc Flash surveys must be completed by a qualified person for each facility with the corresponding electrical labels installed
- Prior to starting work, all electrical contractors must provide a letter of certification confirming that the attending electrician(s) are properly National Fire Protection Association (NFPA 70E) trained to work around the respective voltage
- All employees who troubleshoot electrical systems, perform voltage testing, operate circuit breakers with covers off or are otherwise exposed to live or potentially live circuits have must be trained in NFPA 70E
- All qualified and/or affected employees must wear appropriate arc-rated Personal Protective Equipment (PPE) during electrical tasks
- All authorized employees and contractors who work on electrical equipment must perform Lockout/Tagout/Verify on the energy source and verify disconnection through use of a voltage tester

The following information is provided to clarify the expectations of Texas Region employees working on or around our equipment. Using the Lock Out/Tag Out process will eliminate the employee's exposure to hazardous energy sources. By isolating equipment or materials from energy source(s) and rendering the equipment inoperative prior to servicing and/or maintenance, the employee will be protected from the unexpected start up or release of stored energy that could cause injury.



EXAMPLES OF STORED ENERGY:



An employee who performs servicing and/or maintenance on equipment. The Lock Out/Tag Out program is to be used by this employee for his/her own protection.

Authorized employees are individuals that have been trained, met the requirements and been granted permission to lock out a piece of equipment. **Only Authorized employees may Lock Out**. Those in the act of Lock Out/Tag Out are considered Authorized, while everyone else around the equipment are considered Affected.

To be authorized to perform Lock Out/Tag Out, the employee must be able to understand the purpose of the program, have the ability to successfully perform Lock Out/Tag Out consistently, complete the pre-authorization training, pass the written exam with a score of 100% (can be verbally administered), demonstrate hands-on proficiency exercise, and complete the authorized training outlined below. All Authorized employees shall be trained in all applications relevant to their work area(s).

Capable of Being Locked Out

An energy-isolating device is considered capable of being locked out if it meets one of the following requirements: (1) designed with a hasp to which a lock can be attached, (2) designed with an integral part to which a lock can be affixed, (3) designed with a built-in locking mechanism, or (4) it can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capacity.

Energized

Equipment is energized when (1) it is connected to an energy source or (2) it contains residual or stored energy.

Energy-Isolating Device

Any mechanical device that physically prevents the release or transmission of energy. These include, but are not limited to: manually-operated circuit breakers, disconnect switches, line valves, and blocks.

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, gravity, thermal, or other energy.

Energy Control Procedure

A written document that contains the information an Authorized employee needs to know to safely control hazardous energy sources during servicing and/or maintenance of equipment.

Energy Control Program

A program intended to prevent the unexpected energizing or release of stored energy in equipment through the use of energy control procedure(s), employee training programs, and periodic inspections.

Lockout

The placement of a lockout device on an energy-isolating device, in accordance with an established energy control procedure, ensuring that the energy-isolating device and the equipment cannot be operated until the lockout device is removed.

Lockout Device

Any device, such as a lock, that uses positive means to hold an energy-isolating device in a safe position, preventing the energizing of equipment.

Qualified Electrical Person

One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify the hazards and reduce the associated risk. Specifically, the Qualified Electrical Person shall be trained in the processes, procedures and safety-related work practices contained in NFPA 70E.

Training

CRH does not recognize lockout authorization training that was received prior to employment at CRH.

Lock Out/Tag Out training will be provided to all Affected and Authorized employees (including temporary workers) before they begin work. The training will explain the purpose of lockout, what lockout locks look like, the limitations of tags, the prohibition of performing lockout without authorization and what would constitute a lockout situation.

Refresher training shall also be provided annually to all employees or whenever there is a significant change to the lockout program (e.g., change of lock color).

Equipment specific LOTO procedures are required for each vehicle and piece of mobile equipment at CRH locations, you will receive training on your Company's local equipment specific procedures.





Key Removed from Equipment

Master Switch



Breaker Tag



Steering Wheel Cover

LOCK OUT / TAG OUT POLICY

Purpose:

At CRH we value employees as our most valuable resource. Energized equipment (for purposes of this manual, "equipment" will refer to equipment, machinery and mobile equipment) is one of the greatest hazards they face on a daily basis. To assure that we protect our employees, it is necessary to de-energize the equipment that employees work on or around. This is commonly known as locking out and is required for any servicing and most maintenance activities.

The objective of the Lock Out/Tag Out Policy & Procedures Manual is to clarify the expectations of CRH in order to assure protection of our employees around our equipment.

The Lock Out/Tag Out Program will eliminate the employee's exposure to hazardous energy sources (electrical, mechanical, hydraulic, pneumatic, gravity, or thermal). By isolating equipment or materials from energy source(s) and rendering the equipment inoperative prior to servicing and/or maintenance, the employee will be protected from the unexpected start up or release of stored energy that could cause injury.

Definitions

When it comes to Lock Out/Tag Out, there are two designations for employees: Authorized and Affected.

Affected Employee

During the lockout of a piece of equipment, all employees are considered Affected that work **near** that equipment, <u>except</u> for those who are actually locking out the equipment and those in the locked out area. An affected employee does not perform servicing and/or maintenance on equipment and the affected employee is not responsible for implementing the energy control procedure.

Affected employees are prohibited from entering lockout areas. (Lockout areas are those areas that would require energy isolation prior to entry due to lack of protection from energized equipment.)

Authorized Employee

An employee who performs servicing and/or maintenance on equipment. The Lock Out/Tag Out program is to be used by this employee for his/her own protection.

Authorized employees are individuals that have been trained, met the requirements and been granted permission to lock out a piece of equipment. **Only Authorized employees may Lock Out**. Those in the act of Lock Out/Tag Out are considered Authorized, while everyone else around the equipment are considered Affected.

To be authorized to perform Lock Out/Tag Out, the employee must be able to understand the purpose of the program, have the ability to successfully perform Lock Out/Tag Out consistently, complete the pre-authorization training, pass the written exam with a score of 100% (can be verbally administered), demonstrate hands-on proficiency exercise, and complete the authorized training outlined below. All Authorized employees shall be trained in all applications relevant to their work area(s).

Authorized List

A plant is required to have a list of employees and the equipment they are trained and authorized on. Where the plant authorizes employees by department or entire plant (all components), this should be explicitly stated on the authorization list. This list will be maintained by the plant management.

Capable of Being Locked Out

An energy-isolating device is considered capable of being locked out if it meets one of the following requirements: (1) designed with a hasp to which a lock can be attached, (2) designed with an integral part to which a lock can be affixed, (3) designed with a built-in locking mechanism, or (4) it can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capacity.

Energized

Equipment is energized when (1) it is connected to an energy source or (2) it contains residual or stored energy.

Energy-Isolating Device

Any mechanical device that physically prevents the release or transmission of energy. These include, but are not limited to: manually-operated circuit breakers, disconnect switches, line valves, and block

Energy Source

Any source of electrical, mechanical, hydraulic, pneumatic, gravity, thermal, or other energy.

Energy Control Procedure

A written document that contains the information an Authorized employee needs to know to safely control hazardous energy sources during servicing and/or maintenance of equipment.

Energy Control Program

A program intended to prevent the unexpected energizing or release of stored energy in equipment through the use of energy control procedure(s), employee training programs, and periodic inspections.

Lockout

The placement of a lockout device on an energy-isolating device, in accordance with an established energy control procedure, ensuring that the energy-isolating device and the equipment cannot be operated until the lockout device is removed.

Lockout Device

Any device, such as a lock, that uses positive means to hold an energy-isolating device in a safe position, preventing the energizing of equipment.

Qualified Electrical Person

One who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify the hazards and reduce the associated risk. Such persons shall also be trained in the specific electrical tasks they are asked to perform. Each task shall be recorded on his/her training record as proof of proper training. For further training requirements, see NFPA 70E 110.2.

Responsibilities

The Facility Manager or Safety Professional is responsible for:

- 1. To ensure the implementation of the Lock Out/Tag Out program at each facility;
- 2. Assisting supervisors and foremen with the development of equipment Lock Out/Tag Out energy control procedures;
- 3. Providing lockout devices for employees to effect a lockout;
- 4. Providing and/or assisting with annual training for authorized and affected employees;
- 5. Ensuring the proper maintenance of accurate records for proper administration of the Lock Out/Tag Out program; and
- 6. Assisting supervisors and foremen with periodic inspections, at least annually, to ensure the effectiveness of the Lock Out/Tag Out program.

Supervisors and Foremen are responsible for:

- 1. Developing energy/component-specific control procedures;
- 2. Ensuring that employees effect a lockout during servicing and/or maintenance activities;
- 3. Counseling employees on the Lock Out/Tag Out program requirements during servicing and/or maintenance activities;
- 4. Maintaining an inventory of lockout devices for use in the Lock Out/Tag Out program;
- 5. Conducting periodic inspections, at least annually, to ensure the effectiveness of the Lock Out/Tag Out program;
- 6. Providing and/or assisting with Lock Out/Tag Out training; and
- 7. Identifying energy sources that need to be relocated.

Employees are responsible for:

- 1. Only Authorized employees shall implement energy control procedures during servicing and/or maintenance activities;
- 2. Authorized employees shall inform Affected employees of the lockout during servicing and/or maintenance activities;
- 3. Authorized and affected employees shall recognize the lockout and not make any attempts to defeat the lockout;
- 4. Safeguarding the key to their lockout device;
- 5. Notifying supervisors or foremen of the need to repair or replace energy- isolating devices; and
- 6. Notifying supervisors of any unsafe act in relation to the Lock Out/Tag Out procedures

Training

CRH does not recognize lockout authorization training that was received prior to employment at CRH.

Applicable Lock Out/Tag Out training shall be provided to all Affected and Authorized employees (including temporary workers) before they begin work. Refresher training shall also be provided annually to all employees or whenever there is a significant change to the lockout program (e.g., change of lock color). The training shall explain the purpose of lockout, what lockout locks look like, the limitations of tags, the prohibition of performing lockout without authorization and what would constitute a lockout situation (e.g., bypassing a guard, point of operation, danger zone).

- 1. Employers must provide initial training and retraining as necessary and must certify that such training has been given to all employees covered by the Lock Out/Tag Out program.
- 2. The training certification must include the employee's name and dates of training.
- 3. Affected employee training must include the following information:
 - a. Recognize when the energy control procedure is being implemented
 - b. Understand the purpose of the energy control procedure
 - c. Must not attempt to start-up or use the equipment that has been locked out
- 4. Authorized training is in-depth training that includes all aspects of the affected employee training, as well as the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the method and means necessary for energy isolation and control (included in pre-authorization training). It shall also include <u>hands-on training</u> on the proper steps to lockout equipment following the equipment-specific procedures. This training shall be performed prior to the first time an employee ever locks out a piece of equipment and annually to all authorized employees.
- 5. The hands-on training shall include a demonstration of how Lock Out/Tag Out is to be performed and the trainee satisfactorily demonstrating the lockout procedure for a supervisor. It is recommended that employees review the Lock Out/Tag Out program with the supervisor within a week of authorization to assure full understanding of Lock Out/Tag Out. If employees have questions about what to do, they should ask their supervisor or reference the equipment-specific procedures.

After completing the pre-authorization training and being authorized to lockout certain pieces of equipment, the applications that employees are responsible for locking out may be expanded. Before adding additional lockout-specific responsibilities, the employee is required to receive a review of how the task is completed. They must then satisfactorily demonstrate their proficiency in performing the Lock Out/Tag Out procedure to a competent person before being authorized on that application.

(For the purposes of this document, the term "application" includes a group of common equipment such as conveyors, motors, silos, feeders, etc.)

Authorized employee training must include the following information:

- 1. Details about the type and magnitude of hazardous energy sources present in the workplace.
- 2. The energy control procedures needed to isolate and control those hazardous energy sources.
- NOTE: If authorized employees are to use voltage testing equipment to troubleshoot and/or verify zero energy, then proper training and qualification on the use and hazards of that equipment (i.e.: volt meter) shall be included in this training. The authorized employee must also have received specific task training to qualify them on the voltage level involved in the test (i.e. 480V, 600V, 4160V).
- 6. Retraining will be provided for all authorized and affected employees when there is a:
 - Change in their job assignment
 - Change in equipment or processes that present a new hazard
 - Change in the energy control procedures
 - Deviation from or inadequacies in the employee's knowledge or use of the energy control procedures
 - Annually Annual refresher training will be provided for all Authorized and Affected employees. At a minimum, refresher training for authorized employees will require proof of proficiency for all applications (common equipment) for which the authorized employee is responsible.
- 7. Retraining will be provided whenever a periodic inspection identifies a deficiency or inadequacy in the Lock Out/Tag Out program.

Lockout

Lockout is the de-energizing of equipment to ensure the health and welfare of our employees. It is required when:

- A piece of equipment is repaired, serviced, lubricated, cleaned, unjammed, adjusted, or otherwise maintained.
- A guard or other safety device is removed or bypassed in order to perform work or maintenance on a machine or piece of equipment.
- An employee places any part of his or her body in contact with a point of operation where it could be caught or trapped by moving equipment parts.
- An employee places any part of his or her body into a danger zone associated with the operation of a machine or piece of equipment.

Lockout can only be performed by authorized employees. When performed, it requires verification of the energy isolation, better known as "Verification" or "Test."

Lockout Procedures

It is important to ensure the electrical control devices are located in close proximity to their respective components, thereby making Lock Out/Tag Out as convenient as possible for the authorized employees. The following are the proper steps for locking out a piece of equipment; Positioning – Adjust & Repeat Steps (if necessary):

Note: If at any time there is a change in personnel, the environment, risks or requirements of the work task (i.e. additional repair, removal/adjustment of additional equipment, broken tool/device, etc.), the work must stop and a new risk assessment shall be completed. The new risk assessment shall verify whether the current lockout and risk assessment are adequate to protect employees from the hazards involved. If not, the assessment shall be updated to reflect the additional identified risks. This process shall be completed any time an unplanned change in the work task occurs (see Addendum 1 - "LOTOTO Change Management").

- Preparation for Shutdown The authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the means to control the energy before they turn off the piece of equipment. If the employee has any questions, they should review the Equipment Specific Procedures.
- 2. Notification Make sure affected employees are aware the equipment is going to be locked out.
- 3. Equipment Shutdown The equipment shall be shut down using established procedures.
- 4. Equipment Isolation All energy-isolating devices shall be physically located and operated in such a manner as to isolate the equipment from the energy source(s). These include blanks, covers, valves, etc.
- 5. Lock Out/Tag Out Device Application Lock Out/Tag Out devices shall be affixed to each energy-isolating device by authorized employees in a "safe" or "off" position.
- 6. Securely attach properly completed tag or other identifying devices.
- 7. Release of Stored Energy Following the application of the Lock Out/Tag Out device(s), all potential hazardous stored or residual energy shall be relieved, disconnected, restrained and otherwise rendered safe.
- 8. Verification of Isolation Also known as "Test," <u>Authorized employee shall verify that isolation and de-energizing of the equipment have been accomplished before starting work on the equipment.</u> C R H recommends that this verification be witnessed by another authorized employee. (See Verification section below) This shall include the locks, disconnects on panels and operator controls. Verification of isolation shall be maintained until the servicing or maintenance is completed.
- Release from Lock Out/Tag Out Before removal of Lock Out/Tag Out devices, the work area shall be
 inspected to ensure the equipment components are operationally intact. It shall also ensure that all employees
 have been notified and safely positioned or removed.
- 10. Lock Out/Tag Out Removal Each Lock Out/Tag Out shall be removed from each energy-isolating device by the employee who applied the device. If the employee is not present at the facility, the designated supervisor may remove the Lock Out/Tag Out device after attempting to locate the lock's owner (see Lock Removal) and completing a Lock/Tag Removal Authorization Form.
- 11. Positioning of Equipment This includes moving or testing the equipment to check if the work was done correctly. If the equipment requires further service under lockout, perform the adjustment and repeat the lockout steps (if necessary).

Testing/Verification

Testing the security of your Lock Out/Tag Out is imperative to assure the integrity of the de-energizing. To emphasize the importance of this step, many companies have changed Lock Out/Tag Out to read Lock Out/Tag Out/Tag Out to read Lock Out/Tag Out/Tag Out.

After you have attached your lock/tag and /or isolating device at the designated location(s), you must attempt to energize the equipment by attempting to throw the breaker, turn the valve, press the on button, etc. This checks the integrity of the lockout that the lock cannot be bypassed and it verifies that the de-energizing has been effective.

NOTE: For electrical repair (work inside an electric motor starter, replacing breakers, connecting and disconnecting electrical equipment, etc.), verification of de-energizing must be confirmed through the use of a volt meter by an authorized employee. De-energizing must be determined at the point of the electrical source for that component. This type of verification can only be conducted by an authorized employee who has been properly trained and qualified in the use and hazards of using a volt meter at the voltage level involved in the test (i.e. 480V, 600V, 4160V).

Test instruments, related equipment and their accessories shall be properly rated for the circuits and equipment to which they will be connected and shall be designed for the environment in which they will be used.

<u>All verification of de-energizing must be conducted by an authorized employee only.</u> C R H recommends that all verification be witnessed by another authorized employee. Some exceptions may include electricians, mechanics or other maintenance employees working alone in the field.

Each individual Company must implement a procedure to ensure this recommendation is met.

If problems occur during the testing portion of the Lock Out/Tag Out (e.g. you can throw the switch around the lock), notify your supervisor immediately so the problem can be corrected. We shall notify all authorized and affected employees of the situation until it can be corrected. It may be necessary to post an attendant at the faulty location until it can be replaced. A controlled operator situation should be used until the problem can be fully corrected. The lockout procedure may need to be modified/updated.

Group Lockout

There will be Lock Out/Tag Out situations that will require more than one individual to complete. <u>During group lockout</u> operations, each authorized employee must attach a personal lockout device to the group device with the servicing and/or maintenance coordinated by the senior employee. In these situations, it is vital that everyone's safety is assured. This is only accomplished by everyone putting their lock on. **Make sure that every employee involved puts their lock(s) on every energy-isolating device during lockout situation, even if the equipment is already locked out by another individual**. There are hasps available to assure that every employee has a spot to lockout during group lockout situations. Also, employees should remove their lock when they are no longer working on the equipment.

In group lockout situations, there must be one individual who is directly responsible for the actions of the group. The lockout leader shall organize and direct the actions of the group and will help to ensure the safety of everyone involved. They shall use group lockout devices to accommodate all locks, ensure that everyone has a lock on and that each employee removes their lock when they are finished.

A lockbox can be used in this situation to accommodate all locks, with the lockout leader having his/her lock on the lockbox and the lockbox lock on the disconnect. The employees participating in the lockout during a lockbox situation shall verify that the key for the lock on the disconnect is present in the lockbox. Every authorized employee involved must still place their lock on the outside of the lockbox.

If servicing and/or maintenance will continue for extended periods or another shift, the original lockout must be removed, and the incoming shift employee must complete a lockout from the initial step to ensure continuity.

Tagout

Tags function in similar fashion to locks, and when utilized, the procedure is called tagout as opposed to lockout. Tagout is used when lockout is not possible or when it is proven that tagout provides the same protection as locking out. Anything that can be locked out shall be locked out. (See Close Proximity Maintenance Tasks for exception.)

<u>Tags</u>

Because multiple limitations exist when using tags (tagout), lockout shall be used whenever possible. Tags fail to provide the physical restraint that locks do, can be removed more easily, and to provide effective protection every employee must understand that tags are utilized as an energy device. Due to these limitations, tagout shall be limited to equipment that cannot be locked out. If tags are utilized, make sure they are substantial, attached at a conspicuous location (e.g. ignition), and contain one of the following captions;

- Do Not Start
- Do Not Open
- Do Not Close
- Do Not Energize
- Do Not Operate

See example of an appropriate tag in the Examples and Pictures Section.

All other requirements for using a tag are similar to using a lock. This includes; following the standardization, identification, de-energizing procedures, removal procedures, Zero Tolerance, etc. Standardized tags mean they should be the same in print and format.

All authorized and affected employees shall be instructed on the limitations of tags. Tags and the limitations of their use include:

- Tags do not provide a physical restraint
- Tags may not be removed without authorization and may never be bypassed, ignored or defeated
- Tags must be legible
- Tags must be durable
- Tags may evoke a false sense of security
- Tags must be securely attached to energy-isolating devices so they cannot be inadvertently detached during use

NOTE: Tags cannot be used as a replacement for locks.

Component and Energy Specific Procedures

The different components of equipment at our locations are all unique; from conveyors to dryer drums, from burners to mixers, from baghouses to augers, from hot oil systems to feeder bins, from central mix to dry batch concrete plants, from architectural products processing to glass block manufacturing equipment, from cement and lime production to clay, ceramic, precast and pipe products, and different types of mobile equipment. Therefore, we must identify the different hazards that are present with this equipment and ensure employees know how to abate these issues.

Component and energy-specific procedures are required for a systematic isolation and de-energizing for each piece of energized equipment. These procedures shall detail the specific hazards (including all energy types), the proper sequence and placement of isolation equipment for application and removal of lockout equipment and testing procedures to assure isolation of all related energy sources. (See attachment for examples)

These procedures identify the steps necessary to effectively Lock Out/Tag Out a piece of equipment, as well as indicate any special hazards that must be taken into consideration.

Contractor Lockout Safety

From time to time, it may be required to have contractors perform work at our facilities. To assure the safety of our employees, contractors are required to comply with our lockout program, as well as other safety programs.

Outside contractors and the on-site employer must inform each other of their respective energy control programs. Each employer must ensure that his/her personnel comply with the other employer's energy control program.

Locks

Every employee must be fully aware when a lockout procedure is taking place. Therefore, all locks/tags shall be singularly identified and only used for locking/tagging out. Locks shall be durable, standardized, substantial and identifiable. Durable and substantial means they are adequate to hold up in the environment they are exposed to and strong enough to not be easily removed. Standardized relates to the look and design of the locks and relate to color, shape or size. As a best practice, it is recommended that the locks are all the same size and by the same manufacturer.

The OSHA lockout regulation describes singularly identified locks. C R H has taken this to mean that no more than one name per lock is to be used. It also means that there is only one key in existence for that lock.

Identifiable refers to the ownership of the lock, and the locks should provide a clear indicator of who the lock belongs to. Tags (with name), etched locks (with name), names taped to the locks and locks with pictures (including name) are all allowable as an indicator. As a best practice, it is recommended that a system is used that identifies the employee by name and/or picture on/with the lock.

Locks can be shared by department as long as they use a proper method for identifying who is using the lock at any time (e.g., tags). Although allowable, it is recommended that the facility issue locks to individual persons instead of by department. If locks are issued to individual employees, the lock belongs to that employee only. Personal locks should never be loaned to anyone. Because it protects the lives of our employees, **employees can never give their keys to anyone who asks for them, no matter who it is.**

Examples of lockout devices are found in the Example/Picture Section of the Lock Out/Tag Out Notebook.

Removing Locks

In rare circumstances, there may be times when a piece of equipment that is locked out needs to be put back into operation. For whatever reason (employee illness, negligence, loss of key, etc.), it is necessary to remove a lock by an alternate means than using the key. Locks may only be removed by the lock's owner or cut off by a supervisor using the lock removal procedures outlined below.

If a lock needs to be removed, notify your supervisor of the situation and of whose lock it is. The supervisor shall make every attempt to locate the owner of the lock. If it is determined that the lock owner is no longer on the premises, and that it is impractical or impossible for them to return to remove it in person, the manager must be notified. If the manager is not present, all appropriate means must be made to contact the manager. If it is determined that the manager cannot be reached, the next in the chain of command should be contacted. This shall continue until someone in a supervisory role is reached, never to go past the shift supervisor at the location. If the person contacted to control the situation is not on site, they may authorize someone to remove the lock at their discretion. It is recommended that two people be present during lock removal as an added insurance to avoid any instance. The lock owner shall be notified of the lock removal prior to them resuming work in the facility.

The lock shall be removed using bolt cutters. No secondary key is allowed, we adhere to the "one lock, one key" system. Complete the Lock/Tag Removal Authorization document.

The lock is the only thing that stands in the way of employees and the possibility of injury. Therefore, it is essential that all employees understand they are not allowed to remove any lock but their own, except under the direction of the available ranking manager. Failure to follow these requirements will result in termination.

<u>Keys</u>

CRH **requires** a "one lock, one key" system. This means that there is only one key in existence for each lock issued. Locks typically come with more than one key. Each key should be matched to the lock via some indication so they can be matched easily.

This is typically done with stenciling. If keys are lost or the employee who has the key is not present when lock removal is required, locks will be cut off following proper procedures (see lock removal).

Shift Changes

Some locations often run multiple shifts or staggered schedules that results in equipment continuing to be locked out through shift changes. When this occurs, it is necessary for the shift coming on to lock out the equipment prior to the shift going off completely removing their locks. In group lockout situations, it is recommended that the lockout leader from the shift going off be the last one to remove his/her lock, and only after the oncoming lockout leader has placed their lock on the hasp.

Labeling

At a minimum, each disconnecting means for motors and appliances and each service, feeder, and branch circuit at its disconnecting means or overcurrent device shall be legibly marked to indicate its purpose, unless it is located and arranged so that the purpose is evident. Labels should also include voltage, current, wattage, or other ratings as necessary and either the available incident energy or the required level of PPE. In addition to this information, CRH requires that a "Warning" or "Danger" label also be affixed to the component/equipment/device which states the following:



Hazardous Energy Sources

There are six primary hazardous energy sources that you must be aware of prior to performing a lockout. They include:

- Electrical
- Mechanical
- Thermal
- Hydraulic
- Pneumatic
- Gravity

Electrical is probably the most prevalent hazardous energy source that employees are going to face. This includes voltages 110V, 240V, and 480V single phase, 240V & 480V three phase, and sometimes higher. To ensure employee safety when dealing with electrical energy, employees must lock the source breakers or disconnects, discharge all capacitors after locking out and use non-conductive tools.

Note: 600 volts shall be the maximum voltage that a trained Authorized employee may be exposed to. The following guidelines must be followed:

- <u>For Mechanical Work</u> Trained Authorized CRH employees may disconnect and properly lock out power containing voltages greater than 480V, <u>ONLY</u> through the use of switches (panel or pole) located outside an electrical enclosure (box, panel, etc.), then test the appropriate equipment (by attempting to re-energize the component) to verify that it is has been reduced to a zero state of energy. At that point, <u>mechanical work</u> <u>only (NOT electrical work</u>) may be performed on the equipment that is properly locked and tagged out.
- <u>For Electrical Work</u> <u>Electrical work (e.g.</u> breaker, transformer, switch or wire repair or replacement) performed in and around voltages greater than 600V, including the <u>disconnection</u>. <u>reconnection or voltage</u> <u>testing</u> of any voltage circuit greater than 600V, shall only be conducted by a QUALIFIED electrical person who performs Lock Out/Tag Out on the energy source AND verifies disconnection through the use of a voltage test appropriate to the equipment voltage. Prior to performing any work, the supervisor shall require the QUALIFIED electrical person, whether third-party contractor or CRH employee, provide a valid record of training confirming that the attending electrician(s) are properly trained (NFPA70E) in the specific task AND to work around the respective voltage.

Only after Lock Out/Tag Out and verification of the absence of voltage on circuits greater than 600V has been achieved by the use of voltage testing by the QUALIFIED electrical person shall trained Authorized CRH employees be allowed to perform either electrical or mechanical work on the de-energized circuits or equipment prior to re-connection of power by the QUALIFIED electrical person.

NOTE: Under no circumstances are CRH authorized employees that are not QUALIFIED electrical persons allowed to use "hot sticks" on an energized component. "Hot sticks" are only allowed to be used with an appropriate voltage tester by a QUALIFIED electrical person for the absence of voltage test above 600V. Any other use of hot sticks by CRH employees, whether qualified or not, is strictly prohibited.

Energized electrical work is NOT permitted unless one of the following conditions is met:

- De-energizing the equipment introduces additional hazards or increased risk (e.g. life support systems, fire suppression, ventilation, etc.)
- The task is infeasible in a de-energized state (e.g. diagnostics, testing, troubleshooting, etc.)
- The task involves less than 50 volts
- Equipment is in a "Normal Operating Condition" (see NFPA 70E 130.1 (A)(4) or CSA Z462 4.3.2.2)

Under NO circumstance is energized electrical work above 600V permitted to be performed by a CRH employee (with the exception of the absence of voltage test by a Qualified Electrical Person that has been specifically qualified at the voltage involved).

An authorized employee may activate and/or deactivate a switch located outside an electrical enclosure if he/she is equipped with the proper PPE and properly trained in Arc Flash Protection.

NOTE: Each CRH Company should have an Arc Flash Protection Program which includes the required training that complies with the current NFPA 70E standards.

Mechanical Energy comes in two types, kinetic and potential. Kinetic is the energy of something in motion. For example, a moving mixer has a lot of kinetic energy. Potential energy is stored energy that can be released. For example, a jaw crusher has its motion stopped by a rock. Once the rock is removed, the moveable plate on the jaw will continue its rotation to its resting position. This energy must be controlled by blocks, chocks, chains, or other immobilizing devices.

Thermal energy deals with transfer of energy through temperature adjustments. Both hot and cold possibilities can cause harm. Employees must allow equipment to reach a safe operating temperature before starting work, and ensure there is no chance for a quick release of compressed gases or liquids.

Hydraulic energy deals with fluids under pressure. Pressure, or lack thereof, can cause equipment to move. Release hydraulic energy slowly and block equipment if hydraulic fluid kept the equipment aloft when energized.

Pneumatic energy deals with gases under pressure. Uncontrolled release can cause injury and rapid de-pressurization could create extremely low temperatures. Properly vent all systems before starting work.

Gravity deals with stored energy that has the potential to release, such as the reversing movement of a conveyor belt or falling/sliding material.
Periodic Inspections

CRH performs periodic inspections to ensure the Lock Out/Tag Out program procedures are being followed. An inspection shall be conducted by an authorized employee (employees who utilize the energy control procedures cannot be included on the inspection team). The periodic inspection will be used to correct any deviations or deficiencies in the Lock Out/Tag Out program and ensure employees are following energy control procedures. The periodic inspection will include an interview with the employees utilizing the Lock Out/Tag Out program and energy control procedures.

The periodic inspection will be certified with the following information:

- a. <u>Date of Inspection;</u>
- b. Equipment on which the energy control procedure was being utilized;
- c. Employees interviewed or included in the inspection; and
- d. <u>Name(s), Title(s), and Signature(s) of person(s) performing the inspection.</u>

All machine-specific procedures shall be inspected <u>at least annually</u>. The inspections shall be performed by an authorized employee who typically does not lockout that piece of equipment. The auditing employee shall be of sufficient knowledge and ability to determine if the procedures provide adequate de-energizing and protection for the employee. The auditing employee also shall have the authority to ensure corrections for incorrect procedures are made. The goal is to assure that the component and energy specific procedures are correct and provide adequate protection.

Mobile Equipment

CRH requires the use of lockout if the equipment is capable of being locked out. Tagout is only allowable in circumstances where the equipment cannot be locked out. The tag shall be located at point(s) that shall prevent accidental start up (e.g., ignition point).

The policies and procedures regarding proper Lock Out/Tag Out also apply to all mobile equipment. The person/s performing the maintenance and/or troubleshooting must ensure that all mobile equipment is inoperable and safe to repair, alter, clean, inspect, and or disassemble. The diversity and complexity of such equipment make it difficult to adopt a single set of procedures. Please refer to the Component and Energy Specific Examples Section of this manual for machine-specific procedures regarding proper Lock Out/Tag Out for a variety of equipment.

Lockout/Tagout (LOTO) procedures are the default procedures to be used in any maintenance situation. LOTO procedures <u>must</u> be followed where possible. By using proper LOTO procedures, equipment is completely de-energized, eliminating the risk of injury or death the unexpected release of stored energy would cause. OSHA recognizes the need to test or position machinery/equipment/components. In situations in which lockout or tagout devices must be temporarily removed from the energy-isolating device and the machine or equipment energized to test or position the machinery/equipment/component, the following sequence of actions shall be followed:

- 1. Clear the machine or equipment of tools and materials;
- 2. Remove employees from the machine or equipment area;
- 3. Remove the lockout or tagout devices;
- 4. Energize and proceed with testing or positioning;
- 5. De-energize all systems, reapply energy control measures, and verify that the component has been reduced to zero energy state prior to continuing the servicing and/or maintenance.

CRH has established **Close Proximity Maintenance ("CPM")** procedures to provide protection for employees when it is necessary for a component to be energized and personnel to be near the operating equipment to conduct the necessary troubleshooting.

This type of activity involves situations where equipment must be energized and maintenance personnel must be near the operating equipment (including by bypassing guarding or safety curtains) to conduct necessary troubleshooting or maintenance. For example:

- When tracking a conveyor belt, the belt may have to be in operation for adjustments to be made.
- If an unexplained sound is heard in a machine, the machine must be in operation in order to locate the source of the sound.
- If a machine may have an electrical short, the machine must be energized so that the location of the short can be found.

To ensure the utmost safety for employees authorized to perform CPM procedures, effective immediately, each CRH facility will adopt the following safety procedures, which will be strictly enforced:

- 1. All CPM tasks must be approved by the supervisor on duty and all employees must be authorized.
- 2. This CPM exception is limited to a <u>maximum of four authorized employees</u> (including the operator) for one <u>CPM task at a time.</u>
- For a two (2) person operation to conduct a CPM task, the operator must have visual contact at all times with the authorized employee performing the CPM task. If constant visual contact cannot be achieved, Lock Out / Tag Out is required.
- 4. Emergency stops for designated equipment must be tested before engaging in CPM.
- 5. When anyone is in close proximity to energized equipment, a dedicated operator must be stationed on that equipment's control panel the entire time. Except as provided in #3 above (two- person operation in which visual contact must be achieved at all times), communication with the dedicated operator may be achieved through radio contact for a four (4) authorized employee operation only.

Individuals who violate this policy by failing to follow these procedures during CPM or by using CPM as a shortcut for LOTO, will be immediately terminated.

Any questions should be directed to the Operations Manager.

The plant's list of CPM tasks will list all instances when CPM procedures are acceptable. All CPM tasks specific to a plant must have a complete Job Safety Analysis (JSA) outlining the planned stepby-step procedure. These JSAs must be reviewed and approved by plant/operations management and a safety representative before the task is performed. Once a procedure is approved and in place, the task can be carried out on an as-needed basis by authorized employees. This list is exclusive. If a particular task is not on the list of approved CPM procedures, LOTO is required.

Energy Control Program for Cord and Plug Connected Equipment

Electrical cords are considered energized when plugged in; therefore, the energy of this type of equipment must be isolated. OSHA considers the energy source isolated if you can maintain enough control by observing the plug. CRH recommends the best practice of using lockable isolating devices, even if the plug can be controlled. If the cord passes through a wall, under, through or around something, or a significant distance so that it is not easily identifiable, then lockout is required.

If the following conditions are met, then the Lock Out/Tag Out standard does not apply to servicing and/or maintaining cord and plug connected equipment:

- 1. Hazardous energy sources are controlled by unplugging the equipment from the energy source.
- 2. The plug must be under the exclusive control of the employee performing the servicing and/or maintenance.

Program

The Lock Out/Tag Out program must be in writing and reviewed annually.

It is recognized that power companies will often times increase the voltage over and above the standard 600 Volts to compensate for the draw down caused by industrial equipment. Although the above referenced CRH Americas Materials LOTO policy limits exposure to any electrical devices with voltage greater than 600V, an exception can be made for specific situations such as the following:

- Plants that are located a long distance from the utility substation may be fed from power lines that have voltage compensators that regulate the voltage during loaded periods. These devices generally respond slowly, so as not to be constantly switching. The result can be when a plant load decreases the voltage, it may swell for a time until these devices regulate the voltage back down. Many times, these devices are reacting to loads that are not associated to your plant.
- 2. Many plants, and the power lines that feed them, have static capacitor banks that serve to increase power factor and improve energy delivery due to long distances or low power factor. Because these capacitors are on line all of the time, when the load decreases, the voltage will increase.
- 3. Transformer tap settings may be set to high, either by the owner or the utility, causing unusual high operating voltages. Many times, these taps are set up (higher) to compensate for low utility supply voltage or an increase in plant loads.

It is common for variation in utility voltages to be as high as +5% or more above 600V L-L.

This exception means that testing can be performed to verify a positive Lock Out/Tag Out on loads up to 600 Volts + 5% by authorized employees. However, this does not allow anyone to perform actual work on a device that operates with continuous voltage greater than 600V.

Zero Tolerance

Employee safety is so important at CRH that we would rather terminate an employee than expose them to a potentially harmful situation involving a disregard or misuse of a Lock Out/Tag Out procedure. Therefore, we have implemented a Zero Tolerance Program, which results in the termination of all Lock Out/Tag Out violators. "IF EMPLOYEES KNOWINGLY VIOLATE A LOCK OUT / TAG OUT PROCEDURE, THEY WILL BE TERMINATED!" Given the weight of this policy, employees should ask any questions during training or any time afterward. It is better to ask, "What should I do?" rather than, "What should I have done?"

If a possible violation of the Zero Tolerance policy is reported, the employee in question will be suspended until a full investigation can be completed and a determination is made. The supervisor may also receive disciplinary action, up to and including termination, if it is determined that they did not properly train employees, knowingly allowed, or contributed to the violation of the Lock Out / Tag Out program by an employee.

When a violation is deemed to have occurred in accordance with the Zero Tolerance policy, following a suspension and review, the employee will be terminated and will not be eligible for rehire by any CRH Company, or through an employment service or temporary labor agency, for a **minimum of one year**. The rehiring of this employee after one year will be at the discretion of the Hiring Manager.

Employees who discover violations of CRH's LOTO policy must immediately act to remove workers from the unsafe situation, then must immediately report the violation(s) through normal management levels. Management must assure all employees reporting violations do so without fear of retaliation, and must assure that all appropriate actions are taken to review the situation, re-train and/or discipline as appropriate, and provide the highest possible level of support to the LOTO program. In the event management fails to properly address the situation as reported by the employee, he/she should call CRH's Hotline (1-800-220-755) to report the violation.

Conclusion:

CRH Americas Materials <u>values safe production</u>. This policy is in place to help provide direction and support for 100% lock out for every activity in which it is required. The protection of human life must never be sacrificed or compromised. Since this policy may not cover every lock out tag out situation, it is the responsibility of each employee, supervisor and Company representative to understand exactly how to lock out any equipment or process they work on. It is the foreman's responsibility to e n s u r e that lock-out points are placed at convenient locations that eliminate worker fatigue as an excuse for failure to use proper Lock Out /Tag Out procedures.

Proper use of Lock out/Tag Out is an <u>expectation</u> which requires the employee to be in control of safely performing their activities. If an employee is not sure how, or when, to lock out a system or equipment, they MUST NOT proceed with work and ASK for help! Lock Out/Tag Out is a zero tolerance policy. Failure to properly lock out and tag equipment will result in termination of the responsible employees.

Lock Out/Tag Out procedures are a critical part of our operations. It is the goal of the Company to ensure a safe working environment where people are not at risk for injury or death from inadvertent and unexpected energizing, start up, movement, or release of energy to equipment or machines while they are being serviced, maintained, or repaired.

ADDENDUM 1 Objectives

- There has been a number of fatal and serious accidents relating to LOTOTO in recent years.
 - A feature of some of these accidents has been a change in the nature of the originally planned task, i.e. maintenance teams started on a Task, for which they completed a risk assessment.
 - During the task unplanned issues arise such as an additional repair, a piece of machinery has to be removed unexpectedly.
 - These changes or variations introduce additional risks which were not covered in the original task risk assessment.

	Items to be covered in each LOTOTO procedure / risk assessment form	
1	A statement at the beginning and end of each procedure and risk assessment form which highlights the risk of change or variation. Possible text <i>"Where additional tasks or work arise during the course of this procedure, which were not expected or planned for, then the <u>work must stop</u> and the <u>risk assessment completed again</u>".</i>	
2	If servicing and/or maintenance will continue into the following shift, then the padlock of the LOTOTO owner must be replaced by the personal padlock of the LOTOTO owner of the next shift and a handover done explaining the ongoing work and LOTOTO procedure. The incoming shift of employees and/or contractor employees involved in the work must all apply their personal padlocks.	
3	During group lockout / tagout procedures, each authorized employee must attach a personal lockout / tagout device to the group's lockout / tagout device with the servicing and /or maintenance coordinated by the senior employees of the contractor and operating Company.	
4	Issues 1, 2 and 3 must be covered in the site safety induction for contractors whose work involves LOTOTO.	
5	Safety audit templates in use within companies must now include a requirement for the safety auditor to seek evidence that the change management requirements around LOTOTO have been communicated and are understood by frontline people involved in such work.	

LOTO PROGRAM FORMS

Lockout / Tag-out Periodic Inspection

Company: _____

Location: _____

Authorized Employee:

Name (Print)

The equipment(s) or machine(s) utilized by LO/TO procedures:

1.	
2.	
3.	
4.	
5.	

Any deviations or inadequacies identified:

Authorized employee:

Signature:	_ Date
I certify that this inspection/training has been conducted:	
Signature:	Date

Lock / Tag Removal Authorization Form

val Date:				
e Name:				
needs removal:				
ant due te: (Check One)				
I				
vpacifi.				
specify)				
Contact attempted via:	Date	Time	Contact Made	Initial
□ Phone				
□ Mail				
□ Fax				
Contact attempted via:	Date	Time	Contact Made	Initial
□ Phone				
□ Mail				
□ Fax				
Contact attempted via:	Date	Time	Contact Made	Initial
	val Date: Name: Name: Name: I needs removal: Pent due to: (Check One) ss I specify) Contact attempted via: Phone Mail Fax Contact attempted via: Phone Mail Fax Contact attempted via: Phone Mail Phone	val Date: Name: Name: I needs removal: ent due to: (Check One) ss I specify) Contact attempted via: Date Phone Mail Fax Contact attempted via: Date Mail Fax Contact attempted via: Date Phone Mail Fax Contact attempted via: Date Phone Mail Phone Mail Phone Date	val Date: val Date: Name: Name: Name: Name: Name: Name: Contact removal: Contact attempted via: Phone Mail Fax Contact attempted via: Phone Mail Fax Contact attempted via: Date Time	val Date: val Date: > Name:

A copy of this document must be retained for one (1) year after the removal date.

I have made all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed. If the authorized employee is expected to return to work, I will ensure he/she has this knowledge before he/she resumes work at this facility.

□ Fax

Certification of Hazardous Energy Control Training

Employee Name (Print)	
Job Title:	
Company:	
Location:	
Instructor Name (Print):	
Instructor Name (Signature):	
Training Date:	//

Complete either the INITIAL or REFRESHER training sections below:

□ INITIAL TRAINING

Required for both affected and authorized employees:			
Overview of site's hazardous energy control program provided?	□ Yes	□ No	
Required for authorized employees only:			
Reviewed applicable equipment-specific lockout procedures?	□ Yes	□ No □	N/A
Completed verification of proficiency?	□ Yes	□ No □	N/A

□ REFRESHER TRAINING

Reason for refresher training:

- □ Change in job assignments
- □ Change in the equipment-specific lockout procedures
- Deficiencies identified during a lockout procedure inspection
- Deficiencies identified during a lockout verification of proficiency
- □ Other

Content of refresher training:

Multiple Energy Source Lockout Form

I certify that the following energy sources that have been isolated, locked and verified as

being locked out on ______ Date Time Signature (Authorized Employee)

Signature (Witness)

This activity has been done in preparation for performing the following maintenance or service work.

Describe:

Name of Component Source(s) of Energy Energy Isolation Device(s) 1. 2. 3. 4. 5. 6. 7. 8. 9. 10 Comments:

PRODUCTION/MAINTENANCE LOCKOUT LOG

TIME INSTALLED	EQUIPMENT	LOCATION OF EQUIPMENT	ENERGY SOURCE	VOLT KV	INSTALLED BY:	Verified BY:	REASON Maintenance/Problem/Other	DA RE

Electrical Safety Program

Purpose:

The purpose of this program is to protect human life and reduce potential occupational exposure to electricity through arc flash/blast and electric shock. This program provides guidance on work practices and methods to ensure that adequate safeguards have been established that will identify and control all hazards encountered in testing, maintenance, service and other work involving exposure to live electrical parts.

Scope:

This program applies to qualified and non-qualified employees and contractors who are exposed to electricity as part of their work with Oldcastle.

Electrical Work – General Requirements:

The most important principle of electrical safety is to assume all electric circuits are energized unless each involved worker ensures they are not. Every circuit and conductor must be tested every time work is done on them. Proper PPE must be worn until the equipment is proven to be de-energized.

Qualified employees and contractors will use lockout/tagout (LOTO) procedures on all electrical equipment while completing maintenance work. *LOTO requirements are found in CRH Lockout Tagout Program.*

Electrical work tasks such as **testing**, **trouble-shooting**, **voltage measuring**, **circuit breaker operation and visual and infrared inspections** are permitted on exposed energized equipment provided that personnel are appropriately qualified and wearing electrically rated PPE as required.

Electrical work tasks beyond those listed in the paragraph above, must be performed with the electrical equipment in a de-energized condition and under LOTO unless one of the following conditions apply:

- a. De-energizing introduces additional or increased hazards
- b. De-energizing is not possible due to equipment design or operational limitations
- c. Live parts are operating at 50V or less and there is no increased exposure to electrical hazards

Under conditions "a" and "b" above, an Energized Electrical Work Permit (EEWP) must be utilized. See Appendix A for example EEWP. Consideration should be given to hiring a qualified electrical contractor to perform work requiring an EEWP.

Always perform a risk assessment before performing electrical work. The risk assessment should include reviewing electrical labels for information regarding the incident energy of a potential arc flash, required arc flash boundary, safety related work practices and PPE to be used for the task.

Plan your work to **minimize time** spent working on or near energized electrical circuits and to **maximize distance** from any energized parts.

Oldcastle employees should not perform work tasks on or near exposed electrical equipment with voltages greater than 480V. See TEXAS REGION LOTO program for details

Electrical Work – Arc Flash Risk Assessment

Each asphalt plant, quarry, concrete plant, shop or other TEXAS REGION industrial facility will conduct an arc flash risk assessment to include an electrical system analysis which determines the present degree of arc flash hazard, incident energy and provides for labeling equipment accordingly. The arc flash risk assessment must be reviewed at least every 5 years or whenever a major modification occurs.

Responsibilities:

Supervisors and Managers are responsible for implementation of the Electrical Safety Program. This includes ensuring that equipment is labeled appropriately to provide warning of electrical hazards and arc flash potentials. Additionally, they must ensure that labels are updated when physical changes are made that affect arc flash potentials.

Supervisors and Managers are responsible to ensure that employees receive the necessary safety and technical training to perform their assigned duties and that only Qualified employees perform work on or near exposed energized equipment.

Supervisors and Managers are responsible for monitoring the electrical safety practices of personnel under their direction and to hold thorough task briefings prior to electrical work being performed.

Qualified persons are responsible to use their knowledge, skills and experience to perform electrical tasks in a safe manner and follow established procedures.

The Safety Manager is responsible for auditing the electrical safety program principles and training and ensuring that this program is kept up to date.

References:

OSHA 29 CFR 1910.301-399 Electrical Standards for General Industry

MSHA 30 CFR 56.12004, 57.12004, 75.513, 75.513-1, 77.503, and 77.503-1 Electrical Conductors

NEC National Electrical Code

NFPA 70E Electrical Safety in the Workplace

Oldcastle Technical Bulletin – Arc-Flash and Shock Hazard Fundamentals See Appendix D

Key Definitions:

The following terms are defined in order to allow a better understanding of this program

Qualified Person: A qualified person is one who has received training and has demonstrated skills and knowledge in the construction and operation of electric equipment and in recognizing and avoiding electrical hazards. A person can be considered qualified in respect to certain tasks, equipment and methods and still be unqualified for others.

Unqualified Persons: Persons who might be exposed to electrical hazards and must be trained to understand how the exposure could occur and how to avoid injury that could result from the exposure. Unless qualified, all employees are considered unqualified persons.

On or Near: In personal contact with electrical parts, including contact by tools or materials, or near enough to them to expose the employee to any hazard they present.

Electrical Contractors

Third party electrical contractors must be qualified to perform work at Oldcastle locations. This includes meeting the steps outlined in Oldcastle's contractor management process

Prior to performing any work, the contractor shall provide a letter of certification (or other appropriate documentation) confirming that the attending electrician(s) are properly trained (NFPA70E) to work around the respective voltage.

Electrical work performed in and around voltages greater than 480V, including the disconnection, reconnection or voltage testing of any voltage circuit greater than 480V, shall only be conducted by a third party certified electrical contractor who performs Lock Out / Tag Out on the energy source AND verifies disconnection through the use of a voltage test.

Whenever outside servicing personnel (i.e. contractors) are to be engaged in work on or near energized electrical conductors or circuit parts, Texas Region employees, and the outside contractor have a responsibility to inform each other of any applicable hazards or special conditions, and the precautions which must be taken. *See Appendix C Electrical Work Briefing Document for an example communication strategy*

Energized Electrical Work Permit (EEWP)

An EEWP must be utilized for electrical work tasks other than **testing**, **trouble-shooting**, **voltage measuring**, **circuit breaker operation and visual and infrared inspections**, where de-energizing introduces additional hazards or is not possible due to equipment design or operational limitations.

Close Proximity Maintenance (CPM) procedures may also apply to work involving an EEWP.

See CRH LOTO program for details regarding CPM and see Appendix A for example permit and instructions.

Training

Qualified Workers: At a minimum, qualified workers must be trained on the following:

- The hazards associated with electrical equipment
- · Electrical safety practices and procedures
- Safe work practices that must be followed when working around or with electrical tools or equipment
- · How to distinguish exposed live parts from other parts of electrical equipment
- · How to properly inspect and use the appropriate PPE
- The location of the electrical breaker panels and fuse boxes

Unqualified Workers: Unqualified workers will receive general electrical safety awareness training on how to recognize, evaluate and avoid electrical hazards as well as training covering this safety program and the Texas Regions electrical safety practices.

Training Documentation: A requirement is to have a list or appropriate documentation of qualified employees and the electrical work tasks that they are trained and authorized to perform. This documentation will be maintained by the Site Supervisor. *See Appendix B for example documentation*

Training will occur before an employee begins work in areas which will expose them to electrical equipment and when an employee does not comply with safe work practices.

Retraining should occur every 3 year

Enclosures, Protection and Guarding

All electrical systems must be guarded to prevent contact with live conductors. The following requirements will be adhered to at all times:

- All electrical distribution panels, breakers, disconnects, switches and junction boxes will be completely enclosed.
- Live parts to electrical equipment operating at 50 volts or more must be guarded to prevent inadvertently touching or approach nearer than a safe distance by a person and to prevent damage.
- All electrical receptacles and cover plates will be kept intact and in good condition.
- All electrical panels should be easily accessible at all times and a minimum of three feet of clearance shall be maintained on all sides.
- Electrical rooms and closets must be closed at all times. Only competent or qualified employees are allowed into electrical rooms and closets. Nothing should be stored in rooms or closets designated for electrical equipment.
- No Oldcastle employee will open or remove covers or access panels of high voltage electrical distribution panels or transformers >480V.
- Safety signs which warn employees about any electrical hazards shall be displayed prominently on the door of the room or closet.

General Protective Equipment, Tools and Techniques

Ground Fault Circuit Interrupter (GFCI) protection will be provided and used where an employee is operating or using cord and plug connected tools related to maintenance and construction activity supplied by a premise wiring system. The GFCI can be a device installed as part of the premise wiring system or a listed portable GFCI device.

When working near exposed energized conductors or circuit parts, employees will use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts.

Protective shields, protective barriers, or insulating materials will be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts which might be accidentally contacted or where dangerous electric heating or arcing might occur.

When normally enclosed live parts are exposed for maintenance or repair, they will be guarded to protect unqualified persons from contact with their live parts.

Alerting Techniques: The following alerting techniques shall be used to warn and protect employees from hazards which could cause injury due to electric shock, burns, or failure of electric equipment parts:

> Safety Signs and Tags: Safety signs, safety symbols, or accident prevention tags will be used where necessary to warn employees about electrical hazards which may endanger them.

> **Barricades:** Barricades will be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to uninsulated energized conductors or circuit parts. Conductive barricades may not be used where they might cause an electrical contact hazard.

> Attendants: If signs and barricades do not provide sufficient warning and protection form electrical hazards, an attendant will be stationed to warn and protect employees.

Testing Equipment

Only use multimeters rated as CAT III or CAT IV, as appropriate, and ensure voltage and/or ampacity rating of meter is rated for the work being done.

Inspect test meters/devices and leads for damage before use.

Verify that test meters/devices are operating properly and that appropriate settings are used.

It is recommended that the meter/device is tested on a known voltage source before and after an absence of voltage test is performed.

Personal Protective Equipment (PPE)

All employees will be provided with, and will use, arc rated clothing/PPE prior to entering a boundary where there are energized, or potentially energized, conductors.

Arc rated clothing should be worn in accordance with the hazard ratings of the equipment being worked on. It shall be visually inspected before each use.

Avoid using apparel made of polyester, nylon, polypropylene and other synthetic fabrics when working on or near energized components. Such clothing can melt to the user in the presence of an arc fault.

Electrical PPE is not required when performing non-electrical work or when simply traveling by electrical equipment where covers/doors are securely in place. Use normal PPE for the surrounding work environment.

Once a determination has been made through testing that there is no electrical hazard present, workers may remove their electrical PPE.

Voltage Phase-Phase	Fuse/Circuit Breaker Size	Hazard/Risk Category	Flash Protection Boundary
<208 Volts	<100 amps	0	N/A
<208 Volts	<u>></u> 100 amps	1	4 Feet
<u>></u> 208 Volts	<u>></u> 200 amps	2	4 Feet
480-600 Volts	ANY	2	10 Feet
>601 Volts	ANY	3	20 Feet

<u>HAZARD/RISK</u> <u>CATEGORY</u>	<u>0</u>	1	<u>2</u>	<u>3</u>
Hard Hat	Х	Х	Х	х
Safety Glasses	Х	х	х	х
Leather Gloves	Х	Х	Х	Х
Long Sleeve Shirt	Х			
Long Pants	Х	Х		х
FR Long Sleeve Shirt		Х	х	х
Voltage Rated Gloves		Х	х	х
T-Shirt			х	х
FR Pants			х	х
FR Coveralls In Lieu Of FR Shirt & Pants		RATED AT 4 CAL/CM2	RATED AT 8 CAL/CM2	RATED AT 25 CAL/CM2
ARC Rated Face shield			х	Х
Hearing Protection			Х	Х
MINIMUM ARC RATING OF PPE (cal/cm2)	<u>N/A</u>	4	<u>8</u>	<u>25</u>

Inspections and Maintenance of Electrical Equipment

Inspections of electrical systems must be performed by a competent person. Employees who perform maintenance on electrical equipment and installations must be qualified persons familiar with the specific maintenance procedures and tests required.

An inspection of electrical testing equipment, cords and plugs, electrical hand tools and PPE is required prior to their use. Equipment must be taken out of service until repaired if pre-use inspection identifies a safety problem with the equipment (i.e. frayed electrical cords, pulled strain reliefs, damaged plug, etc.)

Annual visual inspections of the following equipment should be conducted as follows:

Equipment	Inspection criteria
Electrical enclosures	Functioning, clear of debris, insulators in place, line side of disconnect is
	insulated, covers are in place, labeling is in place and is legible.
Equipment disconnects	No exposed wires, no burning evidence, no discoloration, connections are tight, clearances are met, labels on cabinets still intact, lockable disconnect is functioning and verify lockout isolation points are still accurate.
Safety Interlocks	Interlock is in place and functioning. Hinged guards or barrier guard gates firmly in place and provide effective guarding
Equipment cabinets /branch circuits/bus/step	Circuitry is identified, no openings, labels are still intact, clearances are met, cover fastened and closed per OEM specifications
Main transformers	Ensure airflow, free from debris, no vegetation, clearances are met, labels are intact

Appendix A

ENERGIZED ELECTRICAL WORK PERMIT (EEWP) PROCEDURE

For electrical work tasks other than **testing**, **trouble-shooting**, **voltage measuring**, **circuit breaker operation and visual and infrared inspections**, the following procedures apply to all work on, or in proximity to exposed and energized electrical conductors or circuit parts. Additional procedures may be needed for specific tasks.

- 1. Employees must exhaust every reasonable effort toperform work de-energized.
 - 2. To work on energized devices as identified in this program you must be:
 - Trained on the Electrical Safety Program, and
 - A qualified person as defined in this program, or
 - A Licensed Electrician by Authority Having Jurisdiction.
 - 3. Every electrical conductor or circuit part must be considered energized until proven otherwise.
- 4. The qualified person must participate in any decision to carry out work on energized electrical parts and sign permits.
- 5. The qualifications and the number of employees that will be involved in the work will be established and qualified persons will be selected for the work.
 - 6. The work hazards and the extent of the risk must be thoroughly examined.
- 7. The EEWP will be completed, and approved. This form will be reviewed by each employee performing the work and will be maintained in the immediate work area.
 - 8. Ensure the appropriate personal protective equipment has been obtained.
- 9. Manufacturer's instructions and equipment details must be consulted prior to any work being performed.
 - 10. All available electrical plans/drawings must be consulted prior to any work being performed.
- 11. Appropriate barricades, signs and warning tape must be employed in order to restrict the area to unqualified personnel as well as create safe working space for qualified persons.

Energized Electrical Work Permit (EEWP)

Part 1: To be completed by requester:

- 1. Description of circuit/equipment, job location and nominal voltage:
- 2. Describe task(s) to be performed:
- 3. Justification for why the circuit/equipment cannot be de-energized: (CHECK ALL THAT APPLY)
 - □ Will deactivate emergency warning devices such as caution lights or audible alarms.
 - □ Will deactivate electrically interlocked guards or presence sensing devices.
 - □ Will deactivate hazardous atmosphere ventilation or detection devices
 - □ Circuit is integral part of a continuous process that will deactivate other equipment
 - De-energization poses other additional or increased hazards (Briefly Explain):

Part 2: To be completed by Qualified Person Performing Work:

1. Safe work practices utilized to protect nearby workers and yourself:

2.	2. Required PPE:	
3.	3. Means of restricting area: (Alerting Technique)	
4.	4. Job Safety Briefing has been conducted \Box Yes \Box No	
5.	 Do you agree the described work can be done safely? Yes No (If NO, explain and to requester): 	l return
Ele	Electrically Qualified Person: Date:	
TEX	TEXAS REGION Authorized Supervisor / Competent Person: Date:	

Appendix B

TRAINING/RECORDKEEPING

Training Requirements:

All TEXAS REGION employees will receive training in how to recognize, prevent, and avoid hazards associated with electricity typical to their environment.

All qualified personnel at facilities will receive training in NFPA 70E Electrical Safety requirements.

Anyone who performs electrical work tasks including circuit breaker operation, electrical system testing, troubleshooting or measuring voltage or who may otherwise be exposed to live or potentially live energized electrical conductors will receive task training specific to that activity.

When to Conduct the Training:

Initial training in electrical hazard awareness should be conducted for all new hires prior to being assigned to work in any area with electrical exposures/hazards.

Qualified personnel at facilities will receive training before performing work tasks which expose them to energized conductors. Qualified personnel must also demonstrate the ability to perform the task safely.

Recommended Sessions:

Initial Training – Electrical Hazard Awareness (All)

Initial Training – NFPA 70e (Qualified Personnel)

Task Training - Specific to the task being performed (Qualified Personnel)

Learning Objectives:

- AWARENESS: Understand the hazards of electricity in the workplace. Understand the how electricity is used specifically at the plant, office or jobsite. Learn Oldcastle and OSHA requirements for safe use of electrical equipment and tools. Understand inspection requirements for electrical cords, tools, and panels and what to do if found defective or damaged. Learn what a Ground Fault Circuit Interrupter is and how it works, etc.
- NFPA 70e: Understand NFPA 70e requirements as they pertain to TEXAS REGION facilities and operations; What is an arc flash, causes and prevention strategies; Learn the PPE requirements for working on or near exposed energized conductors; Understand the Flash Protection Boundary (FPB); Arc flash labeling, etc.

Trainer: A Competent Person in Electrical Safety / NFPA 70e as it pertains to TEXAS REGION Operations. *The instructor needs to be competent in teaching methods, trade practices, and knowledge on the subjects presented. The instructor could be an engineer, teacher or supervisor with knowledge of the procedures, or an experienced worker.*

Training Program Content & Resources:

Trainer should review the **TEXAS REGION LOTO Policy and Electrical Safety Program** prior to conducting the training and have it available for review & explanation. Both classroom and on the job training instruction should be used. For example:

Hands-on Demonstrations can include putting on electrical safety PPE and performing electrical tasks safely.

Classroom training can be accomplished through PowerPoint presentations, videos or other training methods determined adequate by the Safety Manager. Classes & Seminars from third parties are available for more in- depth electrical training for supervisors and qualified persons.

Electrical Training Verification & Task Qualification Form

NAME OF EMPLOYEE:_____

DATE ______

TITLE______ PLANT NAME/NUMBER ______

CRH (TEXAS REGION) employees can only be qualified to perform electrical work on equipment up to 480V. Electrical work tasks such as testing, trouble-shooting, voltage measuring, circuit breaker operation and visual and infrared inspections are permitted on energized equipment without an EEWP provided that personnel are appropriately qualified and wearing electrically rated PPE as required.

Employee Qualified or Unqualified With Respect to Electrical Work Determine whether this worker is Qualified or Unqualified based on training received and demonstration of competency. A worker can be considered qualified with respect to certain equipment and methods, but unqualified for others. In this case, choose "Qualified" and then identify the tasks for which the worker is qualified in the Task Qualification section.	Yes	N/A	Determination Made By: LEADER'S INITIALS	EMPLOYEE'S INITIALS
Unqualified Worker: The named employee is currently an unqualified electrical worker. Since he/she may work near electrical equipment in the work environment, they must receive general electrical hazard awareness training.				
Qualified Worker: The named employee is a qualified electrical worker. Therefore, they have received <u>both</u> general electrical hazard awareness training <u>and</u> training in NFPA 70E commensurate with their exposure or work on or near energized electrical equipment. In addition, worker must be trained and authorized with respect to TEXAS REGION's				
Lockout/Tagout policy to apply LOTO to electrical systems in the work environment.				
Task Qualification - Panelboards or Other Electrical Equipment Rated up to 480V This worker is Qualified to perform the following electrical tasks. Check "Yes" & initial only those electrical tasks for which the Qualified worker has received task training and demonstrated competency as specified below.	Yes	N/A	Task Trained By: TRAINER'S INITIALS	EMPLOYEE'S INITIALS
Circuit breaker (CB), fused switch or starter operation with covers on				
CB, fused switch or starter operation with covers off and energized parts exposed				
Perform non-contact inspections of energized parts including infrared thermography				
Is trained and authorized with respect to TEXAS REGION's Lockout/Tagout policy to apply LOTO to electrical systems in the work environment				
Demonstrates competency in the understanding and use of assigned test instrument (multi- meter) including inspecting the instrument before use				
Removal of bolted covers or opening hinged covers (to expose bare, energized, electrical conductors and circuit parts)				
Use instrument to test/verify de-energization of conductors and circuit parts. This includes testing the instrument on a known voltage before and after an absence of voltage test is performed				
Work on energized electrical conductors and circuit parts including troubleshooting, voltage measuring, etc.				
Install and maintain wiring, control, and lighting systems				
Remove/Install CBs or fused switches				
Other electrical tasks:				
Other electrical tasks:				
Other electrical tasks:				

COMMENTS:		

Appendix C

CONTRACTOR ELECTRICAL WORK BRIEFING

Whenever outside servicing personnel (i.e. contractors) are to be engaged in work <u>on or near</u> energized electrical conductors or circuit parts, the on-site employer, CRH (TEXAS REGION), and the outside contractor have a responsibility to inform each other of any applicable hazards or special conditions, and the precautions which must be taken.

Part I: TO BE DISCUSSED WITH THE CONTRACTOR:

- (1) Each contractor Company is responsible for having Company specific training, procedures and equipment prior to performing electrical work at CRH (TEXAS REGION).
- (2) All electrical work shall be performed in compliance with all applicable rules and regulations including, but not limited to, OSHA 29 CFR, Subpart S on Electrical Systems, NFPA 70 E, Standard for Electrical Safety in the Workplace, and NFPA 70 National Electric Code (NEC)
- (3) All electrical work must be performed by "Qualified persons" as defined in the above referenced standards, who have the skills and knowledge necessary to perform the work in a safe manner.
 (4) All equipment must be put in an electrically safe work condition prior to maintenance unless the contractor can demonstrate that de-energization increases the hazard or is infeasible.
- (5) In the event that the electrical work must be performed on or near energized electrical conductors or circuit parts, the safety related work practices contained in NFPA 70 E, including completion of an Energized Electrical Work Permit (EEWP), must be followed.

Part II: SPECIFIC REQUIREMENTS APPLICABLE TO THE WORK BEING PERFORMED:

(1) Will the work include ONLY electrical conductors or parts placed in an electrically safe work condition or ONLY tasks such as testing, troubleshooting, voltage measuring, etc.?

If YES, you will need a job briefing but not an EEWP	YES 🗆 NO 🗆
(2) Will the electrical work involve work on or near energized electrical parts	
If YES, a job briefing must be conducted and your work will require a EEWP	YES 🗆 NO 🗆
Part III: JOB BRIEFING:	Check When Complete
(1) Discuss electrical equipment included in the work and existing hazards: Comments:	
(2) Discuss Personal Protective Equipment (PPE) Requirements: Comments:	
(3) Discuss applicable safe work practice procedures: Comments:	
(4) Discuss any emergency/evacuation procedures applicable to the work $Comments$:	

Part IV: APPROVAL(S) TO PERFORM THE WORK:

Electrically Qualified Person(s)	Date	Electrically Qualified Person(s)	Date
TEXAS REGION Approving Supervisor/Comp	oetent Person	Date	

CRH Technical Bulletin Arc-Flash and Shock Hazard Fundamentals

Bulletin EM-012016

What are Arc-Flash and Shock Hazard and why is it important to know safe procedures when working around energized equipment?



Effects of an Electrical Arc

The dictionary describes an electric arc as "a luminous bridge formed in a gap between two electrodes." An arc-flash occurs during a fault, or short circuit condition, which passes through this gap.

In the last 10 years, the U.S. Bureau of Labor Statistics reports 2,000 fatal and more than 24,000 non-fatal electrical injuries such as those sustained from an arcflash event. The arc-flash can be initiated through accidental contact, equipment which is underrated for the available short circuit current, contamination or tracking over insulated or uninsulated surfaces, deterioration or corrosion of equipment or parts, as well as other causes.

An arc-flash event can expel large amounts of deadly energy. The arc causes an ionization of the air, and arc-flash temperatures can reach as high as 35,000 degrees Fahrenheit.

This is hotter than the surface of the sun, and, can set fire to clothing and severely burn human skin in a fraction of a second and at a significant distance from the event. The heat can also result in ignition of any nearby combustible materials.

Arc-flash temperatures can also liquefy or vaporize metal parts in the vicinity of the event such as copper and aluminum conductors or steel equipment parts. The superheated material rapidly expands in volume as it changes state from a solid to vapor, resulting in explosive pressures and sound waves (shock hazard). The explosive pressure is a potential hazard as the force can cause employees to lose their balance or fall from ladders. It can even throw them across the room against walls or other equipment.

The sound blast has the potential to rupture eardrums resulting in temporary or permanent hearing loss. Molten metal can be sprayed by the blast throughout the vicinity. Solid metal debris and other loose objects, such as tools, can be turned into deadly projectiles by the explosion. The bright flash from the event can result in temporary or permanent blindness. The effects of arc-flash are real and all will most likely result in personnel injury or death as well as equipment damage.

What codes set the standards for addressing arc-flash potential of our equipment?

The National Fire Protection Association (NFPA) **70 - National Electric Code**, **70E - Standard for Electrical Safety in the Workplace** and **70B - Recommended Practice for Electrical Equipment Maintenance** require electrical equipment be marked to warn qualified personnel of potential arc-flash hazards. In order to accurately evaluate the dangers associated with arc-flash we must quantify the hazard. **Incident energy** is the measure which has been developed to assess arc-flash events. This is the energy measured on a surface at a specified working distance from the arc-flash location.



MAKE SAFETY OUR FAMILY BUSINESS

Who should conduct an arc-flash risk assessment?

In order to identify the specific arc-flash hazard at a given piece of equipment within a facility, an arc-flash risk assessment must be performed by a *qualified professional electrical engineer* licensed in that state with at least 3 years of experience as a lead engineer or equivalent (this would be on top of 2-4 years as a junior engineer doing arc-flash studies). NFPA 70E requires a minimum of 5 to 7 years in power system studies: short circuit, equipment duty, coordination, and arc-flash studies to perform the assessments.

In order to perform the arc-flash risk assessment a short circuit and coordination risk assessment must first be performed or the results of these studies must be available to the engineer performing the arc-flash risk assessment.

The result of the arc-flash risk assessment will categorize the hazard at specific equipment based on the incident energy, as well as identify the *Arc-Flash Protection Boundary* (this is the closest approach allowed before personal protective equipment must be worn). Inside the Arc-

Flash Protection Boundary a worker must be wearing the proper clothing

and *Personal Protective Equipment (PPE)*. The main objective of the PPE is to limit the burns to the body resulting from an arc-flash event, to a survivable level (i.e., 2nd degree or less).

What should we be looking for in a comprehensive arc-flash risk assessment of a plant? NFPA 70E

Article 130.5 states:

An arc-flash risk assessment shall be performed and shall determine if an arcflash hazard exists. If an arc-flash hazard exists, the risk assessment shall determine:

- a. Appropriate safety-related work practices
- b. The arc-flash boundary
- c. The PPE to be used within the arc-flash boundary

The goal is to have all electrical equipment labeled and *Qualified People* able to understand the labels and what the safety related work practices are.

What is required to keep an arc-flash risk assessment of a facility current?



Nominal system voltage	
Arc flash boundary	
Available incident energy	
Working distance	
Minimum arc rating of clothing	
Level of PPE	

NFPA 70E requires the arc-flash risk assessment be reviewed whenever major modification or renovations are made to the system, or at most, every five years. The review is nearly identical to the initial risk assessment. The main difference is the model only needs to be verified instead of created. Verification of the utility information is also required. When updating the model based on changes/modifications to the system, the verification process can be conducted based on an interview with a qualified person that has knowledge of the system otherwise the system would require more time to validate. The extent of validation would be based on site specifics.

Further NFPA 70E requires a written Electrical Safety Program that covers all areas of the Company's electrical safety practices. The program is required to be audited on a three-year cycle to assure continued compliance of the policies and procedures to the standard.

Who should do this?

The person that reviews the arc-flash risk assessment for a facility should be similarly qualified as for the initial first risk assessment.

Arc Flash Boundary Conductor or circuit part Boundary Boundary Conductor or circuit part Boundary

Boundary

What training and documentation is required to comply with NFPA requirements? NFPA 70E Article

110.1 Electrical Safety Program, 110.2 Training

Requirements, and 110.3 Host and Contract Employer's Responsibilities state:

- The employer shall implement and document an Electrical Safety Program for the facility/Company that directs activity appropriate to the risk associated with electrical hazards and addresses the following: maintenance, awareness and self- discipline, electrical safety program principles, electrical safety program controls, electrical safety program procedures, risk assessment procedures, job briefing, and electrical safety auditing.
- Every person exposed to an electrical hazard when the risk associated with that hazard is not reduced to a safe level by the applicable electrical installation requirements must be trained to understand the specific hazards associated with electrical energy, in safety-related work practices and procedural requirements to provide protection from the electrical hazards associated with their job or task assignments, and to identify and understand the relationship between electrical hazards and possible injury as well as the requirements of the Electrical Safety Program.
- Employees exposed to shock hazards shall be trained in methods of safe victims from contact with exposed energized electrical conductors annually.
- Employees responsible for responding to medical emergencies requiring first aid, emergency response, and resuscitations shall be trained in the proper procedures annually.

Electrical Safety Program Procedures

- Training
- Job briefing
- Establishing an electrically safe working condition
- Test before touch
- Working while exposed to electrical hazards (justification: energized electrical work permit)
- Auditing (program and field work)
- Program controls (metrics)

Occupational Health & Safety Risk Management Program Hierarchy of Risk Controls

- Elimination
- Substitution
- Engineering Controls
- Awareness (Warning)
- Administrative Controls & PPE
- Mitigation: Emergency Procedures

Occupational Health & Safety Management Program

- Management Commitment Policy - Planning
- Implementation & Operation
- Evaluation & Corrective Action
- Management Review

- All training must be documented.
- Every person on site at a facility will be categorized as Qualified or Unqualified (see 110.2(D)(1) and (D)(2))
 - A qualified employee must understand the construction and operation of the equipment or circuit associated with the planned task and that energized electrical work is permitted only under specified conditions as outlined in NFPA 70E. A qualified person must have the ability to recognize all electrical hazards that might be associated with the work task being considered and must be able to react appropriately to all hazards associated with the task.
 - An unqualified employee is someone who has not received the specific training to perform a task, to recognize that an electrical hazard exists and how to avoid that hazard. Unqualified persons must be trained in electrical safety-related practices necessary for their safety.
 - An employee could be qualified to perform one work task and not qualified to perform a different task. An employee could be qualified to work on one piece of equipment but not another similar piece of equipment.
- Retraining intervals shall not exceed 3 years (but earlier may be required based on failure to comply, new technology/processes changes, or if employee is doing something new).
- Host employers must document meetings that communicate information about known hazards to contract employers and shall report observed contract employer-related violations of the NFPA 70E standard to the contract employer.

What are the equipment labeling requirements?

Provisions were added to **NFPA 70** and **NFPA 70E** requiring labels on electrical equipment convey an important safety message to employees who have to examine, adjust, service or maintain energized electrical equipment. Reading those labels is akin to a consumer reading a product label: They tell you what you are getting, or, in the case of energized electrical conductors and circuit parts, what you are getting into.

The labeling requirements in the two codes differ. **NFPA 70** Sections 110.16 Arc-Flash Hazard Warning and 110.21 (B) Field-Applied Hazard Markings require labels that warn an arc-flash hazard exists to tell employees to proceed with caution if energized work is to be performed. These labels must comply with ANSI Z535.4 and should covey the following: nature of the hazard, consequence of interaction with the hazard, how to avoid the hazard, and seriousness level of the hazard.

NFPA 70E recognizes certain types of electrical equipment is likely to require examination, adjustment, servicing, or maintenance while energized, therefore it requires the completed installation bear a label that warns qualified persons the potential for arc-flash hazards exists. The label must be visible so the qualified person can read it before undertaking any task that will expose him or her to the arc-flash hazard, defined in **NFPA 70E** as "a dangerous condition associated with the possible release of energy caused by an electric arc." The NFPA 70E labels take the next step in ensuring that employees can safely proceed with the task at hand once the decision to work on energized equipment has been made, validated, and documented by requiring information on the risk associated with a specific piece of equipment.

NFPA 70E Article 130.5(D) Equipment Labeling states:

"(D) Equipment Labeling. Electrical equipment such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are in other than dwelling units and that are likely to require examination, adjustment, servicing, or maintenance while energized, shall be field-marked with a label containing all the following information:

- 1. Nominal system voltage
- 2. Arc-flash Boundary
- 3. At least one of the following:
 - a. Available incident energy and the corresponding working distance, or the arc-flash PPE category in Table 130.7(C)(15)(A)
 (b) or 130.7 (C)(15)(B) for the equipment, but not both
 - b. Minimum arc rating of clothing
 - C. Site-specific level of PPE"

That is for the Arc-flash Hazard. The Shock Hazard is a separate hazard, but is usually addressed on the Arc-flash label as well by listing the Voltage and Limited Approach and Restricted Approach boundaries.



How should we be labeling our equipment?

At a minimum arc-flash labels used on equipment at CRH facilities will include the following:

- Nominal System Voltage a rated or named value, stating the available input or output voltage of a piece of equipment or system.
- Arc-flash Boundary is a safe approach distance from energized equipment. No arc-flash specific PPE is required outside of this boundary.
- Limited Approach an approach limit at a distance from an exposed live part where a shock hazard exists. It is the minimum distance from the energized item where unqualified personnel may safely stand.
- **Restricted Approach** an approach limit at a distance from an exposed live part which there is an increased risk of shock. Only qualified persons wearing the appropriate PPE and using voltage rated tools may cross this boundary.

And either (Working Distance and Available Incident Energy) or Level of PPE, but not both

- Working Distance the distance between the possible arc point and the head and body of the worker positioned in place to perform the assigned task.
- Available Incident Energy is a measure of thermal energy at a working distance from an arc fault, the unit of incident energy is cal/cm². The incident energy is a function of system voltage, available short-circuit current, arc current, and the time required for circuit protective devices to open.
- Level of PPE the potential severity of arc-flash determines the level of PPE required to be worn. The hazard risk categories range from 1 to 4. Category 1 requires arc-rated clothing with a minimum rating of 4 cal/cm², Category 2 requires clothing rated for 8 cal/cm², Category 3 requires clothing rated for 25 cal/cm², and Category 4 requires clothing rated for 40 cal/cm².

Additional information which may be included on arc-flash labels but is not required includes:

• **Prohibited Approach** - the distance from an exposed part which is considered the same as making contact with the live part, only qualified personnel wearing appropriate PPE, having specified training to work on energized conductors or components, and a documented plan justifying

the need to perform this work may cross this boundary (this term has been removed from NFPA 70E, but may still be shown on some labels in use across CRH).

- **Required PPE List** a complete list of the PPE required for working on a specific piece of equipment
- Minimum Arc Rating of Clothing rating is based on the amount of energy necessary to pass through any given fabric to cause a second degree burn, the higher the arc rating the greater the protection.



What PPE should we have?

The PPE required depends on the available incident energy for the component being worked on. **NFPA 70E Article**

130.7 (C)(16) states

	Category 1	Category 2
•	Arc-rated clothing, minimum arc rating of 4 cal/cm ²	• Arc-rated clothing, minimum arc rating of 8 cal/cm ²
• cov	Arc-rated long-sleeve shirt and pants <i>or</i> arc-rated rerall	 Arc-rated long-sleeve shirt and pants or arc-rated coverall
• hea	Arc-rated face shield (wrap-around guarding for fore- ad, ears and neck) or arc flash suit hood	• Arc-rated face shield (wrap-around guarding for fore- head, ears and neck) and arc-rated balaclava or arc flash suit
• nee	Arc-rated jacket, parka, rainwear, or hard hat liner (as eded)	 Arc-rated jacket, parka, rainwear, or hard hat liner (as
•	Hard hat	needed)
•	Safety glasses or safety goggles	Hard hat
•	Hearing protection (ear canal inserts)	Safety glasses or safety goggles
•	Heavy duty leather gloves or rubber insulating gloves	 Hearing protection (ear canal inserts)
wit	h leather protectors	Heavy duty leather gloves or rubber insulating gloves
•	Leather footwear (as needed)	with leather protectors
		Leather footwear
(av	Category 3 ailable incident energy rating less than 25 cal/cm ²)	Category 4 (available incident energy rating less than 40 cal/cm ²)
(av •	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc-	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc-
(av • rati	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ²	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ²
(av • rati	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants
(av • rati •	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall
(av rati • suit	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall Arc-rated arc-flash suit consisting of jacket, pants, and t hood	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood
(av • • sui1	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall Arc-rated arc-flash suit consisting of jacket, pants, and t hood Arc-rated gloves	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves
(av • • • suit •	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall Arc-rated arc-flash suit consisting of jacket, pants, and t hood Arc-rated gloves Arc-rated parka, rainwear, or hard hat liner (as need-	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves • Arc-rated parka, rainwear, or hard hat liner (as need- ed)
(av • rati • suit • ed)	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall Arc-rated arc-flash suit consisting of jacket, pants, and t hood Arc-rated gloves Arc-rated parka, rainwear, or hard hat liner (as need- Hard hat	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves • Arc-rated parka, rainwear, or hard hat liner (as need- ed) • Hard hat
(av • • suil • ed)	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall Arc-rated arc-flash suit consisting of jacket, pants, and t hood Arc-rated gloves Arc-rated parka, rainwear, or hard hat liner (as need- Hard hat Safety glasses or safety goggles	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves • Arc-rated parka, rainwear, or hard hat liner (as need- ed) • Hard hat • Safety glasses or safety goggles
(av • • • • • ed) •	Category 3 ailable incident energy rating less than 25 cal/cm ²) Arc-rated clothing selected so that the system arc- ing meets the required minimum arc-rating of 25 cal/cm ² Arc-rated long-sleeve shirt and arc-rated pants Arc-rated coverall Arc-rated arc-flash suit consisting of jacket, pants, and t hood Arc-rated gloves Arc-rated parka, rainwear, or hard hat liner (as need- Hard hat Safety glasses or safety goggles Hearing protection (ear canal inserts)	Category 4 (available incident energy rating less than 40 cal/cm ²) • Arc-rated clothing selected so that the system arc- rating meets the required minimum arc-rating of 40 cal/cm ² • Arc-rated long-sleeve shirt and arc-rated pants • Arc-rated coverall • Arc-rated flash suit consisting of jacket, pants, and suit hood • Arc-rated gloves • Arc-rated parka, rainwear, or hard hat liner (as need- ed) • Hard hat • Safety glasses or safety goggles • Hearing protection (ear canal inserts)

Keep in mind arc-rated clothing or equipment indicates that it has been tested for exposure to an electric arc. All arc- rated clothing is also flame-resistant, but, not all flame-resistant clothing is arc-rated.

Does this PPE have a shelf-life?

PPE that has a testing requirement based on time are the rubber gloves used with the leather protectors, every six months based on OSHA's 1910.269. Everything else is acceptable to use based on visual inspection that the piece is free of defect, holes, fraying, contamination, etc. If there is any defect, the piece has to be pulled from rotation and fixed or discarded.

Should our employees have access to special tools when working on electrical issues?

Category and Voltage rated tools and testing equipment (voltage meters, current meters, etc.) should be available for use when working on electrical equipment. All testing equipment used at our plants has to be UL listed and CAT 3 or higher. The equipment should be tested on known voltage before and after an absence of voltage test is performed.

Voltage meters will only be able to meet its specifications when it is within a certain environment. Conditions such as temperature, humidity and the like will have impact on the performance. Also conditions such as line voltage can affect the performance. The manufacturer's literature for the voltage meter should be reviewed to ensure the voltage meter is used within the recommended operating conditions. Additionally, the manufacturer's literature should state the required calibration period for the voltage meter. The most usual calibration period is a year, but some voltage meters may state a 90-day calibration period. Follow manufacturer recommendations to recalibrate a voltage meter.

Isolation of Operating Machinery and Electrical Safety Compliance Review Questions

CRH AMAT lock-out/tag-out policy in place. Posted or accessible to all employees.

Machine specific lock-out/tag-out procedures or isolation rules in place. Accessible to all employees.

Sufficient numbers of locks, tags, hasps, etc. on site to conduct all anticipated maintenance activities. *Accessible to all authorized employees.*

All authorized or affected employees have been trained in the lock-out/tag-out or isolation policy and this training is documented.

A list of Close Proximity Maintenance (CPM) procedures specific to your facility has been created, as applicable.

If CPM is used, a Job Safety Analysis (JSA) has been created outlining the planned step by step procedure.

Electrical Safety - NFPA 70E

a) An arc flash survey been completed by a qualified person for this facility. Electrical labels warning of arc flash (and containing all other required information) have been installed on electrical enclosures, as applicable.

b) All work over 600 volts is performed by a third party certified electrical contractor.

c) Prior to working, all electrical contractors provide a letter of certification confirming that the attending electrician(s) are properly trained (NFPA 70E) to work around the respective voltage.

d) All employees who troubleshoot electrical systems, perform voltage testing, <u>operate circuit breakers</u> <u>with covers off</u> or are otherwise exposed to live or potentially live circuits have been trained in NFPA 70E.

e) All qualified and/or affected employees wear appropriate arc rated PPE during electrical tasks.

f) All Authorized employees *and contractors* who work on electrical equipment perform lock-out / tagout on the energy source AND <u>verify disconnection through the use of a voltage testing</u>?.

g) All electrically authorized employees have or have access to a voltage tester for verification of electrical LOTO.

LOTO Annual Integrity

All LOTO authorized employees are observed at least annually by a competent person who watches them conduct a task involving lock-out/tag-out or isolation to ensure that the system is operated as per rules, and this is documented.

All machine specific procedures have been inspected at least annually for correctness and to ensure equipment additions and changes have been implemented. This inspection is documented. The goal is to ensure that the component and energy specific procedures are correct and provide adequate protection and information.

Arc flash gloves have current certification.

Arc flash gear is appropriate for the voltage exposure.

Component specific procedures for mobile equipment are in place.



Machinery Guarding

- · Each location must maintain a system for regular checking of machinery guarding
- No machinery can be operated without all tail pulleys, pinch points, exposed shafts and exposed moving parts properly guarded
- Pad-mounted electrical transformers, tanks, tank and containment valves, gas lines, gas containers/cylinders must be located away from travel ways and adequately protected by bollard, barrier or other measures so they cannot be struck by trucks and/or mobile equipment
- Conveyor return rollers within 7-feet of the ground (or an adjacent working surface) where workers may work or travel under the belt must be guarded
- Guards must be secured in a way that a tool is required to remove them

The hazards posed by an unguarded machine are obvious: in the worst of all cases, the machine can do to your body parts what it does to the materials it's designed to cut, shape, form, etc. Equipment should never be operated without guards in place. A wide variety of mechanical motions and actions may present hazards to the worker. These can include the movement of rotating members, reciprocating arms, moving belts, meshing gears, cutting teeth, and any parts that impact or shear. These different types of hazardous mechanical motions and actions are basic in varying combinations to nearly all machines, and recognizing them is the first step toward protecting workers from the danger they present.





WHAT SHOULD BE GUARDED?

It may be unclear to you at this point why some areas or parts of a machine are required to be guarded and others are not. In general, any pinch point must be guarded. A pinch point is any point at which it is possible for a person or part of a person's body to be caught between moving parts of a machine, or between the moving and stationary parts of a machine, or between material and any part of the machine. A pinch point does not have to cause injury to a limb or body part, although it might cause injury – it only has to trap or pinch the person to prevent them from escaping or removing the trapped part from the pinch point. If the person would simply pass through and be unharmed, then that area may not require guarding. Your supervisor or co-worker can help make this clear as you inspect a piece of equipment and examine the guarding that is in place.

PROPER GUARDING SHOULD:

Prevent contact: The safeguard must prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.

Secure: Workers should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They must be firmly secured to the machine.

Create no new hazards: A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.

Create no interference: Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency since it can relieve the worker's apprehensions about injury.

Allow safe lubrication: If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

If equipment has a safety defect, do not use it. Make sure the defective equipment is locked and tagged out until repairs can be made. Report all defective or unsafe equipment to your supervisor.

TYPES OF GUARDING

There are three main types of guarding: point-of-contact, location, and area guarding.

POINT OF CONTACT GUARDS

The yellow-painted guards shown in these photos are point-ofcontact guards. They fit closely around the moving machine parts. In the photo on the left, they prevent contact with the Vbelt drive, the shaft ends and connecting coupling between the gear drive and the conveyor. In the photo on the right, the guards enclose the conveyor tail pulley and shaft, and the motion sensor mounted on the shaft end that extends through the bearing.







LOCATION GUARDS

The V-belts and drive pulley pinch points for the conveyor in this photo are more than 7 feet above the surrounding walkways and working surface. As a result, the drive components are considered guarded by location. The yellow guard (see arrow) below the belt drive has been installed to protect miners working below the drive from being struck by whipping V-belts, if they were to break.



These photos show components of appropriate area guards. The left photo shows a maintenance entry door providing access to equipment that is area-guarded. It is electrically interlocked, the sign is prominently posted, displays the proper warning and is specific in the action required. The entire guard is color-coded "safety yellow." This entry door provides a greater degree of safety and more protection than the one shown on the previous slide.

When electrical interlocks are used, mines should consider using the type that "fail safe", so that if a circuitry error occurs, the equipment inside the protected area will shut down.

AREA GUARDING
Confined Space Entry

- All locations must have a confined space entry policy and supporting rules and safe entry procedure for each confined space identified on-site D
- Employees must seek prior authorization to enter a confined space, and each location must have safe entry procedures for confined space entry D
- · All affected employees at each Company location must be trained in confined space entry rules
- All permit-required confined spaces must have signs posted at the entryway indicating "Permit- Required Confined Space Do Not Enter"
- Permits must be used for safe entry into permit required confined spaces, including but not limited to, baghouses, cold feed bins, mixer drums, tanks, silos, etc.

A confined space is defined as any space or structure which by design has limited openings for entry and exit, and which is not intended for continuous occupancy. A confined space has poor natural ventilation. Confined spaces include storage tanks, pits, silos, vats, boilers, ducts, sewers, pipelines, trenches and other structures found at jobsites.

Supervisors are required to evaluate the workplace to identify all permit-required confined spaces. The supervisor must inform employees of the confined spaces and their dangers, post warning signs, and shall take measures to prevent unauthorized employees from entering permit spaces. If permit spaces exist, the supervisor must develop and implement a written permit space program. The written program must be available for inspection by employees and their authorized representatives. **Employees must ask for authorization, from a supervisor, prior to entering a confined space.**









CONFINED SPACE DETERMINATION

While some confined spaces are clearly marked as such, there are times when you need to decide if something should be a confined space and furthermore if it would require a permit to perform work in it.

ENTERING A CONFINED SPACE

Depending on how the space is classified, there are a few requirements prior to entry after authorization.

- If it is classified as only a Confined Space, the following is required:
 - o authorization for entry from a supervisor,
 - LOTO of applicable components, as well as
 - Completion of a TRACK form prior to entry.
- If it is classified as a Permit-Required Confined Space, the following is required:
 - Authorization for entry from a supervisor,
 - o LOTO of applicable components,
 - o Completion of a TRACK form prior to entry, and
 - Completion of a Confined Space Entry Permit prior to entry.

CONFINED SPACE PERMIT

A permit-required confined space is any space that has one or more of the following characteristics:

- Contains a material that has the potential for engulfing an entrant.
- Contains or has a potential to contain a hazardous atmosphere.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section, or contains any other recognized serious safety or health hazard.

CONFINED SPACE POLICY

CRH South Division is committed to providing a safe and healthy work environment for all of its employees. In turn, its employees have the responsibility to work in a safe and responsible manner. This program contains the requirements for practices and procedures to protect employees from the hazards of entry into permit-required confined spaces. It also specifies the acceptable entry conditions that must exist prior to an employee's entry into or ability to work safely within a permit-required confined space. Only employees trained in this program are authorized to participate in any work associated with confined spaces and must be trained in this program prior to work assignment. This program shall provide employees with the knowledge, skill, and understanding necessary to enable them to:

- Define a confined space
- Differentiate between a confined space and a permit-required confined space
- Locate confined spaces within the facility or work reporting location
- Identify, evaluate, and remove the hazards associated with permit-required confined spaces
- Operate the permit system
- Perform their assigned function as attendant, authorized entrant, or entry supervisor

Employees are required to follow the practices and procedures of this program as a condition of employment.

CONFINED SPACE:

A confined space consists of a space that contains all of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work;
- Has limited or restricted means for entry or exit;
- Is not designed for continuous employee occupancy.

PERMIT-REQUIRED CONFINED SPACE:

A permit-required confined space consists of a confined space that has one or more of the following characteristics:

- Contains or has potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard

All spaces that meet the description of a confined space will be treated as a permit-required confined space.

TYPICAL PERMIT-REQUIRED CONFINED SPACES:

The employer is required to evaluate the workplace to determine if there are any Confined Spaces. If the workplace contains confined spaces, those spaces will be treated as permit spaces. The employer shall inform exposed employees by posting signs in the location of the confined space. Listed are typical types of confined spaces encountered at our facilities and work reporting locations. Also included, are the potential specific hazards associated with each space and procedures for their removal if they are present.

LOCATION	HAZARD	PROCEDURE
Sewers	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)

Sewers (continued from	- Drowning	- Prevent slip/fall into live sewer
previous page)		- Engineering controls or full body type harness (6' maximum length lanyard)
*Tunnel/Shaft/Excavation/	- Oxygen level below 19.5% or above	- Atmospheric testing
Pit/Sump	- Flammable gasses and vapors	- Continuous forced air ventilation
	- Potential toxic air contaminants	
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout
	- Moving Parts	- Lockout/Tagout
		- Guards
	- Engulfment	- Trench box/shore/slope if 5' deep or greater
		- Remove excavation spoils minimum 2' from edge of excavation
	- Drowning	- Utilize ditches or dikes
		- Prevent water from entering
		- Remove material prior to entry
LOCATION	HAZARD	PROCEDURE
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above	PROCEDURE - Atmospheric testing
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5%	PROCEDURE - Atmospheric testing - Continuous forced air ventilation
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors	PROCEDURE - Atmospheric testing - Continuous forced air ventilation
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants	PROCEDURE - Atmospheric testing - Continuous forced air ventilation
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard)
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy - Moving Parts	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords - Lockout/Tagout - Lockout/Tagout - Lockout/Tagout
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy - Moving Parts	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords - Lockout/Tagout - Guards
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy - Moving Parts - Engulfment	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords - Lockout/Tagout - Guards - Remove material prior to entry
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy - Moving Parts - Engulfment - Drowning	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords - Lockout/Tagout - Guards - Remove material prior to entry - Remove water prior to entry
LOCATION Caissons/Cofferdams	HAZARD - Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors - Potential toxic air contaminants - Slips/Falls - Electrical Energy - Moving Parts - Engulfment - Drowning	PROCEDURE - Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type harness (6' maximum length lanyard) - Lockout/Tagout - Use extension cords only when necessary - Use only properly grounded extension cords - Lockout/Tagout - Guards - Remove material prior to entry - Remove water prior to entry - Prevent water from entering

Barges/Vessels	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants Slips/Falls Electrical Energy Drowning 	 Atmospheric testing Continuous forced air ventilation Engineering controls or full body type harness (6' maximum length lanyard) Lockout/Tagout USCG approved Working Life Vest
	- Thermal	 Remove material prior to entry Allow to cool prior to entry (AC-20 Liquid asphalt Barge Load)
	ΗΔΖΑΡΟ	PROCEDURE
Tanks/Tank Truck/ Tank Rail Cars	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	- Atmospheric testing
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout
	- Moving Parts	- Lockout/Tagout
	- Engulfment	- Remove material prior to entry
	- Drowning	- Remove material prior to entry
	- Thermal	- Allow to cool prior to entry (Liquid asphalt tank)
Large Machinery	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)

	- Electrical Energy	- Lockout/Tagout
	- Moving Parts	- Lockout/Tagout - Guards
	- Engulfment	- Remove material prior to entry
LOCATION	HAZARD	PROCEDURE
Primary Dust Collector	- Oxygen level below 19.5% or above 23.5% - Flammable gasses and vapors	 Atmospheric testing Continuous forced air ventilation
	- Potential toxic air contaminants	
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry
	- Thermal	- Allow to cool prior to entry
	- Dust/Particulate	 Allow dust to settle prior to entry Dust mask or other PPE if necessary
Mixer/Pugmill	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Pneumatic Energy	(Weigh Hopper doors) - Lockout/Tagout Air Compressor - Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout

		- Breaker
	- Engulfment	 Remove material prior to entry Empty hot bins and weigh hopper
	- Thermal	- Allow to cool prior to entry
LOCATION	HAZARD	PROCEDURE
Weigh Hopper	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Pneumatic Energy	 Lockout/Tagout Air Compressor Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout
	- Engulfment	 Remove material prior to entry Empty hot bins
	- Thermal	- Allow to cool prior to entry
Hot Bins	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Pneumatic Energy	 Lockout/Tagout Air Compressor Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout
	- Engulfment	- Remove material prior to entry

		- Empty bins prior to entry
	- Thermal	- Allow to cool prior to entry
LOCATION	HAZARD	PROCEDURE
Hot Elevator	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants Slips/Falls 	 Atmospheric testing Continuous forced air ventilation Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	 Remove material prior to entry Empty drier prior to entry Empty elevator prior to entry
	- Thermal	- Allow to cool prior to entry
Drier	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation Operate exhaust fan on Plant Lockout/Tagout burner fuel source
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry

		- Empty Drier
	- Thermal	- Allow to cool prior to entry
LOCATION	HAZARD	PROCEDURE
Cold Feed Bins (Hoppers, Cold Storage Silos)	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants Slips/Falls 	- Atmospheric testing - Continuous forced air ventilation - Engineering controls or full body type
		harness (6' maximum length lanyard)
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry - Empty bin or silo
Silos (Hot Storage)	 Oxygen level below 19.5% or above 23.5% Flammable gasses and vapors Potential toxic air contaminants 	 Atmospheric testing Continuous forced air ventilation
	- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
	- Electrical Energy	- Lockout/Tagout - Breaker
	- Pneumatic Energy	 Lockout/Tagout Air Compressor Bleed air system of stored energy
	- Moving Parts	- Lockout/Tagout - Breaker
	- Engulfment	- Remove material prior to entry
	- Thermal	- Allow to cool prior to entry
LOCATION	HAZARD	PROCEDURE
Boilers	Oxygen level below 19.5% or above 23.5%Flammable gasses and vapors	 Atmospheric testing Continuous forced air ventilation
	- Potential toxic air contaminants	

- Slips/Falls	- Engineering controls or full body type harness (6' maximum length lanyard)
- Electrical Energy	- Lockout/Tagout - Breaker
- Moving Parts	- Lockout/Tagout - Breaker
- Engulfment	- Empty contents prior to entry
- Drowning	- Empty contents prior to entry
- Thermal	- Allow to cool prior to entry

*Denotes only Tunnels under construction. Tunnels such as Escape Tunnels are not commonly considered confined space unless there are atmospheric conditions within the Tunnel or the potential for a change in atmospheric conditions.

THE PERMIT SYSTEM

Prior to entry into a confined space the employer shall document that all measures, procedures and practices necessary for the safe entry were completed as required by preparing an entry permit. The entry supervisor identified on the permit shall sign the entry permit to authorize entry and verify that all pre-entry procedures were completed properly. The completed permit shall be made available at the time of entry to all authorized entrants, by posting it at the entry portal or by any other equally effective means, so that the entrants have the opportunity to confirm that pre-entry preparations were completed.

The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit. The entry supervisor shall terminate entry and cancel the entry permit when:

- The entry operations covered by the entry permit have been completed.
- A condition that is not allowed under the entry permit arises in or near the permit space.

The employer shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the permit so that appropriate revisions to the permit space program can be made. The permits utilized by CRH South Division are located in Appendix A.

The entry permit must at a minimum include the following items:

- 1) The permit space to be entered.
- 2) The purpose of the entry.
- 3) The date and authorized duration of the entry permit.
- 4) A list of authorized entrants within the permit space to enable the attendant to quickly and accurately determine, for the duration of the permit, which authorized entrants are inside the permit space.
- 5) The personnel, by name, currently serving as attendants.
- 6) The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.
- 7) The hazards of the permit space to be entered.
- 8) The measures used to isolate the permit space and to eliminate or control permit space hazards before entry.
- 9) The acceptable entry conditions.

- 10) The results of initial and periodic atmospheric testing performed, accompanied by the names or initials of the testers and an indication of when the tests were performed.
- 11) The rescue and emergency services that can be summoned and the means for summoning those services.
- 12) The communication procedures used by authorized entrants and attendants to maintain contact during the entry.
- 13) Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided and on hand as necessary.
- 14) Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety.
- 15) Any additional permits, such as for hot work, that have been issued to authorize work in the permit space.

TRAINING

The employer shall provide training so that all employees whose work is regulated by this program acquire the knowledge, skills, and understanding necessary for the same performance of the duties assigned. Training shall be provided to each affected employee before the employee is able to participate in any work associated with confined spaces. Retraining must be provided if there is a change in permit space operations that creates a new hazard and the employees were not previously trained on the new hazard. Retraining must also be provided if the employer has reason to believe that deviations have occurred from the required permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

The employer shall certify that the required training has been accomplished. The certification shall contain each employee's name, the signatures of the trainers, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.

DUTIES OF AUTHORIZED ENTRANTS

The employer shall ensure that all authorized entrants:

- Know the hazards that may be faced during entry of the confined space.
- Recognize the signs or symptoms and consequences of exposure.
- Know how to properly use the necessary equipment provided.
- Communicate with the attendant as necessary to enable the attendant to monitor entrant status.
- Know how to alert attendants when a hazardous or prohibited condition exists.
- Know how to exit as quickly as possible whenever ordered or alerted to do so.

DUTIES OF ATTENDANTS

The employer shall ensure that each attendant:

- Know the hazards that may be faced during entry of the confined space.
- Be aware of the behavioral effects of hazard exposure in authorized entrants.
- Maintains a continuous accurate count/identification of authorized entrants in the permit space.
- Remains outside the permit space during entry until relieved by another attendant.
- Communicates with authorized entrants as necessary to monitor entrant status.
- Monitors activities inside and outside the space to determine if a hazardous or prohibited condition develops.
- Orders authorized entrants to exit if necessary.
- Summon rescue and other emergency services if necessary.
- Restricts access to the permit space. Keep unauthorized persons away from the area.
- Perform non-entry rescue if necessary.
- Performs no duties that might interfere with their primary duty to monitor and protect the safety of the authorized entrants.

DUTIES OF ENTRY SUPERVISORS

The employer shall ensure that each entry supervisor:

- Know the hazards that may be faced during entry of the confined space.
- Verify that all tests have been conducted and procedures and equipment specified by the permit are in place prior to endorsing the permit and allowing entry to begin.
- Terminates the entry and cancels the permit when work is completed or a prohibited condition develops during entry.
- Verifies that rescue services are available and that the method for summoning them is operable.
- Removes unauthorized individuals who attempt or enter the permit space during entry operations.
- Determines when responsibility for permit operation is transferred and that acceptable entry conditions are continued.

RESCUE AND EMERGENCY SERVICES

Professional rescue and emergency services are available for all of the facilities operated by CRH South Division Employees shall not try to perform any rescues within the confined spaces. Employees should concentrate their efforts to notify the rescue services. If necessary, provide the rescue or treatment facility with the MSDS or other information on the permit space that may aid in the treatment of the rescued employee.

OUTSIDE CONTRACTORS

When an employer arranges to have employees of another employer perform work that involves permit space entry, the host employer shall:

- Inform the contractor that the workplace contains permit spaces and that entry into those areas is allowed only through compliance with the permit space program.
- Apprise the contractor on the permit spaces, including the hazards identified and the employer's precautions or
 procedures implemented for the protection of employees.
- Coordinate joint entry operations with the contractor.
- Debrief the contractor at the conclusion of the entry operations regarding the permit space program and any hazards confronted or created in the permit space during entry operations.

ALTERNATIVE PROCEDURES

An employer may utilize alternative procedures to enter a permit space provided the only hazard posed by the permit space is an actual or potential hazardous atmosphere and continuous forced air ventilation alone can remove the hazard. The employer must develop monitoring and inspection data to document and support that it meets the requirement. If an initial entry of the permit space is necessary to obtain the data required then it must be done under the full permit-required confined space program procedures. All documentation must be made available to employees who will enter the permit space utilizing the alternative procedures.

Once the conditions in the previous paragraph have been met, entry may take place after:

- Any hazards are removed and it is safe to remove the entrance cover.
- The entrance cover opening is guarded to prevent an accidental fall through the opening or foreign objects from entering the space.
- Atmospheric testing has been performed for oxygen content, flammable gases and vapors, and potential toxic air contaminants.
- No hazardous atmospheric conditions may exist while an employee is inside the space.
- An employee may not enter the space until forced air ventilation has eliminated any hazardous atmosphere.
- The air supply for the forced air ventilation shall be from a clean source and will continuously ventilate the area to be occupied by employees until all employees have left the space.
- The atmosphere within the space shall be periodically tested to ensure no accumulation of a hazardous atmosphere.
- Employees must immediately exit if a hazardous atmosphere is detected during entry and the space must be evaluated to determine how the hazardous atmosphere developed.
- Prior to any subsequent entry, employees must be protected from the hazardous atmosphere.
- The employer shall provide a written certification available to employees that the pre-entry procedures were performed prior to entry. It must contain the date, the location of the space, and the signature of the employee providing the certification.

Confined Space Determination Sheet

Plant / Location:	
Component:	
Date:	
Time:	
Person(s) Analyzing Component:	
Signature(s):	
DETERMINATION: □ Confi □ Perm □ Perm Classification Determination	ned Space it Required Confined Space it Required if material or engulfment hazard is present <u>Requirement</u>
Confined Space Permit-Required Confined Space	TRACK TRACK and Confined Space Entry Permit
 (3) Is not designed for continuous e <u>"Permit-Required Confined Space (</u>following characteristics: (1) Contains or has a potential to co (2) Contains a material that has the (3) Has an internal configuration su walls or by a floor which slopes dow (4) Contains any other recognized s 	have limited means of entry.); and mployee occupancy. <u>Permit Space)"</u> means a confined space that has one or more of the ntain a hazardous atmosphere; potential for engulfing an entrant; ch that an entrant could be trapped or asphyxiated by inwardly converging wnward and tapers to a smaller cross-section; or erious safety or health hazard.
Feed Hopper / Bin Material Chute	Feed Hopper / Bin Feed Hopper / Bin Engulfment Hazard
Entrapment Hazard	

CONFINED SPACE OPERATION

When entrance to a permitted site is required, the proper personnel must be present. The operation requires an entry supervisor, an attendant, and an entrant.

ENTRY SUPERVISORS ARE REQUIRED TO:

- Know space hazards including information on the mode of exposure, signs or symptoms and consequences.
- Verify emergency plans and specified entry conditions such as permits, tests, procedures and equipment before allowing entry.
- Terminate entry and cancel permits when entry operations are completed or if a new condition exists.
- Verify that rescue services are available and that the means for summoning them are operable.
- Take appropriate measures to remove unauthorized entrants.
- Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

THE ATTENDANT IS REQUIRED TO:

- Remain outside the permit space during entry operations unless relieved by another authorized attendant.
- Perform non-entry rescues when specified by the employer's rescue procedure.
- Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences and physiological effects.
- Maintain communication with and keep an accurate account of those workers entering the permit space.
 - Order evacuation of the permit space when:
 - A prohibited condition exists,
 - A worker shows signs of physiological effects of hazard exposure,
 - An emergency outside the confined space exists, and
 - The attendant cannot effectively and safely perform required duties.
 - Summon rescue and other services during an emergency.
- Ensure that unauthorized people stay away from permit spaces or exit immediately if they have entered the permit space.
- Inform authorized entrants and the entry supervisor if any unauthorized person enters the permit space.
- Perform no other duties that interfere with the attendant's primary duties.

AUTHORIZED ENTRANTS ARE REQUIRED TO:

- Know space hazards, including information on the means of exposure such as inhalation or dermal absorption, signs of symptoms and consequences of the exposure.
- Use appropriate personal protective equipment properly.
- Maintain communication with attendants as necessary to enable them to monitor the entrant's status and alert the entrant to evacuate when necessary.
- Exit from the permit space as soon as possible when:
 - Ordered by the authorized person,
 - o He or she recognizes the warning signs or symptoms of exposure,
 - A prohibited condition exists, or
 - An automatic alarm is activated.
- · Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

RESCUE PLAN

The <u>Entry Supervisor</u> shall maintain a written plan of action that has provisions for conducting a timely rescue of individuals within a confined space, should an emergency arise. The written plan shall be kept onsite where the confined space work is being conducted. All affected personnel shall be trained on the Emergency Response Plan.

HOT WORK PERMIT

All hot work must be planned and supervised by competent personnel to ensure that sufficient safety and health procedures are met. In general, a Hot Work Permit is not required if work is to be done in a designated or approved areas. A designated area is defined as a maintenance shop or a detached outside location that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents and suitably segregated from adjacent areas.

PROCEDURES

- 1. The Foreman, Superintendent, Supervisor or EH&S Department is responsible for inspecting specific project sites and determining the need for a Hot Work Permit program.
- 2. A fire watch is required for every activity where hot work could result in other than a minor fire due to ignition of combustibles. The fire watch must remain for a minimum of 30 minutes.
- 3. Fire extinguishing equipment appropriate for the must be immediately available at the Hot Work location.

The decision tree used to determine if a hot work permit is necessary is shown on the following page.



TRENCHING & EXCAVATION

While we have existing confined spaces on our jobsites like manholes or tanker trucks, we create a confined space when we engage in excavating and trenching operations.

An excavation is any man-made cut, cavity, trench or depression in an earth surface formed by earth removal. Trench (Trench excavation) means a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet.

Cave-ins pose the greatest risk and are much more likely than other excavation-related accidents to result in worker fatalities. Trenches 4 feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If less than 4 feet, a competent person may determine that a protective system is not required. Trenches 20 feet (6.1 meters) deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer.

OSHA requires safe access and egress to all excavations for employees working in trenches 4 feet or deeper. This device (ladders, steps, ramps, etc.) must be located within 25 feet of all workers.

OSHA standards require that employers inspect trenches daily and as conditions change by a competent person before worker entry to ensure elimination of excavation hazards. A trenching log will be kept by the competent person.

There are several different types of protective systems used in trenching operations:

Shoring



Shielding and Benching



Type C Soil

Sloping



Confined Spaces Compliance Review Questions

Documented confined space entry policy in place. Posted or accessible to all employees.

Safe entry procedures or rules have been developed (in accordance with OSHA 1910.146) for each confined space on site and all affected employees are aware of these procedures.

All employees who may perform duties as confined space entrants, attendants or supervisors have been trained in the confined space program and all applicable entry procedures and this is documented.

Confined space procedures are used for excavations whenever exposure to a hazardous atmosphere could exist. An example would be an internal combustion engine near the top of the excavation used for dewatering.

Permits are used for entry into baghouses, cold feed bins, mixer drums, tanks, silos, etc.

All permit required confined spaces have signs posted at the entryway indicating "permit required confined space".

Completed or canceled permits are retained for at least 1 year.

Calibration gas bottle is current (not expired).

Confined space air tester is available and used for all permit confined space entries.

Confined space air tester is calibrated in accordance with the manufacturer's information.



Working at Heights

- Each location must have a Fall Protection policy in place and posted P D A
- All employees who may work at heights must be trained in the Fall Protection policy, as well as all applicable means and methods, for preventing falls at their location D
- A fall hazard risk assessment must be conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in the Fall Protection policy
- Employees should be aware of the various tools and devices that can be used to help them achieve 100% fall protection such as fall protection systems, retractable lanyards, beam straps, double lanyards, etc. and these devices must be available
- Fall harnesses/lanyards inspections must be conducted as per manufacturer specifications D
- A "ladders last" approach must be always applied
- · All ladders must have a visible capacity rating, be in good condition and be used appropriately
- "Three Points of Contact" stickers or signage must be positioned at ladder ways or access points of all plants and mobile equipment

Fall prevention and fall protection are two terms frequently used to explain the means to control fall hazards but are two different terms and should be considered separately. Proper fall prevention totally eliminates a hazardous situation and, therefore, removes the chance of employee exposure to a fall. Fall protection follows recognition that a hazardous condition cannot be fully or adequately eliminated and, therefore, fall arrest equipment is used.









Working at heights presents unique hazards that if not managed properly can lead to serious injury or death. It is not always the height you're working at that matters, more than 50% of falls are from less than 9 feet.

While OSHA defines specific heights in which fall protection must be utilized in construction and general industry settings, CRH recommends that fall protection/prevention be worn and/or utilized any time employees are exposed to a fall from any height. Your Company can provide further information on your local policy.

100 percent fall protection is mandatory for all employees and all contractor personnel on all CRH Projects when working at heights.

Types of fall protection systems available are:

- Guardrail Systems
- Fall Arrest Systems

Fall Restraint Systems

FALL PROTECTION TRAINING

All employees that are exposed to fall hazards must be trained to recognize these hazards and how to minimize them. The training will be completed by a competent person. We define a competent person as someone who is "capable of identifying exiting and predictable hazards in the surrounds or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them".

INSPECTING FALL PROTECTION EQUIPMENT

Personal Fall Arrest Systems (PFAS) must be regularly inspected. This includes checking the in-service date that was written on the equipment when it was issued. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles;

loose or damaged mountings; non-functioning parts; or wearing or internal deterioration in the ropes must be withdrawn from service immediately, and should be tagged or marked as unusable, or destroyed. Personal Fall Arrest Equipment must be inspected by the user before each use. Additionally, a competent person other than the user should inspect the equipment at least annually.

Locking Snap hook - The hook must have two independent actions for it to open. If either mechanism is broken, the unit is to be replaced. No hook should stick because of dirt or distortion. Hooks should self-close immediately upon releasing and be free of dents, cracks, burrs or distortions.



Body Harness The body harness must be of a size to comfortably fit the wearer. It must not be cut or excessively worn. All buckles must be in good working order and the holes for the buckles must not be worn or oversized.



Grasp the webbing and bend in an inverted "U" as shown. This makes damaged fibers and cuts easier to detect. Look for frayed edges, broken fibers, pulled stitches, cuts, burns and chemical damage.



Inspect the quick connect buckles for distortion. The outer bars and center bars must be straight. Make sure dual-tab release mechanism is free of debris and engages properly.



Check all tongue, friction and mating buckles. Check for distortion or sharp edges. Pay special attention to corners and attachment points.



Check D-rings for distortion, cracks, breaks, and rough or sharp edges. The D-ring should pivot freely. D-ring back pads should also be inspected for damage.



The tongue receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted or broken grommets. Webbing should not have additional punched holes.

Webbing (body of belt, harness or lanyard) - Inspect the entire surface of webbing for damage. Beginning at one end, bend the webbing in an inverted "U." Holding the body side of the belt toward you, grasp the belt with your hands six to eight inches apart. Watch for frayed edges, broken fibers, pulled stitches, cuts or chemical damage. Broken webbing strands generally appear as tufts on the webbing surface.





Self-Retracting Lifelines - Inspect the unit's housing for loose fasteners and bent, cracked, distorted, worn, malfunctioning or damaged parts. Test the lifeline retraction and tension by pulling out several feet of the lifeline and allow it to retract back into the unit. Always maintain a light tension on the lifeline as it retracts. The lifeline should pull out freely and retract all the way back into the unit. Do not use the unit if the lifeline does not retract. The lifeline must be checked regularly for signs of damage. Inspect for cuts, burns, corrosion, kinks, frays or worn areas. Inspect any sewing (web lifelines) for loose, broken or



damaged stitching. The braking mechanism must be tested by grasping the lifeline above the impact indicator and applying a sharp steady pull downward which will engage the brakes. There should be no slippage of the lifeline while the brakes are engaged, once tension is released, the brakes will disengage and the unit will return to the retractable mode. Do not use the unit if the brakes do not engage.

PROPER ANCHOR POINTS

The following are examples of proper anchor points:

- Anchor points that will withstand 5000 lbs. per person.
- Manufactured pre-engineered fall equipment.
- · Anchor points that a qualified person has determined will meet the required safety measures.







IMPROPER ANCHOR POINTS

The following are examples of improper anchor points:

- · Handrails/guardrails
- Ladders/Rungs
- Scaffolding
- Light Fixtures
- Conduit or Plumbing
- Ductwork or Pipe Vents
- Pipe Hangers
- C-Clamps
- Cable Trays
- Another lanyard
- Roof stacks, vents
- · Joists, girders unless qualified person (engineer) allows



LADDER SAFETY

Many everyday situations require the use of ladders when permanent structures are not in place. Just like with any other tool, we need to make sure that they are in good working order and meeting safety requirements.

- Any portable ladders must be inspected monthly by a competent person and must have an "in-service" tag that says the date when the ladder was placed into service.
- · Ladders with missing/broken rungs, broken/split rails or other defects must be taken out of service immediately.
- Portable ladders must be placed on a substantial base at a 4-1 pitch.
- 3-points of contact must be maintained at all times when climbing up and down ladders.
- Step ladders must be open completely with the spreader securely locked.
- All portables ladders must be of fiberglass construction.
- Do not splice together short ladders to make long ladders.
- Always use the proper ladder for the application.







Broken ladders must be taken out of service immediately. SAMPLE IN-SERVICE TAG:

	Ladder Inspection Certificate	
In-Service	e Date:	÷
Inspector		8
Location	2	-

3-POINTS OF CONTACT

- Ensure what you are climbing is structurally sound and free of debris that may cause you to slip.
- Always face whatever you are climbing; have a good footing and grip before proceeding.
- Do NOT climb with anything in your hands that prohibits you from maintaining 3 Point Contact.







Fall Protection Policy

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Fall Protection Policy Statement

CRH South Division is dedicated to the protection of its employees from on-the-job injuries. All employees of CRH Texas Region have the responsibility to work safely on the job. The purpose of this program is to supplement our existing safety and health program and to ensure that every employee who works for the Company recognizes workplace fall hazards and takes the appropriate measures to address those hazards.

While the 100% Fall Protection Policy appears to become effective only when employees are working four to six feet or more above a lower level, it also extends to other particularly hazardous situations where serious injury could result from a fall of less than six feet. We also strongly encourage lowering the fall protection six-foot criteria where there is a strong possibility that a fall of less than 6 feet would cause serious injury. The ultimate goal is to eliminate **ALL** fall hazards. If a violation occurs, it is the responsibility of surrounding employees to notify the affected employee or his/her supervisor of the violation. Your immediate action may save a life!

This Fall Protection Plan addresses the use of conventional fall protection systems to be used at facilities such as asphalt and concrete plants, maintenance shops and other fixed facilities (which are regulated under 1910 Subpart D), and field projects (1926.500 Subpart M) and Quarry operations. In some applications it may be deemed infeasible or would possibly create a greater hazard to use conventional fall protection systems. In these cases, alternative fall protection systems may be the safest choice. These alternative fall protection systems require a written fall hazard risk assessment explaining the system being utilized. This fall hazard risk assessment should be designed to enable employees to recognize the fall hazards associated with our facilities and to establish the safest procedures to be followed in order to prevent falls. See Section V.(B) for more details.

Each employee who is exposed to fall hazards will be trained in these procedures and strictly adhere to them except when doing so would expose the employee to a greater hazard. If the employee believes using the procedure would expose him or her to greater hazard, the employee is to notify the foreman of their concern and have the concern addressed prior to proceeding.

Responsibilities:

It is CRH Texas Region's responsibility to provide fall protection systems. All fall protection required shall conform to the criteria set forth in 29 CFR 1926.502 and 1910 Subpart D. The Company will purchase or provide fall protection equipment. It is the responsibility of the CRH Texas Region management staff and the EH&S Management to implement this Fall Protection Policy. Any changes to the policy must be approved by the VP EH&S prior to implementation. Observational safety checks of work operations shall be made regularly to ensure adherence to this safety policy and procedures. It is the responsibility of CRH Texas Region management to ensure that all employees understand and adhere to the procedures outlined herein.

The facility manager, crew supervisor, or foreman is responsible to ensure that proper fall protection is on hand and in good working order prior to starting a job requiring the equipment. He/she is also responsible for correcting any unsafe practices or conditions immediately.

It is the responsibility of each authorized employee to inspect any fall protection equipment prior to its use, to notify management of any unsafe or hazardous conditions or practices that may cause injury to either themselves or any other employees, and to follow the instruction of the crew supervisor.

Requirements for Work at Elevations:

All employees on project sites are required to use Personal Fall Protection when walking/working at heights of six (6) feet or more above the ground or next lower level or around holes that are not protected by a standard guardrail (handrail) or safety net system. At plant and shop sites fall protection is required at four (4) feet. This includes but is not limited to working on top of a structure such as a silo, conveyor, baghouse, cold feed bin, or tank where protection such as guardrails are not adequate. On project sites, this also includes working at the edge of a bridge deck, roof, or excavation six (6) feet or more in depth.

Permanent fall protection shall be provided in accordance with OSHA standards on walking or working surfaces. This is addressed in 29 CFR 1910.21 - 27 for railing, toe boards, walkways, stairs, fixed ladders, floor and wall openings. Where permanent fall protection cannot be used and employees are exposed to fall hazards alternative methods of fall protection must be utilized.

When employees are assigned tasks that are four (4) to six (6) feet or higher or may come within six (6) feet of an unguarded edge or floor opening fall protection PPE shall be provided and used. Such protection must be sufficient to prevent a person that slips or is bumped from falling to a lower level. The protection shall be provided during all phases of the job while the hazard exists.

The facility manager, crew supervisor or foreman should evaluate each task assigned to employees for unprotected fall hazards prior to starting the task. Employees must also evaluate their assigned tasks for unprotected fall hazards. When fall hazards are recognized it should be brought to the attention of a supervisor immediately.

The following solutions should be attempted when determining the best method to safeguard employees from fall hazards.

A. Eliminate the Hazard:

- 1. Carefully plan the work activity. Through careful planning, it may be possible to complete the work at ground level. This may include partial completion on the ground or lowering equipment to the ground.
- 2. Whenever possible utilize engineering controls to eliminate the hazard. Employ the use of guardrail (handrail) systems at unprotected edges. Secure covers over holes or other floor openings.
- 3. Guardrail systems must meet the following provisions:
 - Fixed facilities (1910.23(e)): A standard railing would consist of top rail, intermediate rail, and posts, and should have a vertical height of at least 42 inches from upper surface of top rail to floor, platform, runway, or ramp level.
 - ✓ A standard toe board would be 4 inches in vertical height from its top edge to the level of the walking surface.

- ✓ The intermediate rail, or midrail, should be approximately halfway between the top edge of the guardrail system and the walking/working level;
- ✓ Guardrails should be smooth-surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing with a strength to withstand at least 200 pounds top rail pressure;
- ✓ The ends of all top rails and midrails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.
- Construction site guardrails are covered under (1926.502 (b)) and the requirements may differ slightly from those at fixed facilities.
- 4. Ladderway openings should be provided with a gate, safety chains, or be so offset that a person cannot walk directly into the opening.

B. Personal Fall Arrest Systems:

- 1. Personal fall arrest systems for both construction sites and general industry sites (plants, shops, etc.) may be utilized in conformance with 29 CFR 1926.502 (d).
- 2. A personal fall arrest system is a system used to stop an employee in a fall from a working level. It consists of an anchorage, connectors, a body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. As of January 1, 1998, the use of a body belt and non-locking snap hooks for fall arrest is prohibited. All purchases of equipment will utilize body harnesses and locking type snap hooks.
- 3. Body harnesses and lanyards have been provided at our facilities. This equipment is to be used when none of the previously discussed methods can be employed. The lanyard is to be attached to an anchorage point meeting the requirements detailed in section IV, the other end is to be attached to the D ring on the back of the body harness. This equipment is to be kept in a dry secure place when not in use and is to be inspected by the wearer before and after use. If the equipment does not meet the inspection requirements listed in section IV, it must be returned to the Company for replacement.
- 4. The lanyard must be of a maximum length or positioned in a manner that prevents the user from free falling more than four (4) to six (6) feet or contacting any lower level. Keep the free fall distance to a minimum. Do not forget there is a "tear out length" on a shock-absorbing lanyard. The lanyard shall be a minimum of 1/2-inch nylon, or equivalent, with a nominal breaking strength of 5,400 pounds. (29 CFR 1926.104 (d))
- 5. Specialty equipment is available by contacting the EH&S Manager. Such equipment can include, but is not limited to, the following:
 - Self retracting lanyards
 - Anchorage connector straps
 - Lanyards with oversized connectors
 - Double lanyards

C. Positioning Device Systems:

- 1. Positioning Device Systems may be utilized in accordance with 29 CFR 1926.502 (e).
- 2. Positioning device systems will be similar to personal fall arrest systems EXCEPT that positioning devices shall be rigged so that an employee may not free fall more than two feet. This is usually accomplished by using two-foot positioning straps on side D-Rings of the body harness.

D. Aerial Lifts or Bucket Trucks:

The use of extendable boom platforms, articulating boom platforms, bucket trucks or equipment otherwise known as aerial lifts shall be under the direction of the facility manager, crew supervisor or foreman. The use of such equipment is not authorized without their approval. Operators of these lifts must be thoroughly trained prior to use of the equipment. *The operator shall wear a fall protection harness with a lanyard that is appropriately anchored to the boom or bucket.*

E. Elevating Work Platforms:

The use of elevating work platforms, other than aerial lifts, such as a scissors lift or a man basket secured to the forks of a forklift shall be under the direction of the facility manager, crew supervisor or foreman. The use of such equipment is not authorized without their approval. Operators of these work platforms must be thoroughly trained prior to use of the equipment.

When working from an elevating work platform, a worker must be protected from falling by a properly designed and maintained guardrail system. If the guardrail system is less than adequate, or the worker leaves the safety of the work platform, additional fall protection would be required.

F. Scaffolds:

Scaffolds are specialty items with detailed design, construction, use and inspection requirements. The use of scaffolds are not authorized without the approval of the facility manager, crew supervisor or foreman. Scaffolds must be designed by a *qualified person* and constructed and loaded in accordance with that design. A *competent person* must supervise the erection, movement, alteration, and disassembly of the scaffold. Employees who utilize scaffolds in their work must be trained prior to use to recognize the hazards associated with the type of scaffold being used and the procedures to control or minimize those hazards.

G. Ladders:

All portable ladders purchased and used by the Company shall be made of fiberglass. Any ladders with structural damage shall be disposed of. Ladders other than stepladders shall extend three rungs above the top level where it is placed and it shall be tied off at the top. Climbing or standing is **NOT PERMITTED** on the top or second step from the top of a stepladder.

Fall Protection System Requirements:

A. Anchorages

Anchorages used for the attachment of personal fall arrest equipment shall meet the following minimum standards: (29 CFR 1926.502(d) 15 & 23)

- > Independent of any anchorage being used to support or suspend platforms.
- > Capable of supporting at least 5,000 pounds per employee attached.
- > Not be attached to any guardrail system or handrail system.
- > Part of a complete system which maintains a safety factor of two.
- > Designed and installed under the supervision of a qualified person.
- > Rigged to restrict employees from falling 4-6 ft or onto a lower level.

B. Horizontal Lifelines

Horizontal lifeline systems shall be custom designed for a specific job and/or application by a fall protection vendor, a qualified engineer, or a safety professional trained and qualified in horizontal lifeline design. Horizontal lifelines shall meet at a minimum all the requirements set forth in 29 CFR 1926.502, 1926.451, and 1910.66.

C. Inspection of Fall Protection Equipment

Personal fall arrest systems and related equipment must be regularly inspected at intervals no greater than those recommended by the equipment manufacturer. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles; loose or damaged mountings; non-functioning parts; or wearing or internal deterioration in the ropes must be withdrawn from service immediately, and should be tagged or marked as unusable, or destroyed. Some specific items to review include:

- Lanyard The entire length of webbing should be inspected for tears, cuts, fraying, or other signs of wear or damage. Sewn termination should be secure, complete and not visibly damaged. Lanyards are to be inspected by beginning at one end and bending a portion (6 to 8 inches) into a U-shape between your hands. Check both sides and all straps along their entire length. Once the lanyard has been used to stop a fall it cannot be reused and must be returned to the Company for replacement.
- II. Locking Snap hook The hook must have two independent actions for it to open. If either mechanism is broken, the unit is to be returned to the Company for replacement. No hook should stick because of dirt or distortion. Hooks should self-close immediately upon releasing and be free of dents, cracks, burrs or distortions.

III. Body Harness - The body harness must be of a size to fit the wearer. It must not be cut or excessively worn. All buckles must be in good working order and the holes for the buckles must not be worn or oversized.

*** INSPECTIONS OF FALL PROTECTION EQUIPMENT MUST BE DOCUMENTED ***

V. Fall Protection Plans:

A. Operation Specific Fall Protection Plans

- I. **Excavations-** Each employee at the edge of an excavation 6 feet or more deep shall be protected from falling by guardrail systems, fences, barricades, or covers. Where walkways are provided to permit employees to cross over excavations, guardrails are required on the walkway, if it is 6 feet or more above the excavation.
- II. Equipment Operations and Maintenance up to four to six feet does not require fall protection/prevention. Functions such as access to and from the operator cab, operating equipment from seat with the door open (use seat belts), or checking oil in a loader below four to six feet up from the ground does not require 100% fall protection/prevention. This does not mean we should not provide good safe accesses for operators or fail to recognize hazards at all levels and plan accordingly. If regular maintenance is required above four to six feet from the ground level then practices must be reviewed by the safety professional and operation staff to eliminate the hazard through engineering or administrative controls.
- III. Floor Openings and Hole Covers (holes with a gap of 2-inches or more in the least dimension) shall be covered with materials capable of twice the expected loads and clearly marked with the word "HOLE" or "COVER." To prevent accidental displacement resulting from wind, equipment, or workers' activities, all covers must be secured.
- IV. Ramps, Runways, and Other Walkways- Each employee using ramps, runways, and other walkway shall be protected from falling 4-6 feet or more by guardrail systems.
- V. Retrieval/Rescue methods shall be identified and in place prior to start of work activities. Another employee in the immediate vicinity shall always accompany employees utilizing fall protection. An emergency means of communication is also required. Fall victims are not normally able to assist in their own rescue and time is of the essence. It is critical that help is immediately available and retrieval/rescue plans initiated. Retrieval procedures shall be planned and communicated to all employees prior to the start of any work activity.

B. Fall Hazard Risk Assessment / Job Safety Analysis (JSA)

A fall hazard risk assessment must be conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in this policy. A fall hazard risk assessment can be developed as part of a detailed Job Safety Analysis (JSA) and should include task specific operating rules for the activity to be performed at an elevation. Some activities where a fall hazard risk assessment / JSA might be required include, but are not limited to:

- I. Use of Independent Lifelines, Elevated Suspension Work (bosun chairs), Elevated Work in Silos or Tanks, etc.
- II. Working Over Water, Working on Bridge Decks, Elevated Formwork or Reinforcing Steel, and Elevated Demolition Activities, etc.

The fall protection risk assessment / (JSA) including task specific operating rules must be prepared and documented, and conform to the following provisions:

- The fall hazard risk assessment / JSA shall be prepared by a competent person in conjunction with appropriate Company management and the EH&S Manager and developed specifically for the site or task that is being performed.
- II. A previously developed fall hazard risk assessment / JSA with task specific operating rules can be utilized if the work at an elevation is determined by the competent person to be substantially the same as the upcoming work. Any changes to the previously developed JSA shall be approved by the competent person and communicated to all affected personnel.
- III. The implementation on site of the fall hazard risk assessment / JSA shall be under the supervision of a competent person knowledgeable of the JSA. The JSA must be maintained up to date with a copy kept at the site.
- IV. The fall hazard risk assessment / JSA must include a written discussion of measures that will be taken to reduce or eliminate the fall hazard for workers during their performance of that task.

Outside Contractors:

Outside contractors may be required from time to time to perform work at elevations at our facilities. Such contractors shall follow the same requirements as employees of CRH SOUTH DIVISION in the performance of this work. Prior to their work with the Company, CRH SOUTH DIVISION management should ensure that contractors will implement appropriate methods and means of accessing elevated areas and have the PPE necessary to conduct their work safely while at elevations.

Accident Investigation and Reporting:

- A. Any fall from elevation incident that results in engagement of a fall protective device, a near miss or injury to an employee, regardless of its nature, shall be reported to the EH&S Manager immediately. It is an integral part of our safety program that a root cause investigation takes place as soon as possible so that the cause and means of prevention can be identified and documented to prevent a reoccurrence.
- B. In the event that an employee falls or there is some other related, serious incident occurring, this plan shall be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

Enforcement:

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. Management reserves the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

PORTABLE AND FIXED LADDER SAFETY

Many everyday situations require the use of ladders when permanent structures are not in place. Just like with any other tool, we need to make sure that they are in good working order and meeting safety requirements.

- Any portable ladders must be inspected monthly by a competent person and must have an "in-service" tag that says the date when the ladder was placed into service.
- · Ladders with missing/broken rungs, broken/split rails or other defects must be taken out of service immediately.
- Portable ladders must be placed on a substantial base at a 4-1 pitch.
- · 3-points of contact must be maintained at all times when climbing up and down ladders.
- · Step ladders must be open completely with the spreader securely locked.
- All portables ladders must be of fiberglass construction.
- Do not splice together short ladders to make long ladders.
- · Always use the proper ladder for the application.

Working at Heights Compliance Review Questions

Documented Fall Protection policy in place. Posted or accessible to all employees.

All employees who may work at heights have been trained in the fall protection policy as well as all applicable means and methods for preventing falls at their location and this training documented.

A fall hazard risk assessment is conducted whenever employees are exposed to non-routine fall hazards and require fall protection beyond what is outlined in the fall protection policy.

Employees are aware of the various tools and devices that can be used to help them achieve 100% fall protection such as retractable lanyards, beam straps, double lanyards, etc. and such devices are available.

All ladders have a visible capacity rating.

Fall harnesses/lanyards inspections are conducted as per manufacturer specifications and documented as required.

All ladders are in good condition and are being used appropriately.

3 Point Contact stickers or signs are positioned at the boarding ladders or access points of all fixed and mobile equipment.

Lifting Operations

- Employees using lifting devices of any capacity (including excavators and loaders) must receive training from a designated competent person in the use of each specific device (including rigging and lifting)
- Specific areas must be designated as "out of bounds" to personnel when lifting operations take place
- All lifting equipment and implements (straps, cables and chains) must have their safe working load limit identified on the lifting device
- If chains are used for lifting, they must be visually inspected before each use and monthly thereafter with a documented inspection record which includes the date of the inspection, the signature of the person who performed the inspection and an identity of the chain that was inspected D
- Never use chains to tow vehicles or equipment (i.e. stuck in the mud) use tow ropes, recovery straps or other devices of sufficient strength designed for this purpose

Anyone involved with any CRH operation, who uses a lifting device (crane, boom truck, overhead hoist, floor hoist, etc.) must be properly trained and qualified in the operation of each specific lifting device that he/she may operate. Operation of such equipment includes, but is not limited to the lifting capacities of the respective lifting device and the associated rigging of the material to be lifted. Anyone that is required to attach any given load to a lifting device shall be properly trained in safe rigging procedures.





Always check the weight limit and load size before beginning a lift.

RIGGING AND SIGNALING

Only competent people are allowed to perform rigging and signaling. A competent rigger person must be able to:

- Determine the weight of a load to be picked.
- Decide the proper hitch to use.
- · Determine best positive attachment points to the load.
- Recognize possible physical damage to load or rigging.
- Select the proper sling to use.
- Select the proper lifting device to use.
- Read and understand rated capacity charts for all associated rigging components.
- Evaluate environmental conditions (i.e.: weather, ground conditions etc.)

Evaluate structural condition of item to be rigged or know whom to reference.

• Understand blocking, jacking and rolling operations for various applications.

Signaling will also only be performed by someone who has gone through formal training. It is important to know that unless management has approved otherwise, all signaling must be visual.

BEFORE OPERATING EQUIPMENT YOU MUST:

- 1. Be appropriately trained and certified to operate the equipment.
- 2. Know the load limits and capacities of each payload.
- 3. Ensure only safe rigging practices used.
- 4. Complete Operator inspections.
- 5. Ensure equipment inspections and maintenance are completed as required.

Failure to complete overhead crane and hoist inspections and proper equipment maintenance could lead to serious injury or death.

BEST PRACTICES

- A risk assessment must be conducted prior to the lift. You must be authorized, trained and competent to use any lifting equipment e.g. slings, hoists, cranes etc. Where appropriate assess the wind speed before a lift commences.
- If using an excavator to lift a pipe section (for example), then you must ensure that the lifting eye on the bucket was installed by the manufacturer, is in good condition, and that the ground conditions are stable.
- Ensure the crane is on a level, firm, stable surface and any outriggers provided are fully extended.
- Always inspect the sling and load considering the size, weight and center of gravity of the load, the number of legs and the angle the sling makes with the horizontal line, the rated capacity of the sling and the condition and age of the sling.
- · Always use the correct load chart, load configuration and setup, load weight and lift path for the lifting equipment.
- Ensure that the following information is included on the lifting equipment: load test certification, rated capacity, specific warning information, product model number, serial number and date of manufacture and manufacturer's name and contact information.
- Always raise the load a few inches, hold, verify capacity/balance, and test brake system before delivering load.
- Always maintain a safe distance from overhead electric power lines and other utility services (gas, water, telecoms, etc.) in accordance with OSHA standards.
- Appropriate inspections should be completed to ensure that contractor equipment and lifting methods are compliant with statutory requirements and the Company's own lifting procedures.

CRANE INSPECTION FORM

It is important that besides a risk assessment, a Crane Inspection form is completed prior to the first lift, every day for every crane lift. It is designed to ensure that the crane is capable of lifting the required load and everything that is required is working. The form also allows us to record non-urgent mechanical issues and track our progress on resolving them. There are different forms for each type of crane.

RIGGING INSPECTION

Each day before being used, all rigging hardware shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

Lifting Operations Compliance Review Questions

Operators of Cranes >2,000 lbs. capacity have received training from an outside third party (i.e. truck mounted cranes, overhead and gantry cranes, etc.) including rigging and lifting training.

Operators of Hoists of any capacity have received training from a competent person in the use of the specific device as well as rigging and lifting training.

Operators of loaders and excavators where buckets are used for lifting have received training in rigging and lifting.

Employees are trained and understand that <u>50 lbs.</u> is the maximum weight of any object that one employee should attempt to lift manually by themselves. Heavier objects require lifting by mechanical means or with assistance. *Tasks which require >50 lb. objects to be lifted by one person should be reviewed and, if possible, redesigned.*

All cranes greater than 2,000 lbs. capacity are inspected annually by a qualified outside third party.

Lifting equipment and hoists of any capacity are inspected on at least an annual basis by a competent person.

All lifting equipment, hoists and cranes have their safe working load limit identified on the lifting device.

All lifting implements such as straps, cables and chains have their load limit identified, as applicable.

All employees know to never use chains to pull out stuck trucks or equipment (i.e. stuck in the mud). Tow ropes, recovery straps or other devices of sufficient strength designed for this purpose should be used - NEVER Chains.

If chains are used for lifting, they are visually inspected before each use and then monthly with a <u>documented inspection record</u> which includes the date of the inspection, the signature of the person who performed the inspection and an identity of the chain which was inspected.



Underground and Overhead Utility Dangers

- Risk assessments for underground and overhead work must be in place D
- A site survey for utility lines and underground pipes must be conducted before work is carried out on a project D
- All employees and operators should stay a minimum of 10-feet away from power lines and spotters must be used in situations where power lines are nearby to observe and warn operators

Many on-the-job accidents are a direct result of inadequate initial planning. A thorough documented Risk Assessment must be conducted prior to starting any task or project that will, or may, involve any underground activity such as trenching or excavating. A Risk Assessment must also be conducted for any operation that will, or may, involve an overhead hazard such as utility lines, trees, buildings, or other such hazards.

OVERHEAD HAZARDS

Many CRH employees operate trucks every day working around overhead hazards. With the best practices below we can greatly reduce the risk associated with these hazards.

- Use standardized hand signals to avoid confusion between our drivers and crews.
- · Assure every driver takes the time to GET OUT AND LOOK.
- · Assure that drivers are aware and assess the hazards around equipment.
- Involve crew members and make it a team effort.
- · Use ground crew to avoid overhead hazards.
- · Avoid distractions (radios/phones) around overhead hazards.
- Lower beds prior to travel ensuring clearance from overhead hazards.





Contact with a live power line may result in serious injury or death.

CONTACT WITH POWER LINES

If your equipment contacts power lines, electricity may make contact with the ground, which energizes the earth in a large area around the equipment. The strength of the electrical charge decreases from the point of contact. This is why it is vital not to separate your feet since there may be a difference in the electrical charge under each foot. This difference could create an electrical path through your body.

If you make contact with a high-voltage line while operating heavy equipment, take the following precautions:

- Stay on the equipment, if possible, until help arrives.
- Avoid touching any metal parts.
- Try to break the contact by moving the machine.

If it is absolutely necessary to exit the machine, jump as far out as possible and make sure you do not fall back against the machine. Land with both feet together and hop or shuffle your feet a few inches at a time making sure to never break contact with the ground or cause separation between your feet. Don't walk or run. Get as far away as possible.

Locate all underground utilities prior to digging and make sure you know your soil types!



UNDERGROUND DANGERS

Be sure that all underground utility locations have been identified and clearly marked. The use of potholes is a great practice to verify where a utility may be as some can be marked or labeled completely wrong. However it is important that we call a Utility Locator Service before any digging is done. The project manager will call in the area to be marked and someone will come out and mark any underground lines that are in the area.

Any excavation 5 feet deep or deeper must be sloped, benched, shored or shielded to prevent cave-ins. If your job site has an excavation or trench it is the responsibility of the competent person to maintain a log and daily inspection of the area. Before entering a trench you need to receive proper training. Workers who take chances, use shortcuts, and ignore warnings are the ones who are injured and killed.

BEST PRACTICES

As part of any risk assessment a survey for utility services such as electrical cables, gas pipelines, bridges or other services must be carried out and recorded. The survey findings must be made known to the personnel working on the job. The provision of drawings or maps is a great advantage when locating buried services but you should be aware that they may contain inaccuracies and always exercise caution.

As part of the risk assessment a Utility Locator Service may be used to verify the existence of new / relocated services.

Drivers, crane operators, mobile elevated platform operators, operators of equipment with elevating parts (dump trucks, post drivers, excavators etc.) and personnel using ladders must be aware of any overhead utility lines or services and take whatever precautions are necessary to avoid contact or arcing from electrical cables.

Cables that have been previously damaged but left unreported and unrepaired can cause incidents. So always report any damage to underground / over ground services.

To avoid striking a bridge or other overhead structure, always ensure the body of the truck has return to the flat position or the crane is returned to its road travel position before moving off.

Where contractors / sub-contractors complete work on our sites or work zones then they must also consider above or below ground utilities in their site specific risk assessments and ensure that they have appropriate precautions in place to protect all personnel from injury.

Underground and Overhead Utility Dangers Compliance Review Questions

Documented policy and/or risk assessment for underground and overhead work is in place.

A site survey for utility lines is always conducted and documented before underground work is carried out on-project or facility sites.

All employees and operators are aware to stay at least 10 feet away from power lines. As such, spotters are used in situations where power lines are nearby to observe and warn operators to stay at least 10 feet away.

Use of Personal Protective Equipment (PPE)

- A PPE policy must be in place for all areas of operations/tasks (P)
- Daily visual inspections of PPE use must be carried out at each location
- · No employee or contractor will be permitted to work without the required PPE

What is PPE? PPE stands for Personal Protective Equipment. PPE is equipment or clothing worn to protect the user from known hazards in the workplace and at home. In many cases it is not possible to completely eliminate hazards by other means, so PPE may be your only means of defense.

ALL EMPLOYEES ARE REQUIRED TO WEAR THE APPROPRIATE PPE IN ORDER TO WORK.

All persons on site outside of an office environment or parking facility are required to be properly outfitted for the area. At a minimum, all persons will have and wear:

- An approved Company hard hat (metal, bump caps and Stetson style hats are not approved head protection and will not be allowed).
- Eye protection (with side shields).
- T-shirt with a standard sleeve (tank tops and/or cut-offs are not approved).
- ANSI Class III High Visibility Clothing if exposed to vehicular traffic or mobile equipment traffic.
- · Durable long pants (sweat or jogging pants are not approved).
- · Safety-toed footwear that covers the ankle (tennis shoes or sneakers are not approved).
- Any other task specific PPE required by the operation and TRACK/Hazard Analysis.

Some special areas that require additional PPE include:

- Cutting/Grinding/Welding
- Night work
- Use of a chainsaw
- Confined Space Monitors
- · Working at Heights or in a man basket
- Hauling/Loading/Unloading of AC

BEST PRACTICES

PPE must always be worn correctly as failure to do so could reduce your protection and expose you to further hazards. All contractors / sub-contractors must wear appropriate PPE as required.

When you see symbols similar to the following, always ensure you are wearing the required PPE:



If PPE is to be used, a PPE program should be in place to ensure the correct selection, maintenance, and use of PPE; to protect against the hazards. The employees should be trained in the proper use of the PPE and the program should be monitored to ensure its ongoing effectiveness. Where further checks or statutory inspections are required on the PPE then please ensure these are complete and up to-date. Always ensure that non-disposable PPE is maintained and cleaned thoroughly, in accordance with the manufacturer's instructions. All PPE must be stored correctly. When PPE needs to be repaired or replaced, always inform your supervisor and ensure you have the correct PPE for the job.



PERSONAL PROTECTIVE EQUIPMENT (PPE) POLICY

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Employees may be exposed to uncontrolled hazards in the workplace which could result in injury or impairment. The Company will try to eliminate or minimize the uncontrolled hazards through engineering or administrative controls. At times these controls are not feasible or unreasonable to institute. In such circumstances, employees may be required to use PPE to reduce the risk of injury or impairment. Employees shall store, use and maintain PPE in a sanitary or reliable condition and in accordance with the manufacturers specifications and design. Alterations to any safety equipment by employees will not be permitted. Failure to use the appropriate PPE as required by federal regulation or Company policy increases the risk for injury and is grounds for disciplinary action up to and including termination.

Most PPE will be provided at no cost to the employee. Keep in mind that improperly fitted PPE often creates hazards; therefore, size and style variations will be made available. Employees should see their supervisor in the event that the proper PPE is not available or if they are in need of something additional.

Head Protection

Hard Hats are provided for your protection from impact penetration and from falling and flying objects. Head protection shall be worn by employees and visitors at all times in posted Hard Hat Areas, on Hard Hat jobs or in any area where there may be danger of falling objects. They must be worn at all times at Crushing and Screening facilities, mining operations, and at asphalt plants. Hard hats shall conform to ANSI Z89.1 specifications and may NOT be altered and must be worn as designated.

Eye and Face Protection

A welding helmet, face shield, safety glasses or safety goggles are required when there is any possibility of injury from welding flash, flying particles, chips or sparks, or from splashes of liquids such as asphalt, acids, caustics or solvents and from dust.

Safety glasses (prescription or otherwise) will meet the requirements of ANSI Z87.1 as indicated by the Z87.1 logo stamped on the frame of the glasses. Prescription glasses with plastic lenses, while often referred to as safety glasses; do not necessarily meet these requirements. Contact lenses are not an acceptable form of safety eyewear and in fact may worsen the extent of injury by trapping small particles or absorbing hazardous liquids.

For those employees who must wear prescription glasses and are required to wear safety glasses to work, CRH Texas Region will provide a voucher to be used towards the purchase price of one pair of prescription safety glasses (frames/lenses) per year. Frames and lenses must be ANSI approved and frames shall be fitted with permanent side shields.

Employees performing welding and cutting operations shall use the appropriate shaded safety eyewear. Everyday glasses do not meet the required protection standards for welding and cutting operations

Foot Protection

Safety-toed footwear (Safety Shoes) is required to prevent injury to the feet from falling objects and other foot hazards. It is especially important that they be worn where heavy steel, stock and drums are handled. In certain situations, metatarsal (instep) guards are available which attach to ordinary safety-toe footwear, increasing the protection.

Safety shoes must be worn by all production employees including those working at Crushing and Screening facilities, Mining operations, Asphalt plants, Maintenance shops, Paving operations, Construction projects, Truck Drivers, Quality Control and Traffic Control functions including Flagging. This includes equipment operators, in-plant truck drivers and contractors, who in the performance of their duties enter into designated safety shoe areas, will also wear them.

Safety shoes shall meet the design standards of ANSI Z41.1. Safety shoes shall be of leather construction and extend above the ankle. Hiking boots and sneakers, even if they conform to ANSI Z41.1 design standards, are not allowed under any circumstances.

For employees who are required to wear safety footwear as part of their employment, the CRH Texas Region will provide a voucher that can be used toward the purchase of one pair of safety shoes/boots per year. For boot voucher requests, or for more information on the Company's Boot Voucher Program, contact the Company's safety department.
HIGH VISIBILITY APPAREL

As a CRH employee it is important to understand the role that High Visibility PPE plays in keeping us all safe from traffic on our jobsites.

The following are minimum requirements that apply where employees work outside of an office environment. Each site may choose to go above and beyond these minimum requirements based on site specific procedures and/or hazards.

ANSI CLASS 3 GARMENTS

All CRH personnel exposed to vehicle or equipment traffic on construction sites, plants or other facilities are required to wear an ANSI approved Class 3 vest, t-shirt, or jacket.

NIGHTTIME ROAD WORK

- All employees will wear an ANSI approved Class 3 vest, t-shirt, or jacket, AND Class E pants or Class E gaiters.

FLAGGING OPERATIONS

- All employees conducting flagging operations during the day must wear an ANSI approved Class 3 vest
- Employees conducting night shift flagging operations must wear an ANSI approved Class 3 vest, AND Class E pants or gaiters









Hand Protection

Cuts and scrapes to the hands area leading cause of workplace injuries. These can be greatly reduced through the use of work gloves. Work gloves should be worn by all operational personnel when performing tasks that don't require special dexterity, fine motor skills or in cases where work gloves would interfere with the ability to perform the task. In most cases leather palmed work gloves are adequate to reduce the potential for hand injuries. In some cases specialty gloves for heat or chemical use may be necessary.

Hearing Protection

As far is feasible, the Company will implement accepted engineering or administrative practices to reduce worker exposure to noise within permissible sound levels. When not feasible, worker exposure to noise will be reduced through the use of hearing protectors. Employees exposed to noise levels at or about 85 dB shall be enrolled in the Hearing Conservation Program. Areas where employees are most likely to be exposed to elevated noise exposures are at asphalt plants and crushing facilities and also in the operation of equipment.

Keep in mind:

- If you must shout to be heard, then you should be wearing hearing protection.
- If your earplugs have been properly inserted, cupping your hands over your ears will not result in additional noise reduction.
- Do not use earplugs if you are prone to ear infections or earwax buildup. Earmuffs should be considered in these cases.
- Earplugs must be properly inserted and worn. Hands and plugs should be clean prior to use. Follow these steps for maximum effectiveness:
 - 1. Slowly roll and compress the plug into a very thin, crease-free cylinder.
 - (Don't worry about hurting the plug; it was designed to be tightly compressed.)
 - 2. While compressed, insert the plug well into the ear canal. Fitting the plug is easier if the outer ear is pulled outward and upward with one hand and inserted with the other hand.
 - 3. With your fingertip, hold the plug in place until it begins to expand and block the noise.
 - 4. Quality and fit may be estimated by observing how the plug rests in your ear. If you are unable to check on your own, ask a co-worker for assistance. Earplug fit can be tested in the presence of noise by alternately covering and uncovering the ears with tightly pressed hands. With properly fitted plugs the noise levels should seem nearly the same whether or not the ears are covered.

Respiratory Protection

As far as is feasible, CRH South Division will implement accepted engineering or administrative practices to control exposure to harmful airborne contaminants in excess of permissible exposure limits. When not feasible, worker exposure to harmful airborne contaminants will be reduced through the use of MSHA/NIOSH approved respirators. Selection of respirators shall be done in accordance with guidance from ANSI Z88.2. All employees who must wear a respirator will be required to participate in the Company's medical clearance and surveillance program.

Keep in mind:

- If the respirator is not on your face, it shall be stored in a sealed bag.
- Used but still functional cartridges shall be stored separately.
- Respirators shall not be shared among employees.
- All workers required to wear respirators shall be clean shaven. MSHA and OSHA have determined that beards and other facial hair may impair the proper function of respiratory devices.
- All respirators have limitation; refer to the manufacturer's specifications.

Fall Protection

A Safety Harness and lifelines shall be worn when working on unprotected elevated structures or equipment or when there is any danger in falling. A Body Belt is an unacceptable from of PPE except, for example, when seated in a pickup truck retrieving cones in work zones.

The current regulations are as follows:

MSHA – whenever there is a danger of falling;

OSHA (General Industry) – 4 feet or greater above the lower level;

OSHA (Construction) – 6 feet or greater above the lower level

Employees walking/working on surfaces with an unprotected side or edge which meets the criteria above shall be protected from falling by the use of guardrail systems or personal fall arrest systems. Exceptions to the above criteria will be made in accordance with federal regulations and typically include work off ladders, mobile equipment, scaffolds and steel erection. Personal fall protection shall consist of a full body harness and shock-absorbing lanyards with locking type snap hooks.

- Lanyards shall be secured above the point of operation to provide for a fall of no greater than 6 feet. In certain situations, additional freedom of movement may be obtained through the use of fall blocks.
- Workers shall secure themselves to a new anchor point before disconnecting from the old anchor point.
- Lanyards shall not be wrapped around any object and tied back onto themselves. Anchor straps, carabineers, and other devices designed for this purpose shall be used.
- At no time shall a knot be tied in any lanyard as this reduces its strength by 50%.
- 4 foot of lanyards shall be used in the operation of a man lift.
- Lanyards and belt shall be used and secured when picking up cones out of pickup trucks.

(See "Fall Protection Policy" for more detailed information.)

Personal Protective Equipment (PPE) Compliance Review Questions

Documented Personal Protective Equipment (PPE) Policy in place for all areas of operation/tasks.

Employees are wearing Class III vests.

Contractors are informed of our PPE requirements and periodically observed to ensure that they are wearing it.

Daily visual inspections of PPE are carried out by employees at your facility/location prior to use.

If the exposure to live or potentially live electrical conductors exists, then NFPA 70E compliant PPE is made available and used.

If an asphalt plant: PPE is available and used per policy for exposure to hot liquid asphalt cement during line breaking, line connecting, sampling, loading and offloading activities, etc. *(both employees and contractors)*

If an asphalt plant: All affected employees understand and adhere to the CRH AMAT Guidance and Control Strategies regarding Hydrogen Sulfide (H2S) exposure. (as outlined in the Reference Bulletin)

If respirators are required to be used (other than dust masks worn on a voluntary basis) employees are medically qualified, trained and fit tested for respirator use.

Arc flash gear is currently certified (gloves) and apparel matches exposure.

Safety of Materials Under Pressure

- Employees must be trained on all applicable safe operating procedures (i.e. loading/unloading)
- Regular checks of pressure relief systems on pressurized conveying systems must be conducted by a designated competent person D
- · Compressed gas tanks must be separated and stored properly
- Compressed air must not be used for cleaning (personnel or clothing), compressed air used for cleaning other surfaces or objects must be regulated down to less than 30 PSI
- Pressurized systems must be fitted with proper relief systems including check valves, etc.

All pressurized conveying and storage systems for solids, liquids and gases must be designed with pressure relief systems which must be documented and regularly checked. Site maintenance schedules must include regular checks on the integrity of pressure relief systems. No pressurized conveying system containing a defective pressure relief system may be operated.

While this might not seem like something you would encounter on a jobsite, think for a moment about the tools you might use in the course of your job like air compressors and air tanks (air pigs), hydraulic systems on heavy equipment, or oxygen/acetylene torches. These are all examples of material under pressure.

Regardless of the properties of the gas, any gas under pressure can explode if the cylinder is improperly stored or handled. Improperly releasing the gas from a compressed gas cylinder is extremely dangerous. A sudden release of the gas can cause a cylinder to become a missile-like projectile, damaging anything in its path. To prevent such a dangerous situation, there are several general procedures to follow for safe storage and handling of a compressed gas cylinder.













Safety of Materials Under Pressure Compliance Review Questions

Facility compressed air systems are inspected / checked periodically by a qualified third-party inspector and have current certifications.

Regular documented checks of pressure relief systems on pressurized conveying systems are conducted by a competent person at your facility/location, as applicable.

Compressed gas tanks are separated and stored properly.

Employees are aware that compressed air should not be used for cleaning personnel or clothing, and that compressed air used for cleaning other surfaces or objects must be regulated down to less than 30 psi.

All employees who work with pressurized systems have been trained in the proper usage of that system and the training documented.



Blasting Operations

- A Blasting policy must be implemented P
- All employees on-site must have training on the site-specific blasting rules D
- All personnel carrying out blasting operations must have training D
- Blasting records must be maintained
- Pre-blast reviews must be conducted D

While many of our workers are not directly involved with blasting in the course of our work, it remains one of our most dangerous areas of work. Since blasting is such a big risk for some of our operations, we want to make sure everyone is aware of the basics.

BASIC GUIDELINES

 Blasting area is defined as the area to be affected by blasted material, concussion, or fumes and dust that may be considered hazardous. The blast area is considered to be a perimeter of fifty feet in any direction from the drilled holes to be loaded on a blast, or thirty feet in any direction if the blast site is bermed and the area is within the normal cast of materiel upon detonation.





- Approved fall protection will be worn by anyone working within six feet (6) or less of a high wall crest or where there is a perceived danger of falling. The fall protection needs to be tied off to a suitable anchor point capable of supporting a minimum of 5000 lbs.
- Lightning is a potential cause of premature detonation. If an electrical storm is approaching, the blast area is to be evacuated immediately. It shall remain guarded under the direction of the blaster until activities can resume. Also, if an electrical storm is to approach, the drill will be shut down until the storm passes.
- The blast site will be barricaded using berms, cones, tape, ropers or other markings or equipment to prevent accidental incursion into the site.
- Before a blast is loaded, a blast site safety meeting is required. The whole area (blast area and roads leading up to it) need to be check for hazards like traffic and falling rocks.
- Use of two way communication and cell phones within the blast site is strictly prohibited when using electric detonators. If electric detonators are being used, blasting personnel are to leave cell phone or radios in a safe location and powered off when entering a blast site.
- The blast site will be identified at entrances with signs and traffic cones.
- Blast Area guards will be posted by the Designated Employee so that the blast area can be monitored and prevent persons from inadvertent access.
- Immediately after the blast, the blaster will inspect the blasted material. Once they determine no danger exists, they will give the "all clear" to the Designated Employee who will then give the "all clear" for persons to return to their normal duties.
- The blast area will be cleared and secured prior to hooking up to the blast firing mechanism.

BEST PRACTICES

When carrying out work such as drilling, loading a blast, or any other work at the quarry top, a risk assessment should be completed and the risk of falling over the edge should be addressed (e.g. use of a barrier system, harness and lanyard, etc.).

Always report hazardous situations immediately and if in doubt consult with the person in charge.

All explosives must be stored, transported, used and disposed of safely and securely.

Up to-date records of all blasts must be maintained and a Safe Blasting Policy and implementing rules must be in place. A drill log must be available and reviewed by the person in charge of the blast prior to loading the holes.

The sources of energy that could cause the explosives to initiate should be identified and appropriate safety measures should be part of a planned and proportionate system of work to control all sources of energy that could cause an initiation.



Authorized personnel within the danger zone must not interfere with the electrical integrity of the blast. All personnel must comply with the local mobile phone policy in place during blasting operations.

Where appropriate, contractors and other stakeholders (e.g., neighbors) should be made aware of the dangers of blasting. Were contractors are used in blasting operations then they must be competent and have received the required training as set out in the relevant legislation and codes of practice.

CRH Drilling & Blasting Safety Requirements and Guidelines

Note: These guidelines are for CRH affiliated companies' independent contractors to use as a guide to conduct drilling, blasting, and monitoring activities and do not contain all the rules, regulations, or procedures associated with drilling, blasting, and monitoring activities. Every mining operation is different and thus, certain portions of these guidelines may or may not apply. The Company hires independent contractors for their knowledge and skill and these guidelines do not remove the discretion that remains with the independent contractor.

Objective

1. These guidelines provide guidance for safe and productive drilling, blasting, and blast monitoring for CRH affiliated companies ("Company") mining operations. These guidelines are intended to apply to MSHA regulated facilities only; and shall not be deemed to override more stringent applicable permit requirements or local regulations.

2. Contractor personnel will read and follow these guidelines as well as Company safety rules, manufacturer's instructions, local, state, and federal laws and regulations.

Definitions - for purposes of these Guidelines only

1. Blast Area means the area expected to be affected by blasted material, concussion, or fumes and dust considered hazardous as defined at 30 CFR 56.2.

Blast Area Guards are defined as personnel selected by the Designated Employee to assist with blast site security on scheduled blast days. All blast area guards must be task trained and be documented in the Part 46 Book at each location.
 Blaster is defined as the licensed person responsible for the final planning, layout design, and detonation of the blast in a safe, productive, and efficient manner. The blaster shall coordinate with the Designated Employee in regards to the planning and design of the blast. The final planning and layout design shall be at the discretion of the blaster for safety purposes.

4. Blast Site means a perimeter of fifty feet (50') in any direction from the drilled holes to be loaded on a blast, or thirty feet (30') in any direction if the blast site is bermed, and the area within the normal cast of material upon detonation as defined at 30 CFR 56.2.

5. Company is defined as the CRH affiliated entity which owns and/or operates the site at which the drilling and/or blasting services contracted for are to be performed.

6. Designated Employee is defined as a pit supervisor, drilling supervisor, site manager, or another Company employee or representative designated by the Company to coordinate and work with drilling and blasting personnel.

7. Driller is defined as person responsible for safe operation of drills and accurately drilled holes as designed and documented by the blaster on the blast diagram.

8. Powder Factor is defined as ratio of quantity of rock to quantity of explosives and expressed for this purpose as tons per pound of explosive.

Qualifications

1. Drilling and blasting contractors are required to have a working knowledge of local, state, and federal requirements related to their work and strictly adhere to those regulations and the requirements of the Company.

- 2. Drilling and blasting contractors must, at a minimum provide and/or have the following:
- a. Information required under 30 CFR Part 45.3.
- b. MSHA Legal Identification Number.

c. Proof of Part 46 training for all contractor personnel entering Company property.

d. A copy of the Contractor's safety program.

e. Site specific hazard training will be provided by the site to the contractors and their employees. Documentation of site specific hazard training will be kept on file at the site and must be updated on an annual basis.

f. All contractors must provide a certificate of insurance showing the Company as an additional insured with waiver of subrogation as provided in the Contract. See Attachment section a sample certificate of insurance.

Safety – General Matters

1. All Company safety rules and procedures in addition to all MSHA laws and regulations apply to all drilling and blasting activities at Company operated quarries. All drilling and blasting activities are expected to be conducted in a professional manner by all parties to insure the safety of all personnel on Company property and our surrounding communities.

2. Approved fall protection will be worn by anyone working within six feet (6) or less of a high wall crest or where there is a perceived danger of falling. Fall protection will be tied off to a suitable anchor point capable of supporting a minimum of 5000lbs in accordance with 29 C.F.R. 1926.502(d) or such standard as may be adopted by MSHA.

3. Scaling of any observed unstable ground will be done prior to drilling or blasting activity.

4. Prior to each blast, the Designated Employee will meet with the Driller and blast crew prior to drilling or loading activities and review safety issues including, but not limited to, PPE, ground control, access, weather, overhead hazards, and blast security. The meeting is intended to help emphasize that the safety of personnel on Company property and the surrounding community is paramount to all other considerations.

5. Contractor will notify the Designated Employee immediately of any special circumstances at the site or the work being performed that may affect safety or production.

6. All patterns must be checked and reviewed by the Blaster and Designated Employee for proper burdens.

7. Where applicable and if necessary, public roads will be blocked and cleared in coordination with law enforcement prior to blast detonation when necessary to insure public safety.

Blasting Materials

1. Contractor will use only qualified companies or subcontractors to transport blasting materials on public roads and Company property.

2. Contractor will dispose of or remove blasting residue according to local, state, and federal regulations. On site burning shall be subject to approval by the Designated Employee where allowed by applicable law. If burning is not allowed, Contractor shall have another method for proper disposal shall be in place.

3. The quality of explosive material and associated accessories will conform to manufacturer's specifications and any applicable laws and regulations. The Contractor shall be solely responsible for determining such conformity; however, Company reserves the right to request information and/or testing of explosive products conducted with results submitted in writing to Company.

4. Blasting contractors are required to scale in and out all bulk products and document product type and weight on the "Bulk Explosive Weight Ticket" located in the "Attachment" section. This form or equivalent is required to be submitted with blast report.

Weather

1. Forecasted weather conditions should always be reviewed by Contractor prior to drilling or blasting activities. Conditions such as high winds, electrical storms, or ice and snow may create hazards that can be avoided.

2. Lightning is a potential cause of premature detonation. In the event of an imminently approaching electrical storm, the Blast Area is to be evacuated immediately. The Blast Area will be guarded pursuant to the direction of the Blaster and all personnel will be accounted for until blasting activities can resume.

Blast Planning

1. The Designated Employee and Blaster will select the specific Blast Site, inspect the area, and review any special considerations with the Driller or other appropriate Contractor personnel. Blast planning, drilling, loading & blast detonation are expected to be conducted in a manner to reasonably produce the desired gradation.

2. Pre-drill and pre-blast inspections will be accomplished by the Driller, Blaster and Designated Employee either separately or together. Any unsafe conditions found that the drilling or blasting contractor personnel cannot correct must be immediately brought to the attention of the Designated Employee. All unsafe conditions must be addressed prior to any further work activity.

Inspections should include but not be limited to ground control, blast access, traffic, slip, trip, and fall considerations. 3. Any Blaster that is not familiar with the quarry site and geological conditions where he or she may be designing a blast will

make him or herself familiar and/or request the assistance of other professionals as he or she deems necessary.

4. Any change in typical blast design at the quarry (such as powder factor changes, explosive type, hole diameter, drill pattern, hole angles, or timing) and the reason for the changes are to be discussed with the Designated Employee before implementation.

5. Blast Area security plans should be provided by the Blaster to the Designated Employee.

- 6. Issues to be addressed in preparing the blast design include but are not limited to:
 - a. the location of the nearest residence or non-Company owned structure
 - b. vibration considerations
 - c. potential flyrock and direction of the blast
 - d. limiting access to the Blast Site
 - e. persons who will assist with the blast and/or security
 - f. communications with those assisting
 - g. visibility of the Blast Area for initiation of the blast
 - h. cover for the person initiating the blast and the persons assisting
 - i. recent complaints received, if any, associated with blasting at the mining operation

7. The Blaster will use a tape and burden pole, a laser profiler, an inclinometer, or other appropriate equipment to obtain an accurate profile of the free face. These measurements will include, but not be limited to, bench height and burden to the front row holes.

8. The Blast Site will be barricaded using berms, cones, tape, ropes, or other markings or equipment to prevent accidental incursion into the Blast Site.

9. The Blaster will prepare the blast diagram, discuss the proposed blast diagram with the Designated Employee, resolve any concerns, note concerns on the diagram, submit the diagram to the Designated Employee for acceptance, sign the diagram, and furnish copies to the Designated Employee and Driller.

10. All drill holes are to be marked by the Blaster with paint or other agreed marking before leaving the site.

Drilling

1. The Driller will pick up the approved blast diagram and inspect the Blast Site with the Designated Employee to address any concerns. If changes in the blast design are required by the Driller, the Blaster will be notified by the Designated Employee and/or Driller. Any change to the blast design, if approved by the Blaster, will be noted on the drill log to be prepared by the Driller and initialed by the Blaster and Designated Employee.

2. The Driller will complete a work place inspection before beginning work at the drill site. The Designated Employee will be responsible to correct any unsafe conditions noted by the Driller before the drill enters the drill site.

3. The Driller will identify the drilled holes on the drill log by a number that corresponds with the identified holes on the blast diagram that is provided by the Blaster. All angle holes will be identified on the drill log by the hole number, degree, and azimuth. The Driller will complete the drill log, discuss it with the Designated Employee before leaving the site, initial any changes from the original blast design, sign the log, and provide copies for the Designated Employee and Blaster.

4. If improperly drilled holes are suspected by the Driller and/or Blaster, the suspect holes will be backfilled with drill cuttings and/or stone by the Driller and a new hole drilled to design specifications in a location approved by the

Blaster. Any concerns regarding the holes are to be discussed with the Designated Employee prior to proceeding with any additional drilling and/or blasting. Any re-drilling must comply with any applicable spacing and other blast design considerations. 5. Borehole deviation from intended course can produce higher or lower than expected powder factors. If the Driller or Blaster consider the deviation of any particular hole(s) to be excessive, either the hole will be re-drilled or the borehole deviation will be measured and powder loads adjusted to the correct burden and spacing to provide a safe powder factor.

6. The Driller will use drilling equipment, operators, and procedures that provide correctly drilled holes and accurate data for the drill log.

7. The Driller will insure that the safety and drilling features on the equipment function according to the manufacturer's specifications and regulatory requirements.

8. The Driller will coordinate with the Designated Employee to maintain the barricades at the drilling site to prevent unauthorized entry.

9. If the Driller observes or finds any unsafe conditions, drilling operations are to cease and the Driller shall notify the Designated Employee or quarry manager.

10. The Driller will report abnormal drilling conditions such as joints, weak ground, soft seams, and depth of loose material from collar, cracks or damage to the rock face, back break from previous blasts, and similar information on the attached drill log. Loss of drill cuttings or flushing air while drilling will be noted on the drill log.

11. Cardboard tubes or other suitable material, as determined by the quarry manager or Blaster will be used to collar holes. Tubes will be inserted through the unconsolidated upper material and into solid rock and sealed to avoid debris from entering the hole.

12. The Driller will remain with the drill during operation and secure the drill if there is a requirement to leave the area. The drill will not be left on a face hole when the Driller leaves the site.

13. Dust and/or noise suppression systems installed on the drill must be used when the drill is in operation.

14. Approved fall protection will be worn by anyone working within six feet (6) or less of a high wall crest or where there is a perceived danger of falling.

Fall protection will be tied off to a suitable anchor point capable of supporting 5000 lbs. in accordance with 29 C.F.R. 1910.502(d) or such standard as MSHA may adopt. The tie off point must be in a location that will prevent the line from contacting moving parts.

15. During darkness, drills will not be operated under a highwall, or on the front row of holes on a highwall.

16. Upon the approach of an electrical storm the drill will be shut down or the mast will be lowered until the storm passes.

17. Drillers will always use a spotter or helper when positioning the drill in an area or under conditions he or she believes a spotter or helper to be necessary.

18. Holes will be drilled in a sequential manner from the free face or faces that will allow the blast to be loaded without delay in the event the blast design is not completely drilled.

Blasting

1. The Blaster does acknowledge and accepts responsibility for controlling all activities within the blast site for the duration of blasting related activities. The Blaster shall have the authority to direct and control all Company and Contractor personnel, vehicles, equipment, and activities within the Blast Site.

The Blast Site will be identified by the Blaster prior to loading activities. Signs, cones or berms will be used as demarcation.
 The Blaster shall review at least the following documentation and/or conditions the morning of the blast prior to loading blast holes:

a. Free face conditions

b. The drill log(s)

- c. Crest burdens
- d. Borehole depths and conditions
- e. Designed versus actual burden and spacing
- f. Borehole diameter
- g. Overhead hazards

4. Before starting to load the blast, a blast site safety meeting is required. The Blast Area and roads leading to the Blast Area need to be checked for hazards, like falling rock and quarry traffic. Example topics that should be addressed during the safety meeting are in the attachments.

5. Use of two way communication and cell phones within the blast site is strictly prohibited when using electric detonators. If electric detonators are being used, blasting personnel are to leave cell phone or radios in a safe location and powered off when entering a blast site.

Loading

1. The Blaster will verify that the drilled pattern conforms to the design on the blast diagram and check the blast site for extraneous electrical current if appropriate. The Blaster shall review the drill log and address any abnormal drilling conditions, examine the Blast Area for weaknesses in the rock, such as loose material, cracks seams, etc., check the Blast Area's free face for any signs of weak burden, joints, excessive back break, or over-digging before loading the blast. The use of video monitors to inspect drill holes is encouraged in the event of any potential concerns.

2. The Blaster will examine the burden on every hole adjacent to the free face or faces using an acceptable method to determine if or where reduced explosive charges, decking, and additional stemming are necessary.

3. The Designated Employee must be advised of any deviation from the blast design.

4. All equipment and activity not associated with the blast will be removed from the Blast Site prior to loading of explosives.5. The Blast Site will be identified at entrances to the Blast Site with signs and traffic cones at a minimum of 50', or 30' if bermed,

from any blast hole that will be loaded in accordance with 30 CFR 56.2.

6. The Blaster will arrange for appropriate stemming material for the blast hole diameter prior to the delivery of explosive material. Typical stemming materials are clean 3/8" stone for holes less than 5" in diameter and clean 3/4" stone for holes 5" or greater in diameter. The stemming will be placed adjacent to the bore holes as directed by the Blaster in order to protect the blast crew from potential slip, trip, or fall hazards.

7. Loading operations will be carried out in a sequence that will allow safe detonation of all charged holes if charging operations must be terminated.

8. Explosives loaded into the hole will be measured continuously to insure proper column rise. If explosives accumulate in a cavity, loading operations will cease until the Designated Employee is informed of the situation, options reviewed and the corrective action has taken place.

9. In the event that special or extraordinary precautions are required to insure that a blast can be carried out safely, the blast will not be detonated without the approval of the plant manager.

10. The blast starting detonator will not be connected to the blast until all loading operations are completed and the blast area is clear.

11. If electric caps are used all safety checks, including but not limited to, continuity, resistance, shunting of circuits, and physical count will be conducted prior to connection of blasting machine. The blasting circuit will not be connected to the blasting machine until the Blast Area is cleared and secured.

12. When using electronic detonators, the blast will not be considered ready to be fired until all safety checks recommended by the manufacturer are completed and the Blast Area is cleared and secured.

13. When using non-electric detonators, the blast will be visually inspected by the Blaster as well as another qualified individual after surface delays are connected to insure the complete hook up of planned delay sequence.

14. If overloading of explosives into a void, crack, loose material or above the intended explosive column height occurs, immediate notification will be made to the Designated Employee and the necessary operations will continue per the direction of the Blaster. The Blaster will work with the Designated Employee and provide a solution to either correct the issue or protect personnel and/or equipment against the possibility of fly rock or other safety issues.

15. All holes will be stemmed promptly after explosives reach their designed column height or as directed by the Blaster.

Blast Detonation

1. On the day of any scheduled blasting, a notice will be posted at the time clock, on roads entering the Blast Area, at the visitor sign in log and/or other areas identified by the Designated Employee to advise plant personnel and visitors of the blast and related safety procedures or such other notices as may be required by permit or applicable law.

2. The Blaster will determine risk areas for people and equipment and recommend protective measures to the Designated Employee. The Blaster will also insure that he has adequate communication and cover from the site of blast detonation.

3. Blast Area Guards will be posted by the Designated Employee so that the blast area can be monitored and prevent persons from inadvertent access.

4. Monitoring devices will be positioned and the Designated Employee will confirm the monitoring operations readiness by radio or telephone before detonation of the blast.

5. Radio contact will be set up to insure constant communication with the Blaster, Blast Area Guards, seismograph operators, and other personnel involved in Blast Site security. Non-essential radio communications will cease during the set up and execution of the blast event.

6. The Designated Employee will be responsible for securing the Blast Area is secured prior to the 1st audible warning. When the Designated Employee is satisfied that the Blast Area is secure he or she will announce on the radio that a blast is in progress and all non-essential radio activity will cease. The Designated Employee will then contact and advise the Blaster that the Blast Area is secure.

The Blaster will visually inspect the Blast Area from the blast site just prior to detonation after the pit has been cleared.
 The Company shall have a clearly defined Blast Warning Plan which Blaster will comply with.

9. Immediately after the blast, the Blaster will inspect the blasted material. Once satisfied that no danger exists, the blaster will give the "all clear" to the Designated Employee who will then give the "all clear" for persons to return to their normal duties. 10. All on site personnel shall have a clear understanding of the Blast Warning Plan.

11. If the Blast Area is not deemed safe, only the Blaster and persons authorized by the Designated Employee to clear the hazards will enter the site.

12. Blasts to be re-fired will be treated with all the precautions of a new blast including the need for adequate stemming and burden.

No Blast Area Guards will leave their position and no person will leave a position of shelter until the all clear has been given.
 The blast must be initiated with appropriate equipment that conforms to manufacturer specifications and applicable regulations.

Blast Area Security

1. Prior to initiating the blast(s), the Blaster and Designated Employee will review the following:

a. The identity of the person who will initiate the blast(s).

- b. The direction of the intended rock movement.
- c. The type of protective shelter to be used by the individual initiating the blast.

d. The Blast Area limits.

e. Designation of Blast Area Guards and their location.

f. The type of communication to be used by the blast initiator, the Blaster, Blast Area Guards, and Designated Employee.

g. The blast warning signals.

2. The Blast Area will be cleared and secured prior to hooking up to the blast firing mechanism.

3. Other than the person initiating the blast, the Blast Area Guards are the closest individuals to the Blast Area and are responsible for preventing unauthorized individuals from entering the Blast Area. Blast Area Guards must be task trained and have suitable cover.

4. Blast Area Guards will be in communication with the Blaster and Designated Employee and shall be authorized to terminate the blast for any breach of the Blast Area security.

Where and when possible an observer should be positioned in a safe location outside the blast area to monitor the blast site and area while the blast area is being cleared. The observer, if applicable, will have radio or other specified contact with the Blaster and retire to a covered position when the "One minute to blast" signal is communicated. If a safe location is not available for the observer the Blaster will observe the blast site and area for a period as long as possible to insure the blast area is cleared before retiring to his or her firing shelter position

5. The "All Clear" signal will not be given by the Blaster until he or she has conducted a post blast examination and concluded that no post-blast hazards exist.

Misfires

1. All Contractors shall have a written procedure for managing misfires. The written procedure will comply with all applicable local, state and federal regulations.

2. If a misfire is suspected, persons shall not enter the blast area for fifteen minutes (15) for non-electric detonators or thirty minutes (30) if using electric detonators or such other timeframe as the Blaster may designate.

3. Misfires or discovered explosive material will be barricaded and/or guarded until a qualified representative from the explosive supplier removes or destroys the hazard. Only qualified personnel are permitted to handle explosive material.

4. In the event of a misfire, the Blaster will be required to immediately notify the Designated Employee. Contractor will submit a written report to the Company explaining the cause of the misfire and the corrective action they will take to prevent future misfires. The written report will be provided within 5 working days.

Post-Blast

1. Once blasting activities have concluded the Blaster will inspect the area surrounding the blast site for unstable ground. If unstable ground conditions exist, the Designated Employee must begin either scaling operations or block the area from entry until stable ground conditions are achieved.

Monitoring

1. All Contractors will comply with the US Bureau of Mines ground vibration levels recommended in RI 8507, 1980 or stricter state, local or permit requirements as may apply.

2. All blasts will be monitored using a seismograph in accordance with the quarry permit and/or applicable laws.

3. Routine care of the monitoring equipment, blast recording, and completion of the field report will be done by a qualified operator.

4. The seismograph field report will be signed by the seismograph operator.

5. Seismograph information will be reviewed by the Blaster. Copies of the field report will be attached to the blast report.

6. Requests for seismic monitoring on individual residences and/or business properties will be considered and authorized in certain situations.

Attachments

1. Forms.

- a. These forms are recommended. Contractor forms may be substituted with approval from the Operations General Manager. i. Pre-Blast Review Form
- ii. Site Specific Drilling and Blasting Procedure Form
- iii. Bulk Explosive Weight Tickets
- iv. Contractor Certificate of Insurance Requirements
- v. Blast Site Safety meeting example topics

Pre-Blast Review

Blast Security:	
• Who	
• Where	
• When	
Free Face Conditions:	
Crest Burdens:	
Borehole Depths and Conditions:	
Designed Vs. Actual Burden & Spacing:	
Borehole Diameters:	
Overhead Hazards:	
Blasters Signature:	
5	Date:
Designated Employee's Signature:	
	_Date:

Bulk Explosives Weight Ticket

Date: Blasting Company:	
Truck #:	
Gross Weight:	
Tare Weight:	
Net Weight of Explosive Used:	
Date:	
Blasting Company:	
Truck #:	
Gross Weight:	
Tare Weight:	
Net Weight of Explosive Used:	

Contractor Certificate of Insurance Requirements

- Minimum General Liability Coverage: **\$2,000,000.00 per occurrence**
- _____ Minimum Auto Liability Coverage: \$2,000,000.00 combined single limit
- _____ Minimum Umbrella Liability Coverage: \$10,000,000.00 per occurrence & aggregate
- ____ Must have required: Policy Number(s)
- Must show evidence of: Workers Compensation coverage

Marked "WC Statutory Limits" with

Box Minimum of \$500,000.00

__ Certificate Holder must be: Named Additional Insured

___ Please forward current ORIGINAL, SIGNED Certificate of Insurance to:

Oldcastle Company Name

Address

Note: Per occurrence and aggregate coverage limits for General Liability and Auto Liability can be achieved though a combination of primary and excess umbrella coverage. The Company shall be an additional insured on all insurance other

than workers compensation; waiver of subrogation shall apply to all insurance. The Company shall receive notice at least 30

days prior to cancellation of any policy. All policies are required to be on an occurrence rather than "claims made" basis.

Blast Site Safety Meeting

Blast Site Safety Checklist -- Items to be considered:

- Are all blasting personnel wearing hard hats, safety shoes, safety glasses and
- reflective vests?
- Has the drill log been prepared by the Driller and reviewed by the Blaster prior to
- Ioading?
- Prior to loading, ensure that the Blast Site is barricaded to prevent unauthorized
- entry and that blast warning signs have been placed to notify others of the activity.
- Has the Blaster inspected the face prior to loading?
- Protect against any non-essential vehicles being driven into the blast site.
- Check to see if any holes will have to be driven over the top to facilitate proper
- Ioading of the shot. If so, how can this be minimized without losing a hole?
- Has the Blaster made certain that his or her personnel understand their role(s)?
- Do the personnel involved understand what explosive product is being used and
- how much will be loaded in each hole?
- What is the minimum amount of stemming required?
- Is there adequate shelter for the person triggering the blast?

Blasting Operations Compliance Review Questions

Documented "Safe Blast Policy" in place.

Contractors have signed acknowledgement stating that they have received the CRH AMAT Blasting Policy.

Employees have received blasting awareness training,

Pre-blast reviews are being conducted/documented.

All personnel carrying out blasting operations are trained in site specific rules (employees and contractors).

Blasting records are kept on site and operating records of all blasts are maintained.

Work Zone Safety

- All work zone personnel must be properly trained for their specific roles and all work zone employees must receive work zone awareness training
- A copy of the most current Manual on Uniform Traffic Control Devices (MUTCD) state/local/project specific traffic control standards must be readily available for review on all projects (A)
- All reverse systems, echo location systems, back up alarms (including those of contractors) must be working properly
- An Internal Traffic Control Plan (ITCP) must be created and be in use to minimize backing and control internal movement of equipment, vehicles and personnel
- Employees must be aware of the 10-foot rule when working around/operating equipment
- All road crews must have knowledge of and understand the Backer Spotter policy P
- Maintenance of Traffic (MOT) personnel and flaggers must be trained according to their duties
- All equipment must be outfitted with sufficient retro-reflective tape that can be seen at night, the tape must be clean and in working order
- · All equipment operating in a work zone must be equipped with flashing lights as required
- All work zone traffic control must be inspected and documented by a designated competent person
- Work zone employees must be familiar with the Best Practices for Mitigating the Effects of Work Zone Intrusions manual

Highway and street construction workers are at risk of fatal and serious nonfatal injury when working in the vicinity of passing motorists, construction vehicles, and equipment. One of the leading causes of national fatalities for workers in work zones is being run over or backed over by internal vehicles. While some of the concerns were addressed about equipment earlier, we feel that this area needs additional attention.

MOBILE EQUIPMENT IN THE WORK ZONE - BLIND SPOTS

It is important to educate employees on the blind spots around a vehicle or piece of equipment.

- · Blind spots have contributed to hundreds of deaths at road-building sites.
- Fatalities involving a worker being struck by a vehicle or equipment account for 73% of transportation-related work zone incidents, with half occurring when a construction vehicle was backing up.

Blind Spots are the locations around equipment and vehicles where workers on foot are invisible to the operator through his windows and mirrors.



- · Operators must be educated on the blind spots and swing radius of any equipment during their task training.
- Back up alarms must be present on all mobile equipment. If the alarm is not working, the equipment needs to be removed immediately from service.
- If possible, try and utilize pull through or drive through parking that limits the need for vehicles to back up.
- · Reduce foot traffic in areas where mobile equipment will be working.
- Communicate the 10' rule, which asks employees to make contact with the operator before entering the space that is within 10 feet of the operating equipment. DO NOT approach equipment until the operator acknowledges you.
- The signal person must know the operator's blind spots and remain visible to the operator at all times.

INTERNAL TRAFFIC CONTROL PLAN

According to the National Institute for Occupational Safety and Health (NIOSH), approximately 20 construction workers are killed in backing accidents each year. Dump trucks are involved in the majority of these fatal accidents. Since dump trucks have large blind spots and backup alarms are not always enough to protect pedestrian workers within the work zone, CRH requires its affiliates to use an Internal Traffic Control Plan ("ITCP") on every road construction project in order to prevent deaths and injuries inside the work zone. Internal traffic control plans fill in the details on how construction traffic should be set up inside the area marked by the hatched box on a TTCP. The requirement for these plans also includes emergency and other unplanned closures that may not be covered by a TTCP. Internal Traffic Control Plans focus on keeping workers on foot from being struck by construction equipment and large trucks within the activity area of a work zone.

Its safety features include but are not limited to:

- Isolating workers from equipment.
- Reducing the need to back up.
- Limits vehicle access points.
- Coordinates truck and equipment movements.
- Provides signs to guide vehicles and pedestrians.
- Separates pedestrians and equipment.
- Informs all on-site personnel of the traffic control plan.

The project manager, superintendent or foreman must review the ITCP with all project personnel, including subcontractors, suppliers, and inspectors during a pre-shift meeting. If the work conditions change during a shift, suspend work on the project and update the ITCP during a safety meeting with all of the project personnel. While copies of the ITCP may be distributed to project personnel, project personnel should not be referring to documents while working on a construction project so it is more important to clearly explain the ITCP to the project personnel and answer any questions regarding the ITCP.

Milling and Paving Operations

conditions. May also be found in other locations on the project Anticipated location of pedestrian workers under typical work Ŗ L Pedestrian Workers

2



This typical application addresses the internal traffic control requirements for a milling operation (at left) and a paving operation (at right). This can be adapted to any number of both open and/or closed travel lanes, as well as a left or right lane closure configuration. While not every situation involving a roadway closure is addressed, the information illustrated can generally be adapted to a broad range of conditions.

Milling, when done in conjunction with paving, often takes place just ahead of the paving operation at distances that can range from a couple hundred feet to a mile or more.

Empty dump trucks arriving on the jobsite should proceed forward to the milling operation(s), just ahead of the milling machine and get in line to receive millings.

Dump trucks hauling asphalt should proceed to the paving operation, just ahead of the paver to get in line to offload asphalt.

Truck access and egress should be between the cones after determining the path is clear (as depicted by the green arrows).

Both dump truck drivers and equipment operators should remain in/on their unit and stay alert at all times. If you must exit for any reason, wear all required PPE and high visibility apparel for the operation taking place.

Obey instructions from flaggers, backers, spotters and others who are directing applicable phases of the work.



Continued at top of diagram at right

INTERNAL TRAFFIC CONTROL PLAN SAFETY NOTES

Different aspects of the ITCP may be identified and developed during the various construction phases of a project. However, the general principles for a milling and/or paving ITCP are established in this document.

Pedestrian Workers:

- Avoid walking or standing in the travel way of any vehicle or equipment.
- Stop the operation if you observe any pedestrian in the travel way of any vehicle or equipment.
- Do not be in front of the paver unless another worker is acting as a spotter.
- Crossing between the front of the paver and a backing dump truck is prohibited.
- Minimize time spent on foot working adjacent to live traffic whenever possible.
- Take breaks as far away from live traffic and moving equipment as possible.
- Walk in a way that deliberately maximizes distance from both live traffic and moving equipment.
- Do not use a cell phone or other electronic device when crossing traffic routes or engaged in safety sensitive work.

Dump Trucks, Vehicles and Equipment:

- Dump trucks must have a spotter guiding the driver whenever backing.
- Establish and maintain eye contact with the spotter while you are backing.
- STOP backing if you do not have eye contact.
- All dump trucks must be equipped with working backup alarms.
- Shifting into neutral or any action that deactivates the back-up alarm during backing is prohibited.
- Stop the operation if you observe any pedestrian in the travel way of any vehicle or equipment.
- Dump truck drivers should stay in their truck, alert and ready to respond to instructions.
- Access the work zone by coming up from behind the operation in an adjacent lane and turning in between the cones at the appropriate point.
- When entering the work zone, ensure that your path is clear of workers and equipment.
- When exiting the work zone, use extreme care to ensure the vehicle can be safely merged.
- Wear all required PPE when exiting a vehicle for any reason.
- Dismount equipment on the side away from live traffic, whenever possible.
- Do not approach within 10 feet of a pedestrian employee without establishing eye contact.
- The lead roller should not approach the paver closer than 20 feet.
- Do not use cell phones while operating vehicles or equipment.
- Speed of trucks and equipment must be reduced to 5 mph in the work zone.
- All repositioning of vehicles and equipment must follow Oldcastle Material's Repositioning/Backing Guidelines.

ITCP Communication Plan:

- ITCP principles must be communicated to all workers and contractors prior to beginning work.
- When a project is first bid and won, communicate general ITCP plan principles in contract documents and preconstruction meetings.
- Communicate ITCP principles in any meetings with contractors leading up to the project start.
- Conduct a pre-shift briefing (also known as a T-5) to include details of the ITCP.
- Invite contractors and haulers to attend the pre-shift briefing where the ITCP is discussed.
- Contractor managers must communicate the ITCP with all workers who report to them.

If the work conditions change, ensure that all affected managers and personnel receive information on the changes.

WORK ZONE SAFETY CHECKLIST

A competent person must complete a Work Zone Safety Checklist at the start of every job and at the end of the day. If the traffic control stays up over holidays and weekends, the Work Zone Safety Checklist needs to be checked then as well. If deficiencies are found, it is important to correct them immediately. Either the project manager or the safety managers can help in those situations. The topics covered on the checklist are below:

- PAVEMENT DROP-OFFS & LOW SHOULDERS
- TAPERS, CLEAR ZONES & TANGENTS
- CHANNELIZING DEVICES
- · SIGNS
- PAVEMENT MARKINGS
- FLAGGERS
- · CRASH CUSHIONS, ATTENUATORS, & TEMPORARY TRAFFIC BARRIERS
- ARROW PANELS
- PORTABLE CHANGEABLE MESSAGE SIGNS ("PCMS")
- DRAINAGE

WORK ZONE PROTECTION DEVICES

Truck Mounted Attenuators "TMA"



Rumble Strips



Work Zone Intrusion Alarm



FLAGGING OPERATIONS

All of our construction personnel are required to be properly trained before performing flagger duties. This person is our first line of defense against worksite intrusions and it is important for them to understand safe practices to keep everyone on the job safe as well as themselves.

FLAGGER EQUIPMENT

- · STOP/SLOW Paddle
- Flag for emergencies
- · High visibility apparel and other garments
- · Air horn/Two way Radios
- Personal comfort items



TEMPORARY TRAFFIC CONTROL PLANS

Throughout our job sites you will see two different types of Traffic Control Plans. The Temporary Traffic Control Plan will define the work zone. It should show tapers, work areas, and buffer spaces, as well as where flaggers and signs go. It is generally handled by the Project Manager and is usually just set up at the beginning of a job.

The second type of plan is the Internal Traffic Control Plan. You learned about it during your review of Risk Assessments. It will show you where Equipment will be placed, pedestrian free zones, loading and loading areas, etc. This should be shared with anyone who enters the job site including outside contractors and vendors who may deliver items to the job.



Figure 6C-1. Component Parts of a Temporary Traffic Control Zone

Work Zone Safety Compliance Review Questions

All road crews have knowledge of and understand the CRH AMAT Backer Spotter policy.

MOT personnel and flaggers have been trained according to their duties.

All equipment is outfitted with sufficient retro-reflective tape to be seen at night and the tape is clean and in working order.

A copy of the most current MUTCD/state/local/project specific traffic control standards are immediately available for review on all projects.

All equipment operating in a work zone is equipped with flashing lights as applicable.

All work zone traffic control is inspected and documented by a competent person.

All work zone employees have received work zone awareness training.

All reverse systems, echo location systems, back up alarms, including those of contractors, are working properly.

Work zone employees are familiar with the Work Zone Intrusion Prevention Manual.

An ITCP has been created and is being used to control internal movement.

Employees are aware of the 10 foot rule when working around equipment and the 20 foot rule for safe distance for roller to paver.

Employee Engagement

- · Employee groups must participate in problem solving and risk reduction tasks to foster employee engagement
- Engagement opportunities such as near-miss reporting, behavior observations and mentoring of others, etc. must be implemented

An employee driven safety culture is an environment where the employees take full responsibility and ownership of their safety and the safety of those around them. It is only when this culture exists that we can expect to achieve our goals of zero fatalities and incidents. We realize that our employees are the subject matter experts and only with their input and involvement will we move our safety program to the next level. CRH strives to achieve 100% employee participation. Some examples of employee involvement/engagement activities include: Participation on an SLT, reporting near misses, conducting employee observations, being an active participant on a safety committee, having 5S responsibility, leading toolbox talks, conducting FFE audits, and teaching portions of annual training courses.

Put safety first

We value safety. We protect and look out for each other. Safety is a shared, uncompromised value.

EMPLOYEE SAFETY COMMITTEES

Employee Safety Committees are an integral part of improving our safety culture. The committee's goal is to identify certain risks which they believe present some of the greatest safety concerns in their work environment. The teams consist of employees from across the operations and include representatives from each line of business. The teams meet at a minimum of once per month to discuss safety improvement opportunities and to identify solutions and improvements.

Additional safety teams may be established for specific jobs, tasks, or projects.

NEAR MISS REPORTING/SAFETY OBSERVATION

The reporting and review of safety observations and near-misses that occur in our facilities or on our jobsites is an essential part of our efforts to improve the safety of our operations. Employees have the opportunity to report safety concerns, observations, or near-misses through the Company's Safety Portal, hard-copy forms, or verbal reporting to the employee's supervisor or safety team. Employees reporting safety observations or near-misses may be eligible for points through the Company's employee incentive plan.

5S

The 5S program is a housekeeping initiative that allows employees to perform tasks more safely and efficiently. The 5S process helps to organize our work areas, reduces the potential for slips and falls, and allows for a more accurate count of inventory for parts, supplies, etc.

5S Elements

- Sort- Sort items based on usage needs, disposing of non-essential items, and eliminating sources of clutter.
- Simplify Simplify access by arranging items in the work area and establishing guidelines.
- Sweep Visual sweep of the work area to ensure that everything is in its proper location. A visual sweep of the work area should instantly tell you what is missing or misplaced.
- Standardize Standardization makes information about locations more recognizable. For example, if all labels on a shelf are formatted the same way, it is easier to visually sweep through the area.
- Self-discipline (Sustain) Self-discipline is the routine practice of all the steps that precede it. Self-discipline is having all employees doing their part to carry out the 5-S actions.

Employee Engagement Compliance Review Questions

Employees are involved in a Safety Leadership Team (SLT), Safety Committee, Employee Workgroup or similar effort where problem solving is performed through employee ideas and input.

Employee engagement efforts such as near miss reporting, behavior observations, leading training, mentoring others, etc., are robust.

The 5-S program is being sustained. It is an ongoing process. Ratings are current and posted at the facility.



Contractor Safety Management

- · Contractors must be evaluated using a contractor safety management guide/checklist
- Contractors must be included and participate in daily safety huddles (i.e. T5s) and risk assessments
- Contractors must receive a safety induction and have appropriate oversight when working at facilities or on jobsites
- · Contractors must be informed of and follow all PPE requirements

In order to achieve zero fatalities with our subcontractors, CRH has established Contractor Safety Management Guidelines to ensure that appropriate steps are taken to establish a minimum level of safety with all of our subcontractors on our project sites, contractors performing work at our facilities and the hired haulers delivering our product. By working with our contractors to review their safety culture and practices, we can help them to achieve zero fatalities while reducing and eventually reducing or eliminating incidents and injuries.

A message from our senior management.....

A fundamental value at all CRH companies is to provide a safe, healthy and clean work environment for our employees and for all of our business partners. Our commitment is to ensure that everyone returns home safely to their families every day. We accomplish this through the execution of three Safety Core Values:

- -Zero Fatalities
- -Zero Incidents
- -An Employee Driven Safety Culture

While we have made great progress instilling these core values across our group, we have not been as successful in establishing these values with our business partners. As a result, in 2010, four of our subcontractor's employees were killed while performing work on our projects. No fatality is acceptable and we are committed to eliminating all fatalities for all employees working for or with us.

In order to achieve zero fatalities with our subcontractors we have created the enclosed "Contractor Safety Checklist" and "Guidelines." These are designed to establish a minimum level of safety with all of our subcontractor partners to include subcontractors on our project sites, outside contractors performing work at our facilities and the hired haulers delivering our product. By working with our partners to confirm and/or enhance their safety culture and practices, we can help them to achieve zero fatalities while reducing and eventually eliminating all minor injuries. As an added benefit, we firmly believe that implementation of our minimum safety standards will improve the overall effectiveness of our business partners and reduce their cost.

Please incorporate the enclosed practices with your business partners as soon as practical in the coming months and ensure that all employees involved with CRH achieve a high level of safety performance with zero-fatalities as a fundamental core value.

As we move forward, we welcome further suggestions and refinements to our program for achieving safety excellence with our business partners.

Thank you for extending our expectations of safe performance to everyone we work with.

*** The purpose of this document is to provide internal guidance for CRH operations and is not intended to be shared with subcontractors or others outside of our subcontractor management process. The "<u>Contractor Safety</u> <u>Checklist</u>" is designed to facilitate the conversations with sub-contractors. ***

The information included in this guidance document can be used as the foundation to a progressive contractor safety management process. This document is aligned with the "Contractor Safety Checklist".

CONTRACTOR SAFETY MANAGEMENT GUIDELINES

Phase 1- Contractor Pre-Qualification

The appropriate and reasonable inquiries should be made to contractors who are being considered for partnership. In general these areas are:

1) An overview of their safety record and work practices; and

2) Specific safety practices pertaining to the work to be performed at CRH facilities.

- Safety Performance Review Safety Pre-Qualification.
- Experience Modification Rate (EMR) and OSHA/MSHA Logs for last 3 years of performance.

(See Contractor Safety Checklist items 1-2)

Phase 2 – Subcontract/Vendor Agreement Award

The safety expectations/requirements of the local CRH Company should be included as a specific part of any written contract/agreement (See attached addendum 2). In lieu of the attached Safety Addendum the local CRH Company may attach a copy of their safety policy and procedures to the subcontract/agreement. The use of the CRH Subcontract, Vendor Agreement and/or Trucking Agreement, as <u>approved by the CRH Law Group is required</u>.

(See Contractor Safety Checklist item 3.)

Phase 3 – Pre work

Environmental, Health and Safety

Safety information should be provided to the contractor/hauler/vendor <u>prior to</u> their commencement of work on CRH facilities/projects. This ensures a clear consistent message regarding our safety requirements and performance expectations. Example of documents and information may include but is not limited to:

- A copy of the local Company Environmental Health & Safety (EHS) handbook or letters and documents outlining CRH safety requirements.
- Safety briefing on CRH expectations and requirements.
- Safety Pre-Bid Safety Pre-construction meeting review site safety awareness Discuss the Completed Contractor Safety Checklist.
- Provide expectations to ensure compliance with the CRH Fundamentals for Fatality Elimination and:
 - Specialized Work Requiring PPE Beyond General Site Requirements
 - Environmentally sensitive work such as Asbestos abatement or superfund reclamation.

Insurance

CRH requires a written certificate of insurance, naming our CRH Company as an additional insured, on a primary basis, with waiver of subrogation, with minimum limits that are established in the written contract. The insurance shall provide adequate coverage for the risk/exposure from the contractor or work. CRH Law approved Additional Insured and Waiver of Subrogation language should be in place. This information can be found on the CRH Interchange site.

Each CRH operating Company should have a process in place to ensure that

(1) we are receiving the written contracts timely; (2) the certificates of insurance name us as an additional insured, and the insurance is on a primary basis with waiver of subrogation language and contain the necessary insurance and correct limits; and (4) we have a system which notes when certificates of insurance expire, and what we are doing to obtain an updated certificate before the current one expires.

(See Contractor Safety Checklist items 4-7)

Phase 4 - Contract Implementation

ARRIVAL ON SITE

A "kick-off" safety briefing should be conducted with all contractor personnel when they arrive at the Project/Facility. This on the job briefing should be conducted and documented by CRH site personnel to establish lines of communication and reinforce contractor safe performance expectations. A Risk assessment (TRACK, T5, THINK, SAFE, Pre-shift meeting, etc.) to discuss the day's work activities is one example. Another example could be a checklist designed from the pre-bid conversation. *"High Risk" Contractors have more in-depth requirements (addendum 1).*

Regular Ongoing Safety Information and Communication with Subcontractor

A systematic approach should be taken to continue the dialogue and education, for both the contractors and our Company representatives. Therefore planning specific times and topics to converse with our subcontractors about progress, safety issues, best practices, etc. are very important. Below are examples of successful activities:

- Expectation of Participation in Risk Assessment—TRACK, T5, THINK, SAFE Meetings.
- Expectation of Participation in Toolbox meetings or documentation provided to CRH that subcontractor safety meetings are being conducted.
- Review and explain expectations for Fundamentals for Fatality Elimination
- Share educational materials for CRH FFE (Audit tools, etc.)
- General Information/Orientation for project or site
- Safe Backing Requirements
- Review of other Safe Production and Target Zero expectations

DURING CONTRACTORS WORK

CRH personnel should provide oversight and periodic inspections of contractor's work. The CRH Fundamentals of Fatality Elimination shall be reviewed and reinforced with all contractors. Periodic observations/surveys of safety performance are also strongly encouraged.

(See Contractor Safety Checklist items 8-9)

Phase 5 and 6 – Completion & Acceptance; Review & Celebration

Contractors should be included in "safe completion" celebration activities with recognition in the form of a letter of appreciation to the Company or directly with a crew if a project was completed safely and timely. Ultimately this will ensure a good working relationship with the contractor. Cooperation is critical – it is very easy to list standards and demand compliance – we believe safety is everyone's responsibility and a healthy partnership is mutually beneficial.

Addendum 1

Minimum Requirements for Safety Inductions

for High Risk Contractors

1. Minimum Requirements for Safety Inductions for High Risk Contractors

Objectives

- To ensure that a consistent approach to the safety induction of contractors involved in certain activities where there has been a trend of contractor fatal accidents, namely
 - Work involving LOTOTO
 - Haulers/Truck Drivers
 - Paving/Road Surfacing work
- To assist each Company in benchmarking against best practice in terms of safety induction.
- To require each Company to close out any issues

identified in this gap analysis Points to Note

- A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.
- Inductions must be site or task specific and must be based around the site and work to be completed. While certain elements of the induction may be generic e.g. advice around manual handling, an induction should always have a significant element of site/task safety related information.
- All inductions must include an assessment. This assessment should be credible in that the questions asked should require site specific or technical knowledge relevant to the site/task.
- Induction can take place remotely through an online program or at the site, once the identification of the person can be verified. Once at the site, the person involved should still receive a brief verbal reminder of the key safety issues e.g. Cardinal Rules, Site Transport Rules.
- Site Inductions are deemed to be effective for 12 months
- While DVDs can be used for Induction material, they must be site specific and cover the key issues outlined below the more site specific material, the more effective is the Safety Induction.

1.1 Minimum requirements for the Safety Induction of Haulers/Truck Drivers

A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process*, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.

* For this category of contractor, the prequalification process will focus on the contract companies/broker details around vehicle certification, driver permits etc.

Item to be covered in the Induction		
1	Company Safety expectations on safety and contractor safety.	
2	Site Layout – Loading/Unloading points, one way systems.	
3	Site Speed Limit.	
4	Procedures around loading including the requirement not to leave the truck cab during loading.	
5	Personal Protective Equipment (PPE) requirements.	
6	Site warning system (in the event of blasting) - where applicable.	
7	Safety requirements for delivery to customer sites ¹	
8	 General Construction site safety (where deliveries are to construction site safety): Traffic Control Plan (internal, external). Using lifting equipment (general precautions in addition to formal certification). 	
9	Safe Access to vehicle (for load security, addition of admixtures, adjusting of tanker inlet points).	
10	Safe access to and from vehicle.	
11	Safe cleaning of the vehicle.	
12	 Site rules around the issue of ad-hoc maintenance of trucks: This will cover the rules and restrictions around adhoc truck maintenance such as tire checking/ inflation, battery charging/jump starting. It should be stated clearly when such activities are not permitted, or that there are supervisory requirements around such work apply to the site. 	
13	Product Handling / Load Security basics for precast and paving (where appropriate).	
14	Site Cardinal Rules.	

¹ Some countries have legal requirements / national association level courses for construction materials drivers delivering to construction sites.

1.2 Contractors involved in Paving Operations

A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process*, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.

* For this category of contractor, the prequalification process will focus on the contract companies' details around previous experience in this type of work and individual worker training details.

	Item to be covered in the Induction	
1	Company Safety expectations on safety and contractor safety.	
2	Personal Protective Equipment requirements.	
3	High Visibility Clothing requirements.	
4	Traffic Control requirements - general precautions.	
5	Traffic Control requirements - for the particular site, including the site specific traffic control plan.	
6	Procedures for reversing.	
7	Emergency procedures.	
8	Working near mobile plant - general precautions.	
9	Working near mobile plant - for the particular site.	
10	Night time work - general precautions.	
11	Night time work - for the particular site.	
12	Procedures for laying out traffic control measures e.g. cones.	
13	Site / Job Cardinal Rules.	
14	Hot material handling - personal protective equipment.	
15	Consequences for not following CRH Safety requirements.	
16	Review of control measures to prevent contact with reversing vehicles at this site/on this job e.g. use of bankspersons etc.	
17	Assessment.	

1.3 Contractors involved in work where LOTOTO is required: Minimum Standards

A Safety induction is not an isolated or standalone process, it is part of an overall approach for new employees and contractors which is supported by an initial prequalification process*, ongoing coaching/monitoring and ongoing safety training and awareness programs e.g. toolbox talks, campaign activities etc.

* For this category of contractor, the prequalification process will focus on the contract Company's details around previous experience in this type of work and individual worker training details.

Item to be covered in the Induction		
1	Company expectations on safety and contractor safety.	
2	LOTOTO procedures at site: • Isolation Owner process. • Group lock out procedures (where applicable). • Try Out / Confirmation step.	
3	LOTOTO change management procedures (when the original task has changed).	
4	 Confirmation that each contractor has been issued or has their own lock (this is the responsibility of the CRH person completing the induction). This element of the induction must include a physical demonstration of the use of a padlock and its correct attachment to an Isolator lock. Where pneumatic or hydraulic isolation is an element of the task involved, then the induction must include a physical demonstration of the use induction must include a track involved. 	
5	Accident Case Study (Electrical Isolation) - Mountsorrel 2017. This will involve a review of the CRH safety alert for this particular accident.	
6	Accident Case Study (Pneumatic Isolation) - Lemona 2017 .This will involve a review of the CRH safety alert for this particular accident.	
7	Accident Case Study (Electrical Isolation) - Florida 2016. This will involve a review of the CRH safety alert for this particular accident.	
8	Electrical Isolation procedures/requirements at this site - physical demonstration of an air-valve lock (where applicable).	
9	Site / Job Cardinal Rules.	
10	Consequences for not following CRH Safety requirements.	
11	Assessment.	

Addendum 2

Subcontract Contractor Safety Rules

1. <u>Safety Representative/Safety Meetings/Self-Inspections</u>. Subcontractor shall designate a competent safety representative and require the safety representative to be on site whenever Subcontractor's employees are on the Project. Contractor shall have the right to reject Subcontractor's safety representative. Subcontractor's safety representative may be required to attend any safety meetings scheduled by the Owner or Contractor. Further, Subcontractor's safety representative shall conduct random safety inspections of the Subcontractor's operations and provide the same to Contractor upon request.

2. <u>Safety Program/Contractor Inspections</u>. Subcontractor shall prepare and adhere to a written safety program at all times. In addition, Subcontractor shall comply with Contractor's Safety Program to the extent it imposes more stringent and/or additional requirements. Subcontractor shall cooperate with any inspections that may be conducted by Contractor and take any actions needed to correct, abate, and/or eliminate unsafe conditions.

3. <u>Training</u>. All Employees and other persons entering the Project under the direction of, or for the benefit, of Subcontractor shall be trained in accordance with all applicable legal requirements for the work to be performed on the Project. In addition, Subcontractor shall conduct at least one safety meeting (*e.g.*, tool box talks) per week with its employees for the purpose of discussing topics relevant to the work being performed on the Project. Subcontractor shall maintain records of all training and provide the same to Contractor upon request.

4. <u>Personal Protective Equipment</u>. Subcontractor shall require its employees on the Project to utilize personal protective equipment ("PPE") that is of safe design and construction for the work on the Project. Such PPE will comply with all American National Standards Institute ("ANSI") specifications. Subcontractor's employees on the Project shall wear the following PPE at all times: ANSI-compliant hard hats; ANSI-compliant safety vests/apparel; shirts with sleeves; and long pants. All other PPE (*e.g.*, foot protection, hearing protection, respiratory protection, eye and face protection, *etc.*) shall be used as required by applicable regulation or contract.

5. <u>Vehicles/Equipment</u>. Subcontractor shall comply with all applicable Department of Transportation ("DOT") regulations and ensure that (a) all vehicles and drive-able equipment brought to, and/or used on, the Project by Employees are equipped with working horns, (b) all such vehicles and equipment with an obstructed rear view have working reverse signal alarms (*i.e.*, backup alarms), (c) all alarms are in proper working condition, in use at all times, loud enough to be heard above the surrounding noise level, and in full compliance with all applicable OSHA regulations (*e.g.*, 29 C.F.R. § 1926.601), MSHA regulations (*e.g.*, 30 C.F.R. § 56.14132), and other legal requirements, and (d) all vehicles and drive-able equipment with obstructed rear views are guided by an "observer" (*i.e.*, a backer) whenever backing toward any type of material transfer vehicle such as an asphalt paver, shuttle buggy, milling machine, shoulder widener, *etc*.

6. <u>Transportation</u>. No person may be transported in any vehicle or equipment unless such person is seated in a seat that is firmly secured and such person is wearing a seatbelt meeting all applicable safety standards (*e.g.*, Federal Motor Vehicle Safety Standards and Regulations). No one is allowed to ride in vehicles (*e.g.*, the backs or sides of trucks) or on pieces of equipment (*e.g.*, loader buckets, trailers, *etc.*) that are not equipped with seats designed to safely accommodate the number of passengers riding therein.

7. <u>Traffic Control.</u> Subcontractor shall comply with all applicable laws, regulations, and project specifications governing traffic control, including any applicable specifications contained in the Manual on Uniform Traffic Control Devices ("MUTCD"). In the event that Subcontractor's work places them in a position with the potential to affect traffic, or if the Subcontractor's work affects the placement or visibility of traffic control warning signs, barricades or other devices or any other part of the traffic control plan for the project, Subcontractor shall notify, plan and coordinate said work with the person responsible for Traffic Control on the project.

8. <u>Language</u>. Subcontractor shall ensure that English-speaking Employees who are capable of providing fluent translation are present at all times in which non-English-speaking Employees are present.

9. <u>Governmental Inspections/Investigations</u>. Subcontractor shall notify the PM and/or EHS Manager as soon as possible of all inspections and/or investigations involving the Work and/or the Project that are conducted by, or on behalf of, governmental authorities. Such inspections and/or investigations include, without limitation, the following authorities: Occupational Safety & Health Administration ("OSHA"), Mine Safety & Health Administration ("MSHA"), DOT,

law enforcement authorities, environmental authorities, *etc.* Subcontractor will report to the PM and/or EHS Manager and keep them promptly apprised of all developments in such inspections and/or investigations, including, without limitation: issuance of warnings, citations, notices of violation, subpoenas, warrants, injunctions, administrative orders, court orders, abatement measures, contests, settlements, litigation, *etc.*

10. <u>Competent Person</u>. Subcontractor will ensure that there is a Competent Person (as defined by applicable OSHA/MSHA standards) present at all times for all parts of the Work legally requiring the presence of a Competent Person (*e.g.*, trenching and excavation, fall protection, scaffolding, *etc.*). Subcontractor will designate such Competent Person to Contractor. Contractor may reject the Competent Person chosen by Subcontractor.

11. <u>Substance Abuse Program</u>. Subcontractor shall be governed by a written substance abuse program that includes pre-hire drug and alcohol testing, post-accident drug and alcohol testing, random drug testing, and reasonable suspicion drug and alcohol testing in compliance with all applicable laws. All Employees testing positive for drugs and/or alcohol will be prohibited from working on or in connection with the Project.

12. Incident Reporting. Subcontractor shall notify Contractor's Project Manager ("PM") and/or EHS Manager of all safety-related incidents involving: (a) Subcontractor and/or its employees and (b) the Work and/or the Project. Subcontractor shall promptly and thoroughly respond to, and investigate, all safety-related incidents and complaints. Further, Subcontractor shall report to the PM and/or EHS Manager as often as directed on the status of such responsive/investigative efforts.

IMPORTANT, PLEASE READ: THESE SAFETY RULES ARE IN NO WAY INTENTED TO CONSTITUTE AN EXHAUSTIVE LIST, OR EVEN A SUMMARY, OF SUBCONTRACTOR'S LEGAL AND CONTRACTUAL RESPONSIBILITIES. SUBCONTRACTOR SHALL OBTAIN AND STRICTLY COMPLY WITH ALL LEGAL AND CONTRACTUAL REQUIREMENTS GOVERNING ITS WORK.

This form should be completed by the Estimator/Project Manager or Supervisor of the CRH Company or one of its subsidiary companies in conjunction with the Contractor involved. Any Safety issues arising from the activities of the Contractor, such as failure to wear agreed PPE, should be immediately addressed, noted and a copy of such notes should be issued to the Contractor involved.

Contractor Safety Checklist	
Date: Location:	
Contractor Name:	
Nature of Work:	
Contractors Designated person in charge of site:	
Annual Review Project Specific	

NOTE:

- All Contractor Employees, regardless of job activity, must be over the age of 18. Contractors involved directly in Quarry
 Activity must be properly trained and have documentation of that training. Written details of training/experience must
 be provided.
- All Contractors/ Sub -Contractors must complete a Company Safety Orientation, to cover the Fundamentals of Fatality Elimination and relevant safety policies.

1. OSHA, MSHA or DOT Reportable Accidents or Fatalities

Provide details of OSHA, MSHA or DOT reportable accidents or fatalities, involving your firm, which have occurred over the last five years.

Please provide the following documents:

- □ MSHA Injury Reports (if applicable)
- □ OSHA 300 Logs
- □ Three (3) years of Experience Modification Rates
2. OSHA, MSHA, EPA Citations or Notices

Please provide a brief summary of any citations or notices of violation within the last three (3) years: (OSHA, MSHA, EPA)

		YES	NO
3.	CRH Safety Policy or Contractor Safety Rules (Addendum) have been reviewed:		
4.	CRH Fundamentals of Fatality Elimination has been reviewed:		
5.	Contractor/Subcontractor Environmental, Health & Safety		
	(EHS) Manual Provided (manual should address Risk Assessment & Compliance):		
6.	Has a copy of the Contractors Drug/Alcohol Policy been provided? If no, copy must be provided.		
7.	Does the Contractor have a procedure for reporting of all accidents in place? *The location manager must be notified of all accident notifications to OSHA, MSHA, EPA and DOT as required under regulatory obligations. As a general/prime contractor, CRH should be added as a contact.		

INSURANCE REQUIREMENTS

Name & Phone of Insurance Agent:

Please review the attached insurance requirement outline, sample Certificate of Insurance and

Endorsements to verify that you meet our insurance requirements.

A copy of your Certificate of Insurance with endorsements is required for review.

We have reviewed the attached documents and we fully meet the CRH insurance requirements.

YES	NO

If you checked NO, please indicate from the list below which of the CRH insurance requirements you do NOT meet:

General Liability Limits Per Occurrence and/or Aggregate
Per Project General Liability Aggregate
Umbrella / Excess Limits
Business Auto Liability Limits w/ Any Auto or Combined Owned/Hired/Non-Owned Autos
30 Day Notice of Cancellation
Workers Compensation with Employers Liability
Additional Insured Endorsements

Waiver of Subrogation Endorsements
Primary and Non-Contributory Endorsements

PERSONAL PROTECTION EQUIPMENT

The following are required AT ALL TIMES		Additional PPE requirements: Where required	
on site:		by regulations, laws, or when conditions or	
		tasks that warrant additional PR	PE
Hard Hats		Hearing Protection	
High Visibility Clothing		Hearing Protection	
Safety Footwear		Protective Gloves	
Eye Protection		Additional PE:	_

A Safety Manual from the following CRH Location:

Has been issued to me on the following date:

The following information has been reviewed with me by the CRH Estimator /Project Manager/ Supervisor:

		Initial
1.	All persons employed by me at the CRH site will be made aware of the contents of the CRH location Safety Statement and will complete a safety briefing before commencement of work.	
2.	All persons employed by me will be adequately trained, either by relevant experience or by qualification. Written details of training /experience/ qualification records will be provided upon request. All such persons will be over the age of 18.	
3.	Where an operation is undertaken which differs from the terms of the contract, the operating procedure to be used will be brought to the attention of the Supervisor.	
4.	All machinery used by my employees at the CRH locations will be maintained & operated in accordance with the manufacturers' specification, and where required by law, relevant inspection certificates shall be maintained and made available to the Supervisor.	

I fully understand the safety obligations as detailed above:

Contractor

CRH Estimator/Project Manager/Supervisor

____/ _____/ _____

Date _____

Qualification and Management of Hired Haulers

Contract Transport Safety Guidance

For the Effective Safety Management, Oversight and Partnership between CRH Americas Materials (CRH) and Trucking Subcontractors (Hired Haulers)

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- Fuel Tankers, Oil Haulers and Similar Bulk Liquid Trucks
- Dry Bulk Material Haulers (i.e. cement, fly ash, etc.)
- Equipment Transport Haulers & Services
- Large Vehicle Towing Services

The information included in this guidance document can be used as the foundation to a progressive contracted rolling fleet management process. <u>The Hauler Compliance Audit Checklist</u> in Appendix "A" and <u>Hauler Site Specific Hazard</u> <u>Awareness</u> form in Appendix "B" are designed to help increase our internal compliance efforts and to assist in facilitating conversations with trucking & hauling contractors (Haulers).

***NOTE:** Only Appendix B – "Hauler Site Specific Hazard Awareness", and Appendix C – "Additional Training References for Haulers" of this document are intended to be shared directly with haulers along with appropriate communication and/or discussion by a CRH manager.

Step 1- Pre-Qualification of Trucking / Hauler Contractors

Appropriate and reasonable inquiries must be made into haulers who are being considered for partnership with CRH Americas Materials Companies (CRH).

CRH supervisors, managers and/or administrators should first follow the Pre-Qualification process in its entirety as outlined in the CRH Contractor Management Guidelines, *current revision*.

Additional areas of inquiry for hauling contractors can include:

1) Request the Hauler's Accident Register for the past three years, if applicable

Note: FMCSA requires all carriers involved in an FMCSA-reportable crash in the past year to retain an Accident Register or report. A reportable crash is one in which a vehicle was towed from the scene, or an injury or fatality occurred. Records must be kept for three years.

2) Review the Hauler's status with the Federal Motor Carrier Safety Administration (FMCSA) and other key information by going online to the following link:

https://safer.fmcsa.dot.gov/CompanySnapshot.aspx

Note: Keep in mind that information for items #1 and #2 above are readily available online to the general public. Therefore, this information is also readily available to insurance carriers, attorneys, investigators or anyone else who wants to discover a carrier's status and/or safety record with FMCSA following an accident

3) Request a copy of the hauler's safety manual, if available. Review any safety practices pertaining to the type of work they would perform at CRH facilities and/or projects for consistency with our requirements, as applicable.

4) Third party haulers should come to CRH with a high level of expertise and qualifications for their work, and we expect that their Company/owner/broker/manager will provide drivers with the basic training they need to work safely. CRH estimators, managers and other professionals involved in the qualification process should <u>make inquiries into how the hauler provides</u> training to their drivers to ensure they possess adequate knowledge and understanding of the hazards involved in the work. Consider providing them with the information and links found in Appendix "C" to supplement their training.

5) All haulers contracts, insurance and related documentation should be internally audited at least annually to meet CRH requirements. Insurance documentation should be reviewed more frequently and/or expiration dates tracked. Consider using the example audit document found in Appendix "A" for this purpose.

Trucking / Hauling Agreement and Insurance

A Hauling Agreement should be used whenever hiring a person or entity to haul materials for the Company (aggregates, asphalt, cement, fuel, etc.). The Hauling Agreement must be approved by our legal group and include the following insurance requirements:

General Liability limits of \$1,000,000 per occurrence, and \$2,000,000 in aggregate.

Auto Liability limits of \$1,000,000 combined single limit (aggregate does not apply on auto) Workers Compensation at state statutory limits for Coverage A and \$1,000,000 for Coverage B employers liability.

Excess Umbrella Limits of \$1,000,000.

Appropriate language naming the CRH Company as an additional insured and with insurance providing that rights of subrogation against us are waived to the fullest extent permitted by law.

CRH recognizes that it is sometimes difficult for owner-operators to obtain these limits in certain markets. If you encounter any issues with regard to these limits, please discuss them with Richard Brimfield, AMAT Director of Risk Management. Each CRH division should coordinate a review and implementation of proper hauler contracting practices, oversight and monitoring where exceptions should only be made through an approval process directed by senior business leaders. Our risk management and legal teams are always prepared to field calls and inquiries and work with our businesses to review and update our contracting processes. Senior business managers will ultimately decide how to proceed, but let's make sure the decision is an informed decision with an understanding of the legal risk associated with each decision.

Step 2 – Induction of Hired Haulers

All Haulers must receive a safety induction following the **Minimum requirements for the Safety Induction of Haulers/Truck Drivers** found in section 1.1 of the CRH Contractor Management Guidelines, *current revision*.

There are various ways of carrying out an appropriate safety induction. The best way to do this includes a combination of the following:

Meetings, Training Events and other Gatherings

- Pre-Qualification in-person meetings with brokers/owners/hauler managers
- Pre-Project meetings in office with key hauler leaders
- Pre-Project meetings in the field with key hauler leaders as well as individual hauler drivers
- CRH Managers should strive to attend hauler driver trainings, where practical, or gatherings organized by the hauler for disseminating safety information to drivers
- Invite key hauler personnel to attend CRH monthly, quarterly or other periodic training meetings where relevant safety issues will be discussed
- CRH personnel should provide appropriate safety messages to individual hauler managers and drivers in various locations (office, site, loadout window) whenever possible and practical.
- Periodically pass out appropriate policies, information, flyers, ITCPs, etc. to hauler/drivers at the plant site or project followed by a brief discussion of our requirements.
- Periodically perform organized checks of back-up alarms at plants and/or sites and discuss relevant safety requirements with drivers as this is done.
- Occasionally, send certified letters to haulers with information on CRH safety requirements with instructions to distribute to individual drivers.
- Implement an online training approach to supplement a safety induction (See Best Practices section of this document for more ideas)

Below are some CRH line of business items & information that may be helpful in providing haulers the required safety information for our specialized operations:

Facility or Site Specific:

- Provide a site specific orientation at the facility for each individual driver when they are new to our operations (See Appendix "B" for an example document which can be used to help conduct a CRH compliant site specific induction)
- Provide appropriate Company handbooks, policies, guidelines and/or documents outlining CRH safety requirements.
- Distribute handouts of the Vehicle and Pedestrian Segregation (VPS) plans for the site.
- Explain and distribute local site rules pertaining to haulers
- Loading or offloading rules, as applicable, and instruction on who to contact for assistance
- Belevant safety topics on required PPE, safe vehicle operation at CRH sites, etc.

Note: In order to aid comprehension and compliance, information distributed to haulers should be <u>limited and focused</u> on items like our CRH Life Saving Rules (LSR) and other high hazard activities (i.e. backing and maneuvering vehicles, loading and unloading processes) relevant to their work.

Road Construction & Paving Projects:

- CRH Guidelines for Repositioning/Backing Equipment on Job Sites (Paving, Milling, etc.)
- Internal Traffic Control (ITCP) plan for the specific project or type of work they will be performing, as applicable.
- CRH Backer Spotter policy
- Information Relating to the CRH 10 Foot Rule
- Work Zone Related Safety Topics
- Review CRH 'Bed Up' safety procedures

Note: In order to aid comprehension and compliance, information distributed to haulers should be <u>limited and focused</u> on items such as the CRH Life Saving Rules (LSR) and information referencing other high hazard activities (i.e. backing and maneuvering vehicles, loading and unloading processes, etc.) relevant to their work.

Communicating the Internal Traffic Control Plan (ITCP):

While an ITCP is primarily utilized to minimize backing and other conflicts between pedestrian workers and work vehicles, it must be effectively communicated to haulers, contractors, employees and other affected workers who will be in the work zone. Some things to consider:

- Include a copy of the base ITCP as an addendum to your contract with haulers
- Discuss relevant aspects of the ITCP every day in your contacts with haulers
- Talk about the ITCP in all pre-construction and/or progress meetings that include haulers
- Give the ITCP to hauler leaders so they can explain and hand it to their individual drivers
- Make ITCP and any relevant updates a regular part of all pre-shift communications
- When changes to the ITCP occur, ensure a plan is in place to communicate via radio, text, tablet, discussion, handout, etc. or through hauler leaders
- Ensure that the ITCP includes information on access to and egress from the work area, and the location of equipment and materials storage, staging and cleanout areas, as applicable
- Use the term "ITCP" so everyone gets familiar with what this means and the importance of it
- A violation of the ITCP should be treated as a violation of a Company safety policy

Note: In November 2013 – OSHA, NIOSH, NAPA and ARTBA agree that ITCP's should be mandatory. CRH also adopts this practice.

Liquid Asphalt Cement, Fly Ash & Fuel Deliveries:

- The CRH approved legal weight sign should be posted at every plant site to make clear our policy regarding overweight vehicles (see caption at right)
- Asphalt Plants should provide instruction and signage regarding asphalt cement offloading procedures, and any special hazards. Signage should include the PPE required and appropriate warnings regarding hot liquid asphalt and hydrogen sulfide (H2S).
- Other bulk delivery haulers should receive appropriate instruction and warnings for offloading their specific product at our sites.
- Relevant instructional or warning signage should be installed in a position <u>close to the point where</u> <u>haulers offload</u> so they can readily see and read the information.

CRH SHOULD GIVE PREFERENCE AND OPPORTUNITY FOR ADDITIONAL WORK TO THOSE HAULERS WHO COMPLY WITH ALL CRH EXPECTATIONS.

Step 3 – Facility and Project Site Safety

Our role with Haulers is one of oversight. Broadly, this includes ensuring appropriate levels of supervision and direction are available for the types of tasks being performed and that they are carrying out their responsibilities safely.

Our supervisors, dispatchers, loadout personnel and other field level workers should interact and observe haulers at regular intervals and make **appropriate inquiries** into the safety critical aspects of their work. Some ways we should be doing this on a daily basis include:

1) Contractor Transport Safety Checks:

- Is Personal Protective Equipment (PPE) available and worn by the driver if they need to exit their truck. (Drivers should remain in their cab as first priority and should not exit unless instructed to or absolutely necessary)
- Is the load secured before leaving our site, as appropriate (i.e. tarped, chained, strapped, etc.)
- Reverse warning alarm/reverse light installed and operable.
- On cell phone use while operating trucks on our sites in accordance with CRH expectations.

Reference: Schedule 1, Safety Policy & Operating requirements of the CRH Trucking Agreement, for more information on above items.

While we should instruct CRH personnel to interact with haulers for any observed safety violation or unsafe act, the following items must be given immediate attention in order to prevent back over accidents - **the person making the observation must immediately take action to stop the operation**:

- Backing without a spotter toward any material transfer vehicle (i.e. milling machine, shuttle buggy, paver, road widener, etc.)
- Backing while any person is observed in the travel way of the backing vehicle
- Anyone working immediately behind an idling dump truck without a spotter.
- Backing while using cell phone or other electronic devices
- Backing without an operable reverse warning alarm / reverse light and without a spotter
- Backing while coasting downhill in reverse on any roadway (Dump trucks must remain in reverse gear so the back-up alarm automatically sounds and reverse light is on when vehicles are reversing)
- Trucks must not have toggle switches to activate their back up alarms (This requires drivers to remember to flip the switch for the alarm to be heard and introduces human error)

Note: Site supervisors must be informed of these violations as soon as possible.

3) Disabled, Stuck or Overturned Vehicles

Vehicle towing or pulling should be done by a professional towing service commissioned by the hauler.

- In areas where CRH might assist in moving a disabled or stuck vehicle, a risk assessment must be completed, which considers aspects such as suitability of towing vehicle, competence of personnel, proximity of vehicles, slope & gradient, attachment points, etc.
- Only certified towing straps ropes or slings (non-steel, no chains) or fixed draw-bars may be used for towing or pulling stuck equipment.
- Tire checking or inflation, brake adjustments, battery charging and other ad hoc servicing and maintenance is prohibited on CRH Sites unless absolutely necessary to remove a disabled vehicle from the site. Only then is it allowed by qualified service workers to remove the vehicle from the site.
- Righting overturned dump trucks or other vehicles should only be performed by a professional towing service commissioned by the hauler.
- Environmental issues created by spilled fuels/oils are the responsibility of the hauler. Ideally, the hauler will hire an environmental clean-up Company to handle. However, the reality is that it often becomes necessary for CRH to mitigate the spill if the hauler doesn't handle or handle timely. In these cases, document how clean-up was conducted, capture all costs and charge to the hauler. Communicate well with the hauler that this spill is their responsibility and inform of all steps taken during the clean-up.
- Lockout/Tagout (LOTO) is required when working on or around trucks or equipment where the unexpected release of energy can injure workers.

4) Additional Safety Expectations & Interactions

A systematic approach should be taken to continue dialogue and information with our hauler partners. Therefore, planning specific times and topics to converse with our haulers about progress, safety issues, best practices, etc. is very important. Consider the following:

- Hauler participation in Risk Assessment Processes, where applicable —TRACK, T5, THINK, SAFE Meetings.
- Hauler participation in toolbox meetings and/or documentation provided to CRH that hauler safety meetings are being conducted.
- Review and explain expectations for CRH Life Saving Rules (LSR) with haulers.
- Share educational materials for CRH Life Saving Rules, Safety Alerts, Topics, etc.
- Provide information regarding safe movement and maneuvering of their vehicle on site
- Any other special job instructions to each hauler.
- Review of Safe Work and Target Zero expectations.
- Applicable CRH Stand Down requirements.

Additional training references from industry and regulatory sources that we should make haulers aware of can be found in

Appendix "C". These can be recommended to haulers to supplement their training activities and improve their overall driver training programs.

While CRH expects that brokers/owners/hauler managers will cascade appropriate information down to their individual drivers, CRH leaders should take opportunities to provide safety information first hand to drivers where it makes sense to do so.

To the extent possible and practical, CRH supervisors should document key interactions with haulers e.g. safety checks, meetings/training, as well as safety information/policies/guidance that were provided to them, etc., and not just serious safety violations.

5) Accidents Involving Hired Haulers

Accidents involving hired haulers should be reported to CRH Supervisors and investigated like any other accident. CRH Supervisors should initiate the investigation and help coordinate with the hauler and their local Safety Manager to collect documentation, photographs, witness statements and any hauler communications, as appropriate. In serious accidents, our role is one of evidence collection & preservation for the future use of insurance adjusters, safety professionals, reconstruction engineers, other experts and attorneys.

Step 4 – Best Practices Implementation and Opportunities

CRH's strength comes from our ability to create, share and adopt Best Practices throughout our operations. We should encourage our Hauling partners to use this same approach. Some Best Practices for CRH and our haulers to consider include:

- When the bed is raised on a dump truck, personnel must stay out of the area between the raised bed and the tailgate. Therefore, a <u>long handled scraper</u> should be used to reach in from the side of the bed opening which will allow personnel to stay out of this danger area and to maintain a high awareness of nearby vehicles and equipment
- CRH strongly encourages the use of back up cameras and/or sensors on vehicles. This is an additional safety measure that should be encouraged to all haulers.
- There are truck monitoring services available designed to monitor hours of service and other safety features (many allow for using own electronic devices). Use of these features/apps are encouraged for haulers.
- On road construction projects, designate an area to clean off tailgates that is away from other construction and paving activities as well as sufficiently removed from both internal and external traffic patterns.
- Communication plays a key role in safe work on our jobsites. While drivers of commercial motor vehicles are prohibited from using cell phones, CB radios are not prohibited under the FMCSA regulations. Some areas still use these devices effectively. If utilized, ensure plenty of radios/C.B.s are in "ready for service" use on the road crews and work sites to communicate with drivers.
- Fixed facilities should consider traffic control measures to slow truck traffic where appropriate. Speed humps, chicanes, 'rumble strips' and effective warning signage can help reduce vehicle speed. It is important to select the most appropriate control for your location.
- Signs for drivers and pedestrians in a workplace should be the same as those used on public roads (as shown in the applicable highway code), wherever a suitable sign exists.
- Speed limits should be posted, however, they need to be appropriate, properly enforced and, where possible, consistent across the site. Lower speeds will be appropriate where pedestrians are present or where loaders, dump trucks and other road-going vehicles share a traffic route.
- Every workplace should have suitable and sufficient lighting, particularly in areas where vehicles maneuver, or pedestrians and vehicles circulate and cross on anywhere loading and unloading takes place.
- CRH should work with haulers to be engaged in the safety process in very specific ways. In particular they should be empowered to STOP WORK if an unsafe act, behaviour, or conditions occurs/exists. When I see something, I will Stop, and Do something.

- Consider holding a breakfast or luncheon at the project or site where haulers can stop by and where key safety information is disseminated (breakfast sandwiches, hot dogs, hamburgers, etc.)
- Send regular brief communications with information on CRH requirements to haulers with instructions for them to distribute to all individual drivers. These friendly reminders can include our repositioning guidelines, PPE requirements, a relevant safety topic, industry safety information or anything else we want to remind our haulers of.
- Following their determination of GVWR, Haulers should post the legal weight of their truck on the vehicle where it can be seen by plant loadout personnel.
- Implement an online training approach for haulers to supplement a safety induction. Include relevant, impactful information (Overview VPS, ITCP, CRH required elements, etc.) and require this induction before a hauler can work on our sites.
- Once a driver has completed the CRH induction/orientation they could receive some sort of decal they could put on their truck that communicates they have completed our program.
- Haulers should consider using the FMCSA Pre-employment Screening Program (PSP) in their driver qualification process (PSP helps carriers make more informed hiring decisions by providing secure, electronic access to a commercial driver's five-year crash and three-year inspection history from the FMCSA). Some drivers are less than forthcoming when sharing their history with a prospective hiring Company. Information on PSP can be found at the following link
- https://www.psp.fmcsa.dot.gov/psp/default.aspx
- Additional Best Practices and information can be found on the CRH interchange site, link below: <u>http://interchange/safety/Pages/default.aspx</u>

Step 5 – Discipline & Documentation

While there are many unsafe acts and conditions we must look out for with haulers in addition to items outlined above, some common or key violations our supervisors and other personnel must keep an eye out for include:

Unacceptable Work Practices

- Drivers not wearing proper PPE.
- Drivers climbing on or inside of truck beds (i.e. loader operators especially should be trained to verify that the driver is in the cab before dumping material into any dump truck)
- Working under a raised truck bed that is not properly blocked, braced or supported
- Traveling with the bed raised (including leaving the immediate area without waiting until the bed has sufficiently lowered for travel)
- Positioning oneself between the tailgate and truck bed while in the raised position
- No one should stand or walk to the side or dump area of a raised dump body
- Drivers exiting truck cabs on the site without a work related reason or in an appropriate location
- Exiting the cab of the truck without engaging the parking brake
- Drivers on foot entering any truck or equipment travel way or live traffic lanes
- Trucks operating too fast for conditions or in excess of posted speed limits
- Seat belts not worn when the truck is in motion
- Personnel standing on the running board of a truck while the truck is in motion
- Cleaning out beds in locations other than Company approved or designated bed clean out locations.
- Drivers using cell phones or other electronic devices that pose any distraction (for example, drivers may not use cell phones while loading, unloading, or waiting to load/unload)
- Drivers performing servicing or maintenance on their vehicles on CRH sites
- Drivers working without proper induction training.

All drivers are subject to the disciplinary process and unsafe behavior can dictate immediate removal and/or termination of service with a driver or lease hauler. If a safety violation is repeated or serious, the issue should be addressed in writing to the hauler owner/broker/manager in a letter, fax or e-mail (cc other appropriate CRH managers on your correspondence with another copy to the file).

CRH SHOULD GIVE PREFERENCE AND OPPORTUNITY FOR ADDITIONAL WORK TO THOSE HAULERS WHO COMPLY WITH ALL CRH EXPECTATIONS.

APPENDIX A

Hauler Compliance Audit Checklist

Ν	ame of Hauler:				
0	ffice or location Where Docu	ments	Stored _		
R	esponsible CRH Admin or Ma	anage	r:		
	,	Yes	No	Comments	
*	Contractor Checklist Received				
	Contractors should be evaluated using the CRH	Contracto	r Safety Manage	ement Guide / Checklist	
*	Safety Prequalification Docs				
	Required Documents include: Hauler's FMCSA	Accident F	Register, EMR (3	3 yrs.), OSHA 300 Logs (3 yrs.), MSHA Injury Reports (if applicable)	
*	FMCSA Online Status & Record				
	FMCSA Online record should be reviewed by a should engage the contractor to ensure they have	competent ve procedu	admin/mgr./safe res in place to a	ety. When issues with status, violations or accidents are noted, relevant Company leadersh	ip
*	Contract signed by both parties				
*	Site Specific Briefing Available				
	Are there documents available that hauler received	ved the req	uired safety ind	uction for working at CRH facilities or on jobsites.	
*	Received current Certificate of	Insurar	nce (eviden	cing coverages & limits noted below):	

Coverage	Limits
General Liability	 \$1,000,000 per occurrence / \$2,000,000 per policy aggregate
	Additional Insured, Primary & Non-contributory, Waiver of Subrogation
Auto Liability	 \$1,000,000 per occurrence (For Any Auto or For All Owned, Hired & Non- owned or Scheduled Autos with Hired and Non-Owned)
	 Additional Insured, Primary & Non-contributory, Waiver of Subrogation
Work Comp	Statutory Limits for Coverage A and \$1,000,000 Employers Liability
	Waiver of Subrogation
Excess or Umbrella	 \$1,000,000 per occurrence (additional Excess or Umbrella limits can be used to makeup required underlying limits on GL, AL and EL)

If insurance coverages do not meet above requirements, a waiver approved by your local Company president must be completed.

		Yes	No	N/A
÷	Waiver approved by Company President			

COMMENTS:

Audit Completed By: _____Date: _____Date: _____

APPENDIX B

HAULER SITE SPECIFIC HAZARD AWARENESS

For Haulers to/from OSHA and MSHA facilities (as a supplement for MSHA site specific)

- 1. MAINTAIN AWARENESS OF ANY PEDESTRIANS AROUND YOUR VEHICLE AND EQUIPMENT AT ALL TIMES
- 2. At CRH/AMAT facilities, you must minimize backing at all times. If you must back toward an area where there are pedestrian workers a backer / spotter must be guiding you no matter how little or how far you are backing.
- 3. Review all available site maps and truck routes before proceeding into any area. Always go directly to the work area and do not venture / sight-see into any other areas without permission. Seat belts are required to be worn.
- 4. Every CRH/AMAT site has a Traffic Control Plan. Follow all posted traffic rules, speed limits and travel routes as well as all site specific safe operating procedures for the vehicle or equipment you will be operating.
- 5. Stay in your truck during all loading or unloading activities. Do not wander around or get into the bed of your truck for any reason. If you determine that it is absolutely necessary to leave your vehicle, wear all required PPE and check to ensure that your vehicle is properly secured and safely located. Notify CRH/AMAT of any issues.
- 6. Personal Protective Equipment (PPE) that is appropriate for the hazard or required by CRH/AMAT shall be worn to ensure protection for personnel and compliance while on site. Hard hats are required to be worn while outside your truck at all facilities, shops and construction sites. *The PPE requirements include, but are not limited to:*

Type of Hazard(s)	PPE Required
Head Hazard – impact	Hard Hat
Foot Hazard – impact	Hard Toe Shoes
Face/Eye Hazard – impact & dust	Safety Glasses
Skin Hazard - abrasion	Sleeved Shirt & Long Pants
Face – liquid spray	Face Shield
Hands – abrasion & burns	Gloves (Elbow Length–Liquid AC)

- 7. Transporting of any objects, equipment or materials must follow all applicable securement regulations as required by local, state and federal authorities. Haulers must clean all tailgates and securely fasten a tarp to all loose loads or take any other necessary action to prevent material from escaping from the truck.
- 8. Do not park in the operating areas of heavy equipment and/or mobile equipment, CRH/AMAT equipment shall always have the right-ofway. Never pass behind operating mobile equipment unless the operator signals it is okay.
- 9. No servicing or maintenance of equipment is permitted on CRH/AMAT sites unless absolutely necessary to remove a disabled vehicle from the site. Only then is it allowed by qualified service workers to remove the vehicle from the site.
- **10.** Tire checking or inflation, brake adjustments, battery charging and other ad hoc maintenance is prohibited.
- 11. Lockout / Tagout (LOTO) is required when working on or around trucks or equipment where the unexpected release of energy can injure workers.
- 12. Haulers / Truck Drivers who do not abide by all applicable federal, state, or local regulations and/or CRH / AMAT policy or your own Company policy will be asked to leave the site.
- 13. Diesel fuel or gasoline are not allowed to be used for any cleaning purposes or as an asphalt release agent. Do not allow any chemicals to drip or spill on the ground.

As applicable, additional items should be discussed with your local CRH / AMAT contact if you are unsure of your responsibilities in specific other areas. Always review signage for additional Company safety expectations regarding safe access for vehicles, product handling, loading / unloading points, appropriate site access to and from your vehicle, CRH /AMAT fixed equipment. Never hesitate to discuss safety concerns with your CRH/AMAT site contact.

CRH/AMAT Facility Name:	CRH/AMAT Supervisor	Today's Date:
Contractor Company Name:	Office Phone Number:	
Contractor Site Supervisor:	Cell Phone Number:	

APPENDIX C

Additional Training References for Haulers

There are numerous online resources and websites which contain valuable information for hauler managers and individual truck drivers, including those driving in road construction. We should consider making our haulers aware of appropriate industry related information and resources so they can learn more about safety and training in support of their driver training programs

Examples of such resources for the road construction, ready mix, tank truck and equipment transport industries are below:

ARTBA - Work Zone Safety Clearinghouse - Work Zone Safety Resources:

https://www.workzonesafety.org/data-resources/runover-backover/

https://www.workzonesafety.org/data-resources/wzsafety-resources/



National Work Zone Safety Information Clearinghouse

Centers for Disease Control (CDC) – Preventing Runover and Back over Accidents

https://www.cdc.gov/niosh/docs/wp-solutions/2014-125/pdfs/2014-125.pdf

Safety & Health Magazine Article – Preventing Back over Incidents: https://www.safetyandhealthmagazine.com/articles/16448-preventing-backover-incidents

National Ready Mix Concrete Association – Truck Driving Safety & Resources https://www.nrmca.org/operations/SAFETY/default.htm

National Tank Truck Carriers - Safety

http://www.tanktruck.org/

VISTA SAFETY TRAINING - Dump Truck Safety

https://www.vista-training.com/equipment/dump-truck

Federal Motor Carrier Safety Administration – Load Securement Rules & Safety

https://www.fmcsa.dot.gov/regulations/cargo-securement/drivers-handbook-cargo-securement

Contractor Safety Management Compliance Review Questions

CRH AMAT Contractors are evaluated using the CRH Contractor Safety Management Guide/Checklist.

Contractors receive a safety induction and have appropriate oversight when working at facilities or on jobsites.

Contractors participate in daily safety huddles (i.e. T5s) and Risk Assessments when involved in the work.