CUPERTINO ELECTRIC INC.

Injury and Illness Prevention Program (IIPP)
&
Safety Manual

This book belongs to:

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CUPERTINO ELECTRIC INC.

CUPERTINO ELECTRIC INCORPORATED SAFETY POLICY SUMMARY

At Cupertino Electric, safety is a core value; it is woven into every decision we make. We have a “Safety First” culture where safety is the first consideration for everything we do. No job is so important and no service is so urgent that we cannot take the time to perform our work safely.

We are committed to providing a safe and healthy workplace and believe that all incidents and injuries are preventable.

Cupertino Electric is committed to:

- Safety excellence. Our expectation is that everyone goes home safe and healthy.
- Achieving and sustaining an Incident and Injury Free Culture (IIFC) through employee engagement, management commitment and leadership, open communication, and continuous improvement.
- Communicating safety expectations consistently throughout the organization.
- Providing and developing safety resources with diverse experience and skills.
- Being a good neighbor in the communities where we operate.

We will meet these commitments by:

- Empowering all employees to take responsibility for their safety and the safety of their co-workers, and to stop unsafe acts; safety has no rank.
- Providing employees with the knowledge and training necessary to understand their safety roles and responsibilities.
- Ensuring employees have an opportunity to provide feedback on injury and illness prevention measures.
- Establishing leading indicators to measure our performance towards achieving our safety goals.
- Creating and maintaining a safety culture where every employee is accountable.
- Communicating openly with our internal and external customers and the communities in which we work.

To achieve and sustain an Incident and Injury Free Culture, we will need all employees to fully embrace and be engaged in our safety programs and initiatives. We want your ideas and suggestions for continuous safety improvement. At Cupertino Electric, safety is everyone’s responsibility.

Tom Schott
Chief Operating Officer

OVERVIEW AND GOALS

This Injury and Illness Prevention Program and Safety Manual has been prepared to help you be aware of the policies, procedures, and safe work practices we all must follow in our daily work in the office and in the field to ensure everyone goes home to their family safe and healthy each night. Both Federal and State regulations have been taken into consideration in the handbook's preparation, however, it is intended to be used as a guide and should not be considered the only source for safety and health matters.

It is the earnest desire of Cupertino Electric, Inc. to conduct its operations with the utmost regard for the safety and health of its employees and the public. It is our hope that all employees will assist in making all areas of operations a safe place to work.

Our goals for having a Safety and Health Program are as follows:

1. To effectively eliminate all incidents which result in personal injury, property damage and damage to company equipment.

2. To establish the means to provide a safer working environment for both the employees and the public.

3. Providing managers, supervisors and employees with the education and training they need to understand their safety commitments and responsibilities.

4. To promote safety as the responsibility of every employee.

5. To promote incident and injury prevention as an integral part of every operation.

CEI resources, including financial, material and personnel, have been allocated for the purpose of identifying and controlling hazards and potential hazards, purchasing personal protective equipment and promoting and training employees about safety and health.

Please read this document carefully; we ask that you keep your IIPP and Safety Manual readily available in the workplace. Contact your manager/supervisor or the Corporate Safety Department for any safety-related questions, concerns, or suggestions.The Corporate Safety Department can be reached at 1-877-747-4CEI (1-877-747-4234).

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Section 1 - Injury and Illness Prevention Program

Section 1.1: Introduction

Cupertino Electric, Inc., hereafter referred to as "CEI," has developed and implemented this written Injury and Illness Prevention Program (IIPP) as part of our health and safety program.

The work performed by our personnel is varied, both in nature and location. Under all circumstances, it is the intent of CEI to: 1) provide a safe and healthful work environment for employees and 2) comply with the requirements of the California Code of Regulations, Title 8; (or other state/country regulations). CEI expects and requires all employees to follow the requirements set forth in this IIPP.

Supplementing this IIPP are two Safety Manuals: one focused on power transmission and distribution operations, and the second covering all remaining operations. Employees receive both a copy of the IIPP and the relevant Safety Manual for their scope of work in a pocket-size format (at time of hire, upon update, and upon request).

Section 1.2: Responsibility for Safety and Health

Tom Schott (Chief Executive Officer/President) is ultimately responsible for the execution of the IIPP. CEI has designated the Vice President of Corporate Safety/Director of Corporate Safety, as the responsible person at CEI for the development and maintenance of the IIPP. The responsible person shall ensure overall implementation of the IIPP by directing the following tasks:

1. Identify and evaluate workplace hazards, to include procedures for investigating occupational injuries and illnesses.
2. Establish and / or review methods and procedures for correcting unsafe and unhealthy conditions and work practices.
3. Ensure that employees receive training programs on general and specific safety and health practices for the company and on each of their job assignments.
4. Ensure that there is a procedure for communicating to employees, in an understandable manner, CEI's safety and health rules and procedures.
5. Ensure compliance with health and safety work practices.
6. Ensure that records on training, inspections, and corrective measures are properly maintained, as required by this Injury and Illness Program and other Cal/OSHA-required programs in accordance with Title 8 CCR (or other state/country regulations).
7. Ensure that all incidents and injuries reported to the Corporate Safety Department are communicated to Risk Management and applicable project managers/Division Vice Presidents of Operations within one hour.

The responsible person is supported by the Safety Department, consisting of a Corporate Safety Manager, Division Safety Managers, Project Safety Managers, and Safety Coordinators. In addition, the following individuals have a key role in assisting the responsible person as follows:

<u>Managers and Superintendent Responsibilities</u>

1. Ensure the safety of their employees.
2. Lead by example. Earnestly and actively support the safety program.

3. Know and understand safety rules and regulations.
4. Partner with the Corporate Safety Department in formulating safety guidelines and procedures.
5. Ensure a safety plan is established for their project and evaluate effectiveness. Evaluate safety performance.
6. Evaluate safety performance.
7. Carry out the policies, regulations and procedures of the company and hold individuals accountable for safety following disciplinary action process outlined in Section 1.3 of this document.
8. Regularly participate in safety meetings.
9. Ensure all incidents or injuries are investigated and participate in root cause investigations.
10. Conduct periodic inspections to identify unsafe conditions and work practices.
11. All Project Managers and Superintendents must complete OSHA 30 for Construction Industry training.
12. Provide coaching for any unsafe practices and recognition for safe behaviors.
13. For projects of 15 or more field employees, develop a safety staffing plan (i.e. Safety Coordinator, etc.)

Foremen Responsibilities

1. Ensure the safety of their employees.
2. Foremen and others in a supervisory capacity will set the proper example for the workers to follow.
3. Cupertino Electric guidelines and procedures will be complied with and enforced at all times.
4. Foremen are responsible to develop, implement and monitor daily Safety Pre-task Planners to be used by field personnel throughout all phases of construction.
5. Solicit feedback from employees to confirm they are able to perform the duties of the work being assigned without sustaining an injury.
6. Foremen are responsible at all times to see that the work is performed in a safe manner and that safety rules, regulations and instructions are followed.
7. Foremen will take disciplinary action when there has been a violation of published safety rules and safe practices following disciplinary action process outlined in Section 1.3 of this document.
8. Foremen are responsible for orienting new employees on the safety aspects of the job and the job itself. Inform and instruct employees on how to perform their work safely.
9. Ensure tools and equipment are inspected by employees prior to use. Foremen will give prompt attention to equipment repairs or replacement.
10. Promptly address any safety concerns or suggestions provided by employees. Consult your Superintendent or the Corporate Safety Department for assistance.
11. Foremen will not permit the use of intoxicating liquors on the job or allow any employee onto the job site that is under the influence of alcohol or drugs.
12. Foremen are responsible for seeing that all incidents, (injuries, vehicular accidents, property/equipment damage, and near misses) are investigated and reported to their Division Superintendent and the Corporate Safety Department immediately (once scene is secure and any injured parties are attended to; no later than 1 hour).
13. Foremen will be held accountable for all incidents on their jobs.
14. Foremen will see that safety supplies, personal protective equipment, and first aid supplies are provided, and used for each job.
15. Foremen will take prompt corrective action wherever unsafe conditions and unsafe acts are noted or reported. Actions will be determined by the severity of the hazard.
16. All Foremen must maintain a current CPR/1st Aid/AED certification.

17. All Foremen must complete OSHA 10 for Construction Industry training. All General Foremen must complete OSHA 30 for Construction Industry training. All Field Supervisors must participate in annual Supervisor Safety Training.
18. Participate in and facilitate weekly toolbox safety meetings and ensure attendance by all workers under their supervision.
19. Foremen are to complete a documented jobsite safety inspection at a minimum weekly to assess hazards, controls, and identify areas needing attention.
20. Provide coaching for any unsafe practices and recognition for safe behaviors.

Employee Responsibilities

General

1. For all construction operations, ensure you have participated in, and signed off on, a written safety pre-task plan for the work to be performed.
2. If you don't know, ask. Stop work if conditions change and notify your Foreman.
3. Never walk past an unsafe act or condition. Report any potential safety hazards to your Supervisor.
4. Follow requirements outlined in the IIPP, Safety Manual, and any other safety policies and procedures.
5. Know your limitations. Inform your supervisor of any reason you are unable to perform a task being assigned.
6. Report any injury, incident, or near misses immediately to your supervisor, regardless of severity.
7. Ensure all tools used are in good condition and are used properly.
8. Use all required personal protective equipment.
9. Participate in all safety meetings.
10. Obtain all necessary training for the work to be performed.
11. Without exception, employees are expected to work in a safe manner at all times.
12. Keep work areas orderly and free of hazards. Clean as you go.
13. Make sure lighting is sufficient for work being performed. Obtain additional task lighting if required. When working in areas with potential flammable gases or vapors use only explosion proof fixtures of battery operated lights.
14. Immediately clean up any oil, grease, or chemical spills. Coordinate disposal of these materials with you Foreman/Supervisor.
15. Make use of provided waste containers for debris and recyclable material disposal.
16. If medical care is required for work-related injuries or illnesses after you have left the project site/work location, your Foreman/Supervisor, Risk Management, or the Safety Department are a resource for identifying after hours care. (Non-life threatening conditions only; dial 911 for emergencies).

Subcontractor Responsibilities

The subcontractor has overall responsibility for injury and incident prevention and implementation of Cupertino Electric, Inc. IIPP/ Safety Manual for anyone under their control, including their respective employees, vendors and suppliers. This responsibility is shared with the tiered subcontractors. Subcontractor must immediately notify all incidents, injuries, or near misses, to Cupertino Electric, Inc. Project Management/ Safety Department within 1 hour of incident and provide a written incident report outlining details of the event, causal factors, and corrective actions to prevent re-occurrence within 24 hours of the incident. Subcontractors may utilize Cupertino Electric, Inc. incident reports if desired.

First Aid and Emergency Response

1. Be aware of the location of the nearest emergency equipment for your work location (i.e. fire extinguishers, first aid kit, etc.).
2. Understand emergency response procedures and evacuation plans for your work location.

Drugs and Alcohol

Drinking and possession of intoxicants on the job is forbidden. The use of any narcotic, unless authorized by a physician and the project supervisor is notified, is forbidden. The job foreman should be notified if a physician has prescribed drugs that could affect work performance. If so, the employee's duties will be evaluated as to the appropriateness of working while taking prescription drugs (a doctor's certification may be required). Violation of the above could cause disciplinary action ***up to and including immediate termination.***

Cupertino Electric will comply with any drug and alcohol testing requirements mandated by a Project, Owner, General Contractor, or local union. A positive test result or a refusal to take the test by a Cupertino Electric employee will result in discipline up to and including immediate termination.

Employees who maintain a Commercial Driver's License (Class A) will be subject to random drug and alcohol testing as required.

Section 1.3: Employee Compliance/Disciplinary Policy

All employees are required to follow safety policies and operating procedures. Our system of ensuring that all workers comply with these practices includes the following practices:

1. Inform and instruct employees on how to perform their work safely.
2. Evaluating the safety performance of all workers.
3. Recognizing employees who perform safe and healthful work practices.
4. Providing counseling and re-training to workers whose safety performance is deficient.
5. Disciplining workers for failure to comply with safe and healthful work practices.

Willful or flagrant violations will not be tolerated and CEI has a zero tolerance policy for willful violations of fatality prevention programs such as Fall Protection, Lockout/Tagout, Energized Electrical Work (EEW), Live Line Work Procedures, Protective Grounding Requirements, Confined Space Entry, and Trenching/ Excavation.

Cupertino Electric, Inc. takes all safety violations seriously and violation of any CEI policy or procedure may result in discipline, up to and including termination of employment. When it is determined to be in the best interest of CEI, counseling, warnings, retraining, and suspensions may be utilized, but nothing in this policy shall interfere with the at-will nature of employment for all CEI employees."

Depending on severity, there is a potential for additional disciplinary actions to be taken (i.e. suspensions, etc.).

Disciplinary action provided to employees should be documented on a Counseling Memorandum by the employee's Foreman or Supervisor. A copy of this form is available from your Division Superintendent, Corporate Safety, or on Livewire (CEI Intranet).

Section 1.4: Communication of Safety and Health Matters

The elements and requirements of the CEI IIPP and all aspects of its safety and health program will be

communicated in a readily understandable manner to all employees. It is our policy to encourage all employees to report hazards existing at their worksite to their supervisors or the Corporate Safety Department so that corrective action can be taken in a timely manner. Employees who report such conditions will not be disciplined, nor will they suffer any reprisals due to their actions. At time of hire, all employees are issued a Stop Unsafe Work Card, signed by our CEO that reiterates the right and responsibility of all employees to stop unsafe work without risk of retaliation.

1. CEI will keep all employees informed of the requirements of the IIPP and the Safety Manual through the following methods:
2. New Employee Orientation
3. Tool Box Safety Meetings - Conducted by the Superintendent, General Foreman, or Foreman on a weekly basis.
4. Safety Training – Conducted and/or coordinated by the Superintendent, General Foreman, Foreman, or Safety Department. This training may be dictated by operations and changing conditions on the job site. Specific equipment training falls into this category.
5. CEI Safety Flash Report – The CEI Safety Flash Report is a newsletter which is distributed to all employees on a monthly basis. The Flash Report highlights recent injuries and key lessons learned and provides information on various safety topics for both home and personal use.
6. Postings and Notices - Updated by the Superintendent, General Foreman, or Foreman as appropriate.
7. Safety Bundle – All Foremen receive a copy of a monthly safety bundle which includes information about all incidents and injuries across the company, safe driving tips, and other safety and health information.
8. Livewire – The Safety Department has a section on the company intranet dedicated to safety and health matters.
9. Safety Alerts – Prepared by Project teams, Divisions, or Corporate Safety to communicate recent serious incidents, near misses, (Red or Yellow Alert) or safety milestones/policy changes (Green Alert) throughout the company.

Section 1.5: Employee Suggestions or Comments

It is the policy of CEI to encourage all employees to report hazards existing at their worksite to their Foreman/Supervisor so that corrective action can be taken in a timely manner. Contact your Division Superintendent, Department Manager, or the Corporate Safety Department if any reported hazards are not being addressed.

Employees may submit written suggestions or comments to the Corporate Safety Department at the following address:

Cupertino Electric Inc.
Attention: Safety Department
1132 N. 7th Street
San Jose, CA 95112

Suggestions may be submitted anonymously, if desired. Employees who report unsafe conditions will not be disciplined, nor will they suffer any reprisals. The Corporate Safety Department can be also be reached at 1-877-747-4CEI (1-877-747-4234) or via email at Safety_Communications@cei.com .

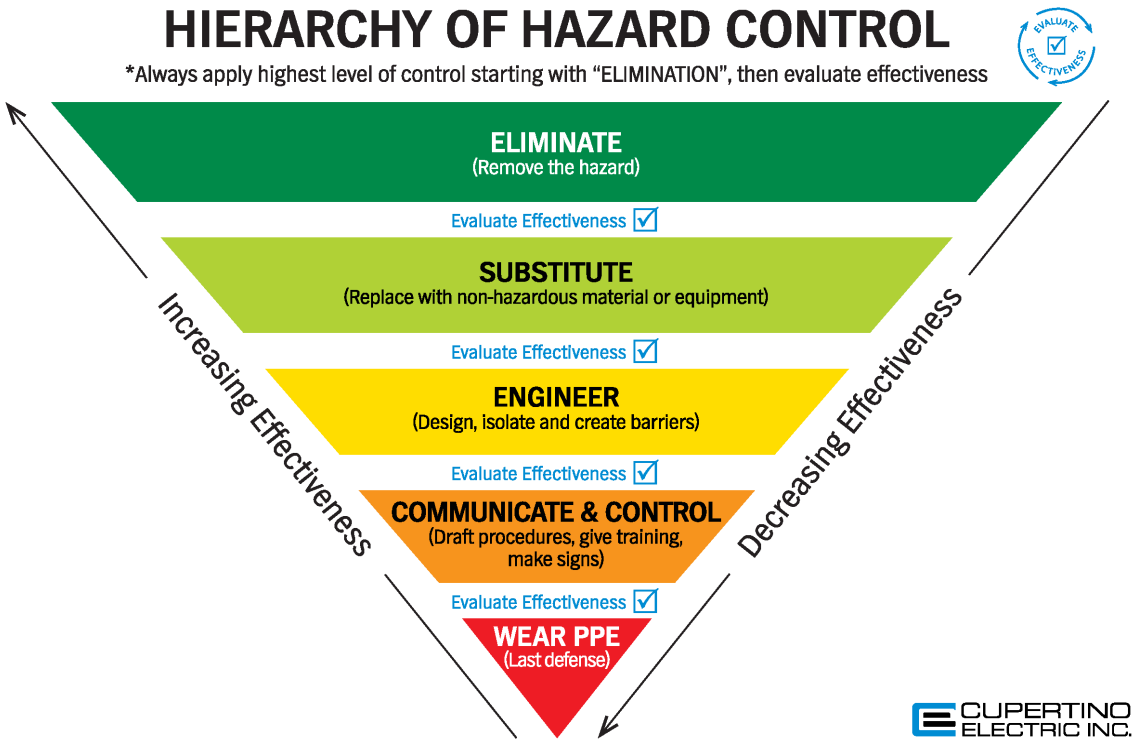
In addition, field employees are encouraged to provide safety suggestions to their applicable Site Safety Team or Division Safety Leadership Team (Office employees can share suggestions to the Office Safety Team). These teams have been implemented to provide all employees at Cupertino Electric a voice regarding safety (best practices, suggestions for improvement, and challenges) as well as visibility to

potential program changes under review. For more information about the safety team structure and how to get involved in these teams at Cupertino Electric, see Section 1.11 Safety Team Structure or contact your Division Superintendent or the Corporate Safety Department.

Section 1.6: Hazard Assessment and Control

1. Each **employee** is responsible for working in a safe manner at all times. If you don't know, ask. Stop work if conditions change and notify your Foreman.
2. Field Foremen/Supervisors
    a. Responsible for overseeing day-to-day activities and correcting any hazards or unsafe conditions they encounter. Pre-task planning shall be performed to ensure hazards have been identified and mitigated to prevent incidents and injuries. Foreman's daily reports are to include any hazards discovered or investigations of near misses.
    b. Shall complete a jobsite safety inspection weekly to assess hazards, controls, and identify areas needing attention. These inspections allow the Foreman an opportunity to evaluate the effectiveness of the safety program, provide coaching for any unsafe actions, and recognize safe behaviors. A copy of the inspection documentation is to be maintained in the jobsite safety file.
    c. Prior to starting work, Foremen need to become familiarized with site-specific hazards, to include:
        i. Energized lines and equipment, and the location of circuits, switches, and equipment, including power and communications lines, CAT, and fire alarm circuits.
        ii. An initial determination regarding hazardous materials and substances present.
        iii. Electrical equipment and lines will be considered energized until determined to be de-energized by testing and grounding or other appropriate methods.
        iv. Operating voltage of equipment and lines will be determined before working on or near energized parts.
        v. For excavations, determining if there are any known soil or water contaminants.
        vi. Presence of lead, asbestos, or other potential environmental hazards.
3. The **Division Superintendent** makes inspections (at least monthly) of projects to evaluate the effectiveness of the safety program, provide coaching for any unsafe actions, and recognize safe behaviors.
4. For projects with a designated full time Safety Coordinator (i.e. projects with 15 or more CEI personnel onsite), the Safety Coordinator shall perform documented safety inspections.
5. General Superintendents, **Corporate Safety Staff**, and Executive Management
    a. Make random visits to projects to evaluate the effectiveness of the safety program, provide coaching for any unsafe actions, and recognize safe behaviors.
    b. Address all incidents and injuries to prevent reoccurrence and share lessons learned across the corporation.
6. Our insurance company and broker schedule regular visits to jobsites to provide feedback on the effectiveness of our safety program.
7. Inspections will also be conducted at the following intervals, in addition to those times mentioned above:
    a. Whenever new substances, processes, procedures, or equipment are introduced to the workplace that represents a new occupational safety and health hazard.
    b. Whenever CEI is made aware of a new or previously unrecognized hazard.

8. When assessing hazards and identifying control measures (whether during Safety Pre Task Planning, performing a Job Hazard Analysis or developing a site safety plan development) utilize the following Hierarchy of Controls:



Section 1.7: Incident and Injury Reporting & Investigations

All incidents, injuries and near misses, regardless of severity, need to be reported immediately to your Foreman or Manager. Foremen and Managers are to notify their Division Superintendent (as applicable) and the Safety Department as soon as the incident scene is secure and any injured parties have been attended to (not to exceed 1 hour). As applicable, make notifications of the incident or injury to the General Contractor/Owner. An Incident Report will be filled out by a Foreman or Supervisor for all incidents where an employee is injured or damage to facilities or equipment has occurred, as well as near misses with potential for injury or damage existed. The report is to be submitted to the Safety Department by the end of the work shift (not to exceed 24 hours). Incident report forms and detailed instruction on the incident notification process are documented in Red Grab & Go Binders that are provided to all jobsites and are also available in the Safety Department. Information on serious incidents or near misses will be communicated to all employees via a Safety Alert or through the monthly CEI Flash Report to share lessons learned and prevent reoccurrence.

The Safety Department will notify Cal-OSHA (or the applicable state/federal OSHA agency for work outside of California) in the event of any work-related serious injuries or illnesses, catastrophes, or fatalities immediately by phone or fax to the nearest Cal/OSHA (or state/Federal OSHA) district office.

The information shall be provided to the Cal/OSHA (or state/federal OSHA) district office within 8 hours and shall consist of the name of the person injured and the employer, nature and location of the incident, time and date of the incident and the person reporting the incident, where the injured was taken for treatment, other agencies that responded to the incident, and a description of the events of the incident.

Cal/OSHA defines a serious injury or illness as one which requires inpatient hospitalization for more than 24 hours for other than medical observation or in which an employee suffers a loss of any member of the

body or suffers any serious degree of permanent disfigurement.

A Root Cause Analysis will be performed for all recordable injuries or other injuries with the potential for serious injury or illness to identify all causal factors and corrective actions necessary to prevent incident reoccurrence. For construction-related incidents and injuries, a Division Superintendent facilitates this process. For office related incidents and injuries, the process is facilitated by the Safety Department.

Information on all injuries (regardless of severity) is communicated to field and office management on a weekly basis through the CEI Injury and Illness Tracker. The information is also communicated to all Field Foremen on a monthly basis.

Incident Injury trends are reviewed in Division Safety Leadership Teams, the Corporate Safety Team, Office Safety Team and the Executive Safety Leadership Teams.

Section 1.8: Methods and Procedures for Correcting Unsafe Work Conditions or Work Practices

All identified unsafe work conditions, or work practices will be corrected in a timely manner, as determined by the severity of the hazard. Under no condition will CEI personnel be required to, or permitted to, work under conditions that pose a clear or imminent hazard. All employees are issued Stop Unsafe Work cards, signed by our CEO and President, Tom Schott, to empower employees to stop work if any unsafe conditions arise. These cards also emphasize the responsibility of employees to address unsafe conditions. Employees should never walk past an unsafe condition or unsafe act. *If you see something, say something.*

Problems that cannot be corrected immediately will be assigned to the applicable owner for resolution; the area of hazard will be delineated/identified to prevent exposure to Cupertino Electric employees. Once corrected, delineation of the hazard will be removed and Cupertino Electric employees will be notified of the corrective actions taken.

When an imminent hazard exists which cannot be immediately corrected without endangering employees and / or property, the following steps will be followed:

1. Remove all potentially endangered employees;
2. Provide employees necessary to correct the hazardous condition with the necessary safeguards;
3. Document the corrective action and date corrected in accordance with this section. The documentation is to be completed by the Responsible Person or her/his designee. The Responsible Person will maintain documentation on file.

Unsafe or unhealthy work conditions needing corrective action will be documented by using a Job Site Safety Checklist, Daily Safety Report, or other means to ensure information is communicated to management for trending and ensuring hazards are mitigated.

It is the policy of CEI that engineering controls will first be used to eliminate or minimize unsafe or unhealthy work conditions. If engineering controls are impractical or unfeasible, administrative controls will be used. If engineering controls alone, or in combination with administrative controls, cannot adequately minimize the hazard, personal protective equipment will be used.

Unsafe behaviors or work practices will immediately be corrected by providing the affected employees with coaching and potential retraining and other disciplinary action depending on severity.

All Operating Procedures will be reviewed at least annually, whenever new chemicals or equipment are introduced into the system, or when there is a process change. When changes are made affected employees will receive additional training.

Section 1.9: Safety and Health Training and Instruction

At time of hire, all employees participate in New Employee Orientation to review general safety and health expectations and work practices. This is supplemented with a site-specific safety orientation to cover unique hazards, site emergency response procedures, and other information specific to the job or work location.

Additional task specific training, such as lockout/tagout, fall protection, forklift operation, etc. will be provided to employees based on their scope of work.

Training of employees at CEI as to this IIPP will occur:

1. When the program is first established;
2. For all new employees;
3. For all employees given a new job assignment for which training has not previously been received;
4. Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard; and
5. Whenever CEI is made aware of new or previously unrecognized hazards.
6. Whenever the program is updated or modified.

Toolbox Safety/Tailboard Meetings

Toolbox safety/tailboard meetings will take place on Wednesday's of each week unless a specific customer requirements conflicts with this policy. Toolbox safety meetings are used to reinforce training provided in new employee orientation and task-specific training, address potential problems that exist on the job. The foremen leading the meeting can draw on the experience of others to remind all employees, especially newer employees, of the dangers of working with particular kinds of machinery, tools, equipment, and materials.

The foremen will choose a topic where a safety review may be needed. To be the most effective employees need to be engaged in the toolbox safety/tailboard conversation and employees should be solicited on potential meeting topics because they often know best what and where potential hazards are.

On a monthly basis, foremen receive a Safety Bundle containing 5 potential safety toolbox/tailboard meeting topics as well as a copy of the Injury and Illness Tracker. Foremen are encouraged to use other topics or materials are more relevant to the scope of work being performed.

The following rules are to be followed by the job foreman when holding toolbox safety/tailboard meetings:

1. Foremen will hold toolbox safety meetings weekly throughout the duration of the project. All employees on the jobsite are required to attend and participate in these meetings.
2. Safety meetings are to be documented with topics covered and signatures of meeting participants.
3. A toolbox safety/tailboard meeting conducted by the general contractor and attended by CEI employees does not fulfill the requirement of performing a weekly safety toolbox/tailboard meeting.
4. Foremen are to share information on recent incidents and injuries which have occurred at CEI (using the Injury & Illness Tracker that is distributed to all Foremen or the Safety Alerts that are communicated companywide), Flash Report articles and any recent Safety Alerts to discuss lessons learned. The Injury & Illness tracker provides information on all reported injuries, including report-only and first aid injuries.

Supervisor Safety Training

Supplementing either OSHA 10 or 30 training, additional safety training will be provided to supervisors on an annual basis. The purpose is to provide refresher training and familiarize supervisors with any new safety and health hazards to which employees may be exposed, and measures to prevent injuries and illnesses.

Section 1.10: Maintenance of Records

CEI will keep records of the actions taken to implement and maintain this IIPP. The records will be maintained on file for a minimum of three years. The records kept by CEI will not adversely affect the retention of medical and exposure records in accordance with Title 8, California Code of Regulations, Section 3204 "Access to Employee Exposure and Medical Records."

Records of scheduled and unscheduled periodic inspections, as well as other records including methods used to identify and evaluate workplace conditions and work practices, will also be retained for a minimum of three years.

Records relating to the IIPP will include at a minimum: personnel conducting the inspection or evaluation; the unsafe conditions and work practices that have been identified; and, actions taken to correct the identified condition or work practice.

Records and documentation of safety and health training will include, at a minimum: the name of employee and / or employee number; date of training; training topic(s); training format; and instructor.

Records of employees who have worked for less than one year for CEI may be turned over to the employee upon termination as long as the terminated employee signs an acknowledgment letter documenting the records that have been turned over to him or her.

Section 1.11: Safety Team Structure

The following safety team structure is in place to enable and encourage employee engagement and communication of safety and health matters. The structure allows employees in both the field and office to have a voice in sharing suggestions on how we can improve safety at Cupertino Electric, Inc. In addition these teams:

1. Review incident/injury trends and best known methods for injury prevention.
2. Review potential safety or health hazards of new processes, methods, or materials introduced into the workplace.
3. Provide input on and ratify proposed changes to the IIPP, safety program and policies.
4. Evaluate and respond to employee safety suggestions

Other than the Safety Development Team (SDT), which meets on an adhoc basis the other teams meet regularly (at least once per quarter). . For more information about the safety team structure and how to get involved contact your Division Superintendent or the Corporate Safety Department.

The safety teams accomplish the following:

Executive Safety Leadership Team (ESLT)

This team, sponsored by CEO Tom Schott, is the chartering body for all safety teams at Cupertino Electric, Inc. The team is comprised of the Executive Leadership Team, the Vice President of Safety, and a Vice President of Operations. The primary focus of this team is to set direction and execute the overall safety strategy for the company.

Safety Development Team (SDT)

This team, is an adhoc working group appointed by the ESLT and comprised of key management members and Corporate Safety based on topic.

Corporate Safety Team (CST)

This team is comprised of the Corporate Safety staff and Division Safety Managers. This team serves as a technical resource for the company and is responsible for safety program and strategic objectives development, maintenance and continuous improvement.

Office Safety Team (OST)

This team is facilitated by the Office Safety Champion and Corporate Safety Manager. The team is comprised of a representative from key business groups throughout Cupertino Electric, Inc. with the focus being the office environment.

Divisional Safety Team (DST)

This team is facilitated by the Vice President of Operations for the respective division and the Division Safety Manager. The team is comprised of a broad cross section of employees within the division (Journeymen, Foremen, General Foremen, Superintendents, and Project Managers etc.).

Site Safety Team (SST)

At a core minimum, this team consists of the Project Manager and Foreman supporting the project. The SST's are chartered by their respective Divisional Safety Team.

Section 1.7: Incident and Injury Reporting & Investigations

All incidents, injuries and near misses, regardless of severity, need to be reported immediately to your Foreman or Manager. Foremen and Managers are to notify their Division Superintendent (as applicable) and the Safety Department as soon as the incident scene is secure and any injured parties have been attended to (not to exceed 1 hour). As applicable, make notifications of the incident or injury to the General Contractor/Owner. An Incident Report will be filled out by a Foreman or Supervisor for all incidents where an employee is injured or damage to facilities or equipment has occurred, as well as near misses with potential for injury or damage existed. The report is to be submitted to the Safety Department by the end of the work shift (not to exceed 24 hours). Incident report forms and detailed instruction on the incident notification process are documented in Red Grab & Go Binders that are provided to all jobsites and are also available in the Safety Department. Information on serious incidents or near misses will be communicated to all employees via a Safety Alert or through the monthly CEI Flash Report to share lessons learned and prevent reoccurrence.

The Safety Department will notify Cal-OSHA (or the applicable state/federal OSHA agency for work outside of California) in the event of any work-related serious injuries or illnesses, catastrophes, or fatalities immediately by phone or fax to the nearest Cal/OSHA (or state/Federal OSHA) district office.

The information shall be provided to the Cal/OSHA (or state/federal OSHA) district office within 8 hours and shall consist of the name of the person injured and the employer, nature and location of the incident, time and date of the incident and the person reporting the incident, where the injured was taken for treatment, other agencies that responded to the incident, and a description of the events of the incident.

Cal/OSHA defines a serious injury or illness as one which requires inpatient hospitalization for more than 24 hours for other than medical observation or in which an employee suffers a loss of any member of the

body or suffers any serious degree of permanent disfigurement.

A Root Cause Analysis will be performed for all recordable injuries or other injuries with the potential for serious injury or illness to identify all causal factors and corrective actions necessary to prevent incident reoccurrence. For construction-related incidents and injuries, a Division Superintendent facilitates this process. For office related incidents and injuries, the process is facilitated by the Safety Department.

Information on all injuries (regardless of severity) is communicated to field and office management on a weekly basis through the CEI Injury and Illness Tracker. The information is also communicated to all Field Foremen on a monthly basis.

Incident Injury trends are reviewed in Division Safety Leadership Teams, the Corporate Safety Team, Office Safety Team and the Executive Safety Leadership Teams.

CUPERTINO ELECTRIC INC.

Section 2.1 – Code of Safe Practics

1. All employees are expected to follow this Code of Safe Practices and conduct themselves in a safe manner at all times.
2. Employees have the authority and responsibility to speak up and stop unsafe work at any time without fear of retaliation.
3. Failure to abide by the Code of Safe Practices may result in disciplinary action ***up to and including termination***.
4. Immediately report any unsafe conditions, incidents, injuries or illness to your foreman, superintendent, or manager. Failure to report incidents, injuries, or illness may result in disciplinary action up to and including termination.
5. CEI's policy is to create an electrically safe work condition as the primary means of protection for our employees. In alignment with NFPA 70E and OSHA, working on energized circuits is prohibited, with the exception of work covered under exemptions outlined in NFPA 70E 130.2(A), work that is governed by the NESC, and/or work covered by a fully-executed CEI Energized Electrical Work (EEW) permit.
6. If you are unsure of the safe method to do your job, **STOP** and ask your supervisor.
7. Never work while under the influence of an illegal or intoxicating substance, fatigued, or impaired in any other way.
8. Employees are prohibited from working when their abilities or alertness is impaired by fatigue, illness, prescription or over-the-counter drugs. Employees who are known or suspected of being under the influence of illegal or intoxicating substances, impaired by fatigue or an illness, will be prohibited from working.
9. Horseplay, scuffling, and fighting are prohibited.
10. Work must be well planned and supervised to prevent incidents and injuries. A safety pre-task plan must be in place for any field operation.
11. Keep your work area clean and free of tripping or other hazards and clean as you go.
12. Immediately notify your supervisor of any spills to ensure prompt and safe cleanup.
13. Always notify all other individuals in your area who might be endangered by the work you are doing. Use barricades and warning signage as applicable for the task being performed.
14. Do not operate equipment that you are not familiar with. Do not attempt to use such equipment until you are fully trained and authorized.
15. You are responsible for ensuring all safety guards and other protective devices are operable and in place. If they are not, **STOP** working and tell your supervisor.
16. Never bring firearms, weapons, or illegal drugs onto company or customer property or jobsites.
17. Alcoholic beverages are prohibited on jobsites.
18. Prior to working on any systems or equipment with the potential for exposure to hazardous energies, energies must be locked and tagged out. All lockout and tagout notices and procedures must be observed and obeyed.
19. Any tool or equipment that is broken or not operating properly must be immediately "red-tagged", taken out of service, and identified for repair.
20. Do not block exits, fire doors, aisles, fire extinguishers, first aid kits, emergency equipment, electrical panels, or traffic lanes.
21. Do not leave tools, materials, or other objects on the floor at the jobsite that might cause others to trip and fall.

22. Do not run at work.
23. Do not distract others while working. If conversation is necessary, make sure eye contact is made prior to communicating.
24. Employees will not enter confined spaces (such as manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation) unless they have been trained and the CEI Confined Space Entry Checklist and Permit has been completed and authorized by their supervisor, acknowledging that it is safe to enter.
25. Materials, tools, or other objects will not be thrown from buildings, poles or structures. All materials shall be lowered using hand lines, material bags, or mechanical equipment.
26. For any operations involving chemical use, follow manufacturer guidance on safe handling, use, and storage practices. Employees shall wash their hands thoroughly before eating.
27. Employees shall not use a scaffold unless they have been trained and the scaffold has been inspected by a competent person. Any damage to scaffolds, false work, ladders or other supporting structures must be immediately reported to the foreman and repaired before use. No repairs or modifications shall be made by any Cupertino Electric personnel. All damaged equipment must be red tagged until such time they are repaired or disposed of.
28. Utility knives/exposed blade box cutters are prohibited due to a high number of hand cuts experienced with their use.
29. When using power tools, always use the second handle provided by the manufacturer/two hands for high power equipment such as rotohammers, ½" drills, Sawzall® , Hole-Hawg®, etc.
30. Employees shall not be permitted to wear ear devices for listening to music or radio in construction areas.
31. Employees are expected to implement the control measures specified in their safety pre-task plan (personal protective equipment, work methods, etc.) and to alert their Foremen if conditions change or there is any reason they are unable to follow the plan.
32. Get assistance when handling heavy or awkward loads.
33. Employees supporting field operations are expected to attend and participate in weekly toolbox meetings and any other scheduled safety meetings.
34. Cell phones will not be in use while operating equipment. Cell phones for personal use shall be limited to break time and lunch time only.
35. If medical care is required for work-related injuries or illnesses after you have left the project site/work location, your Foreman/Supervisor, Risk Management, or the Safety Department are a resource for identifying after hours care. (Non-life-threatening conditions only; dial 911 for emergencies).

CUPERTINO ELECTRIC INC.

Section 2.2 – Fall Protection

Duty to Provide Fall Protection

1. CEI will not permit its employees or subcontractors to expose themselves to falls during their course of work. This will be accomplished by providing the proper fall protection training and equipment to its employees. In situations where fall protection systems fall directly under the responsibility of a general contractor, CEI will ensure that prior to beginning work at elevated levels, fall protection systems are in place and adequate.
2. It is CEI policy to utilize fall protection measures any time an employee is exposed to a fall hazard of six feet (6') or more, from the bottom of employee's feet. NOTE: Refer to Section 2.7 for guidance on fall protection requirements on ladders.
3. CEI will provide fall protection to exposed employees through the use of guardrail systems, personal fall protection systems and / or a fall protection plan.
4. An emergency rescue plan shall be documented in the SPTP when personal fall arrest equipment is used.
5. The Foreman is responsible for evaluating potential fall hazards on their jobsite and will determine the appropriate fall protection methods to be utilized, with the assistance of Safety Staff, as required.
6. CEI will train all employees who are exposed to fall hazards; this training is required prior to employees using any personal fall restraint or fall arrest equipment.

Guardrail Systems

1. Guardrail systems utilized by CEI employees will meet the following criteria:
    a. The top rail will be constructed of wire rope, wood, steel or other material at least ¼ inch in diameter and be capable of withstanding, without failure, a force of 200 pounds in any outward and downward direction applied at any point along the top edge.
    b. CEI employees and its subcontractors will not use steel banding, plastic banding or other unsuitable material for top rails and mid-rails.
    c. The top edge of the top rail will be mounted in a manner that it stands no less than 42 inches or more than 45 inches from the walking or working surface.
    d. The top rail will be sufficiently strong so that when a 200-pound test load is applied in a downward force, the top edge of the top rail will not deflect to a height less than 39 inches.
    e. A mid-rail will be constructed and installed halfway between the top edge of the top rail and the walking/working surface.
    f. The mid-rail will be constructed from material and in such a manner that it will withstand, without failure, a force of 150 pounds applied in an outward or downward direction at any point along the mid-rail.
    g. Toe boards measuring at least 4 inches tall will be provided at any leading edge where employees working or traveling below will be exposed to falling objects.
    h. Top rails and mid-rails will be surfaced as to prevent injury to an employee from punctures or lacerations and to prevent snagging of clothing. Double-head nails will not be used for rails unless they are pounded flush.
    i. Top rails and mid-rails will not be allowed to overhang the terminal posts or other attaching devices unless such overhang does not constitute a projection hazard.
    j. Toe-boards will not overhang the terminal posts or other attaching devices unless

such an overhang does not constitute a tripping hazard.

k. Should CEI determine that mesh or screens are required to protect employees below from falling objects, mesh and/or screens will be installed in a manner that they are completely covering the space between the top rail and the walking/working surface.

l. Screens and/or mesh, if used in place of a mid-rail, will be constructed of material that is capable of withstanding, without fail, a force of 150 pounds in any outward or downward direction when applied at any point along the screen or mesh.

2. Whenever CEI employees or its subcontractors must use a loading or hoisting area normally protected by a guardrail system, and the need exists to remove a portion of the guardrail, other means of fall protection such as a fall arrest system or work restraint system will be employed. Upon completion of the task, the portion of the guardrail removed will be immediately replaced.
3. When employees are working on ladders near the edge of a floor protected by guardrails, the guardrail must be raised to provide adequate protection or a personal fall arrest system must be employed to protect the employee from the fall hazard. If the ladder can be positioned back and away from the guardrail a minimum of 1.5 times the height of the ladder, a modification to the guardrail or personal fall arrest systems are not required.
4. Whenever CEI employees or its subcontractors are required to pass through holes or other floor openings protected by a guardrail system, they will ensure that a gate is provided or the guardrails offset so that a person cannot walk directly into the hole.
5. If CEI employees or its subcontractors are required to work on or travel across ramps, walkways or other runways that are elevated 6 feet or more above a lower level, they will ensure that all leading or unprotected sides or edges are protected by guardrail systems.

Personal Fall Arrest Systems (PFAS)

1. Fall protection, such as standard railings or a full body harness and lanyard, will be used at all times when working 6 feet or more above the level below.
2. When using a full body harness and a shock-absorbing or retractable lanyard to protect against a fall hazard, workers must be tied off 100% of the time. This may require the use of a double lanyard.
3. Floor and wall openings, unfinished balconies, elevator shafts and similar areas must be guarded, covered or barricaded to prevent falls.
4. Never remove fall protection rails, covers, or barricades without permission from your foreman and implementing special precautions (example: lowering removable guardrail sections for material hoisting operations after barricading area and employing personal fall restraint or fall arrest equipment). Always replace these items when finished with your task.
5. All safety harnesses will be the full body type with a shock-absorbing lanyard attached to a substantial anchorage capable of withstanding an impact load of 5000 pounds per person attached to that anchorage point. Lanyards will be attached at the wearer's upper back, and have a locking snap hook or locking carabineer for the point of attachment. Body belts are not to be worn as fall protection. All safety harnesses and lanyards shall be labeled as meeting or exceeding all applicable ANSI requirements.
6. Whenever self-retracting lifelines and lanyards are used, they shall be capable of limiting free fall distance to 2 feet or less and will be capable of sustaining a minimum tensile load of 3,000 pounds.

7. Read and obey all manufacturers' instructions relating to your fall arrest system (safety harness and lanyard).
8. Inspect all personal fall arrest components prior to each use. In addition, fall protection equipment must be inspected every 6 months by a Qualified Person. Contact your division Support Center/Warehouse or Safety Department for information on the applicable process to use for this inspection. All defective equipment found must be rendered unusable and discarded. Fall Arrest equipment involved in a fall or employee injury must be removed from service, red tagged and given to a supervisor for use in incident investigation.
9. All fall arrest components made out of synthetic materials have a maximum service life of 5 years from date the equipment was put into service. For equipment that was not marked upon placement into service, utilize the date of manufacturer as the in-service date.
10. All fall arrest systems will be maintained as short as possible to limit free fall distance (free fall distance not to exceed 6 feet) and prevent contact with any level or objects below you.
11. Never use any part of a fall arrest system, such as a harness or lanyard, safety carabiner to hoist materials or for any other purpose.
12. Safety harnesses and approved lanyards are required to be used at all times while in boom lifts. Note: The use of a retractable lanyard shall be used when fall distance is less than 18 ½'.
13. Coupling lanyards (attaching 2 or more lanyards together) is prohibited.
14. All personal fall arrest systems used will comply with all applicable federal and state regulations.
15. A qualified person must verify the correct installations of all horizontal lifelines used as part of a personal fall arrest system prior to use. Horizontal lifelines must be either an engineered system or designed by a qualified engineer.
16. Ensure that any rope or strap used in lanyard, lifelines and/or strength component of any harness is made from synthetic fibers.
17. Ensure that any anchorage point used for fall protection with a personal fall arrest system be capable of supporting at least 5000 pounds for each person attached to it.
18. Attach lanyards to the attachment point of the harness. If the harness has a chest ring, it shall not be used as an attachment point for arresting falls.
19. Snap hooks and carabiners integrated into a personal fall arrest, fall restraint, and positioning systems will be of the double locking type.
20. Provide measures to promptly rescue any employee that has fallen or has become incapacitated. Rescue plans shall be documented on the safety pre-task plan for operations where employees are utilizing personal fall arrest equipment.
21. Never use a guardrail as an anchorage point.
22. Calculating Total Fall Distance:
    a. The total fall distance must be calculated prior to using personal fall arrest equipment. The length of the lanyard, potential lanyard expansion, height of anchorage connection point and the height of the worker must all be comprehended when calculating total fall distance.
    b. Example calculation for a 6-foot-tall worker, wearing a full body harness and secured to an anchorage point 2 feet above their d-ring using a 6-foot shock absorbing lanyard (maximum additional expansion of 3.5 feet):

i. The worker will free fall 4 feet before the shock-absorbing lanyard will deploy, slowing (decelerating) the worker's fall and elongating an additional 3.5 feet.

ii. The full body harness will stretch and the de-ring will slide to the level of the workers head (6 feet).

iii. 6' worker height + 6' lanyard length + 3 1/2' deceleration distance = 15 ½'. Add 3' for a margin of safety = 18 ½' clear space required to avoid striking the level below.

Personal Fall Restraint Systems (PFRS)

1. Anytime employees are using a personal fall restraint system instead of a personal fall arrest system, the following will be adhered to:
    a. Restraint devices will be rigged such that an employee cannot free fall. A restraint device will allow an employee to reach a leading edge but will not allow him/her to pass it.
    b. Anchorage points for restraint systems must withstand a minimum of 4 times the intended load.
2. Inspect all components of any fall restraint system prior to each use. In addition, fall protection equipment must be inspected every 6 months by a Qualified Person. Contact your division Support Center/ Warehouse or Safety Department for information on the applicable process to use for this inspection. All defective equipment found must be rendered unusable and discarded. Fall restraint equipment involved in a fall or employee injury must be removed from service, red tagged and given to a supervisor for use in incident investigation.
3. All fall restraint components made out of synthetic materials have a maximum service life of 5 years from date the equipment was put into service. For equipment that was not marked upon placement into service, utilize the date of manufacturer as the in-service date.

Positioning Device Systems

1. Positioning devices shall be rigged such that an employee cannot fall more than 2 feet.
2. Positioning device systems shall be inspected prior to each use. All defective equipment found must be rendered unusable and discarded.
3. Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds (whichever is greater).

Covers

1. Covers will be required for all floor openings or other holes 2 inches X 2 inches in size or greater. Covers for small diameter floor penetrations (typically less than 6") must either be designed/installed to lay flush or be marked with high visibility color paint/other materials to prevent trips.
2. Whenever CEI employees or its subcontractors create or control holes or other floor openings 6 feet deep or greater, they will be protected by guardrail systems whenever possible. If guardrails are not feasible, holes and other floor openings will be protected by the use of covers. Covers will be made of a material capable of supporting 400 pounds or twice the expected load of workers and material, and be securely fastened. Covers must be clearly marked with the words "COVER" or "HOLE – "DO NOT REMOVE", with

minimum 1 inch high letters.

3. Should employees of CEI or its subcontractors be required to remove a cover for any reason, CEI or its subcontractors will be responsible for replacing and re-securing the cover. While the cover is the off, the area must be attended or barricaded.
4. If a cover is removed and the potential for fall exposure is 6' or greater is possible, then fall protection is required.

Skylights

Skylights pose a unique hazard to workers on roofs. While working near skylights employees must ensure that protective measures have been taken to prevent the possibility of falling through the skylight. Skylights screens must be constructed and mounted so that they are capable of withstanding a load of at least 200 pounds and that under ordinary loads or impacts, they will not deflect downward and break the glass below them. Where existing skylights are not protected by screens, employees will need to do one of the following if they need to approach within 6 feet of the skylight:

1. Use a Personal Fall Protection System.
2. Install temporary covers capable of meeting the strength requirements over the skylight.
3. Erect temporary guardrails around the skylight.
4. Implement a fall protection plan approved by the Safety Department when conventional fall protection measures are deemed impractical or would create a greater hazard

Protection from Falling Objects

1. When performing work overhead, ensure measures are implemented to prevent other employees or the public to be exposed falling objects. Preventive measures may include but are not limited to installing toe boards on scaffolding or around wall/floor opening, barricading off lower areas to prevent entry, re- routing pedestrian traffic or restricting all access to work areas including parking. In addition, implement measures to prevent falling object hazards that could damage public or CEI property.
2. When toe boards are used, they will be constructed to a minimum vertical height of 4 inches from the walking/working surface, with not more than ¼ inch clearance above the walking/working surface.
3. Wear hard hats at all times while on site. All hard hats will meet the requirements of industry standard ANSI Z89.1 2003, Type I, Class E (Electrical).
4. Should tools or other materials be required to be piled higher than the top edge of the toe board, CEI or its subcontractors will install screen or mesh from the top edge of the toe board to the mid-rail or top rail, whichever would provide to the greatest amount of protection, of the guardrail system.

Roof Top Work/Warning Line Systems

1. The warning line shall be erected around all exposed sides of the roof work area.
2. When used to control access to areas where leading edge and other operations are taking place, the controlled access zone shall be defined by a warning line or by any other means that restricts access.
3. When warning lines are used, they shall be erected not less than 15 feet from the unprotected or leading edge, except when erecting precast concrete members.

4. The warning line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
5. The warning line shall be connected on each side to a guardrail system or wall.
    a. The warning line shall be erected not less than 15 feet from the roof edge.
    b. Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines.
    c. When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area, or the path shall be offset such that a person cannot walk directly into the work area.
    d. Warning lines shall consist of ropes, wires, or chains, and supporting stanchions erected as follows:
    e. The rope, wire, or chain shall be flagged at not more than 6-foot intervals with high-visibility material;
    f. The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface;
    g. After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge;
    h. The rope, wire, or chain shall have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, shall be capable of supporting, without breaking, the loads applied to the stanchions; and
    i. The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.
    j. No employee shall be allowed in the area between a roof edge and a warning line unless the employee is performing roofing work in that area.
    k. Mechanical equipment on roofs shall be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.

Trenches and Excavations

Workers within six feet (6') of trench or excavation edges with a fall hazard of 6 feet or greater will be protected by one of the fall protection systems outlined in this section.

Fall Protection Plan

1. The plan will be prepared by a qualified person and developed specifically for the site where the leading-edge work is being performed. A competent person will be assigned to:
    a. Recognize fall hazards

   b. Warn employees if they are unaware of a fall hazard/acting in an unsafe manner
   c. Be on same working surface and in visual sight.
   d. Stay close enough for verbal communication.
   e. Not have other tasks that would take monitors attention from the monitoring function.

2. A qualified person is defined as “one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.”
3. A qualified person will approve any changes to the plan.
4. A copy of the plan with all approved changes will be kept at the jobsite.

CUPERTINO ELECTRIC INC.

Section 2.3 – Electrical Safety

General Requirements

1. Only trained, qualified, certified, and authorized employees are allowed to make electrical repairs or work on electrical equipment or installations.
2. All electrical equipment and systems will be treated as energized until **tested** or **otherwise proven** to be de-energized (and grounded as applicable). Test before you touch. Use the appropriate test equipment for confirming zero voltage, as outlined in your safety pre-task plan and/or Method of Procedure (MOP).
3. All energized equipment and installations will be de-energized (and grounded as applicable) and proven de-energized prior to the start of any work. If the equipment, or installation, must be energized for test or other purposes, all protective grounds will be removed (as applicable) and all personnel need to be clear of sources could become energized.
4. If work **must** be performed on an energized circuit, the Foreman must fill out a MOP and have it approved by a Superintendent (as outlined below).
5. All equipment will be locked out and tagged out by trained authorized personnel to protect against accidental or inadvertent operation when such operation could cause injury to personnel (as outlined below). Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock and tag.
6. Protective grounds or secondary shunting devices will always be used where there is a danger of shock from back feeding or other hazards.
7. Employees with potential exposure to electrical shock and arc flash hazards will be provided with, and shall use, protective equipment that is designed and constructed to protect a person from severe injury. Unprotected employees are prohibited from crossing arc flash or shock protection boundaries. Additional details are provided below regarding requirements for work within arc flash and shock protection boundaries.
8. When energizing or reenergizing equipment follow procedures outlined in a MOP or other written instruction provided by your supervisor to protect yourself and other employees from an arc blast and exploding equipment in the event of a fault.
9. Metal jewelry should not be worn around energized circuits.
10. All power tools will be grounded or double insulated. Tools with defective cords or wiring will not be used. All power tools are to be plugged into a grounded GFCI outlet that has been tested prior to use.
11. Extension and temporary power cords must be designed for hard or extra-hard usage and be grounded. Frayed or defective cords will not be used and taken out of service immediately.
12. Never remove ground pins from electrical tools, extension cords or equipment.
13. Temporary electric cords located in established walk-ways or other locations where they may be exposed to damage or create tripping hazards shall be elevated or protected.
14. Temporary electric cords must not be fastened with staples, hung by nails, or suspended by any un-insulated wire.
15. Cords and cables must not run through fixtures, cabinets, or panel knockouts without bushing and strain relief.
16. All extension cords and electrical cords to power tools or equipment shall be inspected prior to use.
17. Any 15 and 20 ampere outlets on single-phase / 120 Volt circuits that are not part of the

permanent wiring of the building or structure on a construction site must be protected by Ground-Fault Circuit Interrupters (GFCIs).

18. Temporary power boxes must be visually inspected and GFCI physically tested at intervals not to exceed 3 months.
19. Temporary power cords found with visible damage or suspect insulation must be repaired or removed from service immediately. LOTO circuits feeding temporary power cords prior to conducting any repairs.
20. Circuits will not be overloaded with equipment or extension cords.
21. If power tools or extension cords are not protected by a temporary power source with GFCI protection, an inline GFCI protector must be used.
22. Bulbs for temporary lighting must be guarded. Broken and burned out lamps must be replaced immediately.
23. Suitable temporary barriers, or barricades, will be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.
24. Electrical rooms shall be closed and locked when not under the control of an authorized person.
25. Electrical installations must be protected from accidental contact by enclosures or tight-fitting covers.
26. Metal measuring tapes, fish tapes, ropes or other metal devices are prohibited where they may contact energized parts of equipment or circuits. Implement alternative positive means that will not cause an electrical fault for identification of conduit routing where there is potential routing of existing conduit to energized equipment.
27. If work is to be performed within 10 feet of overhead power lines, the lines shall be de-energized and grounded, or other protective measures shall be provided before work is started.
28. Ensure all insulated tools and equipment have been inspected and tested as listed below. Contact your division Support Center/Warehouse or Safety Department for information on the applicable process to use for 3rd party testing of equipment.
    a. Rubber Insulated gloves should be inspected prior to use and must be tested before first issue and every 6 months thereafter. Un-opened, sealed gloves have a 12-month shelf life prior the start of the 6-month maximum usage period prior to re-testing. The maximum interval between glove testing is 18 months (12 months shelf life plus 6 months of use).
    b. All insulated hand tools must be inspected before each use. If the insulation of the tool is thought to be defective in any way, the tool must be taken out of service, destroyed or repaired by a qualified tool repair shop or manufacture and re-tested at a qualified testing organization.
    c. Rubber insulated sheeting and roll blankets (materials which are able to be cut to size) should be inspected prior to use, and if insulating material looks suspect dispose of and order new.
    d. Rubber insulated blankets (materials <u>not</u> intended to be cut) should be inspected prior to use and must be tested before first issue and every 12 months thereafter.
    e. Rubber insulated mats should be inspected prior to use and if any of the insulating material looks suspect, it should be taken out of service and sent in for re-testing.

f. All insulated sticks (shotgun stick, hot-sticks, Shepherds Hooks, etc.) MUST be inspected prior to use and tested every 2 years.

Working on Energized Circuits

CEI's policy is to create an electrically safe work condition as the primary means of protection for our employees. In alignment with NFPA 70E and OSHA, working on energized circuits is prohibited, with few exceptions that are outlined in NFPA 70E 130.2(A).

NFPA 70E recognizes the following 4 situations where energized electrical work (EEW) is permitted:

1. De-energizing introduces additional hazards or increased risk.
2. Shutdown is infeasible due to equipment design or operational limitations.
3. Energized electrical conductors and circuit parts operate at less than 50 volts.
4. Normal operation of electric equipment where all of the following conditions are satisfied:
    a. The equipment is properly installed.
    b. The equipment is properly maintained.
    c. The equipment doors are closed and secured.
    d. All equipment covers are in place and secured.
    e. There is no evidence of impending failure.

NFPA 70E further defines work that might be performed because of infeasibility due to equipment design or operational limitations to include:

1. Performing diagnostics and testing (i.e. start-up or troubleshooting) of electrical circuits that can only be performed with the circuit energized.
2. Work on circuits that form an integral part of a continuous process that would otherwise need to be completely shut down in order to permit work on one circuit or piece of equipment. (Note: The NEC provides context for exemptions due to continuous industrial processes. It is intended to be used in situations where the orderly shutdown of integrated processes and equipment would result in additional or increased hazard.

NFPA 70E also provides examples of work that might be performed due to additional hazards or increased risk. These include but are not limited to interruption of life-support equipment, deactivation of emergency alarm systems, and shutdown of hazardous location ventilation equipment.

Evaluating Customer Requests to Perform EEW

When a customer makes a request to perform EEW, we must make every attempt to explore alternative means to perform the work in an electrically safe work condition, educate the customer on the risks involved, and ensure the customer is aware of the requirements of NFPA 70E and OSHA.

The CEI Electrical Hazard Risk Procedure for work covered by NFPA 70E outlines the required steps to follow when you receive a request to perform EEW. Supplementing the details provided below, a flow chart for the procedure is available in the Field Foreman Manual on Livewire (CEI

Intranet) or from your Division or General Superintendent.

Any proposed EEW, other than start-up or commissioning, will require approval by a Division or General Superintendent and Division VP of Operations, and may require approval of the COO or CEO based on level of risk.

Electrical Hazard Risk Procedure for Work Covered by NFPA 70E

Work Involving Start-up or Commissioning

1. Review Job Planning Considerations (see below).
2. Prepare a written energization document or commissioning script.
3. Review written documentation with Division or General Superintendent and Project Manager.
4. Proceed with work once written plan has been approved.

Requests for Energized Electrical Work (Other than Start-up/Commissioning)

1. Explore all alternative means to perform the work in an electrically safe work condition, including off- hours work, energy wrap-arounds, etc. Foremen shall exhaust every effort to perform work in the de- energized state.
2. Foreman or CEI representative shall hold a documented meeting with the customer to provide education on the inherent risk to personnel and property and the requirements of NFPA 70E and OSHA. The Division or General Superintendent, Project Manager, and Safety Department are all resources for the meeting.
3. The Foreman or CEI representative requests the customer to de-energize (shutdown) circuit(s) in writing (by email).
    a. The request for shutdown shall identify the electrical equipment to be de-energized as well as the load(s) affected. If Cupertino Electric, Inc., was not responsible for the initial installation, and cannot confirm the load(s) affected, this communication to the customer shall include a request for verification of the load(s) by the customer/owner.
4. For work that can be performed in an Electrically Safety Work Condition, refer to Section 2.5 of the CEI Safety Manual (Lockout/Tagout).
5. If shutdown request is denied:
    a. Complete Part 1 of the Energized Electrical Work Permit (Questions 1-4) and send to the requestor to complete the remainder of the section. This permit is available in the Field Foreman Manual on Livewire (CEI Intranet) or from your Division or General Superintendent.
    b. Foreman shall immediately notify the Project Manager and Division or General Superintendent at first knowledge of an energized work request from the customer/owner.
6. Review Job Planning Considerations for proposed scope of work (see below) and complete Part II of EEW Permit (Risk assessment and Indemnification).
7. The Project Manager, in conjunction with the Superintendent, is to initiate an Indemnification Agreement with their customer if one is not already in place. If the client or owner representative requires that work must be performed on energized circuits, they must sign the Indemnification Agreement and agree to hold Cupertino Electric, Inc.

harmless. If the customer/owner does not agree to these terms, then work can only proceed with the authorization of the CEO or COO of the company (as noted below).

8. Submit EEW Permit to Division or General Superintendent for review. The Division or General Superintendent will make a determination if the work presents an unacceptable risk and complete Part III of the EEW Permit. If the work is deemed to present an unacceptable risk, the Project Manager will notify the customer that we will be unable to support their work request and the permit will be considered closed.
9. Prepare a Method of Procedure (MOP) for the proposed scope of work and submit to Division or General Superintendent and Division Safety Manager (or Corporate Safety Department) for review. The MOP shall include a step by step process of how the work will be performed, clearly explaining the safety precautions to be taken. Every MOP shall include a written summary of the work to be performed, a risk assessment, and a contingency/exit plan.
    a. A template for the MOP is available in the Field Managers Manual on Livewire (CEI Intranet) or from your Division or General Superintendent.
    b. Allow a minimum of 3 business days for requests to be reviewed by CEI Management once all required documentation is complete. Notify the Project Manager and Division or General Superintendent for any requests that require expedited review.
    c. The MOP and EEW Permit shall remain as internal communication within CEI until approval has been obtained. Any comments or corrections will be incorporated prior to any release externally.
10. After any required changes are incorporated, Division or General Superintendent and requesting Foreman sign Part IV of the EEW Permit.
11. Submit EEW Permit and MOP to the customer for review. Customer to complete Part V of the EEW Permit. The customer/owner must review the MOP for consistency with their safety policies and an understanding of their responsibilities during the MOP. This is not to be construed as an opportunity to modify any aspect of the safety precautions outlined in the MOP. Cupertino Electric, Inc. will not accept any compromise of safety procedures.
12. Division or General Superintendent and Project Manager to escalate EEW Request to Division VP of Operations.
13. Division VP of Operations evaluates the request.
    a. If work is deemed “high risk” (i.e. from a safety, legal, or business perspective (i.e. no indemnification, critical facility, etc.), request goes to CEO or COO for review.
        i. If request is approved, CEO/COO submits EEW Permit back to Division VP of Operations for signature (Part VI) and routing back to the Field Manager coordinating the work. A copy of the completed permit is sent to the Division or General Superintendent and Safety Department.
        ii. If request is denied, Project Manager will notify the customer that we will be unable to support their work request and the permit will be considered closed.
    b. For work that is not deemed “high risk”, EEW Permit is submitted to Executive Safety Leadership Team (ESLT) Chair (interim measure) for final review/evaluation.
        i. If request is approved by ESLT Chair, Division VP of Operations signs Part VI and routes signed EEW Permit back to the Field Manager coordinating

the work. A copy of the completed permit is sent to the Division or General Superintendent and Safety Department.

ii. If ESLT Chair deems the work to present unacceptable risk, the Project Manager will notify the customer that we will be unable to support their work request and the permit will be considered closed.

14. Once the completed EEW Permit and signed MOP are in hand, the energized electrical work task can commence.

Job Planning Considerations

A Risk Assessment must be performed to determine if the proposed EEW can be safely completed. The following Job Planning Considerations must be reviewed when deciding if work can be performed on an energized circuit:

1. Scope of work
2. Voltage levels involved
3. Secondary voltage source
4. Shock protection boundaries
5. Arc flash risk assessment: Has an arc flash risk assessment been performed? If not, can NFPA 70E Tables 130.7(C)15(A)(b) and 130.7(C)15(B) be utilized to determine arc flash boundary and required arc flash PPE equal to or greater than the calculated incident energy?
6. Is back feed from any source possible
7. Age and condition of equipment
8. Style or type of equipment (snap-on vs. bolt-on, i-line, etc.)
9. Presence of critical loads
10. Any unusual work conditions
11. Competency of installer
12. Is bus hardware involved
13. Maintenance status of equipment
14. Evidence of impending failure
15. Job plans, single-line diagrams, and vendor prints
16. Vendor Information
17. # of employees required to perform task
18. Skills required/Verification of current training
19. Is a stand-by person required
20. Familiarization of personnel with facility
21. Key contacts and who is in charge
22. Safety precautions to be taken (3-point test for zero voltage verification, what-if scenarios and back-out plans, tools and equipment needed, PPE, installation/removal of grounds, installation of barricades/signage, etc.)
23. Emergency Response Plans
    a. Stand-by personnel must have a current CPR/1st Aid/ AED certification (with

refresher training within the last 12 months).

b. Any required emergency equipment available/location of equipment
c. Nearest telephone, fire extinguish, fire alarm
d. Description of exact work location
e. How equipment is to be shut off in an emergency
f. Back-out plan
g. Emergency contact numbers
h. Availability of radio communications

24. For testing and commissioning tasks, if the equipment can be de-energized for test equipment placement/removal, request shutdown (as needed).

General Requirements for Approved Work on Energized Conductors

1. Any work performed with potential exposure to arc flash or shock must be performed and supervised by qualified and authorized employees who have been trained on NFPA 70E. This course provides extensive guidance on performing a comprehensive risk assessment of electrical hazards, boundaries, and determining appropriate controls, including the selection of the proper PPE.
2. When workers are required to work on or near exposed electrical conductors or circuits that are or could become energized, electrical hazards shall be analyzed and classified by a Qualified Electrical Supervisor.
3. A Qualified Electrical Supervisor is a CEI Field Foreman, General Foreman, or Superintendent who has been trained in CEI's Electrical Safety Program, consisting of the following: OSHA 10/30 Hour Course, CEI Lockout/Tagout procedures, NFPA 70E, and CEI Energized Work Policy and Guidelines.
4. Only qualified electrical workers are permitted to perform electrical work on or near exposed electrical conductors or circuits that are or could become energized.
5. A Qualified Electrical Worker is one who has been determined by a Qualified Electrical Supervisor to have demonstrated required skills, knowledge, and abilities to safely perform the work to which he/ she is assigned. A Qualified Electrical Worker is a State licensed journeyman wireman who is trained in the following: CEI's Energized Work Policy and Guidelines, CEI's Lockout/Tagout procedures, NFPA 70E and proper use of PPE.
6. Retraining will be required for Qualified Electrical Supervisors and workers every three years. Employees shall receive additional training (or retraining) if any of the following conditions exist:
    a. Employee is observed not complying with safety related work practices.
    b. If new equipment/technology/changes in procedures necessitate the use of new safety related work practices.
    c. If the employee must use safety related work practices that are not normally used during their regular job duties.
7. Prior to the work, a Safety meeting must be conducted with all participants involved, including the customer/owner representative(s). A complete review of the MOP, step by step, with review of safety precautions to be taken, and safety equipment to be used, is required prior to the execution of the work. The entire team of personnel involved (CEI employees as well as others) are to attend
8. The Foreman has sole responsibility of executing the Method of Procedure. The Foreman

shall be responsible for supervising the work as outlined in the MOP. The Foreman will ensure that each step is followed as written, and sign off by initialing each step prior to directing the next sequence. If at any point during the procedure, it is determined that the work cannot be completed safely, the Foreman shall implement the contingency/exit strategy plan and notify the customer/owner. The Foreman shall be responsible for writing up an incident report of the events leading up to the aborting of the procedure. That report shall be submitted in writing to the CEI Division or General Superintendent, Project Manager and customer representative the following business day.

9. Appropriate barricades, signs and warning tape must be established to restrict the area of energized work. A barricade defined by red “Do not cross” tape shall be erected to restrict the area of work from unauthorized personnel, as well as create a safe working space for authorized persons. Only Qualified Persons wearing the proper PPE shall be allowed within the restricted area. Provisions for temporary/emergency exiting shall be made and an exit pathway shall be established for use in case of emergency.

CUPERTINO ELECTRIC INC.

Section 2.4 – UPS Installation and Maintenance Safety Procedures

The following section defines minimum requirements for installing and maintaining battery (static) Uninterruptible Power Supply (UPS) systems.

Definitions:

Feeder Configurations: UPS equipment feeders are typically divided into two (2) classifications: input and output. Input feeders consist of utility input, maintenance bypass, and battery. In some cases, the maintenance bypass feeder is not utilized.

Utility Input Feeder: A Utility Input Feeder is a power source from the utility distribution or an alternate source via transfer switch.

Maintenance Bypass Feeder: A power source from the utility that allows the UPS to be removed from the circuit and still maintain the load.

Battery Feeder: A battery feeder is a power source from a stored battery that typically operates between 100-600 volts DC

Output Feeder: This feeder is connected either directly to the UPS or to the UPS and Maintenance Bypass Feeder. The output feeder ultimately supplies the load.

Procedural Requirements:

1. Input and Output Feeders:

   All work associated with the input and output feeders including any equipment or switchgear will be performed in a de-energized state. Equipment and feeders will be locked off and tagged per Section 2.5 of this Safety Manual. Special precautions will be taken to insure no back feed via any permanent or temporary maintenance bypass feeder can occur. If temporary or permanent maintenance bypass is not utilized, UPS user must be notified of scheduled outage.
2. Maintenance Bypass Feeder:

   All work associated with the maintenance bypass feeder including equipment or switchgear will be performed in a de-energized state. Equipment and feeders will be locked off and tagged per Section 2.5 of this Safety Manual. Any potential back feeds will also be locked off and tagged.
3. Battery Feeder and Connections:
   a. Any work associated with battery cells, strings, cabinets and feeders has to be considered energized work with hazards and preventative measures outlined in a written job hazard analysis (JHA) or Method of Procedure (MOP) reviewed by the Division Superintendent and the Safety Department. In addition to electrical and chemical hazards that may be present, JHA or MOP shall address the risk of strain, sprain and pinch/crush from handling batteries.
   b. When physically handling batteries, upgrade your standard PPE to include; safety goggles, face shield, acid gown, and chemical resistant acid gloves. This PPE may be able to be downgraded if the batteries do not contain a liquid electrolyte or pose any risk of any corrosive chemical contact/splash.
   c. Portable or stationary eye wash facilities must be present in the work area when handling batteries with a liquid electrolyte exposure.

d. Ensure battery rooms are equipped with a spill response kit.

e. During storage of batteries, keep batteries in the original manufacturing packaging until time of installation in a cool dry location. Refer to manufactures recommendations for additional storage requirements, i.e. ventilation needed, incompatibles to avoid etc.

f. All stored cells must have the terminal tops covered and protected.

g. Tools and equipment for work on batteries shall be insulated with the maximum working voltage listed. Check condition of insulation to verify integrity prior to use.

h. When performing any battery cell connection, string connection or cabinet connection, wear long sleeves or Kevlar arm guards in addition to standard PPE. Note: If work performed poses a risk of an arc flash, wear the appropriate level of arc flash protective equipment in accordance with NFPA 70E. In addition, follow all other safe work practices outlined in NFPA 70E when arc flash hazards are present, such as installation of barricading, use of an attendant, etc.

i. Extreme care must be taken when connecting battery cells to ensure there are no cross-polarity connections. Battery cells are typically in the 1-2-volt range; however, some UPS systems can use battery cells ranging up to 12-volt DC. Additional terminal connector plate drapes, covers or voltage rated blankets may need to be installed to prevent inadvertent contact with adjacent terminals.

j. When connecting cells, the installer should limit the potential voltage available by leaving intercell connectors off at intervals that will limit potential voltage to less than 50 volts DC. Using a DC voltmeter to ensure correct polarity, battery cell final connections should be made in approximately 50 volts DC blocks. At no time should the installer be connecting more than one half (1/2) the total battery string potential at the final battery cell connector.

k. No energized DC connections to the UPS equipment will be made unless the termination point can be made in a 2 or 3 pole disconnecting means. Again, any connections of battery cells or feeder will not be made if potential is greater than 1/2 of the total battery string potential. If final UPS battery connection cannot be made in a disconnecting means, or if the final connection is a parallel connection of 2 or more strings, then no connection will be made unless verified by the UPS manufacturer and a Division Superintendent.

CUPERTINO ELECTRIC INC.

Section 2.5 – Lock-out/Tagout

The purpose of Lock-out/tagout is to prevent injury and death due to unexpected release of hazardous energies.

General Requirements

1. IDENTIFY, Lock, and Tag out (LOTO) all hazardous energies for all machinery, systems, and electrical equipment prior to repair or whenever work is being performed on circuits or systems, which have the potential for becoming energized. This requirement applies regardless of start-up or commissioning status.
2. PERFORMANCE of LOTO shall only be completed by authorized and trained personnel. Authorized personnel are employees who possess knowledge and skills required to safely perform their task. All other affected personnel shall be trained in the purpose and application of LOTO.
3. Locks **MUST BE USED** unless the equipment by design is incapable of receiving locks.
4. CONTACT the supervisor and corporate safety if equipment cannot accept a lock.
5. DO NOT USE interlocks, Emergency Off buttons, selector switches, software controls, and control circuit devices for LOTO.
6. DO NOT remove LOTO devices on behalf of another person. A Foreman or General Foreman MUST complete an abandoned lock form and contact their Division Superintendent prior to removing a LOTO device. A copy of this form is available in the Field Foreman Manual on Livewire (CEI Intranet) or from your Division or General Superintendent.
7. All employees with potential exposure to hazardous energies MUST BE protected with their own uniquely keyed lock. No one else shall have a key for your lock. Destroy all duplicate keys and maintain control of your key at all times to prevent unauthorized use.
8. Always “TEST BEFORE YOU TOUCH” using a 3-point test as described below.
9. USE the appropriate voltage rated test equipment for confirming zero voltage, as outlined in your safety pre-task plan and/or Method of Procedure (MOP). Ensure that the test equipment’s calibration is current.
10. If “tic tracers” or other inductance testers are used for zero voltage verification, ensure they are rated for the application and a three (3)-point test is performed. These devices may not be used as the sole means for verifying the absence of voltage.
11. Cupertino Electric is responsible for providing all necessary locks/tags and any other lockout devices.
12. For work on branch circuits that do not support critical loads, LOTO procedures are to be documented as part of the safety pre-task plan and obtain customer approval as required. The safety pre-task plan must list:
    a. What hazardous energies are present (i.e. electrical shock/arc flash)
    b. Requirement to LOTO all energy control points. Note: Best practice is to specify panel/circuit location.
    c. Requirement to perform zero voltage verification using a 3-point test.
    d. Requirement to utilize trained/authorized employees to perform LOTO.
13. For work on branch circuits supporting critical loads and all other electrical lockout situations, LOTO procedures must be documented in a MOP that is reviewed and approved by a Division Superintendent and customer.
    a. LOTO procedures must include information on the required arc flash PPE for

voltage verifications and detailed explanation of the specific energy control points to be locked out. Note: A sample MOP for LOTO can be obtained from your Division Superintendent or the Field Foreman Manual located on Livewire (Cupertino Electric's Intranet).

b. When performing complex LOTO, the MOP must specify a person in charge. This individual is accountable for the safe execution of the complex LOTO. Examples of a complex LOTO include the following situations:
    i. Multiple energy Sources
    ii. Multiple crews
    iii. Multiple crafts
    iv. Multiple locations
    v. Multiple employers
    vi. Multiple disconnecting Means
    vii. Particular sequences
    viii. Job or task that continues for more than one work period

14. A LOTO log must be completed to document which authorized employees are working under a lock and tag. A copy of the LOTO log is available in the Field Foreman Manual on Livewire (CEI Intranet) or from your Division or General Superintendent.
15. If you are unable to work in an electrically safe work condition, authorization MUST be obtained from the Division Superintendent prior to pursuing any energized electrical work (see section 2.3 for further information).

Lockout/Tagout Procedure

Preparation

1. Identify all sources of energy that power the piece of machinery (i.e., electrical, mechanical, potential energy). Make a thorough check for all switch(es), valve(s), or other energy isolation devices that apply to the piece of machinery.
2. Verify one line diagrams
3. Check with the owner/tenant.
4. Identify all potential hazards of that energy.
5. Identify the correct means to isolate the energy from the piece of equipment (i.e., the correct form of lockout device, multiple lockout for a team of workers, or a single lock for one servicing employee).
6. Locate and secure all owner, contractor, and third-party devices (e.g. kirk keys, etc.) that could be used to reenergize the affected circuit(s).

Equipment Shutdown (as applicable)

1. Notify all affected employees. Authorized employees will notify all affected employees that a lockout/ tag-out system is being implemented and the reason(s) for the action.
2. Shut the system down. If the machine or equipment is operating, shut it down by the normal stopping procedure. Operate the energy isolating devices (e.g., circuit breaker on knife switch) so that the equipment is isolated from its energy sources. Be sure to isolate all energy sources - secondary power supplies as well as the main ones (i.e., emergency power).

3. Stored energy must be completely dissipated. Stored energy, such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc. Thoroughly survey the piece of equipment for capacitors. Energy stored in electrical capacitors will be discharged by proper use of a grounding stick.
4. Portable Equipment. When work is performed on portable powered equipment the power supply line will be disconnected from the power source. The disconnected power supply line must remain within the control of the authorized foreman.
5. For equipment/systems which have not yet gone through start-up and commissioning, operate the energy isolating devices (e.g., circuit breaker on knife switch) so that the equipment is isolated from its energy sources. Be sure to isolate all energy sources - secondary power supplies as well as the main ones (i.e., emergency power).

Applying Lockout/Tag out Devices

1. All energy-isolating devices are to be locked using a red, uniquely keyed, lock. Use a lockout device such as a "block" or circuit breaker lockout, valve lockout, etc. if the energy isolation device cannot be locked out using just the lock. The lockout devices and key locks are not to be used for any other purpose. All LOTO devices can be ordered from the Support Center.
2. If Custodial locks are used for equipment lockout, they must be yellow in color and accompanied with a yellow custodial tag. These locks shall never be used for personal protection. Yellow locks and tags can be ordered from the Support Center.
3. Each authorized employee on the crew will attach his/her own personal lock to the energy isolation device. In a crew situation, a lockout device (i.e., a lockout hasp or lock box) must be used.
4. Attach Tag. Attach a completed **DANGER** tag on the locked-out energy isolation device(s). **DANGER** tags capable of withstanding 50lbs of force and suitable for the environment it is placed in, will be secured such that they are not easily removed. A **DANGER** tag is not a substitute for a lockout device. Include the name of the employee being protected, a contact phone number (can list Foreman's phone number if needed) and the date the tag was placed.
5. LOTO is not required if the cord that is connected to tools or equipment is in your immediate sight and control.
6. Prior to performing maintenance on battery operated tools the battery must be removed.
7. Devices for LOTO shall only be used for controlling energy and communication purposes.
8. Electrical conductors and circuit parts that have been disconnected, but not under lockout/tagout; tested; and grounded (where appropriate) is not recognized by NFPA 70E as creating an electrically safe work condition, and therefore LOTO is required.

Testing/Verification of Zero Energy

1. After ensuring that no employees are exposed, and as a check of having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. Caution: Return operating controls to the neutral position after the test.

2. After applying LOTO equipment for electrical sources, test for zero voltage using an appropriate voltage rated test equipment.
3. Perform a 3-point test when performing voltage verifications.
    a. First, check voltage at a known source to confirm testing equipment is working.
    b. Second, check voltage at the electrical source that was locked out.
    c. Third, re-check voltage at a known source to confirm testing equipment is still functioning. Arc flash personal protective equipment is required when performing voltage verifications as outlined in NFPA70E.
4. Refer to the safety pre-task plan or MOP for the required arc flash personal protective equipment to be worn during voltage verifications.
5. Operations where a designated authorized employee is assigned:
    a. CEI may assign a designated authorized employee for complex LOTO operations (involving many employees and numerous energy isolating devices) to coordinate LOTO and verify voltage.
    b. All authorized employees must place their personal locks/tags on energy control points (lock box, multi-lock hasp, etc.) after the designated authorized employee has completed voltage verification.
    c. Authorized employees retain their right to verify the effectiveness of LOTO, including verification of the placement of primary lock(s) for gang box lockout and zero voltage verification.
    d. Regardless of whether zero voltage verification testing was personally witnessed, all authorized employees are to perform an additional three-point test at their immediate work location.

Performing the Work

1. Never bypass the lockout.
2. LOTO must be removed at the end of your shift.
3. If removing your lock creates any hazard for others, leave your lock in place and notify your supervisor.

Returning Equipment to Service

1. Performed ONLY by the person(s) that placed the lockout/tag out on the equipment.
2. Verify that no tools or loose components were left behind in the equipment and that the equipment is safe to operate (i.e., replace all guards and other safety equipment that may have been removed)
3. Safeguard all employees in the area. Conduct a head count to ensure that everyone is clear of the equipment.
4. Notify Affected Employees that the equipment is about to be returned to service.
5. Remove blocks, and/or chains, in the reverse order that they were put on.
6. Verify that all equipment controls are in the off position.
7. Remove the lockout and tagout devices. The person who put it on will remove each lockout device and tag. Follow the abandoned lock procedure to remove LOTO devices for any personnel not present.
8. Prior to energization, perform megger or tilt meter test to confirm circuit is free and clear

of short circuit, ground fault or cross-phasing, as required.

9. Re-energize the equipment. Follow the manufacturer's checklist of required steps to re-energize the equipment.
10. When work is completed on equipment/systems which have not yet gone through start-up and commissioning:
    a. Verify that no tools or loose components were left behind in the equipment and that the equipment is safe to operate (i.e., replace all guards and other safety equipment that may have been removed).
    b. Remove blocks, and/or chains, in the reverse order that they were put on.
    c. Verify that all equipment controls are in the off position.
    d. Ensure all circuits are safed-off.
    e. Remove the lockout and tagout devices. The person who put it on will remove each lockout device and tag. Follow the abandoned lock procedure to remove LOTO devices for any personnel not present.
    f. Proceed with start-up/commissioning activities once construction is complete.

Crew Lockouts

1. When more than one person is working on a piece of equipment, each individual will have his/her own lock on the energy shut-off device on that equipment, and follow all LOTO procedures including zero voltage verification.
2. Use a multilock hasp or lock box to allow all authorized employees participating in the lock out to apply their personal LOTO. Every lock will be secured so that it alone guarantees that the equipment is locked out.
3. Where a lock box is utilized for LOTO, all authorized employees participating in the lockout MUST visually verify the energy control point(s).
4. The foreman for the shift will assign one of the workers as lockout coordinator.

Shift Change or Personnel Change

When changing shift, or personnel, work on a piece of equipment will not continue until all personnel working on that equipment have agreed upon a safe procedure to affect the transfer of the work. All involved workers will then, as a group, make the switch over of lockout/tag out devices. The foreman will list all pertinent information regarding the lockout(s) in progress, who implemented the lockout(s) and the status of the maintenance or task being performed. The employee(s) coming on the shift must apply their lock and tag to the energy control point(s) and review the results of the zero-voltage verification and will perform an additional 3-point zero voltage verification test with an inductance tester as a minimum.

Abandoned Lock Procedure

In situations where the LOTO device owner is not present and re-enerization is required, a lock may be cut off by a Foreman or General Foreman once the following steps have been completed:

1. All forms of hazardous energy are identified to be at *zero hazardous energy* level. Refer to the applicable Energy Control Procedures in the safety PTP or MOP.
2. Every effort must be made to contact the lock owner before lock is cut.
3. Document lock owner notification attempts on the safety PTP or MOP.

After the lock is cut, notify the owner of the lock and his/her Foreman/GF within 24 hours.

CUPERTINO ELECTRIC INC.

CONTROL OF HAZARDOUS ENERGIES
ABANDON LOCK REMOVAL FORM

This form is to be used any time a Lockout/Tagout (LOTO) device is to be removed by someone other than the person who placed the LOTO device. Failure to follow and document the appropriate steps to remove a LOTO device can result in disciplinary action up to and including termination.

Date:		**Time:**	

1.	Name of LOTO device owner whose lock/tag is to be removed:			
2.	LOTO device owner's phone number:			
3.	LOTO device owner's Foreman/Supervisor:			
4.	Document attempt to contact LOTO device owner.			
	DATE/TIME		**METHOD OF ATTEMPTED CONTACT**	**RESULT**
	1.			
	2.			
5.	Reason for removing lock (e.g. LOTO device owner called in sick, LOTO device owner forgot to remove lock before leaving site, etc.)			
6.	Evaluate the entire affected system to ensure employee safety before LOTO device is removed by an Authorized Employee (FM or above). LOTO device(s) removed by:			
	Name: (Print)		**Job Title:**	
	Signature:		**Witnessed by: (Print)**	
	Date:		**Time:**	
7.	CEI Safety Representative informed (i.e. email or phone call/message) that a LOTO device has been removed within 24 hours of removal.			
	CEI Safety Representative Notified:			
	Date:		**Time:**	
8.	Method of notifying LOTO device owner and their FM/Supervisor that the LOTO device was removed prior to beginning their next shift:			

Hazardous Energy Control Program

Policy Number: CEIEHS-002A	Review Date: 07-29-2019	Revision Date: 10-8-19	Revision: B

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1. **Purpose:** Whenever Cupertino Electric, Inc. conducts construction, maintenance, demolition, remediation and other similar work that are common to our business, there is a potential exposure to hazardous energy, which could cause harm to people, the environment or damage equipment. Energy Isolation is a key component of CEI's Environmental, Health and Safety systems that allows tasks to be completed safely and without the potential to cause injury, environmental damage or damage to equipment. This document provides electrical safety guidelines and the requirements for the isolation of hazardous energy in support of achieving a safe working condition during these activities.

2. **Scope:** The requirements specified in this inside wireman hazardous energy control program shall apply equally to all CEI employees, contractors and visitors engaged in CEI business. On projects where the owner or client may have specific hazardous energy control programs, the more stringent shall apply.

3. **Responsibilities:** All employees involved in the control of hazardous energy shall be instructed in the requirements of this program. The designated Person in Charge (PIC) shall ensure that all new or transferred employees receive specific instruction in this program prior to allowing them to engage in activities, which may expose them to hazardous energy sources. This includes personnel who are performing tasks on systems that are locked out and tagged where planned or inadvertent energization could potentially cause injury.

4. **Definitions:**

   Additional clarification and insights are indicated by parentheticals.

   Affected Person: An employee whose job requires him/her to operate or use an electrical system, circuit, machine or equipment on which repairs, modifications, servicing or maintenance is being

performed under lockout or tagout, or whose job requires him/her to work in an area in which such repairs, modification, servicing or maintenance is being performed.

Arc Flash Hazard: A dangerous condition associated with the possible release of energy caused by an electric arc. An arc flash hazard may exist when energized electrical conductors or circuit parts are exposed or when they are within equipment in a guarded or enclosed condition, provided a person is interacting with the equipment in such a manner that could cause an electric arc.

Under normal operating conditions, enclosed energized equipment that has been properly installed and maintained is not likely to pose an arc flash hazard.

Arc Flash Suit: A complete arc-rated clothing and equipment system that covers the entire body, except for the hands and feet.

Arc Rating: The value attributed to materials that describe their performance to exposure to an electrical arc discharge. The arc rating is expressed in cal/cm2 and is derived from the determined value of the arc thermal performance value (ATPV) or energy of break-open threshold (EBT) (should a material system exhibit a break-open response below the ATPV value). Arc rating is reported as either ATPV or EBT, whichever is the lower value.

Arc Resistant Clothing: Arc resistant protective clothing protects from arc flash and electrical arc hazards. Arc resistant clothing has an arc rating that describes their performance to exposure to an electrical arc discharge. The arc rating is expressed in cal/cm2.

Arc-Resistant Equipment: See Switchgear, Arc-Resistant definition.

Authorized Person: A person who locks out or tags out electrical systems, circuits, machines or equipment in order to install, perform repairs, modifications, servicing or maintenance. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Balaclava (Sock Hood): An arc-rated hood that protects the neck and head except for the facial area of the eyes and nose.

Barricade: A physical obstruction such as tapes, cones, or A-frame-type wood or metal structures intended to provide a warning and to limit access.

Barrier: A physical obstruction that is intended to prevent contact with equipment or energized electrical conductors and circuit parts or to prevent unauthorized access to a work area.

Bonded (Bonding): Connected to establish electrical continuity and conductivity.

Boundary, Arc Flash: When an arc flash hazard exists, an approach limit at a distance from a prospective arc source within which a person could receive a second degree burn if an electrical arc flash were to occur. A second-degree burn is possible by an exposure of unprotected skin to an electric arc flash above the incident energy level of 5 J/cm2 (1.2 cal/cm2).

Boundary, Limited Approach: An approach limit at a distance from an exposed energized electrical conductor or circuit part within which a shock hazard exists.

Boundary, Restricted Approach: An approach limit at a distance from an exposed energized electrical conductor or circuit part within which there is an increased likelihood of electric shock, due to electrical arc-over combined with inadvertent movement, for personnel working in close proximity to the energized electrical conductor or circuit part.

Cabinet: An enclosure that is designed for either surface mounting or flush mounting and is provided with a frame, mat, or trim in which a swinging door or doors are or can be hung.

Circuit Breaker: A device designed to open and close a circuit by non-automatic means and to open the circuit automatically on a predetermined overcurrent without damage to itself when properly applied within its rating.

Classified Area: An area that poses electrical hazards and is classified following the guidelines of a nationally recognized electrical code. Areas are defined by class, division, and group. See National

Electrical Code, NFPA 70, for complete definition of hazardous areas. For purposes of the Electrical Safety policy, Class I areas are to include Division 1 and Division 2 classified areas. Consult *Facility Electrical Hazardous Area Classification* drawings to identify where Class I areas are defined.

Complex Lock-out/Tag-out: A complex lock-out/tag-out plan is required where one or more of the following exist:

a) Multiple energy sources (more than one)
b) Multiple crews
c) Multiple crafts
d) Multiple locations
e) Multiple employers
f) Unique disconnecting means
g) Complex or particular switching sequences
h) Lock-out/Tag-out for more than one shift

Conductive: Suitable for carrying electric current.

Conductor, Bare: A conductor having no covering or electrical insulation whatsoever.

Controller (Electrical): A device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected.

Current-Limiting Overcurrent Protective Device: A device that, when interrupting currents in its current-limiting range, reduces the current flowing in the faulted circuit to a magnitude substantially less than that obtainable in the same circuit if the device were replaced with a solid conductor having comparable impedance.

Cutout: An assembly of a fuse support with a fuse holder, fuse carrier, or disconnecting blade. The fuse holder or fuse carrier may include a conducting element (fuse link), or may act as the disconnecting blade by the inclusion of a non-fusible member.

De-energized: Free from any electrical connection to a source of potential difference and from electrical charge; not having a potential different from that of the Earth.

Demolition: The removal of previously installed equipment, machinery, electrical panels or gear, wiring, cabling, raceways, conduit, or conductors.

Device: A unit of an electrical system, other than a conductor, that carries or controls electric energy as its principal function.

Disconnecting Means: A device, group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Electrical Hazard: A dangerous condition such that contact, or equipment failure can result in electric shock, arc flash burn, thermal burn, or blast.

Electrical Hazardous Area Classification: *See* Classified Area.

Electrical Safety: Recognizing hazards associated with the use of electrical energy and taking precautions so that hazards do not cause injury or death.

Electrically Safe Work Condition (ESWC): A state in which an electrical conductor or circuit part has been disconnected from energized parts, locked/tagged in accordance with CEI Lock-out/Tag-out policy, tested to ensure the absence of voltage, and grounded if determined necessary.

Enclosed: Surrounded by a case, housing, fence, or wall(s) that prevents persons from accidentally contacting energized parts.

Enclosure: The case or housing of apparatus — or the fence or walls surrounding an installation to prevent personnel from accidentally contacting energized electrical conductors or circuit parts or to protect the equipment from physical damage.

Energized: Electrically connected to, or is, a source of voltage.

Equipment: A general term, including fittings, devices, appliances, luminaires, apparatus, machinery, switchgear and the like, used as a part of, or in connection with, an electrical installation.
Equipotential zone: An equipotential zone is a work zone in which the worker is protected from electric shock from differences in electric potential between objects in the work area. These differences in potential can be caused by induced voltage, line reenergization, or lightning.
Exposed (as applied to energized electrical conductors or circuit parts): Capable of being inadvertently touched or approached nearer than a safe distance by a person. It is applied to electrical conductors or circuit parts that are not suitably guarded, isolated, or insulated.
Fuse: An overcurrent protective device with a circuit-opening fusible part that is heated and severed by the passage of overcurrent through it.
Ground: The earth.
Ground fault: An unintentional, electrically conducting connection between an ungrounded conductor of an electrical circuit and the normally non-current-carrying conductors, metallic enclosures, metallic raceways, metallic equipment, or earth.
Grounded (Grounding): Connected (connecting) to ground or to a conductive body that extends the ground connection.
Grounded Conductor: A system or circuit conductor that is intentionally grounded.
Ground-Fault Circuit Interrupter ("GFCI"): A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a current to ground exceeds the values established for a Class A device.
Grounding Conductor, Equipment ("EGC"): The conductive path(s) that provides a ground-fault current path and connects normally non–current-carrying metal parts of equipment together and to the system grounded conductor or to the grounding electrode conductor, or both.
Grounding Electrode: A conducting object through which a direct connection to earth is established.
Grounding Electrode Conductor: A conductor used to connect the system grounded conductor or the equipment to a grounding electrode or to a point on the grounding electrode system.
Guarded: Covered, shielded, fenced, enclosed, or otherwise protected by means of suitable covers, casings, barriers, rails, screens, mats, or platforms to remove the likelihood of approach or contact by persons or objects to a point of danger.
Hazard: A source of possible injury or damage to health.
Hazardous: Involving exposure to at least one hazard.
Incident Energy: The amount of thermal energy impressed on a surface, a certain distance from the source, generated during an electrical arc event. Incident energy is typically expressed in calories per square centimeter (cal/cm2).
Incident Energy Analysis: A component of an arc flash risk assessment used to predict the incident energy of an arc flash for a specified set of conditions.
Insulated: Separated from other conducting surfaces by a dielectric (including air space) offering a high resistance to the passage of current.
Interrupting Rating: The highest current at rated voltage that a device is identified to interrupt under standard test conditions.
Labeled: Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.
Listed: Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services,

that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.
Live parts: Energized conductive components.
Motor Control Center (MCC - NEMA ICS 18): An assembly of one or more enclosed sections having a common power bus and principally containing motor control units.
Overcurrent: Any current more than the rated current of equipment or the ampacity of a conductor. It may result from overload, short circuit, or ground fault.
Overload: Operation of equipment in excess of normal, full-load rating, or of a conductor in excess of rated ampacity that, when it persists for enough time, would cause damage or dangerous overheating. A fault, such as a short circuit or ground fault, is not an overload.
Panelboard: A single panel or group of panel units designed for assembly in the form of a single panel, including buses and automatic overcurrent devices, and equipped with or without switches for the control of light, heat, or power circuits; designed to be placed in a cabinet or cutout box placed in or against a wall, partition, or other support; and accessible only from the front.
Person In Charge (PIC): A designated employee who is authorized to supervise a Lock-out/Tag-out. The person in charge will have the responsibility to plan, coordinate, document and execute lock-out/tag-out activities.
Qualified Person: A CEI employee or contractor who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received Electrical Safety Knowledge Training as detailed in this Program.
Raceway: An enclosed channel of metal or nonmetallic materials designed expressly for holding wires, cables, or busbars, with additional functions as permitted in this standard.
Receptacle: A receptacle is a contact device installed at the outlet for the connection of an attachment plug. A single receptacle is a single contact device with no other contact device on the same yoke. A multiple receptacle is two or more contact devices on the same yoke.
Risk: A combination of the likelihood of occurrence of injury or damage to health and the severity of injury or damage to health that results from a hazard.
Risk Assessment: An overall process to:
A. Identify hazards,
B. Estimate the potential severity of injury or damage to health,
C. Estimate the likelihood of occurrence of injury or damage to health, and
D. Determine if protective measures are required.
(Arc Flash Risk Assessment and Shock Risk Assessment are types of risk assessments)
Shock Hazard: A dangerous condition associated with the possible release of energy caused by contact or approach to energized electrical conductors or circuit parts.
Short-Circuit Current Rating: The prospective symmetrical fault current at a nominal voltage to which an apparatus or system is able to be connected without sustaining damage exceeding defined acceptance criteria.
Simple Lock-out/Tag-out: A simple lock-out/tag-out is one where a single piece of equipment or non-critical circuit is de-energized for the purpose of installation, modification, repair or replacement by an authorized person.
Single-line (or one-line) drawing: A diagram that shows, by means of single lines and graphic symbols, the course of an electric circuit or system of circuits and the component devices or parts used in the circuit or system.

Substation: Typically a fenced area of electrical equipment, e.g., switches, circuit breakers, buses, and transformers, under the control of Qualified Persons, through which electric energy is passed for the purpose of switching and reducing transmission voltage for facility usage.
Switchboard: A large single panel, frame, or assembly of panels on which are mounted on the face, back, or both, switches, overcurrent and other protective devices, buses, and usually instruments. These assemblies are generally accessible from the rear as well as from the front and are not intended to be installed in cabinets.
Switchgear, Arc-Resistant: Equipment designed to withstand the effects of an internal arcing fault and that directs the internally released energy away from the employee. An arc-resistant switchgear has successfully meet the test requirements of IEEE Std. C37.20.7-2007.
Switchgear, Metal-Clad: A switchgear assembly completely enclosed on all sides and top with sheet metal, having draw-out switching and interrupting devices, and all live parts enclosed within grounded metal compartments.
Switchgear, Metal-Enclosed: A switchgear assembly completely enclosed on all sides and top with sheet metal (except for ventilating openings and inspection windows), containing primary power circuit switching, interrupting devices, or both, with buses and connections.
This assembly may include control and auxiliary devices. Access to the interior of the enclosure is provided by doors, removable covers, or both. Metal-enclosed switchgear is available in non-arc-resistant or arc-resistant constructions.
Ungrounded: Not connected to ground or to a conductive body that extends the ground connection.
Unqualified Person: Any CEI or contractor employee who is not a Qualified Person (but has exposure to field electrical equipment and installations) but is trained and familiar with any safety electrical practices necessary for their safety as identified in Electrical Safety Knowledge Training detailed in this program. *See* Qualified Person.
Voltage (of a Circuit): The greatest root-mean-square (RMS) (effective) difference of potential between any two conductors of the circuit concerned.
Voltage, nominal: A nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class (e.g., 120/240 volts, 480Y/277 volts, 600 volts). The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment.
System voltage classes:
Low Voltage (LV): A class of nominal system voltages 600 volts or less.
High Voltage (HV): A class of nominal system voltages equal to or greater than 600 volts.

Working On (energized electrical conductors or circuit parts). Intentionally coming in contact with energized electrical conductors or circuit parts with the hands, feet, or other body parts, with tools, probes, or with test equipment, regardless of the personal protective equipment (PPE) a person is wearing. There are two categories of "working on": *Diagnostic (testing)* is taking readings or measurements of electrical equipment with approved test equipment that does not require making any physical change to the equipment; *repair* is any physical alteration of electrical equipment (such as making or tightening connections, removing or replacing components, etc.).

Cupertino Electric, Inc. (CEI), through this program, has the responsibility to provide the following:

1. Safety-related work practices;
2. Training for employees;
3. Supervision of employees;

4. Program audits;
5. Documentation.

All personnel:

A. CEI employees and contractors shall follow the safety-related work practices and procedures detailed in this program and shall be trained accordingly.
B. CEI contract employers shall provide qualified people to work on CEI facilities and ensures its employees follow the work practices outlined in this program.
C. This program provides the required self-discipline for all CEI employees and contractors who perform work involving electrical hazards. All CEI employees and contractors shall be aware of the potential electrical hazards present in their work environment.
D. CEI employees and contractors shall:
1. Perform only the work that they are competent, trained, and qualified to perform.
2. Adhere to safe working procedures, ensuring the safety of themselves and others.
3. Stop any work deemed unsafe.
E. Assure that all new and existing electrical work is correctly documented on controlled electrical drawings, e.g., one-line diagrams, area classification, arc flash drawings.
Note: A person may be qualified with respect to certain equipment and methods but still be unqualified for others.

5. General:

This Program provides electrical safety principles, controls, and procedures applicable to all CEI personnel, contractors, projects and locations. Any deviation from this program must be approved by the Sr. VP of Safety.

a) Only trained, qualified, certified, and authorized employees are allowed to make electrical repairs or work on electrical equipment or installations.
b) All energized equipment and installations will be de-energized, locked, tagged and grounded when applicable and proven de-energized prior to the start of any work.
c) **Always test before you touch.** All electrical equipment and systems will be treated as energized until **tested** and proven to be de-energized using the 3-point test method.
d) If work is to be performed on an energized circuit, personnel **must** follow the requirements of CEI's Energized Electrical Work policy, which may require executive approval.
e) All equipment will be locked out and tagged out by trained authorized personnel to protect against accidental or inadvertent operation when such operation could cause injury to personnel (as outlined in Section below). Do not attempt to operate any switch, valve, or other energy-isolating device bearing a lock and tag.
f) Protective grounds or secondary shunting devices will always be used where there is a danger of shock from back feeding or other hazards.
g) Employees with potential exposure to electrical shock and arc flash hazards will be provided with, and shall use, protective equipment that is designed and constructed to protect a person from severe injury. Unprotected employees are prohibited from crossing arc flash or shock protection boundaries. Additional details are provided below regarding requirements for work within arc flash and shock protection boundaries.
h) When energizing equipment or systems, personnel must follow procedures outlined in the system energization section of this program.

i) Metal jewelry must not be worn when working around energized circuits.

j) All power tools will be grounded or double insulated. Tools with defective cords or wiring will not be used. All power tools are to be plugged into a grounded GFCI outlet that has been tested prior to use.

k) Extension and temporary power cords must be designed for hard or extra-hard usage and be grounded. Frayed or defective cords will not be used and taken out of service immediately.

l) Never remove ground pins from electrical tools, extension cords or equipment.

m) Temporary electric cords of 50 amps or greater shall be elevated. If there is no means available to elevate cords, they must be otherwise protected from damage or creating a tripping hazard or protected.

n) Temporary electric cords must not be fastened with staples, hung by nails, or suspended by any un-insulated wire.

o) Cords and cables must not run through fixtures, cabinets, or panel knockouts without bushing and strain relief.

p) All extension cords and electrical cords to power tools or equipment shall be inspected prior to use.

q) Any 15 and 20 ampere outlets on single-phase / 120 Volt circuits that are not part of the permanent wiring of the building or structure on a construction site must be protected by Ground-Fault Circuit Interrupters (GFCIs).

r) Temporary power boxes must have a documented inspection and GFCI physically test performed by a qualified electrician at intervals determined by customer or, site specific policy requirements, but not to exceed 3 months.

s) Temporary power cords found with visible damage or suspect insulation must be repaired or removed from service immediately. LOTO circuits feeding temporary power cords prior to conducting any repairs.

t) Circuits will not be overloaded with equipment or extension cords.

u) If power tools or extension cords are not protected by a temporary power source with GFCI protection, an inline GFCI protector must be used.

v) Bulbs for temporary lighting must be guarded. Broken and burned out lamps must be replaced immediately.

w) Suitable temporary barriers, or barricades, will be installed when access to opened enclosures containing exposed energized equipment is not under the control of an authorized person.

x) Electrical rooms shall be closed and locked when not under the control of an authorized person.

y) Electrical installations must be protected from accidental contact by enclosures or tight fitting covers.

z) Metal measuring tapes, fish tapes, ropes or other metal devices are prohibited where they may contact energized parts of equipment or circuits.

6. Insulating Tools and Protective Equipment:

Personal safety and protective equipment such as the following shall be maintained in a safe working condition:

a) Grounding equipment	h) Portable lighting units
b) Hot sticks	i) Temporary protective grounding equipment
c) Rubber gloves, sleeves and leather protectors	j) Dielectric footwear
d) Test instruments	k) Protective clothing
e) Blankets, mats and similar insulating equipment	l) Face shields
f) Protective Barriers	m) Bypass jumpers

g) External circuit rack-out devices	n) Insulated and insulating hand tools

Visual Inspection:

Protective equipment and tools shall be visually inspected for damage and defects before each use. Insulated tools and protective equipment must be inspected and tested as listed below. Contact your division Support Center/Warehouse or, Safety Department for information on the applicable process for 3rd. party testing of equipment.

a) Rubber Insulated gloves and sleeves shall be inspected prior to use and must be tested before first issue and every 6 months thereafter. Un-opened, sealed gloves have a 12-month shelf life prior the start of the 6-month maximum usage period prior to re-testing. The maximum interval between glove testing is 18 months (12 months shelf life plus 6 months of use).
b) All insulated hand tools must be inspected before each use. If the insulation of the tool is thought to be defective in any way, the tool must be taken out of service, destroyed or repaired by a qualified tool repair shop or manufacture and re-tested at a qualified testing organization.
c) Rubber insulated sheeting and roll blankets (materials which are able to be cut to size) should be inspected prior to use, and if insulating material looks suspect dispose of and order new.
d) Rubber insulated blankets (materials not intended to be cut) should be inspected prior to use and must be tested before first issue and every 12 months thereafter.
e) Rubber insulated mats should be inspected prior to use and if any of the insulating material looks suspect, it should be taken out of service and sent in for re-testing.
f) All insulated sticks (shotgun stick, hot-sticks, Shepherds Hooks, etc.) **MUST** be inspected prior to use and tested every 2 years.

Test Equipment and Instruments:

Only qualified employees shall perform tasks such as testing, troubleshooting and voltage measuring on electrical equipment or circuits operating at voltages equal to or greater than 50 volts. Test instruments, equipment and their accessories shall be as follows:

a) Rated for circuits and equipment where they are utilized,
b) Approved for the purpose,
c) Used in accordance with any instructions provided by the manufacturer

Visual Inspection and Repair:

Test instruments and equipment and all associated test leads, cables, power cords, probes and connectors shall be visually inspected for external defects and damage before each use. If a defect is discovered or there is evidence of damage that may expose an employee to injury, the defective or damaged item shall be removed from service, tagged and returned to the support center. No employee shall use a defective piece of equipment until it has been repaired by a person qualified to perform the repairs and tests necessary to render the equipment safe.

Operation Verification:

When test instruments are used for testing the absence of voltage on conductors or circuit parts

operating at voltages equal to or greater than 50 volts, the operation of the test instrument shall be verified on any known voltage source before and after a Zero Voltage Verification (ZVV) test has been performed (3-point test).

7. Training:

CEI field-based employees and contractors who may be exposed to electrical hazards shall be trained in electrical safety. The objectives of this training are for employees who have exposure to electrical hazards, i.e. shock, arc flash and arc blast, and are designed to:

1) Be familiar with and use CEI safety-related work practices and procedural requirements intended to provide protection from the electrical hazards.
2) Know the actual or potential hazards involved with the tasks to be performed.
3) Identify and understand the relationship between electrical hazards and possible injury.
4) Know how to eliminate any exposure to the hazard or how to mitigate the effects of any hazard that remains while the task is being executed.
5) Know and realistically accept the limits of his or her authority, knowledge, and skill.
6) Be able to identify situations that may involve unacceptable risk.

Qualified Person:

A Qualified Person shall be trained and knowledgeable in the construction and operation of equipment or a specific work method and have successfully completed the electrical safety training.

Training shall include determining the existence of electrical hazards and being familiar with the proper use of the special precautionary techniques such as:

1) How to avoid exposure to electrical hazards;
2) How to establish an electrically safe work condition;
3) How to establish an equipotential zone;
4) Be familiar with CEI safety related policies and procedures;
5) Knowledge in insulated tools and test equipment;
6) Installing and removing safety grounds or ground bridals;
7) Skills and techniques necessary to distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment;
8) Skills and techniques necessary to determine the nominal voltage of exposed energized electrical conductors and circuit parts;
9) Skills and techniques in performing risk assessment;
10) Knowledge to select an appropriate test instrument to verify the absence/presence of voltage, including interpreting indications provided by the device;
11) Effective communications
12) Decision-making process necessary to be able to do the following:
a) Perform the job safety planning
b) Identify electrical hazards (shock, arc flash, arc blast, etc.)
c) Assess the associated risk
d) Selection and use of PPE for shock hazards
e) Selection and use of PPE for arc flash hazards
f) Identification and selection of the methods of reducing risk through the hierarchy of controls – Eliminate, Substitute, engineer, Communicate and Control, PPE

CONTROLS	EXAMPLES
Elimination	Eliminate a hazard and completely eliminate the associated risk, such as placing the system or equipment into an Electrically Safe Work Condition.
Substitution	Substitute something else that has less potential to cause harm.
Engineering Controls	Use Engineering Controls to remove a hazard or place a barrier between the workforce and hazard.
Isolation	Contain the work environment or work process to interrupt the path between the workforce and the risk, e.g., insert blind flange, guards or barriers, set up temporary or permanent enclosures.
Administrative Controls	Reduce the risk by thorough training assuring competency of the workforce, the use of specialist personnel, close supervision, establish policies/standards or procedures.
Personal Protective Equipment	When you cannot reduce the risk in any other way, use personal protective equipment as the last resort. PPE has limitations and may not protect from all injuries, so it should be considered the last line of defense against injury.

A person may be considered qualified with respect to certain equipment and methods but still unqualified for other tasks, projects, or skills.

A CEI employee who is undergoing training for the purpose of obtaining the skills and knowledge necessary to be considered a Qualified Person, and who in the course of such training demonstrates an ability to perform specific duties safely at his or her level of training, and who is under the direct supervision of a Qualified Person shall be considered to be a Qualified Person for the purpose of receiving training for those tasks..

Tasks that are performed less often than once per year shall be reviewed before the performance of the work practices involved.

Unqualified Person(s):

Unqualified persons shall be under the strict supervision at all times of a qualified person when performing activities covered under this program.

Electrical Emergency Response Training:

1. **Contact Release:**

Qualified Persons exposed to shock hazards shall be trained in methods of safe release of victims from contact with exposed energized electrical conductors or circuit parts.

2. **First-aid, CPR, AED**
   Qualified Persons and electrical emergency responders shall be trained in contact release, First Aid, and cardiopulmonary resuscitation (CPR) or automated external defibrillator (AED) if the site is equipped with these devices.

C. Training Documentation:

CEI employee training shall be documented and retained in the training tracker or similar learning management system. Contractor employee training documentation shall be provided to CEI prior to performing work covered under this program.

Retraining:

Retraining in safety-related work practices and applicable changes to this program shall be correlated to this programs revisions/updates, but shall not exceed 3 years. CEI employees shall receive additional training (or retraining) if any of the following conditions exists:

a) Annual audits indicate that employees are not complying with the safety-related work practices due to a lack of understanding.
b) New technology, new types of equipment or changes in procedures necessitate the use of safety-related work practices that are different from those that the employees would normally use.

Retraining in electrical emergency response:

a) Contact Release refresher training shall occur annually.
b) First Aid, CPR and AED refresher training shall occur with the frequency specified by the training agency under whose authority the training is being provided.

8. Electrical Safety Auditing

Energy Control Program:

CEI shall audit this program to verify that its principles and procedures comply with regulatory requirements. Audits shall be performed annually or, when safety-related regulatory requirements are updated or NFPA 70E is revised. CEI production leadership, in coordination with CEI's Health and Safety department is responsible for the Electrical Safety Program audit and shall document the findings.

Field Work:

CEI shall audit field work to verify that the requirements follow the principles and procedures of this program. The CEI production leadership, in coordination with CEI's Health and Safety department is responsible for the field work audit and shall document the findings. When the audit determines that the principles and procedures of the program are not being followed, the CEI production leadership, in coordination with CEI's Health and Safety department shall determine the appropriate corrective actions.

The objective of the audit shall be to determine if the program should be updated, and if CEI employees and contractors adequately understand the principles and procedures of this program. At least one of the following persons shall participate on the CEI audit team:

a) EHS team member
b) General Superintendent
c) Project Superintendent

The auditor shall:

a) Speak with the CEI employee or contractor performing the LOTO to gain understanding of the procedure or task being performed.
b) Observe how the task is being performed.
c) Review LOTO plans and MOP's.
d) Verify that appropriate safeguards are in place.
e) Provide feedback and coaching.
f) Document the findings using Smart Tag It or other approved process.

9. Personal Protective Equipment:

Until it is verified that electrical systems, equipment or circuits are de-energized through a zero-voltage verification test, personnel are required to wear arc flash protective equipment as specified in accordance with NFPA 70E, 2018 Table 130.7(C)(15)(c).

10. Demolition:

Prior to beginning demolition activities, all electrical equipment, systems, circuits, cables, conductors or other components must be placed into an electrically safe work condition and verified de-energized through a 3-point zero voltage verification test.
Any conductor or cable that has been disconnected or removed from an existing circuit must be retested using a 3-point zero voltage verification, safed-off and placed in a code compliant enclosure *or* completely removed. Main underground feeders to buildings scheduled for demolition must be completely disconnected and removed. Systems, circuits, cables, conductors or other components scheduled for demolition shall be colored GREEN. Electrical systems, circuits, cables, conductors or components in close proximity shall be colored RED.

11. Electrically Safe Work Condition (ESWC):

CEI requires that energized electrical conductors and circuit parts shall be put into an electrically safe work condition before commencing work in strict accordance of NFPA 70E, 2018.

If an electrically safe work condition cannot be achieved, the requirements of the CEI Energized Electrical Work permit process shall be followed.

CEI meets the requirements of establishing an electrically safe work condition by application of the Lock-out/Tag-out provisions contained within this program. This section of the hazardous energy control program establishes the minimum requirements for the effective lock-out and tag-out of electrical energy sources. It shall be used to ensure that conductors and circuit parts are disconnected from sources of electrical energy, locked, tagged and tested before work begins where employees could be exposed to dangerous

conditions. Sources of stored energy such as capacitors or springs, shall be relieved of their energy, and a mechanism shall be engaged to prevent the re-accumulation of energy.

A. Lock-out/Tag-out (LOTO):

LOTO Preparation and Planning: The primary method for developing an effective LOTO plan is to review the work activities in accordance with the project scope, and identify where and how personnel might be exposed to hazardous energy to determine which circuits, systems or equipment need to be de-energized and isolated. The purpose of lock-out/tagout is to prevent injury and death due to unexpected release of hazardous energies.

1) Utilizing the latest drawings, diagrams, tags, labels and signs, identify and locate all circuits and disconnecting means that need to be placed in an electrically safe condition.

A review of all disconnecting means shall be performed to ensure the adequacy of their interrupting ability. This will include verification that the disconnect is a physical break and not de-energized by a circuit interlock. All isolation points must be documented utilizing the CEI LOTO Plan or, Method of Procedure (MOP) form. A simple lock-out isolation point can be documented on a SWI/Task Plan or PRA.

If no current documentation is available, a complete inspection of all related electrical circuits will be performed to identify isolation points. Circuit tracers shall be used to identify all circuits that need to be de-energized.

2) Review other work activity to identify where and how other personnel might be exposed to electrical hazards. This includes work being performed by other trade and client/owner personnel.

Job Briefing:

Before beginning a LOTO or energization process, the Person In Charge (PIC) shall perform a documented job briefing with all personnel involved. The briefing shall cover such topics as hazards associated with the job, electrical hazard risk assessments, work procedures involved, special precautions, energy source controls, personal protective equipment (PPE) requirements, and the information on the LOTO plan or MOP. The briefing shall determine if any personnel are not fully trained and qualified for the job scope, and if not, how they will be supervised to verify they do not exceed their training qualifications.

Additional job briefings shall be held if changes that might affect the safety of employees occur during the course of work.

General Requirements:

1. IDENTIFY, Lock, and Tag out (LOTO) all hazardous energies for all circuits, machinery, systems, and electrical equipment prior to repair or whenever work is being performed on circuits or systems, which have the potential for becoming energized. This requirement applies regardless of start-up or commissioning status.
2. Performance of a lock-out/tag-out shall only be completed by authorized and trained personnel. Authorized personnel are employees who possess knowledge and skills required to safely perform

their task. All other affected personnel shall be trained in the purpose and application of a lock-out/tag-out.

3. Uniquely keyed **Red** locks **MUST BE USED** unless the equipment by design is incapable of receiving locks**. (contact your supervisor if equipment cannot accept a lock)**
4. **DO NOT USE** interlocks, emergency off buttons, selector switches, software controls, and control circuit devices as a means of lock-out/tag-out.
5. **DO NOT** remove lock-out/tag-out devices on behalf of another person. A Foreman or General Foreman **MUST** complete an abandoned lock form and contact their Division Superintendent prior to removing a lock-out/tag-out device. (A copy of this form is available in the Field Foreman Manual on Livewire or, from your Division or General Superintendent.
6. All employees with potential exposure to hazardous energies **MUST BE** protected with their own uniquely keyed lock. No one else shall have a key for your lock. Destroy all duplicate keys and maintain control of your key at all times to prevent unauthorized use.
7. Always **"TEST BEFORE YOU TOUCH"** using a 3-point test as described below.

Use the appropriate voltage rated test equipment for confirming zero voltage, as outlined in your LOTO Plan and/or Method of Procedure (MOP). Ensure that the test equipment's calibration is current.
If "tic tracers" or other inductance testers are used for zero voltage verification, ensure they are rated for the application and a three (3)-point test is performed. Inductance testers may **NOT** be used as the sole means for verifying the absence of voltage in the LOTO process.

Cupertino Electric is responsible for providing all necessary locks/tags and any other lockout devices. For work on branch circuits that do not support critical loads, LOTO procedures are to be documented as part of the LOTO Plan and obtain customer approval as required. The LOTO Plan must list:

a) What hazardous energies are present (e.g. electrical shock/arc flash/start-up, stored, etc.).
b) Requirement to LOTO all energy control points. Specify panel/circuit location.
c) Requirement to perform zero voltage verification using a 3-point test.
d) Requirement to utilize trained/authorized employees to perform LOTO.

For work on branch circuits supporting critical loads and all other electrical lockout situations, LOTO procedures must be documented through an MOP that is reviewed and approved by a Division Superintendent and customer as required.

LOTO procedures must include information on the required arc flash PPE for voltage verifications and detailed explanation of the specific energy control points to be locked out. Note: A sample MOP for LOTO can be obtained from your Division Superintendent or the Field Foreman Manual located on Livewire (Cupertino Electric's Intranet).

When performing a complex LOTO, an energy isolation plan must be developed and must specify a person in charge. This individual is accountable for the safe execution of the complex LOTO. Examples of a complex LOTO include the following situations:

1) Multiple energy Sources
2) Multiple crews
3) Multiple crafts
4) Multiple locations

5) Multiple employers
6) Multiple disconnecting Means
7) Particular sequencing
8) Job or task that continues for more than one work period

A LOTO log must be completed to document which authorized employees are working under a lock and tag. A copy of the LOTO log is available in the Field Foreman Manual on Livewire (CEI Intranet) or from your Division or General Superintendent.

If an electrically safe work condition cannot be achieved, the requirements of the CEI Energized Electrical Work permit process shall be followed.

Lockout/Tagout Procedure:

Preparation:

1. Communicate with client/owner, tenant or other trades of the planned de-energization.
2. Identify and document all types of energy (i.e., electrical, mechanical, potential energy). If incident energy exceeds HRC-4, notify your Divisional Superintendent.
3. Identify and document all sources of energy.
4. Identify and document all potential hazards of that energy.
5. Determine and document required arc flash PPE for use during zero voltage verification.
6. Make a thorough check for all circuit breakers, switch(es), valve(s), or other energy isolation devices that apply.
7. Verify one-line diagrams, drawings, tags, labels and signs and identify and locate all circuits and disconnecting means that need to be placed in an electrically safe condition.
8. Identify and document the correct means to isolate the energy from the piece of equipment (i.e., the correct form of lockout device, multiple lockout for a team of workers, or a single lock for one servicing employee).
9. Document de-energization and re-energization sequence
10. Locate and secure all owner, contractor, and third-party devices (e.g. kirk keys, etc.) that could be used to re-energize the affected circuit(s).
11. Person in Charge will notify all personnel that a lockout/ tag-out is being implemented and the reason(s) for the action.
12. Person in Charge will conduct briefing with all involved personnel.
13. Initiate shutdown of applicable systems or equipment.
14. Complete de-energization of required system(s) or equipment.

Applying Lock-out/Tag-out Devices:

All energy-isolating devices are to be locked using a **Red**, uniquely keyed lock. Combination locks a not to be used. If the energy isolation device will not accept a lock, use a lockout device such as a "block" or circuit breaker lockout, valve lockout, etc. If the disconnect will not accept a lock or, other device to ensure an effective LOTO, contact your project Superintendent for additional direction.

LOTO locks and other LOTO devices **are not to be used for any other** purpose. LOTO devices can be ordered from the SupportCenter. If the de-energization is on operating equipment, initiate shut down by the normal stopping procedure. LOTO is not required on a machine or piece of equipment if the cord

that is connected to tools or equipment is in your immediate sight and control.

Each authorized employee on the crew will attach his/her own personal lock and tag to the energy isolation device. In a crew or group situation, a lockout device such as a hasp or lock box must be used.

Each employee must attach a completed "**DANGER-Do Not Operate"** tag on the locked-out energy isolation device(s). "**DANGER-Do Not Operate"** tags must be suitable for the environment it is placed in and secured in a way that is capable of withstanding 50 lbs. of force. A **"DANGER-Do Not Operate"** tag is not a substitute for a lockout device. The information on the tag must include the date, employees name and contact phone number. If the employee does not have a phone number, the contact phone number of his/her Foreman may be used. If custodial locks are used for equipment lockout, they must be Yellow in color and accompanied with a yellow custodial tag. These locks shall **not** be used for personal protection. Yellow locks and tags can be ordered from the Support Center.

Stored Energy:

Stored energy must be completely dissipated. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc. Where the possibility of induced voltages or stored energy exists, ground the phase conductors or circuit parts before touching them.

Where it could be reasonably anticipated that contact with other exposed energized conductors or circuit parts is possible, install grounding devices.
Thoroughly survey the piece of equipment for capacitors. Energy stored in electrical capacitors will be discharged by proper use of a grounding stick.

Portable Equipment:

When work is performed on portable powered equipment, the power supply line will be disconnected from the power source. The disconnected power supply line must remain within the control of the authorized foreman.

For equipment/systems which have not yet gone through start-up and commissioning, operate the energy isolating devices (e.g., circuit breaker on knife switch) so that the equipment is isolated from its energy sources. Be sure to isolate all energy sources - secondary power supplies as well as the main ones (i.e., emergency power).

Testing/Verification of Zero Energy:

a) After ensuring that there is no exposure to employees, operate the controls to ensure the equipment will not operate.

b) After applying LOTO equipment for electrical sources, test for zero voltage using appropriate voltage rated test equipment. **(Arc flash personal protective equipment is required when performing voltage verifications as outlined in NFPA 70E, 2018.)**

c) Perform a 3-point test when performing voltage verifications.
   1. Check voltage at a known source to confirm testing equipment is working.
   2. Test for voltage at the electrical source that was locked out.
   3. Re-check voltage at a known source to confirm testing equipment is still functioning.

Complex Lock-out/Tag-out:

Person In Charge:

All complex lock-out/tag-out operations will have a designated Person In Charge (PIC) and a written plan. The PIC shall be at the location during the LOTO operation. (A General Foreman or project Superintendent may designate more than one Person In Charge in the event that the primary PIC is not available). The PIC shall develop a written plan and communicate the plan to all personnel engaged in the job or task and will be responsible for the safe execution of the complex lock-out/tag-out plan.

The plan must include:

1) Identification of the Person in Charge (PIC)

2) Reason for the lock-out/tag-out,

3) A documented job briefing,

4) A means to account for all persons who might be exposed to electrical hazards in the course of the lock-out/tag-out.

5) Identification of all energy isolation points.

6) A method for transfer of the lock-out/tag-out if continued on successive shifts.

During construction, the LOTO plan must identify the method of lock-out/tag-out prior to migrating power from the main electrical rooms.

An example of a written complex LOTO plan can be found in the Livewire production department Foreman's manual.

When a lock-out/tag-out extends beyond more than one day, it shall be verified that the lock-out/tag-out is still in place at the beginning on the next day. If the lock-out/tag-out is continued on successive shifts, the lock-out/tag-out shall be considered a complex lock-out/tag-out.

Electrical rooms shall be controlled to prevent unauthorized entry whenever a lock-out/tag-out is in effect. If an electrical room is under dual control (e.g. GC, Owner, sub-contractor, CEI), the lock-out/tag-out plan shall designate an individual from each entity that will have access.

12. Abandoned Lock(s);

If a locking device is discovered on an isolation point after the work has been completed, the project Foreman or PIC must contact the employee who installed the lock for removal prior to energizing the equipment or circuits. If the installing employee has left the location, every effort must be made to contact him/her and request that they return to remove the locking device.

If contact is made, but the installing employee cannot return and approves with the removal, a record of his/her approval, including the time, date and method of contact must be documented on the "Abandoned Lock Removal" form. If the employee cannot be contacted, every effort must be made to

ensure the employee is no longer at the location and an evaluation of the entire affected system or equipment must be conducted to ensure the employees safety prior to removing the locking device. This information must be documented on the "Abandoned Lock Removal" form.

If a CEI locking device is discovered that has no contact information or documentation identifying why it was installed, an evaluation of the entire affected system or equipment must be conducted to ensure employee safety prior to removing the locking device. In addition, an inspection of the equipment and/or circuit must be performed to ensure it is safe to close the isolation device and energize the equipment or circuit. Upon removal of an unidentified abandoned lock, a 3-point test must be performed on all affected conductors to verify that they are not grounded, open and not insulated or shorted between phases.

At no time shall an unidentified locking device be removed if it cannot be determined that it was installed by CEI. Coordination must be performed with the GC/Owner/Tenant prior to removal of the locking device and must be documented.

13. Equipment/Circuit/System Energization:

Equipment, circuit or system energization must be supervised by the Person in Charge (PIC) of the lock-out/tag-out. Prior to energization, the person in charge shall ensure that the equipment, circuits or, system is complete and ready to be energized. This will be done through performing the following steps:

- **a)** Ensure that progress or as-built drawings are complete and up to date,
- **b)** Verify that panel schedules are installed and up to date,
- **c)** Verify that any missing device or fixture is accurately identified on the working as-built drawings,
- **d)** Ensure that all wiring associated with missing devices or components are safed-off and terminated into a junction box with the cover installed. The box shall have panel and circuits identified on the cover and be supported per the NEC,
- **e)** Verify all testing has been performed and commissioning documents are complete,
- **f)** Using the updated as-built or progress drawings, the Person in Charge or Foreman shall walk the project and visually ensure that all work is complete or terminated and safed-off in a code compliant manner.
- **g)** Visually inspect the equipment or system to ensure that all tools and materials have been removed and accounted for.
- **h)** A documented all-hands meeting shall be conducted to inform all employees, sub-contractors, other trades and client personnel that energization will take place and the potential hazards associated with energized electrical systems.

After completion of steps a through h, authorized employees shall be instructed to remove their locks and tags and sign out on the group sign-in sheet. Every employee involved in the lock-

out/tag-out must be accounted for. If any lock is left on the box, hasp or other isolation point, the person in charge must follow the steps outlined on the abandoned lock removal form.

Upon completion of employee lock and tag removal, the person in charge shall perform equipment or system energization and resume normal operations.

END

CUPERTINO ELECTRIC INC.

Section 2.6 – Company Vehicles/Fleet Safety

CEI has the responsibility to its employees and to the community to ensure that all employees driving company vehicles are safe drivers. Therefore, CEI has the responsibility, and is required, to adhere to the acceptable insurance industry standards. The insurance industry has determined that drivers who fall within a set of criteria are considered "bad risk" drivers, and are therefore "unacceptable."

UNACCEPTABLE is defined as any driver who (over 3 consecutive years):

1. Has more than two (2) minor driving infractions (speeding, turns, failure to yield, etc.)
2. Is cited for driving while under the influence of alcohol or drugs, reckless driving, etc.
3. Is involved in an incident that is determined to be preventable towards the driver, resulting in a negative claim against our insurance carrier; and has one (1) or more minor driving infractions.

Every employee has a responsibility to maintain a clean driving record, both on the job and off. If your license is suspended, or revoked, due to your personal driving record you could become unemployable and, in fact, could lose your job.

Employees issued vehicles will be required to participate in the DMV Pull Program. CEI has become a member of DMV's Pull Program in order to monitor employees' driving records more closely. The Pull Program gives CEI immediate notice (within five days) when a driver gets any new violations against them.

Employees who have additional infractions and/or chargeable accidents will be subject to warning notices or other actions necessary to correct the problem.

As an employee, you must realize that your personal DMV driving report is an important document and obtaining additional infractions which result in an unacceptable rating by the insurance carrier could affect your ability to perform your employment duties.

Violations involving overloads, mechanical problems, or other company related infractions are not included in this policy, nor will any warning notices be given. However, this does not relieve the driver from ensuring that the vehicle is mechanically sound prior to diving upon any road, street, or highway.

CEI will review the driving standard of their employees on an ongoing basis and will inform any employee not meeting current driving criteria and standards.

New Hire Process:

Potential employees looking for employment with Cupertino Electric, Inc. as a driver are required to submit a Motor Vehicle Report (MVR) from the state(s) in which they have a driver's license. At the time of hire, the employee is required to complete a driver's application and the employee's current driver's license is checked for validation within the State of California (or other applicable state agency).

Vehicle Inspection and Maintenance:

A systematic preventative maintenance program is the best known, and most economical, means of protecting CEI's auto investment. By maintaining your vehicle at a high level of mechanical fitness and safety you can avoid accidents arising from faulty equipment and excessive repair

costs.

Drivers of pool trucks/heavy equipment are required by State Law to perform daily inspections on their vehicle. The Driver's Vehicle Inspection Report should be used for this inspection.

Tractors are to be inspected weekly using the Driver's Vehicle Inspection Report provided by the Department of Transportation (DOT). Driver's Vehicle Inspection Reports are to be given to the Fleet Manager once an inspection is complete. This assures continuous maintenance records for all vehicles.

CEI participates in the state sponsored Biennial Inspection Terminal (B.I.T.) Program. This involves inspections by the California Highway Patrol of our large vehicles, equipment, and terminal along with documentation and methods for ensuring our equipment is as safe as possible.

A daily driver's inspection should involve a walk around the vehicle and a test of the brakes, lights, and signaling devices. Drivers will be responsible to report to the Fleet Manager or Foreman any defects identified. If brakes, lights, or signaling devices are not working properly they will be adjusted or repaired before the vehicle is put in operation. No motor vehicle will be operated at night unless properly equipped with headlights.

The driver is responsible for ensuring that their vehicle remains in a safe operating condition, performing all scheduled preventative maintenance required for the vehicle.

Operation of Vehicles and Other Mobile Equipment:

1. General:
    a. Only specifically authorized personnel who possess valid licenses or permits pertaining to the particular type vehicle they are operating will operate company equipment or personally owned vehicles on company business.
    b. Drivers will not permit unauthorized persons to drive, operate or ride in or on a company vehicle.
    c. The use of seat belts is mandatory for the driver and all passengers of any company-owned vehicles.
    d. Drivers will know and obey all state and local motor vehicle laws that apply.
    e. Employees will not let anyone ride on the running boards, fenders, or any part of a motorized vehicle except the seat or inside the body walls. Passengers will not stand in moving vehicles. Rather, they should sit where no part of their body protrudes beyond the vehicle top or sides.
    f. Employees will not ride on loose material or equipment carried on trucks.
    g. Employees will not ride on trailers.
    h. Employees will not jump on or off vehicles in motion.
    i. For access into/off large trucks (i.e. semi-trucks, flatbeds, etc.), use a ladder or moveable stairs.
    j. If your driver's license is revoked or expired, notify your supervisor immediately and do not drive.
    k. Employees who use cell phones while driving will be required to use a hands-free device. Texting while driving is prohibited.

l. Under no circumstances will any CEI vehicle be driven under the influence of physician-prescribed, over-the-counter, or illegal drugs, or any substance that may impair the operator's functions.

m. Keys are not to remain in the vehicle when the vehicle is unattended.

2. Operation:

a. The operator of the motor vehicle will clearly indicate their intentions of passing, stopping or turning.

b. Drivers will be prepared to stop and yield the right of way in all instances where necessary to avoid

c. an accident.

d. Drivers following other vehicles will stay a safe distance behind.

e. Drivers will keep a sharp lookout for children, especially in school zones or where they are playing and will be prepared to stop immediately.

f. Any truck or trailer that is stopped on a public roadway will be protected by flagging, proper warning lights or reflectors in accordance with traffic safety requirements.

g. Vehicles will not be parked on bridges or culverts except where necessary for work. (If it is necessary to work in these places, the vehicle should be adequately protected by activating four- way emergency flashers, using a flagger and incorporating such items as "Employee Working" signs, traffic cones, etc.).

h. Before backing a vehicle, a driver will ensure that the space needed is clear. The driver must back up slowly, keeping a constant lookout the entire time they are backing up. When backing up trucks and a spotter is available, the spotter will be stationed so that they can warn the driver of approaching danger and assist the driver in maneuvering the vehicle. It is preferable to station the spotter on the left-hand side of the truck so that the driver, when looking into the left-hand mirror, may see them.

i. When entering or leaving any building or enclosure, or to or from an alley where vision is obstructed, a complete stop will be made and the driver will proceed with caution.

j. Trucks on which derricks or booms are erected above traveling heights will not be moved except under the immediate direction of a spotter who will give their undivided attention to the movement.

k. When refueling, all ignition systems will be turned off, and the employee will not smoke or use a cell phone.

l. Load limits of booms, derricks and other hoisting equipment will not be exceeded.

m. When proceeding downgrade, the clutch will not be disengaged. Trucks, especially heavily loaded ones, and will be in low gear on steep grades.

n. When stopped on inclines, drivers will be sure that the brakes are properly applied, the vehicle is in gear where possible, and the wheels are at an angle against the curb, whether the vehicle is facing up or down grade.

Reporting Accidents:

Report all incidents immediately to your supervisor and Risk Management. Every CEI vehicle is required to have a Vehicle Accident Report form in the glove box. This packet will ensure that all appropriate actions are taken before leaving the scene of an accident.

1. At the Scene:
    a. Obtain medical aid if necessary.
    b. Report accident to State or Local Police.
    c. cInsure the safety of personnel, vehicle and cargo.
    d. Gather key information about the accident, including names, phone number and addresses of any witnesses. Completing the Vehicle Accident Report form will assure all necessary information is obtained.
    e. Obtain an Accident Report Number from Police.
    f. Do Not discuss the cause of accident or amounts of insurance available with other involved parties or their representatives. If a party contacts you immediately contact the corporate claims administrator and your supervisor.
2. Within 24 Hours:
    a. Notify Risk Management and the Safety Department of the accident.
    b. Complete and submit CEI's Vehicle Accident Report.
    c. Notify the Fleet Manager if repairs are necessary.

CUPERTINO ELECTRIC INC.

Section 2.7 – Ladder Safety

General Requirements

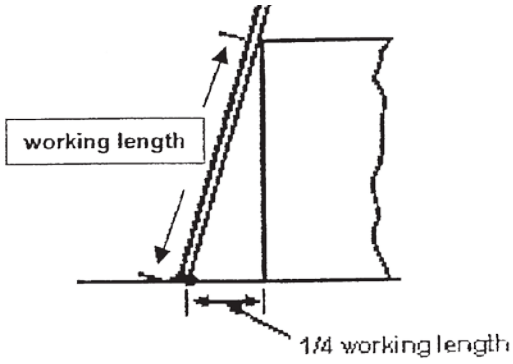
1. Inspect the ladder before using it. If it is damaged or broken, throw it out or return it to the Support Center for credit/disposal. Defective ladders must be immediately tagged "Defective – Do Not Use" using non-compliance tags and removed from service. Never attempt to repair a broken ladder; get a new one. Keep portable stairways, ladders and step stools in good condition and use them only in a safe manner.
    a. Look for broken or missing steps, rungs, or cleats, broken side rails, and other faulty parts.
    b. Ensure rung or steps are free from grease, mud, oil or other slippery substances.
    c. Joint between steps and side rails must be tight and all hardware and fittings should be attached firmly.
    d. Movable parts should operate freely without binding or undo play.
2. Use the proper ladder for the job. Do not use "A" frame ladders as straight ladders. Make sure the ladder is tall enough to reach the work area. Fiberglass ladders are required. Do not use metal or wooden ladders. All ladders must have a minimum duty rating of Type 1A (300 lbs.) or IAA (375 lbs.).
3. Do not place ladders in passageways, doorways, or any location where they might be hit or jarred, unless protected by barricades, cones, guards, or a spotter.
4. Barricade work area below ladders if there is risk of falling tools or materials on others below.
5. Ladders should only be placed on hard level surfaces. Make sure the ladder feet are not placed on sandy, slippery or sloping surfaces. Clean or sweep the area where the ladder feet will be and make sure the rubber feet are in good shape. Never place cleanroom booties or other materials on the bottom of ladder feet which would prohibit the rubber grip. If floor protection is a concern, place ladder feet on Masonite or another suitable surface.
6. Arrange your work so you are able to face the ladder at all times and use both hands while climbing. Do not carry tools or equipment while climbing a ladder. Climb the ladder, and then hoist the tools or equipment with a line or a hoisting device.
7. CEI does not build job-made ladders. Job-made ladders provided by the General Contractor may be used.
8. Secure portable straight or extension ladders in place and at a pitch so the leveling indicator is in alignment or the distance from the wall to the base of the ladder is at least 1' for every 4' of height (see additional information, below).
9. To prevent slipping, all straight ladders will be tied off at the top or secured.
10. Extension ladders will extend at least 36" above the level being accessed. For straight or extension ladders, do not stand or work from the top 3 rungs or cleats of the ladder unless there are members of the structure that provide a firm handhold or you are protected by a personal fall protection system.
11. Never attempt to build an extension ladder by tying two sections of straight ladder together.
12. Be aware of objects above and below you. Do not work directly over impalement hazards. Mitigate any sharp objects in the area you are working.
13. When working on stepladders, do not stand on, or work from, the 2nd step from the top or above.
14. Do not reach too far from the ladder. Keep your body positioned between the side rails.

Your waist line should not extend above the top cap/rung of the ladder (unless the ladder design prohibits this, i.e. platform ladders).

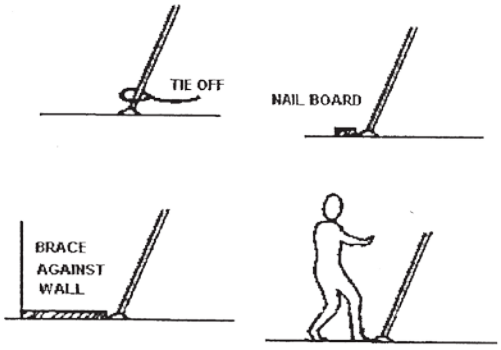
15. When working on a ladder at elevations of 6 feet or greater (measured from the bottom of feet), the type of work being performed (or customer/project requirements) will dictate whether a personal fall arrest system is required. When performing tasks that do not require excessive force or torque, and all of the ladder safety guidelines in this section are being met, no personal fall arrest system will be required.
16. Do not stand on the rear or cross bracing of ladders. The rear/cross bracing is not intended for climbing.
17. When employees are working on ladders near the edge of a floor protected by guardrails, the guardrail must be raised to provide adequate protection **or** a personal fall arrest system must be employed to protect the employee from the fall hazard. If the ladder can be positioned back and away from the guardrail a minimum of 1.5 times the height of the ladder, a modification to the guardrail or personal fall arrest systems are not required. Deviations from this requirement must be reviewed and authorized by the Safety Department or your Superintendent to ensure an alternate safe plan of action is in place.
18. Do not “walk” ladders; come down from the ladder and relocate it to your next position if you need to move your ladder. Ladders with spring-loaded wheels are available from the Support Center to ease ladder movement.
19. Move small tools and materials from the top cap of stepladders prior to moving the ladder.
20. Only one person is allowed on a ladder at a time unless the ladder is specifically designed for multiple people.

Requirements for Setting Up Straight or Extension Ladders

1. Lean a straight or extension ladder at about a 75° angle. Use a 4 to 1 ratio. (i.e. the distance from the wall should be ¼ the working length of a ladder).
    a. Ladder rungs are one foot apart on standard ladders. Divide the number of rungs in the working length by 4 to determine the feet of horizontal distance. For example, if 16 rungs are counted, the horizontal distance should be 4 feet.



    b. Tie off the top of the ladder to keep it from tipping back or side-to-side, or have someone support the ladder while in use.
    c. If you have to use a ladder at a flatter angle, brace the feet to prevent it from slipping.
        i. Brace a ladder in one of these ways:
            - Tie off the feet to the wall.
            - Nail a board to brace the feet.
            - Put a brace between the ladder and the facing wall.
            - Have someone brace the ladder with his or her feet.



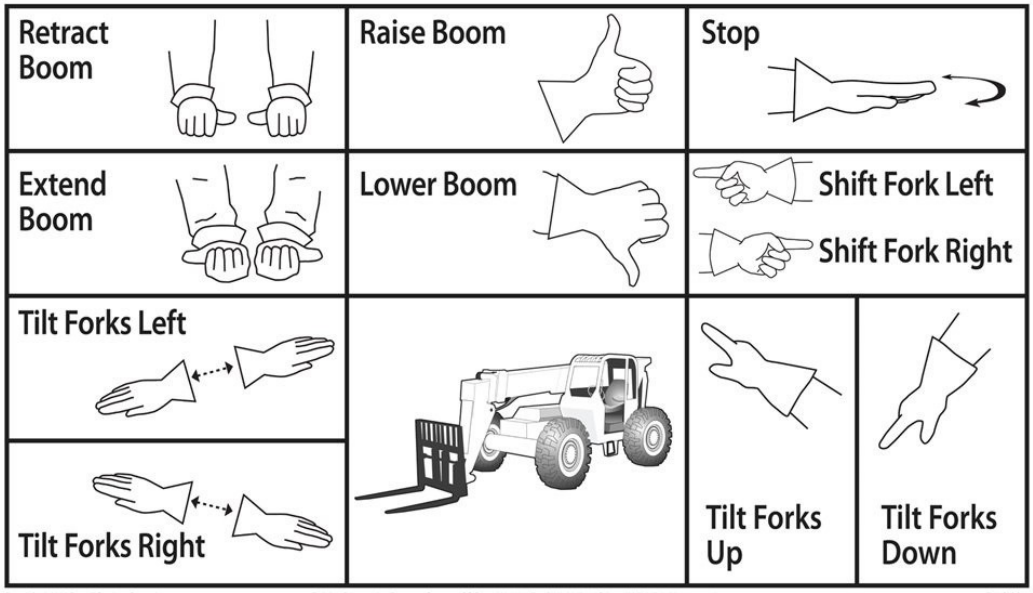
2. The side rails of a ladder should reach at least 3 feet past the level you are climbing to and the ladder must be tied off at the top or be supported by another employee.

CUPERTINO ELECTRIC INC.

Section 2.8 – Forklift Safety

1. Only trained and authorized employees are allowed to use forklifts. If you aren't trained, stay off. Operators must be trained on the type of equipment they are operating. Certifications are valid for up to 3 years. Training provided by third-parties or former employers will still require a practical evaluation by a CEI-Authorized Trainer. The operator must have a copy of their certification card on their person while using a forklift.
2. A copy of the Operating Rules for Industrial Trucks must be posted on all jobs where forklifts are in use. Contact the Safety Department if a copy of the Operating Rules is required.
3. Seat belts must be worn at all times.
4. No one will be permitted to ride on the forklift except the operator.
5. Read and obey all manufacturers' instructions and safety precautions. A copy of the manufacturers' manual must be available inside each forklift.
6. Inspect all forklifts prior to use. Document the inspections; copy of current inspection shall be kept with the forklift Defective equipment will be tagged out and removed from service immediately using a non- conformance tag.
7. Use electric forklifts inside occupied buildings.
8. Only manufacturer-approved fork attachments will be used.
9. The operator is the sole responsible person in charge of the load and surrounding area.
10. Only one individual is to give hand signals to the operator using uniform hand signals. (Refer to the Telehandler hand signals below)
11. Always have a clear line of sight when operating a forklift. Use a spotter in congested areas or if you don't have a clear line of sight. Forklifts should have rear and side mirrors to aid in safe travel.
12. Know the weight of objects you are lifting and the lift capacity of the equipment you are operating.
13. If your forklift is equipped with a fire extinguisher, ensure it is being inspected monthly.
14. When re-positioning/sliding forks, keep fingers free of pinch points.
15. The operator may never leave the seat of the cab with a load in an elevated position.
16. Turn of ignition and set brake prior to exiting cab.
17. Small materials/rigging must be stowed in such a manner to not interfere with the operation of the forklift or visibility.
18. If forklifts are equipped with outriggers or stabilizers, deploy these in accordance with manufacturer's instructions.
19. Operators will not leave controls while a load is suspended.
20. When lifting top heavy or tall loads (i.e. 4-foot-high or taller) additional means must be provided to secure the load from tip over (i.e. strapping loads to the mass etc.).

Telehandler Hand Signals



CUPERTINO ELECTRIC INC.

Section 2.9 – Boom Lifts, Scissor Lifts and Bucket Trucks

1. Only trained and authorized employees are allowed to use boom lifts, scissor lifts, or bucket trucks. If you aren't trained, stay off. Equipment operators must have a current certification card. Certifications are valid for up to 3 years. Training provided by 3rd parties or former employers will still require a practical evaluation by a CEI-Authorized Trainer.
2. Read and obey all manufacturers' instructions and safety precautions. A copy of the manufacturers' manual must be available inside each lift/truck.
3. Inspect all lifts prior to use. Document the inspections; copy of current inspection shall be kept with the equipment. Tag and remove any defective equipment out of service immediately using a non- conformance tag.
4. A full-body harness with lanyard must be worn/attached while using boom lifts or bucket trucks. Fall protection is not required for scissor lifts, provided you do not leave the work platform and the chain or gate are in place. Note: Some General Contractors and Owners may require the use of fall protection in a scissor lift. In situations where fall protection is required in scissor lifts, personnel shall follow manufacturers fall protection guidelines/recommendations.
5. Always stay inside the platform railing. Do not use planks or ladders to extend your reach. Don't stand on toe-boards or rails of lifts. Consult with the Safety Department if you are unable to reach your work area while standing on the platform of the lift.
6. Ensure the guardrail gate is closed or safety chain is up at all times. Consult with the Safety Department if exiting from lifts is required while elevated.
7. When exiting or entering scissor lifts, use the same method as when using a ladder (i.e. face rungs and maintain three points of contact).
8. Lower lifts before moving. If short distances must be travelled in a scissor lift in the elevated position, ensure there are no depressions, holes or other obstacles creating a tip-over hazard on the travel path as part of the documented safety pre-task plan prior to beginning work. If movement of the lift obscures visibility to ground conditions then it is recommended that a spotter on the ground assist with the lift is being moved or repositioned.
9. Never use scissor lifts on uneven ground. Scissor lifts are designed for use primarily on concrete floors.
10. Ensure scissor lifts used outdoors are rated for wind load. Refer to the maximum wind speed rating on the serial number plate to verify the lift is intended for use with wind loads and do not use the lift when conditions exceed the rating.
11. Never exceed the equipment's rated working load.
12. Never utilize a boom lift, scissor lift, or bucket truck as a hoisting or pushing mechanism. Only bucket trucks with material handlers can be used for hoisting. Only bring materials for immediate use.
13. Check for overhead power lines before moving the equipment. Work in lifts near overhead power lines need to be reviewed and approved by a Division Superintendent prior to beginning work. Only insulated equipment will be used when working energized lines and equipment and must be tested and rated for the highest voltage to be worked. Only qualified electrical workers will be authorized to work near energized equipment.
14. Keep hoses, electrical cords and welding cables clear of moving parts when raising or lowering the platform.
15. When the machine is equipped with outriggers or stabilizers, deploy these in accordance with manufacturer's instructions.

16. For bucket trucks, only one person may occupy the bucket at a time, unless specifically designed for more personnel.
17. Bucket trucks insulated for work on energized lines must be independently tested and certified for dielectric properties at no greater than 12- month intervals. Dielectric test stickers are required to be affixed to all insulated booms tested with voltage ratings and date tested.
18. Barricade work area below lifts and bucket trucks in areas of potential risk of falling tools/materials to others below.
19. Keep platform clean and free of debris to prevent trip hazards.
20. Ensure hands/head/body are clear of potential crush/pinch points when moving lifts and trucks.
21. During work adjacent to others, verbally notify of intended movement.
22. Consult the Safety Department if lifts or trucks are to be used on ramps or other unleveled terrain to discuss plans for cribbing or alternate plans for safe operation.
23. When pads are required under outriggers for floor protection/weight distribution, make provisions to identify/mitigate potential trip hazard.

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Section 2.10 – Personal Protective Equipment (PPE)

1. Inspect your PPE including gloves prior to use. If damaged, worn out or broken, return PPE to your foreman for replacement.
2. Proper PPE for each job assignment should be identified as part of the safety pre-task plan. Notify your Foreman if you have questions.
3. Use the correct PPE for each job assignment. If you don't know, ask.
4. If employees choose to bring and utilize employee-purchased PPE (particularly hard hats, gloves, and prescription safety glasses) they must be inspected and approved by your Foreman or the Safety Department prior to use.
5. PPE will be maintained in good condition and cleaned regularly.
6. PPE will be stored properly when not in use to protect it from damage.
7. Hard hats must be worn on job sites at all times. Hard hats must be worn with the bill facing forward. One variance is for employees performing work inside fully enclosed equipment cabs. Only ANSI Z89.1 2003 Type I, Class E (Electric) hard hats can be used.
8. ANSI approved safety glasses with side shields or goggles must be worn at all times. Prescription safety glasses must be stamped with Z87.1. Clear glasses must be worn indoors. One variance is for employees performing work inside fully enclosed equipment cabs.
9. Work above T-bar ceilings, all overhead work involving drilling, chipping, scraping, shooting or where there is a potential for generating or disturbing dust or debris work, outside during gusty windy conditions and other tasks such blowing down areas must be done wearing ANSI approved safety goggles or gasketed safety glasses to prevent fine dust particles getting into the eyes. This eye protection will also help prevent risk of puncture from ceiling wire above T-bar ceilings.
10. Face shields with safety glasses are required when grinding, operating chop saws, operating powder- actuated tools, and performing other tasks which pose a risk of material striking the face. Note: if operating powder-actuated tools, drilling, cutting or performing any work which may cause particulate or other materials to fall when working overhead, ANSI approved safety goggles or gasketed safety glasses must be worn with the face shield.
11. Take special care when removing face shields and safety goggles/gasketed safety glasses that may have accumulated fine particles or debris on them during use. Lean forward and brush off particles and debris prior to PPE removal.
12. When working with hazardous chemicals (batteries, etc.), face shields with safety goggles, chemical resistant gloves, aprons/suits are required based on the potential for splash. Consult the safety pre-task plan or discuss with the Safety Department for guidance.
13. Sturdy work boots are required on construction projects. The shoes and boots must have complete leather uppers, skid resistant soles and be in good condition. Steel toe protection or metatarsal covers may be required on some jobsites or when performing certain tasks (i.e. jackhammering, etc.).
14. Athletic style shoes, dress shoes, open toe shoes, plastic or vinyl shoes or shoes with decorative accessories are not allowed in construction or fabrication areas.
15. Hearing protection (ear plugs or ear muffs) must be worn when working with loud equipment such as saws, air hammers or grinders. As a rule of thumb, if you are standing within 3 feet of another person and need to raise your voice to be heard, hearing protection is required. Keep ear plugs clean and free of dirt.
16. Be sure the protective clothing you wear will not hamper or restrict freedom of movement

due to improper fit.

17. No shorts or sweat pants are allowed on construction projects; long pants must be worn.
18. While operating machines which could cause entanglement do not wear: loose, torn or frayed clothes; dangling ties; finger rings; dangling earrings; jewelry items; or, long hair unless it is worn in a manner to prevent entanglement.
19. If required, wear NIOSH approved respirators (which include filtering face-pieces--i.e. dust masks with two straps) when applying adhesives, paint, welding, grinding or working with chemicals or around other potential airborne hazards (asbestos, mold, crystalline silica, coccidioidomycosis--i.e. Valley Fever), etc.). Medical evaluation, training, and fit-testing will be required prior to respirator use. Please contact the Safety Department for more information. Facial hair is not permitted on the sealing surface area of the respirator.
20. Voluntary use of filtering face-pieces (i.e. dust masks with two straps) will require employees to review and sign a Voluntary Respirator Acknowledgement form. A copy of this form is located on Livewire (CEI Intranet). Contact your Division Superintendent or the Safety Department for more information.
21. Voluntary use of a tight-fitting respirator will require medical evaluation, training, fit-testing and completion of a voluntary Respirator Acknowledgement form prior to use. Please contact the Safety Department for more information.
22. Hand protection is required at all times. Contact your Foreman if you identify a task that would be more hazardous if performed with gloves. Glove type selection will be noted on the safety pre-task plan and/ or MOP.
23. Long sleeves or cut resistant arm guards are required when performing work above t-bar ceilings, work inside of switchgear or reaching into any other locations with exposed sharp edges present to prevent cuts/lacerations.
24. When working within an arc flash boundary, arc rated clothing and equipment must be worn. Arc rated clothing and equipment selection will be noted on the safety pre-task plan and/or MOP.
25. When performing cad-welding wear a face shield, safety glasses, leather gloves, and long sleeve shirt.
26. When required, high visibility vests must be ANSI class 2 or 3.
27. Employees shall wear Metatarsal guards anytime there is a potential for injury to the foot from impact or compression hazards (i.e. Jack hammering, Tamper).

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Section 2.11 – Hand and Power Tools

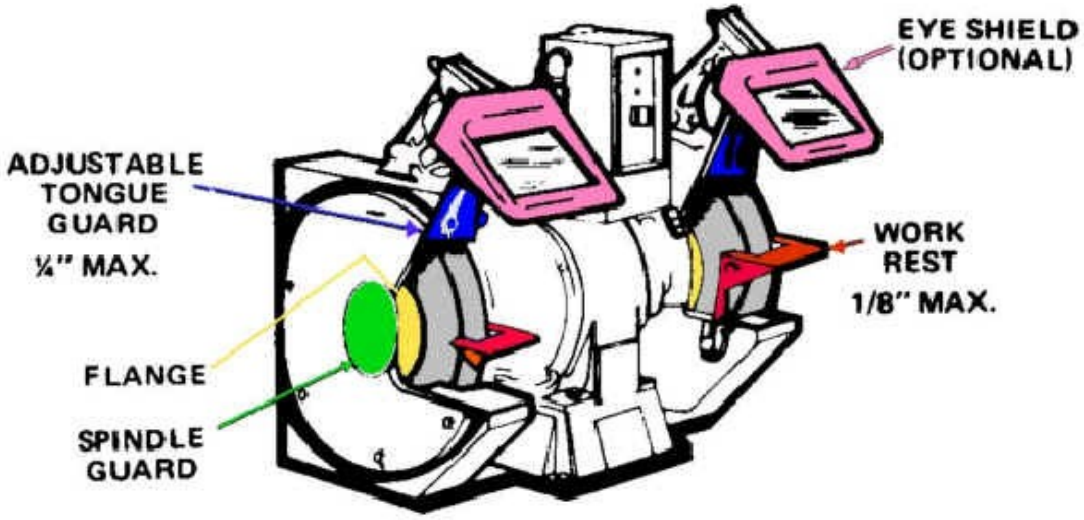
1. Proper eye and face protection must be worn at all times.
2. Know your hand and power tool applications and limitations. Always use the proper tool for the job according to manufacturer's instructions.
3. Inspect cords and tools prior to use. Do not use tools that are faulty in any way. Tag them and remove them out of service immediately using a non-conformance tag.
4. Power tools must be grounded or double insulated. All power tools are to be plugged into a grounded GFCI outlet that has been tested prior to use.
5. In areas with a potential for explosive vapors or dust, area must be inspected prior to power tool use.
6. Do not lift, lower or carry portable electrical tools by the power cord.
7. Keep all safety guards in place and in proper working order.
8. Use clamps or vises to secure work pieces.
9. Do not apply excessive force when using power tools. Apply only enough pressure to keep the unit operating smoothly.
10. Return all tools and other equipment to their proper place after use.
11. Unplug all power tools (or remove the battery) before changing bits and/or grinding disks.
12. Never leave chuck keys in the tool during operation.
13. Do not use a screwdriver as a chisel or wedge.
14. Before using sledges, axes or hammers make sure the handles are securely fastened with a wedge made of sound material.
15. When using a hand bender to bend conduit, inspect handle and head for signs of fatigue or crack. Position body in such a way that if it breaks you will not be injured. It is not recommended to use a hand bender for 1 ¼" conduit.
16. When using tuggers, keep fingers free of pinch points and unplug bender prior to untangling rope/ wire or other maintenance. Ensure tugger is anchored or secured properly and stay out of line of fire (directly in front of or behind rope).
17. Do not use a handle extension on any wrench.
18. Files shall be equipped with handles and should not be used as a punch or pry.
19. Do not use utility knives / exposed blade box cutters.
20. When using power tools, always use the second handle provided by the manufacturer/two hands for high power equipment such as rotohammers, ½" drills, Sawzall®, Hole-Hawg®, etc.
21. Bandsaws require two handed operation unless designed for single handed use by the manufacturer.
22. Do not modify or alter tools.
23. Compressed air/gas must be reduced to less than 30 PSI if it will be used for cleaning purposes. The use of compressed air/gas to clean off yourself or other workers is not allowed.
24. Requirements for Pneumatic Power Tools:
    a. Manufactured whip checks must be installed on hoses to prevent accidental disconnection.
    b. Ensure the manufacturer's safe operating pressure for hoses, pipes, valves, filter,

and other fittings are not exceeded.

c. When hoses greater than ½" in inside diameter are used, a regulator valve must be placed at the source or branch line to protect against hose failure.
d. Safety clips or retainers shall be securely installed and maintained on pneumatic impact tools to prevent attachments from being accidentally expelled.
e. Never hoist or lower tools by the compressed air hose.
f. Regularly inspect compressed air hoses. Immediately red tag out of service any hoses with visible defects and notify your Supervisor to obtain a replacement.
g. Protect compressed air hoses from damage (i.e. heat sources, vehicular traffic, etc.)

Bench Grinder

a. Always wear safety glasses and a face shield when operating the grinder.
b. Never wear loose clothing and keep long hair secured/tied back.
c. Always use abrasions wheels that are rated consistent with the speed rating of the bench grinder.
d. Only dress abrasion wheels on the face with a diamond dresser.
e. Never use an abrasion wheel that vibrates.
f. Never start the grinder with a work piece against the abrasion wheel.
g. Only apply the work piece to the face of the abrasion wheel.
h. Do not grind on side of wheel unless designed for side grinding.
i. Do not grind magnesium or aluminum. Fire or explosion may occur.
j. Keep hands and fingers at least two inches from the rotating abrasion wheel.
k. Cool the work piece by dipping it in water. Do not apply coolant water to the abrasion wheel.
l. Turn off the bench grinder and disconnect the power source prior to making grinder adjustments or repairs.
m. Always clean the bench grinder work area upon completion of the grinding task.
n. When replacing the grinding wheel perform a ring/tap test of the wheel to ensure the wheel has no voids in it.
o. Maintain the tool rest within 1/8" of grinding wheel.
p. Maintain the tongue guard within ¼ inch of grinding wheel.
q. When installing a new wheel, closely follow the manufacturer's instructions. An improperly installed wheel can break and cause injury.



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Section 2.12 – Powder Actuated Tools

1. Only trained and authorized employees are allowed to use powder-actuated tools. If you aren't currently trained, and certified, on the exact model you intend to use, don't use it. Operators must have a copy of their certification card in their possession during use.
2. Read and obey all manufacturers' instructions and safety precautions.
3. Full-face shields must be worn over your safety glasses when using powder-actuated tools. Note: if operating powder-actuated tools overhead, ANSI approved safety goggles or gasketed safety glasses must be worn with the face shield.
4. "Powder Actuated Tools in Use" signs must be posted.
5. Wear hearing protection (ear plugs or muffs), especially in enclosed or confined spaces.
6. The type and size of fastener to be used shall be compatible with the type and size of material which the fasteners are to be driven into.
7. Powder actuated shells shall be stored in a secured and dry environment.
8. Powder actuated tools shall not be used in explosive or flammable atmospheres.
9. Powder actuated tools shall not be loaded until just prior to the intended firing time.
10. Do not leave unfired cartridges lying on the ground. Return all unfired and misfired, cartridges to the Support Center for proper disposal. Identify **misfired** cartridges.
11. Loaded powder actuated tools shall never be left unattended. Lock away powder actuated tools and cartridges when not in use.
12. Powder actuated tools shall never be pointed at anyone.
13. Inspect all tools prior to use. Defective equipment will not be used.

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Section 2.13 – Trenching and Excavation

Prior to Excavation or Boring

1. Before digging or boring, layout planned route and call USA (811) a minimum of 48 hours prior to any work. Hand auger type temporary ground rods can be installed without a notification to USA only after a site survey to look for any obvious underground utilities is performed.
2. The use of 3rd party locators shall be required on private property in addition to USA (811). When 3rd party locators are utilized it is recommended that the area being located is a 50' radius beyond the work area when possible.
3. All work is to be planned and supervised by a CEI trained and designated competent underground representative.
4. Training is required for new employees before conducting any excavation activity.
5. At a minimum, all employees working in excavations that are 4 feet in depth or greater (or where hazards warrant) must participate in excavation safety awareness training.
6. Site surveys shall be performed to locate any landmarks (i.e. vaults, light poles, storm drains, etc.). Identify and document any valves or shut-offs that pertain to your excavation.
7. Always request a current copy of as-builts from the owner, general contractor, or utility company.
8. For operations in the state of California, Cal-OSHA must be notified, in writing, 24 hours prior to anyone entering a trench 5' or deeper. Notify your Superintendent to ensure proper paperwork is completed.
9. Communicate information on known utilities located in the immediate vicinity of the trench/excavation to all employees and subcontractors participating in the trenching/excavation work. This information should be documented on the safety pre-task plan.
10. Project Manager or Foreman to obtain and review soil analysis report to determine presence of any known soil or groundwater contaminants and required control measures.

Potholing/Hand Digging

1. Using hand tools, expose all marked or unmarked utilities with a minimum of 24" on each side of the utility before any planned excavation or boring.
2. Picks or other similar tools, in addition to pneumatic or electric impact type tools with spade attachments should not be used for hand digging.
3. The use of air/water to remove material to pothole can only be used if authorized by the owner of the utility.
4. All boring shall follow the same guidelines for potholing as conventional excavations.

Trenching & Excavations

1. When employees will need to enter a trench or excavation, they shall be protected from cave-ins by an appropriate protective system unless the excavation is made entirely in stable rock, or the excavation is less than 5 feet deep and the CEI designated competent person has determined there is no potential for a cave-in. In the selection of the protective system, the CEI designated competent person will perform visual and manual soil analysis to classify soil as type A, B, or C, and document results on CEI Visual and Manual Soil Analysis Checklist, available from the Corporate Safety Department.
2. A designated competent person must be present, at a minimum, on all projects with trenches/excavations that are 4 feet in depth or greater requiring employee entry.

3. All excavations and trenches 5 feet deep or greater must be shored, sloped or benched to protect workers from the hazards of moving earth. No work will be performed outside of the protected (shored, sloped or benched) area. All trenching must be done in accordance with state or country regulations and supervised by a designated competent person.
4. Protective systems for excavations deeper than 20 feet shall be designed by a registered engineer.
5. Additional bracing must be used when vibration or surcharge loads are a hazard.
6. A ramp, stairway, or ladder (straight, trench, or extension) will be provided for access to trenches and excavations 4' deep or greater. Employees shall not have to travel more than 25 feet to reach a ladder/ ramp/stairway. Additional ladders/ramps/stairways may be required in locations where the access way is not in the line of sight.
7. Designated competent person will be responsible for performing atmospheric testing in trenches/ excavations that are 4' deep or greater that have a potential for hazardous vapors and gases. Consult the Corporate Safety Department if assistance is needed.
8. Keep all spoils a minimum of 2' from the edge. Protect employees from falling materials by installation of protective barriers or other methods.
9. Do not place tools/material along edge of trench where they pose a trip or struck-by hazard to employees.
10. Create a walk path a minimum of 2 feet away from trench to prevent slipping/falling into trench.
11. Use physical barriers (k-rail/jersey barriers, fencing, etc.) or barricade tape to delineate around open trenches to warn others of their presence.
12. A designated competent person will inspect all trenches and excavations that are entered by personnel and protective systems at a minimum daily before work, and as needed throughout the shift (i.e. after a rainstorm, etc.), to look for potential cave-ins, failures, hazardous atmospheres, or any other hazards. These inspections will be documented; contact the Corporate Safety Department for a copy of the inspection form. The competent person must be on site to take prompt corrective action or remove employees from the hazard.
13. Do not jump over trenches. Use wood planks or sheeting. Walkways or bridges with standard guardrails must be installed when employees or equipment are required or permitted to cross over excavations that are at least 6 feet deep and wider than 30 inches.
14. While the excavation is open, the underground utilities must be protected, supported, or removed, as necessary.
15. Do not work under loads handled by lifting or digging equipment.
16. Employees who will enter trenches that are 4 feet in depth or greater must participate trench/excavation safety training prior to entry.
17. Workers within six feet (6') of trench or excavation edges with a fall hazard of 6 feet or greater will be protected by one of the fall protection systems outlined in Section 2.2.
18. Provide adequately rated trench plates over open trenches for any vehicle/equipment crossing.
19. In areas where trenches/excavations are located where there is potential exposure to members of the public, rigid physical barricades and/or trench plates are required.
20. Call for a re-mark anytime the markings are destroyed, faded, or removed before excavation is complete.

21. If a utility cannot be located, call 811 on how to proceed with work.
22. Trench plates shall be hoisted with properly rated hoisting equipment.
23. Workers handling trench plates shall not allow any part of the body underneath the trench plate while guiding a suspended plate. Taglines or other means of guiding may be necessary.

Section 2.14 – Hazardous Materials and Chemicals

General Requirements

1. Read all warning labels and Safety Data Sheet (SDS) before using any chemicals. SDS documents contain personal protective equipment and safety information and are available from your foreman.
2. Hazardous materials will be handled in accordance with the SDS and label. If personal protective equipment is required, use it.
3. Mixing of chemicals is prohibited at all times unless required by the label. Before you mix, review all SDS documents.
4. Emergency drenching facilities (i.e. safety shower and/or eyewash stations) must be provided in areas of hazardous chemical use. Locate the nearest eyewash or safety shower prior to working with or around hazardous chemicals.
5. In addition to wear appropriate gloves, always wash your hands thoroughly after handling chemicals and before eating or smoking.
6. Never use solvents for hand cleaning. Use the non-toxic hand cleaners provided.
7. Store all hazardous materials properly (i.e. in flammable storage cabinets, designated locations, etc.).
8. Use chemicals only in well-ventilated areas.
9. When using secondary containers, ensure that they are labeled as to their contents and hazards, and are constructed out of material appropriate for the chemical.
10. Cutting and welding on stainless steel or galvanized metal; and work with lead, asbestos, cadmium and other toxic compounds require special precautions. Do not attempt to perform this work without special equipment and training. Contact your Division Superintendent or the Corporate Safety Department prior to performing this work.
11. Coordinate disposal of hazardous materials, including non-electronic ballasts, fluorescent light tubes and bulbs, high intensity discharge, metal halide, sodium, and neon bulbs, and chemical containers (i.e. PVC cement, etc.) with the building owner or your division Support Center/Warehouse Manager.
12. Hazardous material secondary containment:
    a. All hydrocarbon (solvent) based liquids contained in drums or 5-gallon metal safety cans (gasoline, diesel, miscellaneous oils, paints/epoxies, etc.) shall be placed in secondary containment, away from storm drain inlets, while in storage or in dispensing areas in order to prevent spills onsite.
    b. Secondary containment should handle at least 110 percent of the capacity of the largest container.
    c. During wet weather, containment areas subject to rain will be required to be protected from accumulation of water through the use of tarps, roofs, or relocation to non-rain impacted areas. Note: All water that is collected within the containment will be free of hazardous materials before discharge onsite. If the material cannot be verified “hazard free”, the use of a hazardous waste hauler/recycler is required. Contact your Division Superintendent or the Safety Department for more information on hazardous waste disposal.
13. Contact your Division Superintendent of Safety Department for any hazardous waste disposal.

Hazard Communication/Right-to-Know (RTK) Program

The CEI Hazard Communication/Right-to-Know (HazCom/RTK) Program is administered by the Corporate Safety Department. The Corporate Safety Department is responsible for supporting Division/Company personnel, (Superintendents, General Foremen, Foremen, and Supervisors) with the responsibilities listed below, and for verifying that Division/Company facilities and jobsites:

1. Maintain a list of hazardous chemicals that are on each jobsite.
2. Retain Safety Data Sheets (SDS) on substances that contain hazardous chemicals.
3. Explain the SDS to employees as part of the ongoing safety training. Employees have a right to receive data contained on the sheets. Employees will not be discharged or discriminated against for exercising their rights in this regard.
4. Provide information and training to all employees relative to the Hazard Communication Regulation and about the known potential exposure to hazardous chemicals.
5. Maintain records of employee accidental over-exposure to hazardous chemicals.
6. Make available to, and share with, other contractors or subcontractors SDS information on hazardous chemicals on the jobsite.
7. Training will be conducted, and documented, at safety meetings and will provide at least the following:
    a. Information on which hazardous chemicals are in the work area.
    b. How to read, interpret and comply with information on SDS and labels.
    c. Signature verification of specific training on highly toxic substances.

For operations in the State of California, workplace warnings are required for any planned use of chemicals known to the State of California as causing cancer, birth defects, or other reproductive harm, in accordance with the Safe Drinking Water and Toxic Enforcement Act of 1986 (known as Proposition 65). Warnings must be posted in a conspicuous place and under conditions that make it likely to be read and understood by employees and other individuals prior to the exposure for which the warnings are given. Examples:

“WARNING: This area contains a chemical known to the State of California to cause cancer.”

“WARNING: This area contains a chemical known to the State of California to cause birth defects or other reproductive harm.”

Safety Data Sheets

SDS is the abbreviation used to identify a Safety Data Sheet (formerly known as Material Safety Data Sheets or MSDS). A SDS is a document that supplies information about a particular hazardous chemical.

The SDS must provide information on the physical and chemical characteristics of the hazardous chemical; known acute and chronic health effects and related health information; exposure limits; whether the chemical is considered to be a carcinogen by NTP, IARC, or OSHA; precautionary measures; emergency and first aid procedures; and the identification of the organization responsible for preparing the sheets, including name, address, and telephone number.

Access to Information

The written Hazard Communications Program, included in this Injury and Illness Prevention Program and Safety Manual, is provided to all employees and copies may be provided to their designated representative (IBEW, etc.).

Copies of SDS for hazardous substances to which employees of this company may be exposed are to be readily available at all jobsites. In addition, SDS for any chemical used by Cupertino Electric employees is available in the Corporate Safety Department. The foremen of stationary jobsites will be responsible for maintaining copies of SDS, and a chemical inventory list, for chemicals in use on their site.

Notify the Corporate Safety Department for any proposed new chemical use for a review of potential hazards and an update of the Corporate Chemical Inventory List.

The Corporate Safety Department will review incoming safety data sheets for new significant health/safety information. They will see that any new information is passed on to the affected employees.

OSHA QUICK CARD™

Safety Data Sheet (SDS) 16 Sections

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform GHS standardized format, and include the section numbers, the headings, and associated information under the 16 headings below:

Section 1, Identification product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients chemical ingredients; trade secret claims.

Section 4, First-aid measures important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures emergency procedures; protective equipment; containment methods and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection OSHA Permissible Exposure Limits; TLVs; engineering controls; PPE.

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information routes of exposure; symptoms, acute and chronic effects; toxicity ratings.

Section 12, Ecological information* Note: Other agencies regulate this information, OSHA will not enforce Sections 12–15

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

Section 16, Other information date of preparation or last revision, disclaimer, etc.

NOTE: The Company shall ensure SDSs are readily accessible to employees.

Labeling

Materials received at the job site are required to be properly labeled. Information contained on labels must not conflict with federal, state or local laws and/or regulations in labeling requirements.

NOTE: Unlabeled chemical containers that arrive at the workplace shall not be accepted for delivery by the receiving employee or contractor. Labels on hazardous chemicals shall not be removed or defaced. If damaged, labels shall be immediately replaced with the OSHA required information.

NOTE: When new health or physical hazard data has been generated that requires a reclassification and/or a change in warning; the affected chemical labels shall be updated and replaced within six (6) months of receipt of that new information.

Use of Labels

1. Labels must conform to Globally Harmonized Standards (GHS), as outlined below.
2. The GHS Standard requires that all primary container labels have the following information:
    a. Product Identifier
    b. Signal Word (either Danger or Warning)
    c. Hazard Statement(s)
    d. Pictogram(s) - See Below
    e. Precautionary Statement(s)
    f. Name, Address, Telephone number of manufacturer, importer
3. Labels must not be removed and will be replaced if illegible.
4. All containers of chemical products, including laboratory bottles, solvent cans and dispensers must be labeled per the example provided below. For smaller containers (less

than one gallon or 3.7 liters), labels must be consistent with the GHS standards that are specified above. See below for information on compliant secondary container labels. Only those chemicals that can be classified as “immediate use” are exempt from the labeling procedures described above.

5. Immediate use is defined as the hazardous chemicals under control of and used only by the person who transfers it from the labeled container and only within the work shift in which it is transferred.
6. Secondary container label must contain the first five of the following:
    a. Product Identifier
    b. Signal Word (either Danger or Warning)
    c. Hazard Statement(s)
    d. Pictogram(s)
    e. Precautionary Statement(s)
    f. Name, Address, Telephone number of manufacturer, importer

    NOTE: Secondary containers ***do not*** need the Name, Address or Telephone number of the manufacturer

7. Food or beverage containers SHALL NOT be used as secondary containers.

OSHA QUICK CARD™

Hazard Communication Standard: Pictograms

The Hazard Communication Standard requires pictograms on labels to alert users of the chemical hazard classification (as of June 1, 2015)

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

SAMPLE: GHS PRODUCT LABEL

PRODUCT IDENTIFIER

CODE _____
Product Name _____

SUPPLIER IDENTIFICATION

Company Name _____
Street Address _____
City _____State_____ Postal Code
Emergency Phone Number _____

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Use explosion-proof electrical equipment and tools
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO_2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin or hair: Take off immediately any contaminated clothing. Rinse skin with water

HAZARD PICTOGRAMS

SIGNAL WORD
Danger

HAZARD STATEMENT

Highly flammable liquid and vapor.
May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

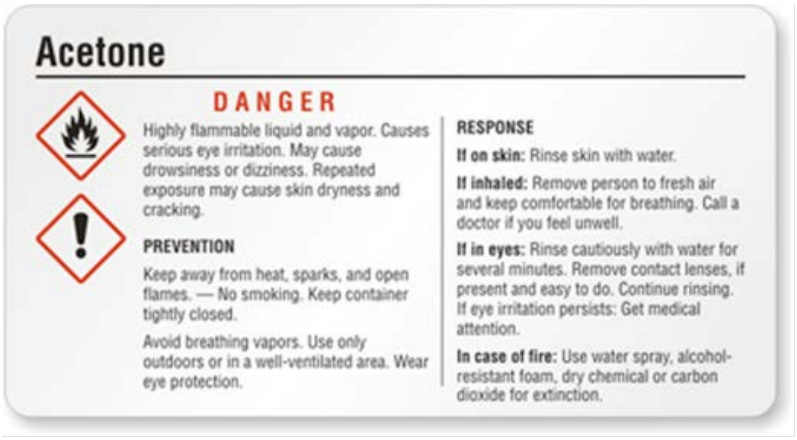
Directions for use

_____
_____

_____

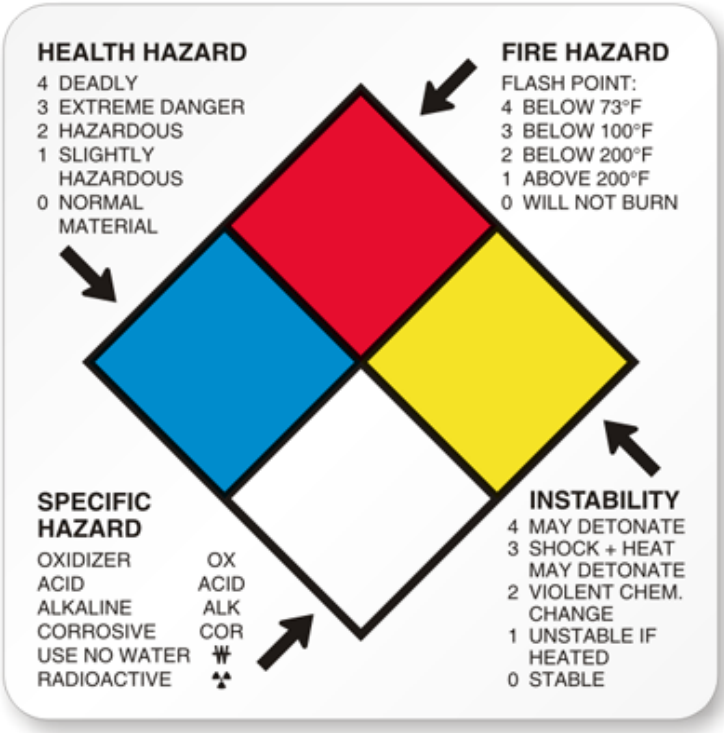
Fill weight:_____Lot Number _____
Gross weight:___Fill Date: _____
Expiration Date: _____

SAMPLE: GHS SECONDARY CONTAINER LABELS



National Fire Protection Association (NFPA) diamond labels shall be used for bulk tanks; as required by local Fire Marshalls. The NFPA diamond shall contain hazard ratings taken from the manufacturer's SDS; be large enough to read at a distance of 25 feet and placed on all tank sides that are visible from access roadways. The bulk tank shall be labeled with chemical identity (e.g., No. 6 FUEL OIL, SODIUM HYDROXIDE, etc.); and the Hazard Class (e.g., FLAMMABLE, CORROSIVE, etc.) in either words or using a GHS pictogram.

NFPA DIAMOND: BULK TANK LABEL GUIDANCE



Per local Fire Marshal, use on all large tanks (i.e., fuels & chemicals). Follow hazard codes on SDS provided by manufacturer/distributor.

NOTE: As required by chemical transport carriers, U.S. Department of Transportation (DOT) labels shall be placed on placards adjacent to tank loading pipe connections. DOT hazard labels are similar, but are not OSHA HazCom conforming, pictograms.

1. **Stationary Process Containers & Tanks**: Require GHS HazCom conforming labels; preferably affixed to the tank or posted in the immediate area.
2. **Non-GHS Waste Labels:** Hazardous waste generated at company workplaces shall have, when and where appropriate, as required by U.S. Environmental Protection Agency (EPA), DOT, and state regulations and company environmental policy, an EPA waste label and a DOT hazard label affixed to shipping containers.

Alternative Labels

Alternate Labels **MAY NOT** be used under any circumstances

Non-Routine Tasks

Periodically, employees may be required to perform non-routine tasks, which involve potential chemical hazards. Prior to starting work, each affected employee shall be provided with information about chemical hazards and potential workplace risks.

This information shall include the following:

1. Review of SDS and specific chemical hazards and protective measures to be used.
2. Preventive measures to effectively mitigate or lessen risks to safe levels, including local exhaust ventilation, PPE, respirators, and emergency procedures.

Training

Employees will receive a copy of this IIPP and Safety Manual to provide information and training regarding hazard communication. The hazard communication portion of the program includes:

1. An overview of the requirements contained in the hazard communication regulation GHS Standard.
2. Physical and health effects of hazardous chemicals.
3. Methods and observation techniques used to determine the presence of or the release of hazardous chemicals in the work area.
4. How to lessen, or prevent, exposure to these hazardous substances through the use of engineering controls, work practices, and/or the use of personal protective equipment.
5. Emergency and first aid procedures to follow if employees are exposed to hazardous substance(s).
6. How to read labels and review an SDS to obtain appropriate hazard information.
7. If new hazardous chemicals are introduced the foreman will review the hazard and relate new information to all employees in a safety meeting.

   NOTE: Each employee will be required to sign an acknowledgment form stating he/she has received a copy of the Injury and Illness Prevention Program (IIPP) and Safety Manual. It is critical that all employees understand the training. Contact the superintendent or foreman with any questions.

Access to Information by Other Employers

1. When employees of a subcontractor may be exposed to hazardous chemicals while working on the job site, the general contractor will provide a list of the hazardous chemicals being used at that job site by the appropriate company's superintendent and make available the applicable SDS documents for all required protective measures.
2. Likewise, it will be the responsibility of all subcontractors to provide the appropriate SDS documents to the general contractor for all hazardous chemicals being used by their company at the job site.
3. When exposure to a hazardous chemical exists, each employer is responsible for the appropriate training of his or her employees.
4. If requested, names, addresses and telephone numbers of suppliers or manufacturers of the hazardous chemicals being used will be provided.

Record-Keeping at Stationary Job Sites

1. SDS.
2. Hazardous chemical list.

Additional Information

Further information on the written Hazard Communications Program and applicable SDS documents are available from the division superintendent or corporate safety department.

Asbestos

Asbestos was used in many building materials that were installed prior to 1980.

The potential for a health hazard occurs when the asbestos-containing material is damaged, releasing airborne asbestos fibers that can be inhaled. Asbestos materials are most often damaged by sawing, cutting, or sanding operations.

Exposure to asbestos fibers can lead to life-threatening illnesses such as asbestosis, a scarring of the lungs, mesothelioma, a cancer of the lungs and abdomen, and various other forms of cancer. There is no cure for asbestos-related illnesses, so preventing exposure is critical.

Before Starting Work:

1. When performing demolition or renovation work in existing older buildings, the Project Manager or Superintendent should obtain a copy of the asbestos survey performed by the building or facility owner. If no survey is available, all potentially asbestos-containing materials must be presumed to be asbestos-containing until proven otherwise by laboratory testing or documentation. This includes ceiling tile, floor tile, roofing, tars and coatings, plaster and spackle, spray-on insulation, thermal system insulation, mastic, putty, cement board, cement pipe and cement panels.
2. Never disturb any asbestos containing material. Only trained, authorized individuals should work with asbestos. If you are not sure whether a material contains asbestos, STOP and ask your foreman.

Crystalline Silica

Crystalline silica is a naturally occurring material found in sand, quartz, and granite rock. Crystalline silica dust can be generated during activities such as sandblasting, stone cutting, and drilling, chipping, grinding, or cutting concrete. At high levels, exposure to crystalline silica dust can cause silicosis, a serious and sometimes fatal respiratory disease.

To control crystalline silica exposures:

1. Limit the amount of dust inhaled.
2. Use engineering controls, such as using wet cutting methods, and dust collection systems.
3. Follow safe work practices, such as using wet cleaning methods and good housekeeping to prevent dust accumulation.
4. Make good hygiene a priority; wash your hands before eating, drinking, or smoking.
5. And finally, use respiratory protection if engineering and administrative controls are not effective in keeping crystalline silica below safe levels.

   NOTE: Contact your foreman or supervisor if you have any concerns about silica exposures in the workplace.

Lead

Lead is toxic if you breathe in or swallow dust containing lead. Large amounts of inhaled or ingested lead can cause severe anemia, harm reproductive function and damage the kidneys, brain and nervous system. In construction, the main sources of lead exposure are torch cutting, abrasive blasting, stripping, sanding, heating and other work that disturbs surfaces coated with lead-based paint. Lead is also found in many electrical applications, including lead sheath, high voltage cable, and lead anchors.

Protect Yourself

1. Wear gloves and wash hands when working with lead cable, lead anchors, or sheathing.
2. If you're working with or near a painted surface that will be disturbed, ask your Foreman if the paint
3. contains lead.
4. Use wet methods, local exhaust ventilation, or respiratory protection if lead containing materials will be worked on.
5. Before you use a torch for cutting, safely remove lead paint. Heating lead paint will produce lead
6. fumes.
7. Never smoke, eat or drink around work with lead surfaces.
8. Always wash your hands and face to remove any lead dust before smoking, eating, drinking or going to the bathroom.
9. Work involving the removal or disturbance of any significant amount of lead based paint requires awareness training, engineering controls, blood lead testing and air monitoring.

Handling and Disposal of Waste Bulbs

Waste fluorescent light bulbs must be handled properly to prevent health and environmental hazards. Fluorescent bulbs as well as certain other bulb types contain mercury in the form of mercury vapor and powder coating inside the bulb. In addition to fluorescent bulbs, thermostats, telephones, alkaline batteries, H.I.D. lamps such as metal halide, sodium and mercury vapor lamps all contain hazardous quantities of mercury.

1. Exposure to mercury can result in central nervous system damage, lung damage and corrosive effects on exposed skin.
2. Mercury vaporizes rapidly at room temperature presenting an inhalation hazard. It can also be absorbed through the skin.

Packaging Procedures

1. Unbroken bulbs should be evenly spaced in special waste disposal boxes or in the original cartons.
2. Boxes must be kept closed, dry and indoors.
3. When full, boxes should have all seams taped completely shut, along with any holes or weak spots.
4. Containers of unbroken bulbs must be labeled “universal waste- lamps.” Other types of waste must be stored and labeled in a similar manner, for example, waste- mercury thermostats.
5. The date that collection was started, and the facility should be marked on the box.
6. Containers of bulbs cannot be stored for more than one year.
7. Any spill or release must be immediately contained.

Disposal

All Universal Wastes must be disposed of by a licensed disposal firm. Coordinate disposal of fluorescent bulbs or any other mercury-containing waste with the Building Owner or the Support Center Manager.

Handling and Disposal of Light Ballasts

Old fluorescent light ballasts manufactured before 1978 may contain Polychlorinated Biphenyls (PCBs) in the form of liquid oil in the small capacitor inside the ballast. The potting compound may also contain PCBs. Ballasts manufactured after 1978 will be marked as “Non-PCB.”

Packaging Procedures

1. Non-leaking ballasts should be carefully placed in lined, steel waste disposal drums with absorbent material in the bottom.
2. Drums must be kept closed, dry and indoors or in secure areas.
3. Drums must be labeled as containing PCB waste.
4. When full, a licensed hazardous waste disposal service or ballast recycling company must transport the drummed ballasts off-site for landfilling, recycling or incineration.
5. Leaking ballasts must be placed in a drum with absorbent material sufficient to absorb all leaking liquid. Leaking ballasts must be disposed of by incineration or burial in a PCB chemical waste landfill. Wear disposable nitrile gloves when handling these ballasts.
6. The date that collection was started, and the facility must be marked on the drum label.

Spills

Spills of PCB oil from ballasts, switchgear, or transformers must be properly cleaned up. Immediately cordon off the spill area and notify your Superintendent or Project Manager to request assistance with clean-up.

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Section 2.15 – Fire Prevention

1. Always take precautions to prevent fires which may be started, particularly from oily waste, rags, gasoline, flammable liquids, acetylene torches, improperly installed electrical equipment and trash.
2. Firefighting equipment is to be inspected on a regular basis. All discharged, damaged or missing equipment is to be immediately reported to a supervisor. Tampering with fire equipment is prohibited.
3. Access to fire extinguishers must be kept clear at all times. Make note of the location of firefighting equipment in your work area.
4. A portable fire extinguisher will be provided and maintained at the job site trailer or office, where flammables are stored, refueling vehicles and at locations where non-electrical hot work is being performed. Each portable fire extinguisher shall have a minimum 2A:20B:C rating. Maximum travel distance to any fire extinguisher shall not exceed 75 feet.
5. Ensure fire extinguishers are inspected monthly and certified yearly by a fire extinguisher service company.
6. Never use gasoline or flammable solvents for cleaning purposes.
7. Smoking is prohibited within 20 feet of where flammable substances are present.
8. In case of fire, employees will consider the safety of themselves and other individuals before saving property. Employees should never put themselves at risk or in a dangerous situation to suppress a fire. If you question the size of the fire, or your ability to extinguish the fire, remove yourself and call 9-1-1.
9. All employees designated as a Fire Watch will require training on Fire Extinguishers.

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Section 2.16 – Work Zone Traffic Safety

1. There must be a traffic control plan for the movement of vehicles in areas where there are also workers conducting other tasks. Drivers, workers on foot, and pedestrians must be able to see and understand the routes they are to follow. The authority in charge, Federal, State, or local, will determine the configuration of the temporary traffic control zone for motorists and pedestrians. The construction project manager and/ or superintendent and/or responsible person in charge will determine the internal traffic control plan with the construction/demolition worksite. When there are several activities going on simultaneously, coordinated vehicle routes and communication between contractors will reduce vehicular struck-by incidents.
2. Flaggers should be trained/certified and use the signaling methods required by the authority in charge.
3. Employees performing traffic flagging must possess a valid Registered Flagger training certification, which must be on flagger when flagging. Flaggers must be placed in locations so as to give effective warning.
4. Workers on foot, equipment operators and drivers in internal work zones need to know the routes that construction vehicles will use. Equipment operators and signal persons need to be trained in the hand signals used on the worksite. Operators and workers on foot need to know the visibility limits and the "blind spots" for each vehicle on site. Workers should be made aware of the ways in which shiftwork and night work may affect worker safety.
5. Standard highway signs for information, speed limits, and work zones will assist drivers in identifying, in designated traffic paths, such directives as: EVACUATION ROUTE; DO NOT ENTER; REDUCED SPEED AHEAD; ROAD CLOSED; and NO OUTLET. Using standard highway signs for internal construction worksite traffic control will assist workers in recognizing the route they are to use on the construction site.
6. Flaggers and others providing temporary traffic control should wear high visibility clothing with a background of Fluorescent orange-red or yellow-green and retro reflective material of orange, yellow, white, silver or yellow-green. In areas of traffic movement, this personal protective equipment will make the worker visible for at least 1,000', so that the worker can be seen from any direction, and make the worker stand out from the background. Check the label or packaging to ensure that the garment is ANSI class 2 or 3. When possible, construction vehicles are to be placed between the employees and traffic to prevent vehicles from entering the work area and hitting members of the crew.
7. Traffic controls are to be properly maintained throughout the workday. Signs and cones must be kept upright, visible and in their proper position at all times.

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Section 2.17 - Scaffolds

1. Scaffolds are to be erected, dismantled, altered or repaired by the scaffold contractor ONLY. A signage system will be used to communicate the status of the scaffold (i.e. green/yellow/red tag system).
2. For any planned erection or dismantling of any CEI owned mobile scaffolding, a written Job Hazard Analysis must be submitted to the Division Superintendent and the Division Safety Manager or Corporate Safety for review and approval prior to proceeding.
3. Scaffolding is only to be used by properly trained personnel. Contact the Safety Department for training.
4. Toe boards (other provisions) are required where anyone can walk under the scaffolding.
5. A competent person must inspect scaffolds prior to use and report any damage immediately to the foreman to prohibit use. Do not use damaged scaffolds.
6. Know the safe working load of all scaffolds.
7. The following special conditions must be met for employees to ride on a rolling scaffold moved by others, and requires Foreman authorization:
    a. Surface is level and free of pits, holes and obstructions
    b. Minimum dimension of the scaffold base, when ready for rolling, is at least ½ of the height
    c. Outriggers, if used, shall be installed on both sides of staging
    d. The wheels are equipped with rubber or similar resistant tires
    e. Before a scaffold is moved, each employee on the scaffold must be made aware of the move
    f. No employee shall be on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
8. At least 2 people are required to move rolling towers. Before moving secure or remove all tools and materials.
9. Always use guard railings on all scaffolds regardless of height. Personnel must wear safety harnesses and be properly tied off any scaffold platform over 6 feet which is not equipped with standard handrails, mid rails, or completely decked.
10. Use only scaffold grade planking on scaffolds and be sure the planks are secure to prevent shifting.
11. Always apply caster brakes and use outriggers when scaffolds are stationary.
12. Do not use planks or guard rails as a temporary means of obtaining greater height.
13. Never place a ladder on scaffolding.
14. CEI personnel using other company's scaffolding shall have written permission in place from the scaffold owner prior to use. Any subcontractors requesting to use scaffolding provided by CEI must submit a written indemnification to the Legal Department prior to use. Contact your Division Superintendent or the Safety Department for more information.
15. Be aware of the objects below you; move or cover sharp objects in case you fall. Cap or bend all rebar.

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Section 2.18 – Cranes and Rigging

For any tasks involving CEI contracted or self-performed crane operation, a pre-lift plan will need to be prepared and reviewed prior to job-start. Information to be included in plan is outlined below:

1. Type of crane.
2. Exact size and weight of the loads to be lifted and description of rigging.
    a. Include crane & rigging components that would add to the weight.
    b. Include information on any ancillary components or equipment that would add to the weight.
3. Load chart for the crane.
4. Diagram showing crane position and location around buildings, height of lift, the load radius, and boom length and angle for the entire range of the lift.
5. Safety Plan (also include other relevant information related to the lift).
    a. Evacuation plan for areas under the lift zone and barricading plan.
    b. Environmental conditions under which lift operations are to be stopped.
6. Crane certification documentation.
7. Copy of daily inspection checklist that will be used for the job.
8. Ground conditions, outrigger or crawler track requirements, and adequacy of mats, steel plates, or cribbing to assure for stability.
9. Inspection of work site for power lines, equipment/system hazards, and underground utilities, adequate footings, not endangered by excavations or unstable soil conditions; sufficient space for outriggers so they will not intrude into roadways and other access routes; barricading of the danger zone.

Because conditions can change from the pre-planning stage to when the crane actually arrives on site, the contractor performing the lifting operation must hold a pre-lift meeting to ensure that all hazards have been controlled and all inspections have been completed. All personnel participating in the lift must attend.

The pre-lift meeting should include at a minimum:

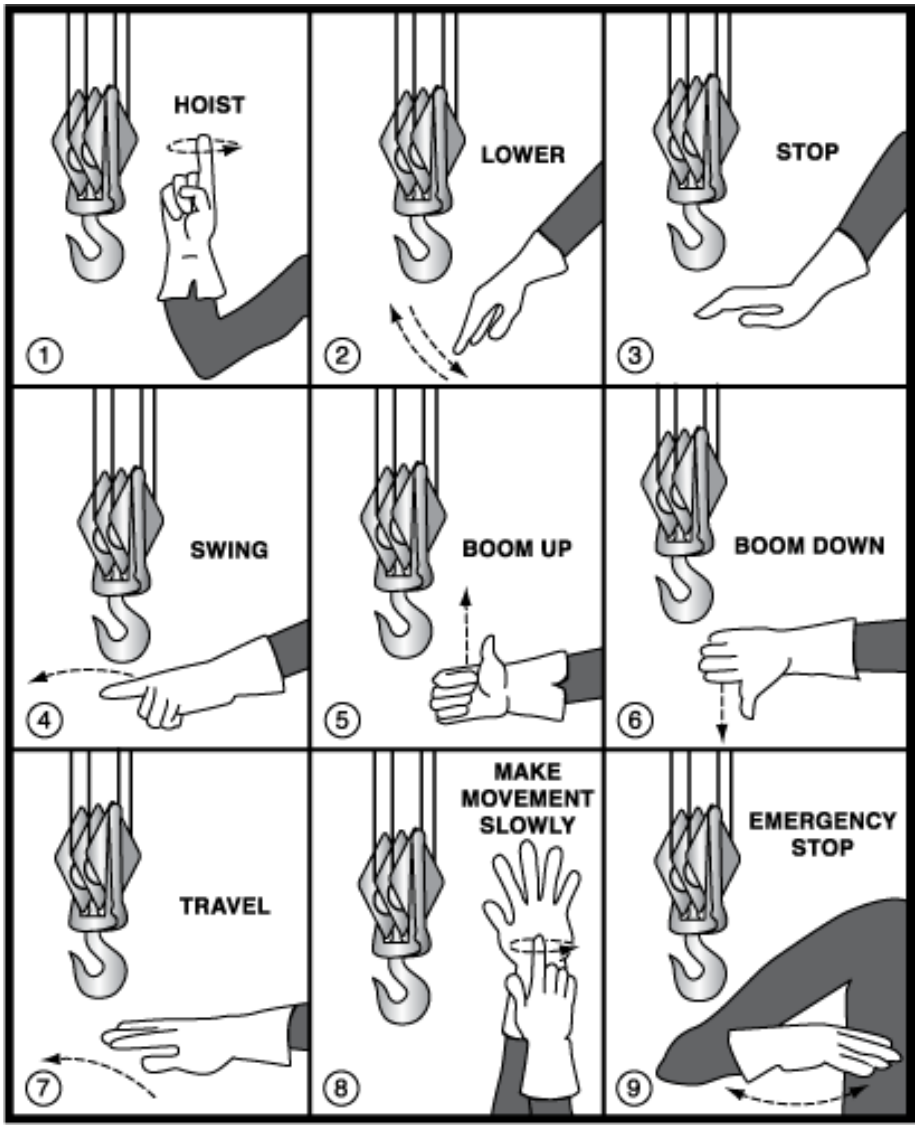
1. Completed daily inspection checklist.
2. The person in charge shall have a clear understanding of the work to be performed and consider all potential dangers at the job site.
3. Evaluation of current weather conditions and determination of limits (i.e. high wind conditions).
4. A walk around inspection must be conducted prior to the lift to ensure that the machine is in proper working order.
5. Only qualified persons may operate the crane. The operator must have a copy of their crane operator's license available for review.
6. Ensure that inspection and maintenance records are available and verify that the appropriate operator's manual and load charts for the particular crane in use are available.
7. Ensure that the crane operator set the crane up level and in a position for safe rotation and operation.
8. Ensure the outriggers, where applicable, are extended and being used in accordance with manufacturer's recommendations. Ensure the surface below outriggers is protected.
9. Establish signaling plans and assignment of personnel authorized to signal crane

movement.

10. Use of the two-block system.
11. Ensure all clearance requirements are met working around or near electrical power lines.

General Requirements:

1. At no time will a crane be operated with computer systems or limit switches in a non-functioning or override condition.
2. Do not work or stand under any suspended load. Crane operators will avoid swinging loads over people.
3. The operator is the sole responsible person in charge of the load and surrounding area.
4. A qualified signal person is required to give hand signals to the operator using uniform hand signals. A chart of uniform hand signals shall be conspicuously posted in the facility of hoisting operations (cage or cab if so equipped) depicting and explain the signals to be used.



5. Portable cranes hoists and derricks shall be positioned, equipped, protected, and/or operated so that no part comes closer to energized power lines than indicated in the table below.

Non-Qualified Electrical Working Distances

Nominal Voltage kV Phase to Phase	Minimum Required Clearance (Ft)
0.6 to 50	10 ft.
50 to 75	11 ft.
75 to 125	13 ft.
125 to 175	15 ft.
175 to 250	17 ft.
250 to 370	21 ft.
370 to 550	27 ft.
550 to 1,000	42 ft.

6. Approach distances with overhead electrical lines shall be constantly monitored.
7. If the mobile crane comes in contact with an energized overhead high voltage line, employees shall not approach the crane and the operator shall remain on the crane until such time that the line (where contact occurred) is de-energized and grounded.
8. A sign shall be posted in the cab of all outdoor portable cranes, hoists, and derricks reading essentially as follows: “Unlawful to operate this equipment within 10 feet of high voltage lines of 50,000 volts or less.
9. Always have a clear line of sight when operating a crane.
10. All rigging shall be done by a qualified Rigger.
11. All rigging gear must be inspected before each use. Damaged equipment must be immediately taken out of service. All rigging gear must be rated appropriately for the maximum intended load. All lifting equipment such as chains, fabric slings, woven cable slings, and attachments must be clearly marked with load capacity. When not in use, rigging equipment shall be removed from the immediate work area. On an annual basis, slings must be inspected by a qualified person, with the results documented.
12. Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. An alloy anchor type shackle with a bolt, nut and retaining pin may be used as an alternative.
13. Tag lines shall be used unless their use creates an unsafe condition.
14. Christmas treeing of loads (more than one load rigged from the hook) must be pre-approved by the CEI Safety Department. Written justification will be required, as well as appropriate safety measures identified for this type of operation.
15. No employee is permitted to ride on loads, hooks, or slings of any crane, hoist or derrick.
16. Use of man-baskets can be used only if the Division Superintendent and Division Safety Manager/Corporate Safety have approved the proposed work plan.

17. Depending on the proximity of the lift site to the closest airport runway, a Federal Aviation Administration permit may be required.
18. If the radius of multiple crane booms are within each other's reach, a written safety plan must be submitted to include provisions for radio communications between all operators and signal personnel, clearly defined quadrants of operation, and daily crane coordination meetings for operators, dedicated signal personnel and riggers, and foremen of crews using cranes.
19. Crane operators will not leave controls while a load is suspended.

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Section 2.19 – Welding, Cutting, Spark or Open Flame Work

1. Make sure your welding equipment is installed properly, grounded and in good working condition.
2. A fire watch must be in place while any non-electrical hot work is ongoing, with fire extinguishing equipment immediately available at the work area.
3. The fire watch must remain in the work area for 30 minutes after non-electrical hot work has been completed.
4. Always wear required personal protective equipment including proper eye protection suitable for the welding or cutting to be done. Once you remove your welding helmet, put on safety glasses. Reference Safety Data Sheet (SDS) for proper PPE requirements when welding.
5. Keep your work area clean and free of hazards. Make sure that no flammable, volatile or explosive materials are in, or near, the work area. When flame cutting, sparks can travel 30-40 feet. Evaluate the need to remove or cover (with fire resistive materials such as fire blankets) combustible materials within a 35-foot radius of the work area. Do not allow open flame or sparks to hit hoses, regulators or cylinders.
6. Handle all compressed gas cylinders with extreme care. Keep caps on when not in use. Make sure that all compressed gas cylinders are secured in the vertical position to the equipment carriage, wall or other structural supports using materials with sufficient strength. Tie wire is not an acceptable material for securing cylinders. When compressed gas cylinders are empty close the valve, install the cap and return to correct bottle storage area.
7. Store compressed gas cylinders in a safe place with good ventilation. Acetylene cylinders and oxygen cylinders should be kept at least 20 feet apart when not in use. Note: Cylinders are considered in use if they will be used within a 24-hour period.
8. Welding or cutting in confined spaces requires additional controls. The Safety Department must be consulted during the pre-planning process prior to starting work.
9. Do not weld on containers that have held combustibles or flammable materials.
10. Use mechanical exhaust ventilation at the point of welding when welding lead, cadmium, chromium, manganese, brass, bronze, zinc or galvanized metals. These metals are highly toxic and their fumes should not be breathed. Consult the Corporate Safety Department during pre-job planning.
11. Make sure all electrical connections are tight and insulated on welding leads. Do not use leads with frayed, cracked or bare spots in the insulation.
12. When the electrode holder or cutting torch is not in use, hang it on the brackets provided. Never let it touch a compressed gas cylinder.
13. Dispose of electrode and wire stubs in proper containers since stubs and rods on the floor create a slip/ trip hazard.
14. Use weld curtains to shield others from the light rays produced by your welding.
15. Make sure all compressed gas connections are tight and check for leaks. Do not use hoses with frayed or cracked spots. Disconnect regulators and hoses at the end of each shift.
16. Keep your leads orderly and out of walkways. Suspend them whenever possible.
17. DO NOT WELD if leads or machine are in, or near, water.
18. Use oxygen and acetylene or other fuel gases with the appropriate torches and tips only for the purpose intended.
19. Never use acetylene at a pressure in excess of 15 pounds per square inch. Higher pressure can cause an explosion.

20. Never use oil, grease or any other hydrocarbon containing material on any apparatus or thread fitting in the oxyacetylene or oxyfuel gas system. Hydrocarbons such as oil and grease in contact with oxygen will cause spontaneous combustion.
21. Always use the correct sequence and technique for assembling and lighting the torch. Always use the correct sequence and technique for shutting off a torch.
22. Check valves must be used on all compressed gas cylinders to prevent back flow of the gas.
23. Chop saw use requires the installation of a screen to protect personnel and property from sparks and projectile debris.
24. In some locations, a non-electrical hot work permit will be required for any open flame or spark generating activities. Consult your Site Supervisor to determine if a hot work permit is required.
25. When performing cad-welding, the following controls are required:
    a. Wear a face shield, safety glasses, leather gloves, and long sleeve shirt.
    b. Use a hand held propane torch to dry wire and mold.
    c. Follow all manufacturer recommendations for using Cad-Weld equipment,
    d. Stay up wind of fumes. Supplemental ventilation may be required in enclosed areas.
    e. Warn with “Fire in the Hole” to alert other employees or for other trades.
    f. Store mold and welding material in a dry location.

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Section 2.20 – Construction Ergonomics and Safe Material Handling

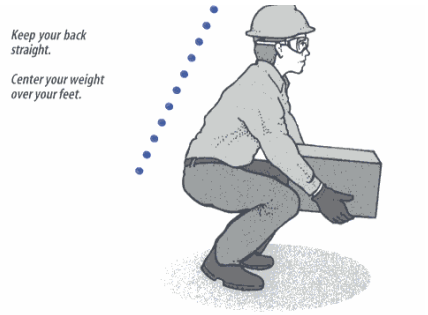
Work involving forceful motions, awkward body postures, repetitive motions, contact stress or vibration pose a risk for soft tissues injuries such as strains and sprains. To prevent these injuries, consider implementing the following ergonomic interventions and best practices when assessing hazards and identifying controls on your safety pre-task plan.

1. Ensure tools are sharp, well maintained, and fully charged.
2. When possible, use a power grip (full hand grip) versus a pinch grip that only uses fingers.
3. Ensure handles of tools are clean, dry, or have a non-slip surface.
4. Ensure that tools have a handle or grip that is not too large or small for the user's hand.
5. Ensure that the wrist and hand in a neutral position as much as possible when using tools; minimizing bending of the wrist.
6. Push loads versus pulling loads and ensure good body positioning when pushing.
7. When holding a posture for a prolonged period of time, change positions periodically or take a rest and consider the use of mats.
8. Position the tool, equipment, or work surface in a way that places the worker in a more neutral working position (i.e. shoulders down and relaxed, arms are close to the sides, elbows are bent, and wrists and hand are straight, like the posture used to shake hands with someone).
9. Minimize the amount of overhead and over the shoulder height work.
10. When performing tasks with repetitive motions, change tasks or positions as much as possible, ensure different muscle groups are used when changing tasks, ensure adequate breaks are taken, implement job rotation, and use mechanical means to minimize the amount of repetitive work being done.
11. When performing tasks with risk of contact stress (involving continued compression of soft tissues, i.e. kneeling, prolonged standing in place, etc.), when possible, use aerial lifts or platform ladders in lieu of standard stepladders (preventing contact stress on the balls of the feet), and use knee pads/ padded gloves, or mats.
12. Reduce the weight of tool belts to only the tools needed.
13. To minimize the risk factors associated with vibration, wear anti-vibration gloves or padding, utilize anti-vibration seats in heavy machinery, and implement job rotation.
14. During crew member task assignment, select the task that best fits the employee's capabilities.

General Material Handling Requirements

1. Material handling tasks must be included in safety pre-task planning.
2. Consider the weight, shape, length, as well as pinch points, and other hazards when handling material.
3. Use hand trucks, dollies, carts, or other mechanical means whenever possible.
4. When lifting long, awkward shaped, or heavy loads (material weighing 50 pounds or more) either mechanical means or a "buddy-system" will be required. Do not hesitate to ask for help if needed.
5. When two or more personnel are used to lift material, develop a lift plan and coordinate the moves with a single identified lead person.
6. Organize storage areas to ensure the most commonly used items are stored between thigh and chest height.

7. Stage material as close as possible to the work location to minimize travel distances. Avoid carrying objects more than 100 feet.
8. Never place your body between a load and a fixed object where you could be crushed. Push rather than pull. Pushing a load is generally less stressful on your body because you use the weight of your body and maintain a more neutral posture. When you pull, your body is often twisted and you frequently use only one hand. Maintain a low center of gravity, placing heavy objects on the bottom.
9. Maintain a clear line of vision, making sure the pathway is clear of any debris, obstacles, or uneven surfaces.
10. Ensure that vehicles or hoists for loading and unloading heavy equipment where possible.
11. Follow these steps when lifting materials to avoid back injuries:
    a. Protect Yourself
        i. Wear the proper gloves and supportive work shoes.
    b. Examine and Evaluate the Load
        i. Is the load too heavy or awkward for one person?
        ii. Is anything protruding from the load, such as nails, splinters, sharp edges, or rough strapping?
        iii. Is my path flat and clear of obstructions?



    c. Get Ready to Lift
        i. Establish solid footing.
        ii. Center your body weight over your feet.
        iii. Keep your back straight.
        iv. Don't slouch.

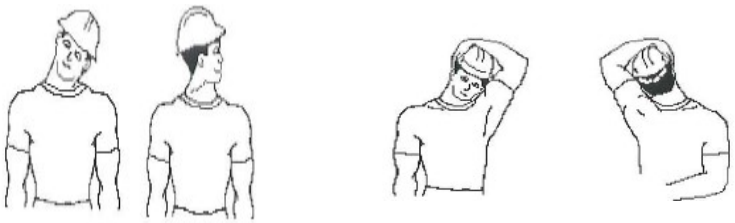
    d. Lift the Object Properly
        i. Get a good grasp on the object.
        ii. Pull the object close to your body
        iii. Lift with your legs, not your back.
        iv. Move your feet when turning; never twist your back.
        v. Avoid twisting

<u>Stretch for Your Health</u>

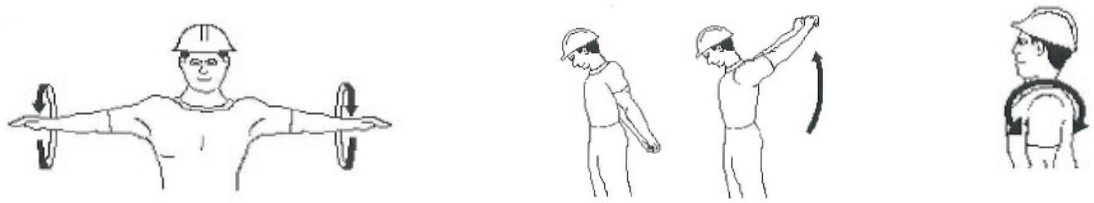
1. Stretching is required at the start of each work shift and prior to the start of work tasks which pose a risk for soft tissue injuries, such as:
    a. Tasks with Repetitive motions
    b. Working in awkward postures
    c. Body positions creating contact stress (i.e. extended kneeling)
    d. Work requiring forceful motions (manual material handling, pushing, pulling, etc.)
    e. Tasks with vibration force
    f. Working in static postures

2. Before beginning any stretch, put your body into a neutral position: stand up straight and relaxed, with feet shoulder width apart, shoulders, neck and arms relaxed, shoulders and head back and stomach slightly tensed.
3. To get the maximum out of your stretches, they should be held for 15-30 seconds at a time. Stretches should be taken to a comfortable tension. Once we reach the point of comfortable tension, let your muscles relax, breath and hold the stretch. **DO NOT BOUNCE** and **DO NOT STRAIN**.
4. Stretching exercise options are provided below. Recommend performing one stretch from each muscle group (as applicable). In addition, refer to the "Preparing the Industrial Athlete" stretching program for more information on recommended stretches applicable to common electrical tasks. This program is available on Livewire (CEI Intranet) or from your Division or General Superintendent.

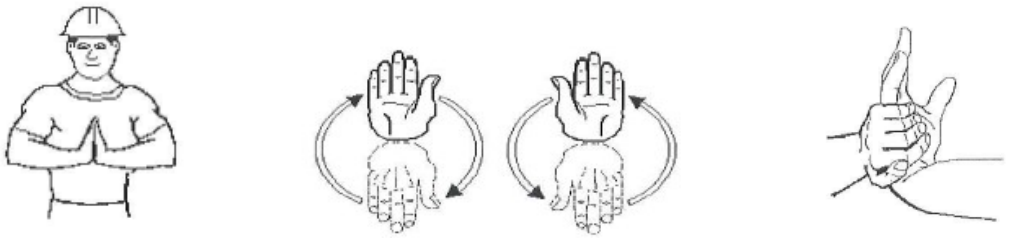
Neck



Shoulders

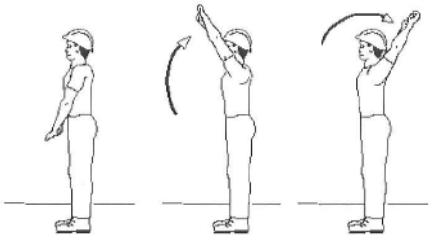


Hands & Wrists

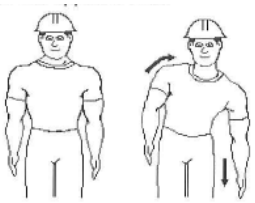


Arms & Forearms

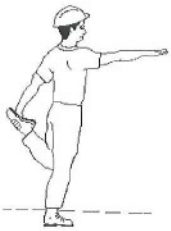
Upper Body & Chest



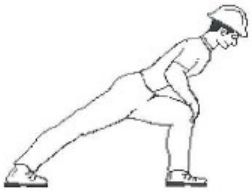
Lower Back

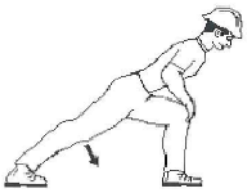


Legs & Thighs



Calves





CUPERTINO ELECTRIC INC.

Section 2.21 – Regulatory Agency Inspections & Media Inquires

OSHA Inspection Procedures

Follow these procedures when OSHA (or any other regulatory agency) appears on a project site or CEI facility and the inspection involves CEI or one of our subcontractors. If a regulatory agency is onsite for the purpose of inspecting other contractors, provide a notification to the applicable Division Safety Manager or Corporate Safety. An additional copy of these procedures will be included in the Red Grab & Go Binder provided to each project site and can also be found on Livewire (CEI Intranet) or from your Division or General Superintendent.

1. Ask the Compliance Officer(s) why OSHA is there. (Is it a scheduled complaint or referral inspection?) If a complaint, ask for a copy, which they are required to give you.
2. Immediately notify the applicable Division Safety Manager or the Corporate Safety Department. The Division Safety Manager or Corporate Safety representative will make every effort to arrive at the project prior to the actual start of the inspection. Additionally, contact the Project Manager and Division Superintendent.
3. The Project/Site Superintendent, General Foreman, or Foreman and Site Safety Coordinator/ Project Safety Manager (as applicable) shall accompany the OSHA Compliance Office during the inspection and all other times OSHA is on site. This also applies if OSHA is on site to only inspect a CEI Subcontractor.
4. Prepare a written report to document the visit. Report on everything the Compliance Officer writes down and if OSHA takes a photograph, CEI shall take the same photograph. Provide copies of the report to your Division Superintendent and Division Safety Manager or Corporate Safety Department.
5. Do not agree or disagree with any alleged CEI safety violation that the Compliance Officer finds. Anything you say can be repeated in a court of law. Provide information requested but avoid making informal remarks or sharing personal opinions. If you do not know the answer to a question, inform the inspector that you will obtain the information and get back to them.
6. Follow up for the prompt correction of all safety hazards and unsafe acts found before, during and after the OSHA inspection. Every attempt shall be made to immediately correct all safety hazards during the inspection.
7. Do not give OSHA copies of any documents without the express approval of the Director of Corporate Safety.
8. When accompanying the OSHA Inspector on the Site Tour, NEVER walk in front of the Inspector. You may be exposing yourself to a Safety Violation unknowingly that could result in a fine.
9. If the Division Safety Manager/Corporate Safety Department is unable to accompany the Project/ Site Superintendent, General Foreman, or Foreman and Site Safety Coordinator/Project Safety Manager during the OSHA inspection, call immediately if any problems or questions arise. Also call at the end of each inspection day or at the end of the inspection, whichever is sooner, with an updated report.
10. All OSHA correspondence and/or citations are to be sent directly to the Director of Corporate Safety. This information will be shared with Legal, Risk Management, and senior management.
11. If we are issued a citation as a result of an OSHA inspection, a copy must be posted in the area where the violation occurred for three working days, or until the violation is corrected, whichever is longer.

Media Inquiries

If you see reporters or are approached by the media, direct them to your job site supervisor or, if that person is unavailable, refer them to Director of Corporate Communications Autumn Casadonte (408-808-8034 or 408-396-9661) who will locate an appropriate company spokesperson. Designated company spokespeople are John Boncher, Tom Schott and John Curcio. They are available 24 hours a day, seven days a week to respond to news media.

In case of an emergency, reporters arriving on the scene will try to gather information from any available source. If forced by the situation to respond to reporters, respond factually. Do not speculate, do not feel compelled to answer a question that you don't know the answer to, and do not downplay the seriousness of the situation. When in doubt, respond with "I don't know that information at the moment, but I do know that our first priority is to ensure the safety of everyone involved. Thank you for allowing us to complete our work at this time. I ask that you direct any other inquiries to our communications team."

CUPERTINO ELECTRIC INC.

Section 2.22 – Confined Space

Introduction

Employees may need to work in locations that are considered “confined spaces” because their configuration hinders the activities of any employees who must enter into, work in, and exit from them. In many instances, employees who work in confined spaces face an increased risk of exposure to serious physical injury from hazards such as entrapment, engulfment, or hazardous atmospheric conditions.

To be considered a confined space, a work space must meet all three of the following conditions:

1. Is large enough and so configured that an employee can bodily enter and perform work.
2. Has limited or restricted means of egress (i.e. entry or exit).
3. Is not designed for continuous human occupancy.

A “permit-required confined space” is one that meets the above definition of a confined space and has one or more of these characteristics:

1. Contains or has the potential to contain a hazardous atmosphere.
2. Contains a material that has the potential for engulfing an entrant.
3. Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a small cross section.
4. Contains any other recognized serious safety or health hazards such as an area with physical hazards where excessive heat or moisture are present.

General Requirements

CEI must ensure that a competent person identifies all confined spaces where employees may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary (see flow chart). For work in existing facilities, consult with the Facility Owner regarding the classification of the space, hazards present, and any special entry conditions. The CEI entry supervisor or field foreman will inform exposed employees of the existence, location, and danger posed by the space or location. This will be accomplished by posting appropriate signs or by another equally effective means. For confined spaces that are classified as permit required, the following language will be used to notify employees or emergency response personnel.

DANGER — PERMIT REQUIRED CONFINED SPACE
AUTHORIZED PERSONNEL ONLY

Under certain conditions described in the OSHA standard, the employer may use alternate procedures for worker entry into a permit space. For example, if an employer can demonstrate with monitoring and inspection data that the only hazard is an actual or potential hazardous atmosphere that can be made safe for entry using continuous forced air ventilation, the employer may be exempted from some requirements, such as permits and attendants. However, even in these circumstances, the employer must test the internal atmosphere of the space for oxygen content, flammable gases and vapors and the potential for toxic air contaminants before any employee enters it. Additionally, the employer must provide continuous ventilation and verify that the required measurements are performed before entry.

Our goal is to not perform work in permit required confined spaces, by controlling the known or potential hazards so that the space can be re-classified as non-permit required. CEI will not enter any confined space to perform work under a supplied air condition (i.e., self-contained breathing apparatus). Furthermore, any proposed hot work in a confined space (i.e., welding, cutting, or energized electrical work requires review and approval by a Superintendent).

Potential Hazards in Confined Spaces

Confined spaces may contain one or more of the following hazards presenting a potential for injury, illness, disablement or death.

1. Possibility of accumulation of hazardous chemicals above the Permissible Exposure Limit (PEL) or Immediately Dangerous to Life & Health (IDLH) levels.
2. An oxygen deficient atmosphere (less than 19.5%) inadequate for the support of life or an oxygen rich atmosphere (more than 23.5%).
3. A flammable gas, vapor or mist in excess of 10% of its Lower Explosive Limit (LEL).
4. Sloped floor or inwardly converging walls tapering to a cross section that can pin down a worker.
5. Electrical shock or electrocution risk. NOTE: Entry into a confined space with energized conductors present will require Superintendent review to determine whether space will be classified as a Permit Required Confined Space.
6. Potential for engulfment by particulate matter.
7. Airborne dust obscuring vision at a distance of 5 feet or less.
8. Crushing due to mechanical energy or falling objects (physical hazard).
9. Temperature extremes.
10. Noise and vibration.

Training and Education

Before initial work assignment begins, CEI will provide training for all workers who are required to work in confined spaces, both non-permit and permit-required spaces. Upon completing this training, CEI must ensure that employees have acquired the understanding, knowledge and skills necessary for the safe performance of their duties.

All employees working within or providing assistance to other employees in confined spaces must be trained in the following:

1. Identification and location of confined spaces
2. Recognition of potential hazards associated with confined spaces
3. Recognition of signs and symptoms associated with exposure to various confined space hazards
4. Use of safety equipment and monitoring equipment
5. Safe entry procedures including the entry permit
6. Emergency response and retrieval procedures and
7. Safe evacuation of confined spaces.

Attendants must also be trained in CPR and 1st Aid.

Additional training will be required when:

1. The job duties change
2. There is a change in the confined space program or a confined space operation presents a new hazard
3. When an employee's job performance shows deficiencies.

CEI Confined Space Entry Checklist and Permit System

A CEI Confined Space Entry Checklist & Permit (copy provided below), signed by a CEI entry supervisor verifying that pre-entry preparations have been completed and that the space is safe to enter, is required for any confined space entry (non-permit or permit required). The completed form will be posted at entrances or otherwise be made available to entrants before they enter the confined space.

For ease of use, the Entry Checklist & Permit has been formatted for use in both non-permit and permit- required situations. The instructions highlight which additional sections must be completed if a permit- required entry is being performed.

The duration of the entry checklist & permit will not exceed the time required to complete an assignment. The CEI entry supervisor will terminate entry and cancel entry checklist & permit when an assignment has been completed or when new conditions exist. New conditions will be noted on the canceled permit and used in revising the confined space program. CEI Entry Supervisors are asked to send a copy of the cancelled entry checklist and permit to the Safety Department. It is the policy of CEI to keep all canceled entry checklists & permits for at least one year.

Information Included on the CEI Confined Space Entry Checklist and Permit

1. Name and signature of person who authorizes entry (CEI entry supervisor);
2. Name and location of space to be entered, authorized entrant(s), authorized attendants, and stand by emergency response team personnel (as applicable);
3. Purpose of entry and known space hazards;
4. Measures to be taken to isolate permit spaces and to eliminate or control space hazards (i.e., locking out or tagging of equipment and procedures for purging, making inert, ventilating, and flushing permit space);
5. Atmospheric test results;
6. Name and telephone number of rescue and emergency services, as applicable;
7. Date and authorized duration of entry;
8. Acceptable entry conditions;
9. Communication procedures and equipment to maintain contact during entry;
10. Additional permits, such as for hot work, that have been issued to authorize work in the permit space;
11. Special equipment and procedures, including personal protective equipment, alarm systems, emergency response and retrieval procedures, methods for safe evacuation of confined spaces; and

12. Any other information needed to ensure employee safety

Confined Space Monitoring

1. Prior to conducting confined space monitoring, the monitor must be checked to ensure that it is calibrated and operating properly. The confined space entrant(s) should be given the opportunity to verify this process and to witness the confined space monitoring.
    a. Instrument must have a valid documented calibration performed within the last 30 days.
    b. A bump test must be performed with a test gas each day of use prior to entry. Do not use an instrument which fails the bump test; contact the Support Center to have a replacement instrument sent to your jobsite.
2. Pre-entry atmospheric testing shall be performed to ensure that acceptable entry conditions are present.
3. Acceptable atmospheric entry conditions include:
    a. oxygen levels have been determined to be between 19.5% and 23.5%
    b. flammable gas or vapor levels are less than 10% of the LEL for that gas or vapor
    c. any recognized potential toxic compound level is below the Permissible Exposure Limits (PEL).
    d. Entrants should understand the reason for any significant atmospheric deviations from normal atmospheric conditions (i.e. 20.9% oxygen, 0% LEL, 0 ppm CO/H2S, etc.)
4. Confined Spaces shall be tested or monitored for oxygen, then for combustible gases and vapors, then for toxic gases and vapors, and then for any other recognized hazard(s) to determine if acceptable entry conditions are being maintained during the course of entry operations.
5. At a minimum, confined space testing or monitoring shall be conducted at the top, middle and bottom of the confined space to locate varying concentrations of gases and vapors. Deep confined spaces may require monitoring at periodic elevations from top to bottom. Due to the varying physical characteristics of the gases and vapors most likely to be encountered in confined spaces, it is essential to perform testing or monitoring at differing elevation prior to entry and the introduction of forced ventilation.
6. Continuously monitor the space due to the fact that conditions can change. Document the results of atmospheric monitoring on the Confined Space Entry Checklist and Permit throughout the day.

Authorized Entrant's Duties

1. Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption), signs or symptoms, and consequences of the exposure.
2. Use appropriate personal protective equipment properly (e.g., face and eye protection and other forms of barrier protection such as gloves, aprons, and coveralls).
3. Maintain communication as necessary (i.e., telephone, radio, visual observation) with attendants to enable them to monitor the situation.
4. Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

5. Exit from permit space as soon as possible when indicated by an Attendant, Entry Supervisor, or Emergency Response Team Personnel. Exit may be prompted by recognition of warning signs or symptoms of exposure, when a prohibited condition exists or when an automatic alarm is activated.

Attendant's Duties

1. Remain outside permit space during entry operations unless relieved by another authorized attendant or Emergency Response Team personnel.
2. Direct and/or perform non-entry rescues, as appropriate.
3. Know existing and potential hazards including information on the mode of exposure, signs or symptoms, consequences of the exposure, and their physiological effects.
4. Maintain an accurate list of the authorized entrants and their entry status (in or out of the confined space)
5. Maintain constant communication with and keep an accurate account of those workers entering the confined space. If entrant(s) are out of visual range, the attendant and entrant(s) will remain in audible contact. This can be accomplished using two-way radios or a Push-to-Talk (PTT) feature on a Nextel. Cellular telephone communications are not acceptable. Note: At least one other employee, who may have other duties, will be within sight or call of the attendant at all times. This requirement may be waived if the standby is in radio or phone communication with personnel present on the jobsite.
6. Continually assess activities inside and outside of the confined space to determine if it is safe for the entrant(s) to remain in the space. Order evacuation of the permit space when a prohibited condition exists, when monitoring detects a hazardous condition, when a worker shows signs of physiological effects of hazard exposure, when a situation outside the confined space exists that endanger the entrants, and/or when the attendant cannot effectively and safely perform their required duties.
7. Summon rescue and other services during an emergency.
8. Ensure that unauthorized personnel stay away from permit spaces or exit immediately if they have entered the permit space.
9. Inform authorized entrants or entry supervisor of entry by unauthorized personnel.
10. Perform no other duties that will interfere with the attendant's primary duties.
11. The attendant will perform, and record, confined space monitoring as required by the monitoring section of this program until work in the confined space is completed.
12. The attendant will be trained in first aid and CPR.
13. Upon completion of confined space operations, the attendant will submit a copy of the completed confined space entry permit to the entry supervisor or superintendent.
14. An attendant may be assigned to monitor more than one space, provided they can perform the duties identified above and provided the entry supervisor has received authorization from the Safety Department.

Entry Supervisor's Duties

1. Know the confined space hazards including information on the mode of exposure, signs, or symptoms and consequences of exposure.
2. 2Verify emergency plans and specified entry conditions such as permits, tests, procedures, and equipment before allowing entry.

3. Issue CEI Confined Space Entry Checklist and Permit, terminate entry and cancel permits when entry operations are completed or if a new condition exists.
4. Take appropriate measures to remove unauthorized entrants.
5. Ensure that entry operations remain consistent with the entry checklist and permit and that acceptable entry conditions are maintained.
6. Verify that outside rescue services are (if intended to be used for rescue) are available, and that those rescue services will notify the entry supervisor if they become unavailable.

Emergencies

If a permit-required confined space entry is performed, trained emergency response team (ERT) personnel must be available on stand-by. ERT personnel are provided with, and trained in, the proper use of personal protective and rescue equipment, including respirators; trained to perform assigned rescue duties; and have had authorized entrant's training. The standard also requires that all ERT's be trained in first aid and CPR.

Also, when appropriate, authorized entrants or ERT personnel who enter a permit space must wear a full body harness with a retrieval line attached. Also, CEI will ensure that the other end of the retrieval line is attached to a mechanical device or to a fixed point outside the permit space. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet deep. For non-permit required confined space entry, entrants are asked to consider wearing a full body harness during entry if feasible to assist with rescue in the event a personal medical condition arises.

Underground Structure Rescue

No employee will enter and underground enclosure, vault or structure to attempt a rescue until it has been verified that the atmosphere in the enclosure, vault or structure is not hazardous. The enclosure, vault or structure must be retested before entering.

As soon as the atmosphere in the enclosure, vault or structure is safe, the rescue team will enter the enclosure, vault or structure to retrieve the victim and remove them to a safe location.

Alternate Procedures

For confined spaces containing hazards that can be completely controlled by the use of forced ventilation, entry may be performed using alternate procedures listed below. Please contact the Safety Department to discuss your planned procedures prior to entry.

1. Complete CEI Confined Space Entry Checklist and Permit
2. Before an employee enters the confined space, test the internal atmosphere with a calibrated, direct- reading instrument for all of the following, in this order:
    a. Oxygen content
    b. Flammable gases and vapors
    c. Potential toxic air contaminants.
3. Provide entrants, or their authorized representatives, with an opportunity to observe the pre-entry and periodic testing.
4. Use continuous forced air ventilation, as follows:

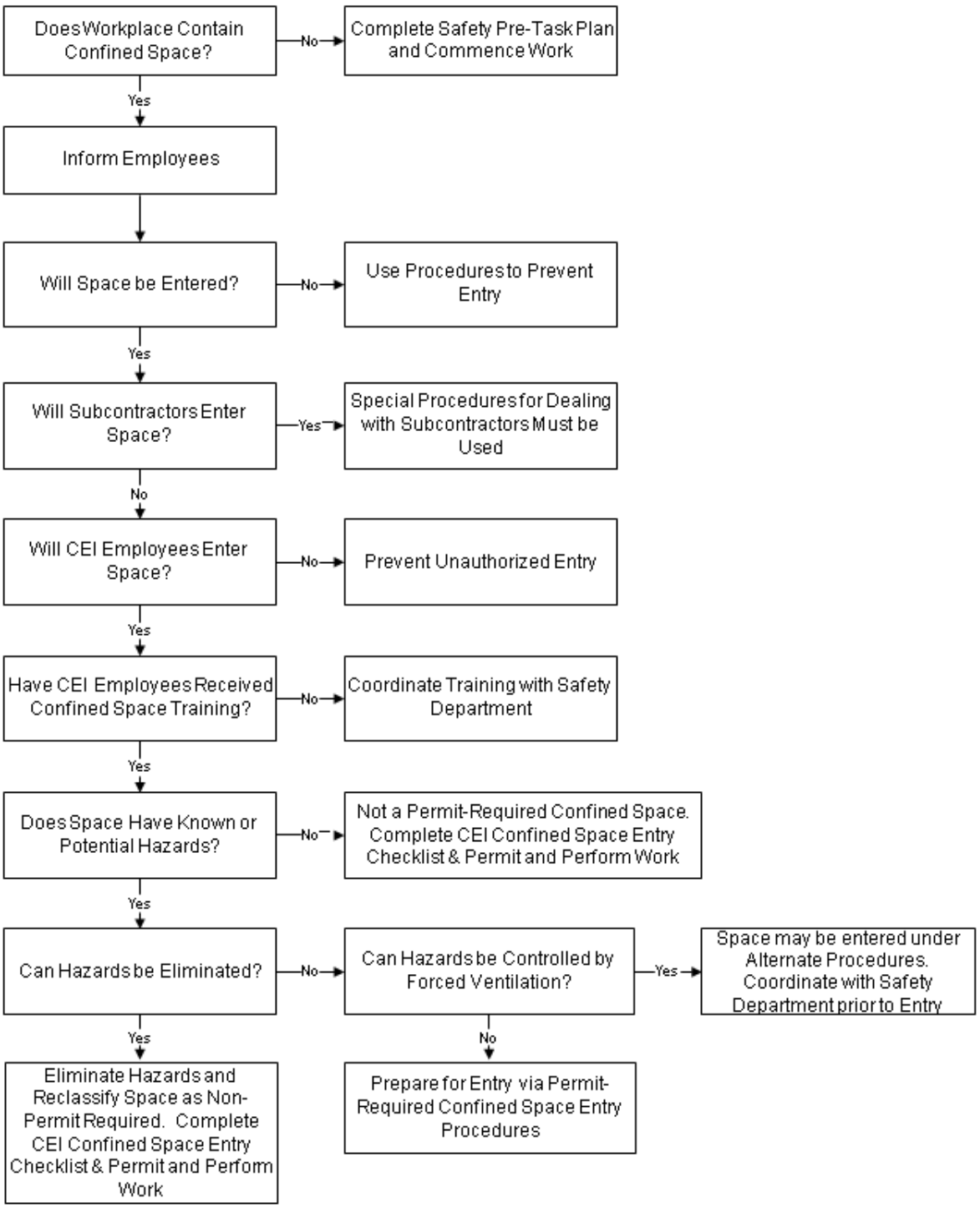
   a. Wait until the forced air ventilation has removed any hazardous atmosphere before allowing entrants into the space.
   b. Direct forced air ventilation toward the immediate areas where employees are, or will be, and continue ventilation until all employees have left the space.
   c. Provide the air supply from a clean source and make sure it does not increase hazards in the space.
5. Test the atmosphere within the space as needed to make sure hazards do not accumulate. Document results on the CEI Confined Space Entry Checklist and Permit throughout the day.
6. If a hazardous atmosphere is detected during entry:
   a. Evacuate employees from the space immediately.
   b. Evaluate the space to determine how the hazardous atmosphere developed.
   c. Implement measures to protect employees from the hazardous atmosphere before continuing the entry operation.
   d. Verify the space is safe for entry before continuing the entry operation.
7. Post a copy of the completed CEI Confined Space Entry Checklist and Permit at the location of work.

Subcontractor Coordination

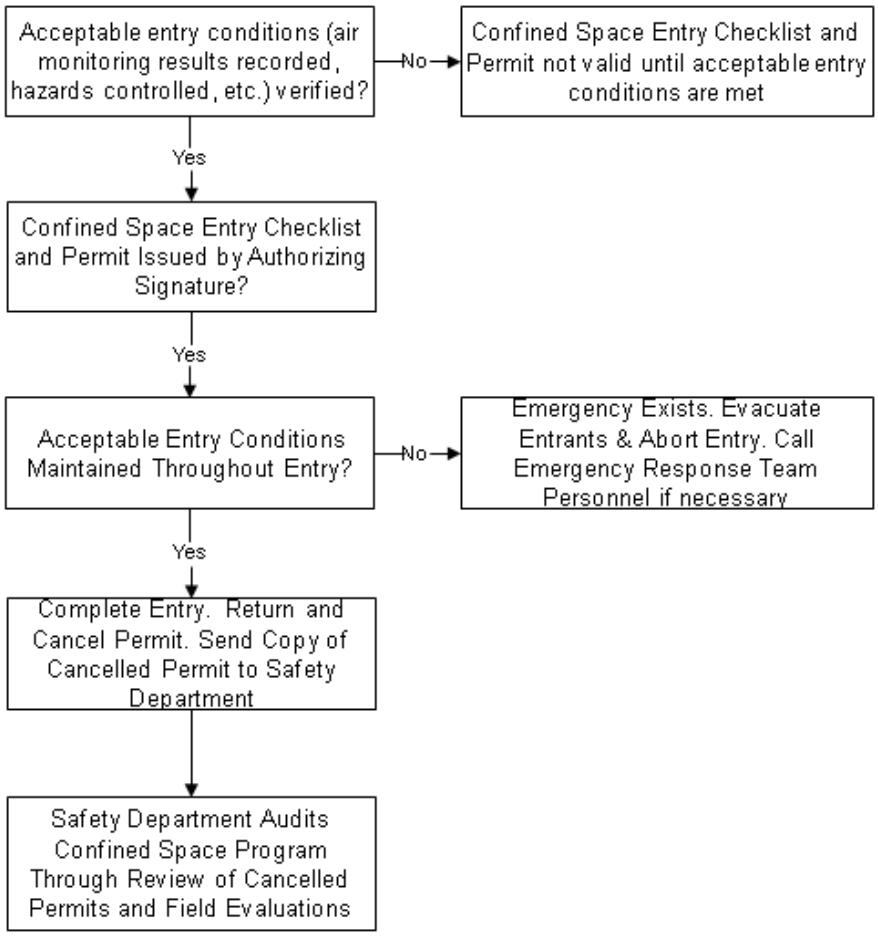
Subcontractors involved in confined space entry work at our facilities or on our jobsites will be informed that entry is allowed only through compliance with CEI's confined space program.

1. Subcontractors shall be notified of the hazards identified, CEI's experience with the space and any precautions or procedures implemented for the protection of employees in or near confined spaces where subcontractor personnel will be working.
2. Safety pre-task plans shall include steps to coordinate entry operations when subcontractors and CEI employees are working simultaneously as authorized entrants in a confined space so that employees of one employer do not endanger the employees of any other employer.
3. Subcontractors shall be debriefed at the conclusion of any permit-required confined space entry work regarding issues and hazards confronted or created during operations.
4. Subcontractor Responsibilities:
5. Complying with CEI confined space requirements.
6. Providing confined space training to any subcontractor employees performing confined space entry.
7. Coordinating entry operations with CEI when subcontractor personnel will be working in or near confined spaces.
8. Informing CEI of their company confined space program requirements.
9. Notify CEI of any hazards confronted or created during confined space entry through a debriefing or during the entry operation.

Confined Space Classification Decision Flow Chart



Confined Space Entry Procedures



CEI CONFINED SPACE ENTRY CHECKLIST AND PERMIT

LOCATION_____ BRANCH:_____ DATE:_____

CONFINED SPACE TO BE ENTERED:_____ PERMIT EXPIRATION DATE/TIME:_____

DESCRIPTION OF WORK TO BE PERFORMED:_____

COMPLETE SHADED AREA IF CONFINED SPACE IS DETERMINED TO BE A PERMIT REQUIRED CONFINED SPACE

SUPERINTENDENT REVIEW IS NEEDED FOR ENTRY INTO ANY CONFINED SPACE WITH ENERGIZED CONDUCTORS PRESENT TO DETERMINE WHETHER SPACE WILL BE CLASSIFIED AS PERMIT REQUIRED CONFINED SPACE.

NATURE OF HAZARDS IN CONFINED SPACE: (check)

- ____ Oxygen deficiency (Less than 19.5% at sea level)
- ____ Flammable gasses or vapors (> than 10% of the lower flammable limit, or > than 23.5% oxygen at sea level)
- ____ Toxic gasses or vapors (> than the permissible exposure limit)
- ____ Mechanical Hazards
- ____ Electrical shock (Equipment being used in wet conditions)
- ____ Electrical shock (Energized electrical cables in space)
- ____ Materials harmful to the skin
- ____ Engulfment
- ____ Configuration hazard
- ____ Other (Please List)

EQUIPMENT REQUIRED FOR ENTRY AND WORK (check)

- ____ Escape Respirator
- ____ Lifeline & safety harness
- ____ Protective clothing
- ____ Hearing protection
- ____ Lighting (Explosion Proof?)
- ____ Fire Extinguishers
- ____ Emergency Escape Retrieval Equipment
- ____ Other _____

Electrical equipment/tools:

- ____ Low voltage
- ____ Ground-fault current interrupters
- ____ Approved for hazardous locations

Respiratory protection (specify) _____

Communication aid (specify) _____

Rescue Equipment (specify) _____

PREPARATION: (check if applicable)

- ____ Notify affected departments of service interruption
- ____ Isolate – blanked or double valve, with lock and tag
- ____ Zero energy state (Lock Out all energy sources)
- ____ Cleaned, drained, washed and purged
- ____ Ventilation to provide fresh air
- ____ Emergency response team available
- ____ Employees informed of specific confined space hazards
- ____ Secure area (post, sign and flag)
- ____ Procedures reviewed with each employee
- ____ Atmospheric test in compliance
- ____ Attach hot work permit
- ____ Other_____

AUTHORIZED ENTRANTS:

_____

_____

_____

_____

_____

AUTHORIZED ATTENDANTS:

_____

_____

STAND BY EMERGENCY RESPONSE TEAM PERSONNEL:

_____

_____

TEST	Allowable Limits	Check (✓) if Required	Result	Result	Result	Result	Result	Result
Time	Enter time	✓	: AM PM	: AM PM	: AM PM	: AM PM	: AM PM	: AM PM
Oxygen-min.	19.5%							
Oxygen-max.	23.5%							
Flammability	10% LEL							
H2S	10/15 ppm (STEL)							
CO	25 ppm							
Cl2	0.5 ppm							
SO2	2/5 ppm (STEL)							
Heat								
Other (specify)								

Name of employee conducting atmospheric monitoring: _____ Instrument(s) used: _____

AUTHORIZATION:

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space

Name (Print) _____

Time:_____ Date: _____ Signature _____

SUPERINTENDENT REVIEW (IF APPLICABLE):

Name (Print) _____ Signature _____

Upon completion cancel permit, send copy of completed form to Safety Department

Permit Cancelled: Signature _____ Date:_____

(Rev 5/13/14)

CUPERTINO ELECTRIC INC.

Section 2.23 – First Aid

First Aid Kit(s), appropriate to the needs of the project will be provided and maintained at the job site trailer or office and/or the gang box(es). For projects covered by Federal OSHA, a documented inspection of first aid kits must be performed on a weekly basis. All other locations require inspection of first aids kits on a monthly basis at a minimum. First Aid supplies must be in individually sealed packages and be stored in a weather-proof container. First Aid supplies must include barriers against bloodborne pathogens, such as gloves, masks, supplies for clean-up, etc.

When setting up a new project, ensure biohazard supplies are obtained in addition to basic First Aid Kits.

All Foremen are expected to maintain a current CPR/1st Aid certification. CPR and First Aid training courses are offered periodically by Cupertino Electric, Inc. to refresh training and maintain skills.

The location of the nearest clinic and hospital must be posted on the jobsite, in addition to emergency contact numbers.

General Rules

The following rules are applicable to most first aid situations that might be encountered:

1. Assume that all body substances are infectious and always take measures to reduce exposure prior to initiating first aid or CPR. (Refer to additional information on preventing disease transmission, below).
2. Be calm, size up the situation as completely and quickly as possible before giving first aid.
3. Take care of the most important conditions first. Severe bleeding, stoppage of breathing and poisoning must be treated immediately before anything else is done.
4. Be gentle in handling an injured person. If the injury is serious, keep the person lying down and make him as comfortable as possible. Do not move him unless you know it can be done without making the person worse.
5. Be clean in treating a wound. A basic knowledge of bandaging and familiarity with aseptic technique concerning hands, instruments and materials is essential.
6. Call Emergency Medical Services (EMS) if the condition is serious or life threatening.
    a. Using a land line, dial 911. If a land line is not available, dialing 911 from a cellular phone often connects the caller with the district Highway Patrol dispatch center. Supervisors on projects without land lines should make an effort to identify the NON-911 Emergency phone number for the jobsite location, and program it into their cellular phone.
    b. When contacting EMS, be sure to give the street address and the nearest cross street. If the jobsite is remote, advise the EMS that an employee will be sent to the nearest cross street, turn-off or land mark (mile marker) meet the emergency responders. Send an employee to the nearest cross street or turn-off to meet the emergency responders. In some cases of very remote work locations have the Latitude and Longitude available.
7. Notify your Superintendent and Risk Management of any work-related injuries.

Preventing Disease Transmission

First aid providers must be aware of the risk of bloodborne pathogens, such as Hepatitis B, Hepatitis C, and HIV, the virus that causes AIDS. It is important to treat all blood and bodily fluids as infectious. The following guidelines, considered “universal precautions”, should be followed prior to initiating first aid or CPR to prevent exposure:

1. Use barriers to isolate direct contact with patients. Common barriers include disposable gloves, ventilation masks, protective face shields, and safety glasses.
2. Each first aid kit is supplied with disposable gloves. Be sure gloves are not damaged when you put them on. First aid kits contaminated with blood or body fluids should be discarded.
3. Replace gloves before dealing with another patient or if they get heavily soiled.
4. Remove gloves carefully to prevent splattering. Turn gloves inside out as you remove them. Never attempt to clean or re-use gloves.
5. If you need to provide rescue ventilations, use a ventilation shield or ventilation mask to eliminate direct mouth-to-mouth contact with the patient.
6. Immediately wash your hands or other areas with possible exposure using soap and water.

Place materials contaminated with blood or other infectious materials in a leak-proof bag and coordinate disposal with a medical care provider, as these materials are considered a biohazard. Ensure any surfaces that came in contact with blood or other infections materials are cleaned and decontaminated. Contact your Superintendent for direction. The use of specific PPE will be detailed in the exposure control plan for each job where a risk of exposure to bloodborne pathogens exists. If protective clothing is required, request these materials well in advance of the work to assure that materials are available on-site before work starts since some of these materials may have to be special ordered.

Treatment Following Exposure

As soon as an exposure has been noticed, flush the area with water and wash with disinfectant cleanser. Exposure to the eyes should be treated by flushing eyes for a minimum of 15 minutes. Immediately seek medical consultation at the facility to obtain medical evaluation, blood testing, vaccinations or other appropriate treatment.

CUPERTINO ELECTRIC INC.

Section 2.24 - Barricading

Barricades, safety signs, stanchions, safety cones or safety warning tape should be readily available on the jobsite to isolate/protect workers, pedestrians or vehicle traffic from unsafe work areas, as required.

Barricading must completely enclose the unsafe area. Provide signage on the barricade to inform other workers of the hazards present, planned duration of the barricading, and contact information (name/phone number) for any questions. Remove all barricading and signage after work is complete and the hazard is eliminated.

When colored barricade tape is used, select the correct color of tape for the hazard present. The two common colors for barricade tape are yellow and red. Yellow “Caution” tape is intended for situations where minor safety hazards exist. Other workers may enter an area taped off with yellow caution tape after identifying the hazards present and complying with any requirements to access the area. Red “Danger” tape is needed for high hazard environments, and should never be crossed unless express permission is granted by the individual(s) who placed the barricade tape, and all safety requirements to enter the area have been met. Examples of tasks or situations requiring barricading with red “Danger” tape include: energized electrical work, overhead suspended load present, and leading edges or floor openings posing a fall hazard present.

CUPERTINO ELECTRIC INC.

Section 2.25 – Compressed Glass

Store cylinders in a clearly identified, dry, well protected, and well-ventilated storage area away from doorways, aisles, elevators and stairs.

1. Assigned storage places shall be located where cylinders shall be adequately secured to prevent them from being knocked over, damaged by passing or falling objects, or subject to tampering.
2. Compressed gas cylinders shall be adequately secured in an upright position using chains or appropriate non-combustible material.
3. Cylinders shall be stored in segregated areas depending on their hazard categories and compatibility.
4. Cylinders shall be stored at least 50 feet away from the nearest defined smoking area.
5. Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil and grease) by a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour. Appropriate signage and fire extinguishers are to be provided at the defined storage location.
6. Cylinders not in use shall have protection caps tightly secured. Replace the valve caps on cylinders when regulators are removed.
7. Cylinders shall never be dropped, rolled, slid or allowed to fall, and shall be protected from contact with ice, snow, water, salt, corrosion and high temperatures.
8. Shall be stored in a non-combustible, well ventilated container or cage.

CUPERTINO ELECTRIC INC.

Section 2.26 - Lighting

OSHA has specified the minimum lighting levels required on jobsites. Light can be provided by permanent, temporary, or spot sources. Fine detail work may require additional lighting. When employees are working at night, additional provisions for lighting must be made. The minimum illumination intensities in foot- candles will be as follows:

Required Lighting Levels

AREA	FOOT-CANDLES
General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas.	5
Indoor: warehouses, corridors, hallways, and exit ways.	5
General construction plant and shops (e.g. sub-fab, fan attic, fab level, batch plants, mechanical and electrical equipment rooms, carpenter shops, store rooms, and indoor toilets and workrooms, break and lunch rooms).	10
Nighttime highway construction work	10
First aid stations and offices.	30

CUPERTINO ELECTRIC INC.

Section 2.27 – Slip, Trip, & Step Hazards

Slipping, tripping, and stepping on walking surfaces poses the risk of worker falls to the same level and potentially serious injuries. The work area should be evaluated for potential trip and slip hazards during task planning and during daily job walks.

Slip and Fall Hazards

To prevent slipping on surfaces, a high coefficient of friction (COF) is needed between the shoe and walking surface. On icy, wet, and oily surfaces, the COF can be as low as 0.10 with shoes that are not slip resistant. A COF of 0.40 to 0.50 or more is needed for excellent traction. To put these figures in perspective, a brushed concrete surface and a rubber heel will often show a COF greater than 1.0. Leather soles on a wet smooth surface, such as ceramic tile or ice, may have a COF as low as 0.10.

Providing dry walking and working surfaces and slip-resistant footwear are the answer to slips and their resultant falls and injuries. In work areas where the walking and working surface is likely to be slippery, non-skid strips, or floor coatings should be used. Immediately clean up any spills on walking surfaces. When working outside in unpaved areas, walk paths should be provided to prevent slips on wet muddy surfaces.

Trip and Fall Hazards

As little as a 3/8” rise in a walking surface can cause a person to “stub” their toe resulting in a trip and fall. Nails, screws, and other types of debris left on the ground, electrical cords routed on the ground, and bunched up floor coverings are all potential trip hazards in the work place. Proper housekeeping in work and walking areas can contribute to safety and the prevention of falls. Clean as you go to prevent accumulation of debris on the ground. Place electrical cords overhead or out of main corridors and walkways. Work with your Foreman or Supervisor to address trip hazards created by others.

Step and Fall Hazards

Another type of working and walking surface fall is the “step and fall.” This occurs when a person’s front foot lands on a surface lower than expected, such as when unexpectedly stepping off a curb in the dark. In this type of fall, the person normally falls forward. A second type of step and fall occurs when a person steps forward or down, and either the inside or outside of the foot lands on an object higher than the other side. The ankle turns, and one tends to fall forward and sideways.

Contributing Factors and At-Risk Behaviors

Adequate lighting to ensure proper vision is important in the prevention of slips and falls. Moving from light to dark areas, or vice versa, can cause temporary vision problems that might be just enough to cause a person to trip over a misplaced object.

Other at-risk behaviors that can lead to slips, trips and falls include: running in the work place, distractions/ not watching where one is going, carrying materials which obstruct view; wearing sunglasses in low-light areas; and failure to use handrails.

CUPERTINO ELECTRIC INC.

Section 2.28 – Heat Stress Hazards

Working in hot environments (indoors or outside) can place tremendous stress on the body. Heat stress at its simplest is the stress placed on the body by heat. Heat stress can be as minor as a heat rash or as life threatening as heat stroke. A Heat Stress Prevention Protocol has been implemented to protect workers from the hazards of heat stress. This Protocol has seven (7) major components:

1. Definitions applicable to the Heat Stress Prevention Protocol
2. Provisions for Water
3. Access to Shade
4. Responding to Symptoms of Heat-Related Illness
5. Training
6. Responsibilities for Supervisors
7. High Heat Protocols

In addition to these general protocols, each site with exposure to heat illness must develop written site-specific heat illness prevention measures. A template for site specific prevention measures can be found on Livewire (CEI Intranet) or from your Division or General Superintendent.

1. Definitions Applicable to the CEI Heat Stress Prevention Protocol
    a. “Acclimatization” means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.
    b. “Heat Illness” means a serious medical condition resulting from the body’s inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
    c. “Environmental risk factors for heat illness” means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.
    d. “Personal risk factors for heat illness” means factors such as an individual’s age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body’s water retention or other physiological responses to heat.
    e. “Preventative recovery period” means a period of time to recover from the heat in order to prevent heat illness.
    f. “Shade” means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.
    g. “Heat Wave” for the purpose of this section only, means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

2. Provisions for Water

CEI will provide “fresh, pure, suitably cool water” located as close as practicable to where employees are working.

a. 1 qt. per hour per employee (that is four, 8 ounce cups per hour) during hot weather must be made available at all times unless you can demonstrate infeasibility.
b. Employees are encouraged to drink water throughout the day to remain sufficiently hydrated.

3. Access to Shade

CEI will provide access to shade for work occurring outdoors in hot environments (as defined in the Definitions, above). Employees suffering from heat illness or believing a “preventative cool-down rest” period is needed must be:

a. Provided access to an area with shade that is either open to the air or provided with ventilation
b. Monitored for symptoms of heat illness,
c. Encouraged to remain in the shade and not ordered back to work until symptoms are gone.
d. Employees with symptoms must be provided appropriate first aid or emergency response.

If the predicted temperature forecast is above 80 degrees at the beginning of the shift:

a. Shade area(s) must be available
b. Shade must also accommodate all employees on recovery or rest periods
c. While taking meal periods/breaks.
d. Employees should be able to sit comfortably in the shade without touching each other.
e. Shade area must not cause exposure to another hazard and be located as close as practical.
f. Shade should be reachable within a 2.5-minute walk
g. In no case should the shade area be located more than a ¼ mile or a five-minute walk away (whichever is shorter).

Employees must receive a verbal authorization from their immediate supervisor prior to taking a preventative recovery period and report back to the same supervisor when reporting back to work after the preventative recovery period. The supervisor should review the reasoning used by an employee requesting a preventative recovery period. This is not an interrogation, but rather to ascertain if there are any other concerns that the supervisor should be aware of:

a. Reported symptoms of nausea, dizziness, lightheadedness or vomiting?
b. Signs of profuse sweating?
c. Was the workspace enclosed, or without air circulation or both?
d. Was the workspace hot or humid?
e. Was the workspace shady or subjected to direct sunlight?

f. Is the employee on any prescription medications?
g. Are there any signs of alcohol use?
h. Is the employee new to the job?
i. Does the employee have allergies?
j. Has the employee been drinking water? If yes, how often and how much?

Employees will be escorted to the shaded recovery area and remain there until they are ready to return to work. Employees cannot leave the jobsite during the preventative recovery period without permission from their immediate supervisor. The shaded recovery area will be located within visual range of the jobsite trailer or some other location where the condition of an employee or employees can be continually observed.

Employees will be sent to a medical clinic for evaluation and/or medical attention if their symptoms have not resolved after fifteen minutes in the shaded recovery area. The supervisor will evaluate the need for an employee to be sent to a medical clinic for evaluation and/or medical attention if that employee request more than one recovery period in a four (4) hour work period.

4. Responding to Symptoms of Heat Related Illness

The various illnesses associated with heat stress and the associated symptoms and treatment protocols are identified in Section 5, below. If a supervisor observers, or any employee reports, any signs or symptoms of heat illness in any employee, the supervisor shall take immediate action commensurate with the severity of the illness.

If the signs or symptoms are indicators of severe heat illness (such as, but not limited to, decreased level of consciousness staggering, vomiting, disorientation, irrational behavior, or convulsions), the employer must implement emergency response procedures immediately.

Employees exhibiting signs of minor heat illness such as heat rash, heat cramps or early heat exhaustion will be brought to a shaded/ or air-conditioned recovery area for first aid and close monitoring. Based on symptoms exhibited the employee may need to be transported to medical clinic for further evaluation and care.

An employee exhibiting signs or symptoms of heat illness, shall be monitored and shall not be left alone or sent home without being offered onsite first aid and/or being provided emergency medical services.

Foreman must ensure clear and precise directions to the work site can and will be provided as needed to emergency responders.

5. Training

CEI will provide training to all employees with potential exposure to heat stress. In addition, supervisors will receive supplemental training on their responsibilities for preventing heat illness. This training will cover the following areas (as identified in the Cal-OSHA Heat Illness Prevention standard:

a. The environmental and personal risk factors for heat illness/heat stress
b. The employer's procedures for complying with the requirements of the Heat Illness Prevention standard

c. The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties
d. The importance of acclimatization (Refer to Definitions, above)
e. The different types of heat illness and the common signs and symptoms of heat illness
f. The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers
g. The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary
h. The employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider
i. The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

Heat Stress Training Topics

1. Where Does Heat Stress Occur in Construction?

Construction operations involving heavy physical work in hot, humid environments can put considerable heat stress on workers. Hot and humid conditions can occur either indoors or outdoors. Examples of indoor and outdoor construction operations that are frequently associated with heat stress among workers include (but are not limited to):

a. Indoors
   i. steel mills and foundries
   ii. boiler rooms
   iii. pulp and paper mills
   iv. electrical utilities
   v. petrochemical plants
   vi. smelters
   vii. furnace operations
   viii. oil and chemical refineries
   ix. electrical vaults
   x. interior construction and renovation

b. Outdoors
   i. road building
   ii. building construction
   iii. work on bridges
   iv. trenching

v. pouring and spreading tar or asphalt
vi. working on flat or shingle roofs
vii. excavation and grading

In addition to environmental aspect of heat stress associated with the operations listed above, work on or near energized electrical circuits, inside asbestos containment structures for asbestos removal, work with hazardous wastes, and other operations that require workers to wear semi- permeable or impermeable protective clothing can contribute significantly to heat stress. Heat stress causes the body's core temperature to rise.

2. How to Recognize Heat-Related Illness?

Heat stress disorders range from minor discomforts to life-threatening conditions: heat rash, heat cramps, heat exhaustion and heat stroke

a. Heat Rash

Heat rash— also known as prickly heat—is the most common problem in hot work environments.

Symptoms include:

i. red blotches and extreme itchiness in areas persistently damp with sweat
ii. prickling sensation on the skin where sweating occurs.

Treatment—cool environment, cool shower, thorough drying. In most cases, heat rashes disappear a few days after heat exposure ceases. If the skin is not cleaned frequently enough the rash may become infected.

b. Heat Cramps

Under extreme conditions, such as working for several hours in heavy protective gear, the body may lose salt through excessive sweating. Heat cramps can result. These are spasms in larger muscles—usually back, leg, and arm. Cramping creates hard painful lumps within the muscles.

Treatment—stretch and massage muscles; replace salt by drinking commercially available carbohydrate/electrolyte replacement fluids.

c. Heat Exhaustion

Heat exhaustion occurs when the body can no longer keep blood flowing to supply vital organs and at the same time send blood to the skin to reduce body temperature. Signs and symptoms of heat exhaustion include:

i. weakness
ii. difficulty continuing work
iii. headache
iv. breathlessness
v. nausea or vomiting
vi. feeling faint or actually fainting.

Workers fainting from heat exhaustion while operating machinery, vehicles, or equipment can injure themselves and others.

Treatment—heat exhaustion casualties respond quickly to prompt first aid. If not treated promptly, however, heat exhaustion can lead to heat stroke—a medical emergency.

i. Call 911.
ii. Help the casualty to cool off by
    - resting in a cool place
    - drinking cool water
    - removing unnecessary clothing
    - loosening clothing
    - showering or sponging with cool water

.

It takes 30 minutes at least to cool the body down once a worker becomes overheated and suffers heat exhaustion.

d. Heat Stroke

Heat stroke occurs when the body can no longer cool itself and body temperature rises to critical levels. ***WARNING:*** Heat stroke requires immediate medical attention.

The primary signs and symptoms of heat stroke are:

i. confusion
ii. irrational behavior
iii. loss of consciousness
iv. convulsions
v. lack of sweating
vi. hot, dry skin
vii. abnormally high body temperature—for example, 41°C.

Treatment — For any worker showing signs or symptoms of heat stroke:

i. Call 911
ii. Provide immediate, aggressive, general cooling.
iii. Immerse worker in tub of cool water or place in cool shower or spray with cool water
iv. from a hose.
v. Wrap worker in cool, wet sheets and fan rapidly.
vi. Transport worker to hospital.
vii. Do not give anything by mouth to an unconscious casualty.

WARNING:

i. Heat stroke can be fatal even after first aid is administered. Anyone suspected of suffering from heat stroke should not be sent home or left unattended unless that action has been approved by a physician.
ii. If in doubt as to what type of heat-related disorder the worker is suffering from, call for

iii. medical assistance.

3. What Factors are Used to Assess Heat Risk?

Factors that should be considered in assessing heat stress include: personal risk factors, environmental factors and job factors

a. Personal risk factors

It is difficult to predict just who will be affected by heat stress and when, because individual susceptibility varies. There are, however, certain physical conditions that can reduce the body's natural ability to withstand high temperatures:

i. Weight

Workers who are overweight are less efficient at losing heat.

ii. Poor physical condition

Being physically fit aids your ability to cope with the increased demands that heat places on your body.

iii. Previous heat illnesses

iv. Workers are more sensitive to heat if they have experienced a previous heat-related illness.

v. Age

As the body ages, its sweat glands become less efficient. Workers over the age of 40 may therefore have trouble with hot environments. Acclimatization to the heat and physical fitness can offset some age-related problems.

vi. Heart disease or high blood pressure

In order to pump blood to the skin and cool the body, the heart rate increases. This can cause stress on the heart.

vii. Recent illness

Workers with recent illnesses involving diarrhea, vomiting, or fever have an increased risk of dehydration and heat stress because their bodies have lost salt and water.

viii. Alcohol consumption

Alcohol consumption during the previous 24 hours leads to dehydration and increased risk of heat stress.

ix. Medication

Certain drugs may cause heat intolerance by reducing sweating or increasing urination. People who work in a hot environment should consult their physician or pharmacist before taking medications.

x. Lack of acclimatization

When exposed to heat for a few days, the body will adapt and become more efficient in dealing with raised environmental temperatures. This process is called acclimatization. Acclimatization may take up to 14 days. Benefits include:

- lower pulse rate and more stable blood pressure
- more efficient sweating (causing better evaporative cooling)

- improved ability to maintain normal body temperatures.

b. Environmental factors

Environmental factors such as ambient air temperature, air movement, and relative humidity can all affect an individual's response to heat. The body exchanges heat with its surroundings mainly through radiation and sweat evaporation. The rate of evaporation is influenced by humidity and air movement.

i. Radiant Heat

Radiation is the transfer of heat from hot objects through air to the body. Working around heat sources such as kilns or furnaces will increase heat stress. Additionally, working in direct sunlight can substantially increase heat stress. A worker is far more comfortable working at 75ºF under cloudy skies than working at 75ºF under sunny skies.

ii. Humidity

Humidity is the amount of moisture in the air. Heat loss by evaporation is hindered by high humidity but helped by low humidity. As humidity rises, sweat tends to evaporate less. As a result, body cooling decreases and body temperature increases.

iii. Air Movement

Air movement affects the exchange of heat between the body and the environment. As long as the air temperature is less than the worker's skin temperature, increasing air speed can help workers stay cooler by increasing both the rate of evaporation and the heat exchange between the skin surface and the surrounding air.

c. Job factors

i. Clothing and Personal Protective Equipment (PPE)

ii. Heat stress can be caused or aggravated by wearing PPE such as fire- or chemical- retardant clothing. Coated and non-woven materials used in protective garments block the evaporation of sweat and can lead to substantial heat stress. The more clothing worn or the heavier the clothing, the longer it takes evaporation to cool the skin. Remember too that darker-colored clothing absorbs more radiant heat than lighter-colored clothing.

iii. Workload

iv. The body generates more heat during heavy physical work. For example, construction workers shoveling sand or laying brick in hot weather generate a tremendous amount of heat and are at risk of developing heat stress without proper precautions. Heavy physical work requires careful evaluation even at temperatures as low as 73°F to prevent heat disorders. This is especially true for workers who are not acclimatized to the heat.

4. Responsibilities of Supervisors

Supervisors of employees having exposure to heat stress shall participate in general employee training for heat stress prevention and ensure their employees have been trained. In addition, supervisors will receive supplemental training on their responsibilities for preventing heat illness. Supervisors are also responsible for:

a. Ensuring adequate water supply is available.

b. Ensuring appropriate shade has been provided for work outdoors.

c. Monitoring the employees' preventative recovery periods and implementing the protocols identified in "Responding to Symptoms of Heat Related Illness" (listed in Section 4, above) should an employee need to be sent to a medical clinic for evaluation and/or medical attention or EMS need to be called.

d. Closely observing new employees for their first two weeks on the job. For new employees who are not acclimatized to working in hot environments, lessen the intensity of the employees' work during a two-week break-in period and be extra-vigilant with new employees, and recognize immediately symptoms of possible heat illness.

e. Closely observing all workers during a heat wave, defined as any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding 5 days.

5. High Heat Protocols

When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, Foremen must:

a. Ensure effective communication (by voice, observation or electronic means)

b. Observe and monitor employees for alertness and signs and symptoms of heat illness using one or more of the following measures:

   i. Supervisor or designee observations of 20 or more employees

   ii. Implement a mandatory buddy system

   iii. Regular communication with employees working by themselves using radio or cellular phone.

c. Give more frequent reminders to drink plenty of water

d. Designate one or more employees as authorized to call for emergency medical services, and allowing other employees to call for emergency services when no designated employee is available.

e. Hold pre-shift meetings before the commencement of work to review the high heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary.

CUPERTINO ELECTRIC INC.

Section 2.28 – Heat Stress Hazards

Working in hot environments (indoors or outside) can place tremendous stress on the body. Heat stress at its simplest is the stress placed on the body by heat. Heat stress can be as minor as a heat rash or as life threatening as heat stroke. A Heat Stress Prevention Protocol has been implemented to protect workers from the hazards of heat stress. This Protocol has seven (7) major components:

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6. Responsibilities for Supervisors
7. High Heat Protocols

In addition to these general protocols, each site with exposure to heat illness must develop written site-specific heat illness prevention measures. A template for site specific prevention measures can be found on Livewire (CEI Intranet) or from your Division or General Superintendent.

1. Definitions Applicable to the CEI Heat Stress Prevention Protocol
    a. “Acclimatization” means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for at least two hours per day in the heat.
    b. “Heat Illness” means a serious medical condition resulting from the body’s inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope and heat stroke.
    c. “Environmental risk factors for heat illness” means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personal protective equipment worn by employees.
    d. “Personal risk factors for heat illness” means factors such as an individual’s age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body’s water retention or other physiological responses to heat.
    e. “Preventative recovery period” means a period of time to recover from the heat in order to prevent heat illness.
    f. “Shade” means blockage of direct sunlight. Canopies, umbrellas and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.
    g. “Heat Wave” for the purpose of this section only, means any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least ten degrees Fahrenheit higher than the average high daily temperature in the preceding five days.

2. Provisions for Water

CEI will provide “fresh, pure, suitably cool water” located as close as practicable to where employees are working.

a. 1 qt. per hour per employee (that is four, 8 ounce cups per hour) during hot weather must be made available at all times unless you can demonstrate infeasibility.
b. Employees are encouraged to drink water throughout the day to remain sufficiently hydrated.

3. Access to Shade

CEI will provide access to shade for work occurring outdoors in hot environments (as defined in the Definitions, above). Employees suffering from heat illness or believing a “preventative cool-down rest” period is needed must be:

a. Provided access to an area with shade that is either open to the air or provided with ventilation
b. Monitored for symptoms of heat illness,
c. Encouraged to remain in the shade and not ordered back to work until symptoms are gone.
d. Employees with symptoms must be provided appropriate first aid or emergency response.

If the predicted temperature forecast is above 80 degrees at the beginning of the shift:

a. Shade area(s) must be available
b. Shade must also accommodate all employees on recovery or rest periods
c. While taking meal periods/breaks.
d. Employees should be able to sit comfortably in the shade without touching each other.
e. Shade area must not cause exposure to another hazard and be located as close as practical.
f. Shade should be reachable within a 2.5-minute walk
g. In no case should the shade area be located more than a ¼ mile or a five-minute walk away (whichever is shorter).

Employees must receive a verbal authorization from their immediate supervisor prior to taking a preventative recovery period and report back to the same supervisor when reporting back to work after the preventative recovery period. The supervisor should review the reasoning used by an employee requesting a preventative recovery period. This is not an interrogation, but rather to ascertain if there are any other concerns that the supervisor should be aware of:

a. Reported symptoms of nausea, dizziness, lightheadedness or vomiting?
b. Signs of profuse sweating?
c. Was the workspace enclosed, or without air circulation or both?
d. Was the workspace hot or humid?
e. Was the workspace shady or subjected to direct sunlight?

f. Is the employee on any prescription medications?
g. Are there any signs of alcohol use?
h. Is the employee new to the job?
i. Does the employee have allergies?
j. Has the employee been drinking water? If yes, how often and how much?

Employees will be escorted to the shaded recovery area and remain there until they are ready to return to work. Employees cannot leave the jobsite during the preventative recovery period without permission from their immediate supervisor. The shaded recovery area will be located within visual range of the jobsite trailer or some other location where the condition of an employee or employees can be continually observed.

Employees will be sent to a medical clinic for evaluation and/or medical attention if their symptoms have not resolved after fifteen minutes in the shaded recovery area. The supervisor will evaluate the need for an employee to be sent to a medical clinic for evaluation and/or medical attention if that employee request more than one recovery period in a four (4) hour work period.

4. Responding to Symptoms of Heat Related Illness

The various illnesses associated with heat stress and the associated symptoms and treatment protocols are identified in Section 5, below. If a supervisor observers, or any employee reports, any signs or symptoms of heat illness in any employee, the supervisor shall take immediate action commensurate with the severity of the illness.

If the signs or symptoms are indicators of severe heat illness (such as, but not limited to, decreased level of consciousness staggering, vomiting, disorientation, irrational behavior, or convulsions), the employer must implement emergency response procedures immediately.

Employees exhibiting signs of minor heat illness such as heat rash, heat cramps or early heat exhaustion will be brought to a shaded/ or air-conditioned recovery area for first aid and close monitoring. Based on symptoms exhibited the employee may need to be transported to medical clinic for further evaluation and care.

An employee exhibiting signs or symptoms of heat illness, shall be monitored and shall not be left alone or sent home without being offered onsite first aid and/or being provided emergency medical services.

Foreman must ensure clear and precise directions to the work site can and will be provided as needed to emergency responders.

5. Training

CEI will provide training to all employees with potential exposure to heat stress. In addition, supervisors will receive supplemental training on their responsibilities for preventing heat illness. This training will cover the following areas (as identified in the Cal-OSHA Heat Illness Prevention standard:

a. The environmental and personal risk factors for heat illness/heat stress
b. The employer's procedures for complying with the requirements of the Heat Illness Prevention standard

c. The importance of frequent consumption of small quantities of water, up to 4 cups per hour, when the work environment is hot and employees are likely to be sweating more than usual in the performance of their duties
d. The importance of acclimatization (Refer to Definitions, above)
e. The different types of heat illness and the common signs and symptoms of heat illness
f. The importance to employees of immediately reporting to the employer, directly or through the employee's supervisor, symptoms or signs of heat illness in themselves, or in co-workers
g. The employer's procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided should they become necessary
h. The employer's procedures for contacting emergency medical services, and if necessary, for transporting employees to a point where they can be reached by an emergency medical service provider
i. The employer's procedures for ensuring that, in the event of an emergency, clear and precise directions to the work site can and will be provided as needed to emergency responders.

Heat Stress Training Topics

1. Where Does Heat Stress Occur in Construction?

Construction operations involving heavy physical work in hot, humid environments can put considerable heat stress on workers. Hot and humid conditions can occur either indoors or outdoors. Examples of indoor and outdoor construction operations that are frequently associated with heat stress among workers include (but are not limited to):

a. Indoors
   i. steel mills and foundries
   ii. boiler rooms
   iii. pulp and paper mills
   iv. electrical utilities
   v. petrochemical plants
   vi. smelters
   vii. furnace operations
   viii. oil and chemical refineries
   ix. electrical vaults
   x. interior construction and renovation

b. Outdoors
   i. road building
   ii. building construction
   iii. work on bridges
   iv. trenching

v. pouring and spreading tar or asphalt
vi. working on flat or shingle roofs
vii. excavation and grading

In addition to environmental aspect of heat stress associated with the operations listed above, work on or near energized electrical circuits, inside asbestos containment structures for asbestos removal, work with hazardous wastes, and other operations that require workers to wear semi- permeable or impermeable protective clothing can contribute significantly to heat stress. Heat stress causes the body's core temperature to rise.

2. How to Recognize Heat-Related Illness?

Heat stress disorders range from minor discomforts to life-threatening conditions: heat rash, heat cramps, heat exhaustion and heat stroke

a. Heat Rash

Heat rash— also known as prickly heat—is the most common problem in hot work environments.

Symptoms include:

i. red blotches and extreme itchiness in areas persistently damp with sweat
ii. prickling sensation on the skin where sweating occurs.

Treatment—cool environment, cool shower, thorough drying. In most cases, heat rashes disappear a few days after heat exposure ceases. If the skin is not cleaned frequently enough the rash may become infected.

b. Heat Cramps

Under extreme conditions, such as working for several hours in heavy protective gear, the body may lose salt through excessive sweating. Heat cramps can result. These are spasms in larger muscles—usually back, leg, and arm. Cramping creates hard painful lumps within the muscles.

Treatment—stretch and massage muscles; replace salt by drinking commercially available carbohydrate/electrolyte replacement fluids.

c. Heat Exhaustion

Heat exhaustion occurs when the body can no longer keep blood flowing to supply vital organs and at the same time send blood to the skin to reduce body temperature. Signs and symptoms of heat exhaustion include:

i. weakness
ii. difficulty continuing work
iii. headache
iv. breathlessness
v. nausea or vomiting
vi. feeling faint or actually fainting.

Workers fainting from heat exhaustion while operating machinery, vehicles, or equipment can injure themselves and others.

Treatment—heat exhaustion casualties respond quickly to prompt first aid. If not treated promptly, however, heat exhaustion can lead to heat stroke—a medical emergency.

i. Call 911.
ii. Help the casualty to cool off by
    - resting in a cool place
    - drinking cool water
    - removing unnecessary clothing
    - loosening clothing
    - showering or sponging with cool water

.

It takes 30 minutes at least to cool the body down once a worker becomes overheated and suffers heat exhaustion.

d. Heat Stroke

Heat stroke occurs when the body can no longer cool itself and body temperature rises to critical levels. ***WARNING:*** Heat stroke requires immediate medical attention.

The primary signs and symptoms of heat stroke are:

i. confusion
ii. irrational behavior
iii. loss of consciousness
iv. convulsions
v. lack of sweating
vi. hot, dry skin
vii. abnormally high body temperature—for example, 41°C.

Treatment — For any worker showing signs or symptoms of heat stroke:

i. Call 911
ii. Provide immediate, aggressive, general cooling.
iii. Immerse worker in tub of cool water or place in cool shower or spray with cool water
iv. from a hose.
v. Wrap worker in cool, wet sheets and fan rapidly.
vi. Transport worker to hospital.
vii. Do not give anything by mouth to an unconscious casualty.

WARNING:

i. Heat stroke can be fatal even after first aid is administered. Anyone suspected of suffering from heat stroke should not be sent home or left unattended unless that action has been approved by a physician.
ii. If in doubt as to what type of heat-related disorder the worker is suffering from, call for

iii. medical assistance.

3. What Factors are Used to Assess Heat Risk?

Factors that should be considered in assessing heat stress include: personal risk factors, environmental factors and job factors

a. Personal risk factors

It is difficult to predict just who will be affected by heat stress and when, because individual susceptibility varies. There are, however, certain physical conditions that can reduce the body's natural ability to withstand high temperatures:

i. Weight

Workers who are overweight are less efficient at losing heat.

ii. Poor physical condition

Being physically fit aids your ability to cope with the increased demands that heat places on your body.

iii. Previous heat illnesses

iv. Workers are more sensitive to heat if they have experienced a previous heat-related illness.

v. Age

As the body ages, its sweat glands become less efficient. Workers over the age of 40 may therefore have trouble with hot environments. Acclimatization to the heat and physical fitness can offset some age-related problems.

vi. Heart disease or high blood pressure

In order to pump blood to the skin and cool the body, the heart rate increases. This can cause stress on the heart.

vii. Recent illness

Workers with recent illnesses involving diarrhea, vomiting, or fever have an increased risk of dehydration and heat stress because their bodies have lost salt and water.

viii. Alcohol consumption

Alcohol consumption during the previous 24 hours leads to dehydration and increased risk of heat stress.

ix. Medication

Certain drugs may cause heat intolerance by reducing sweating or increasing urination. People who work in a hot environment should consult their physician or pharmacist before taking medications.

x. Lack of acclimatization

When exposed to heat for a few days, the body will adapt and become more efficient in dealing with raised environmental temperatures. This process is called acclimatization. Acclimatization may take up to 14 days. Benefits include:

- lower pulse rate and more stable blood pressure
- more efficient sweating (causing better evaporative cooling)

- improved ability to maintain normal body temperatures.

b. Environmental factors

Environmental factors such as ambient air temperature, air movement, and relative humidity can all affect an individual's response to heat. The body exchanges heat with its surroundings mainly through radiation and sweat evaporation. The rate of evaporation is influenced by humidity and air movement.

i. Radiant Heat

Radiation is the transfer of heat from hot objects through air to the body. Working around heat sources such as kilns or furnaces will increase heat stress. Additionally, working in direct sunlight can substantially increase heat stress. A worker is far more comfortable working at 75ºF under cloudy skies than working at 75ºF under sunny skies.

ii. Humidity

Humidity is the amount of moisture in the air. Heat loss by evaporation is hindered by high humidity but helped by low humidity. As humidity rises, sweat tends to evaporate less. As a result, body cooling decreases and body temperature increases.

iii. Air Movement

Air movement affects the exchange of heat between the body and the environment. As long as the air temperature is less than the worker's skin temperature, increasing air speed can help workers stay cooler by increasing both the rate of evaporation and the heat exchange between the skin surface and the surrounding air.

c. Job factors

i. Clothing and Personal Protective Equipment (PPE)

ii. Heat stress can be caused or aggravated by wearing PPE such as fire- or chemical- retardant clothing. Coated and non-woven materials used in protective garments block the evaporation of sweat and can lead to substantial heat stress. The more clothing worn or the heavier the clothing, the longer it takes evaporation to cool the skin. Remember too that darker-colored clothing absorbs more radiant heat than lighter-colored clothing.

iii. Workload

iv. The body generates more heat during heavy physical work. For example, construction workers shoveling sand or laying brick in hot weather generate a tremendous amount of heat and are at risk of developing heat stress without proper precautions. Heavy physical work requires careful evaluation even at temperatures as low as 73°F to prevent heat disorders. This is especially true for workers who are not acclimatized to the heat.

4. Responsibilities of Supervisors

Supervisors of employees having exposure to heat stress shall participate in general employee training for heat stress prevention and ensure their employees have been trained. In addition, supervisors will receive supplemental training on their responsibilities for preventing heat illness. Supervisors are also responsible for:

a. Ensuring adequate water supply is available.

b. Ensuring appropriate shade has been provided for work outdoors.

c. Monitoring the employees' preventative recovery periods and implementing the protocols identified in "Responding to Symptoms of Heat Related Illness" (listed in Section 4, above) should an employee need to be sent to a medical clinic for evaluation and/or medical attention or EMS need to be called.

d. Closely observing new employees for their first two weeks on the job. For new employees who are not acclimatized to working in hot environments, lessen the intensity of the employees' work during a two-week break-in period and be extra-vigilant with new employees, and recognize immediately symptoms of possible heat illness.

e. Closely observing all workers during a heat wave, defined as any day in which the predicted high temperature for the day will be at least 80 degrees Fahrenheit and at least 10 degrees Fahrenheit higher than the average high daily temperature in the preceding 5 days.

5. High Heat Protocols

When the temperature equals or exceeds 95 degrees Fahrenheit or during a heat wave, Foremen must:

a. Ensure effective communication (by voice, observation or electronic means)

b. Observe and monitor employees for alertness and signs and symptoms of heat illness using one or more of the following measures:

   i. Supervisor or designee observations of 20 or more employees

   ii. Implement a mandatory buddy system

   iii. Regular communication with employees working by themselves using radio or cellular phone.

c. Give more frequent reminders to drink plenty of water

d. Designate one or more employees as authorized to call for emergency medical services, and allowing other employees to call for emergency services when no designated employee is available.

e. Hold pre-shift meetings before the commencement of work to review the high heat procedures, encourage employees to drink plenty of water, and remind employees of their right to take a cool-down rest when necessary.

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Heat Illness Prevention and Temperature Control Checklist

Project Name: _____ Job #: _____

Today's date and estimated high temperature

	MON	TUES	WED	THURS	FRI	SAT	SUN
DATE							
TEMP (°F)							

* If temp is 80°F or above, reference CEI IIPP / Safety Manual Section 2.28 – Heat Stress Hazards (Section 2.0 for Outside Linemen IIPP)

How was temperature acquired? _____

- Web site (http://www.nws.noaa.gov/)
- Cell phone or iPad app
- Called National Weather Service

Project address/location: _____

- Location Specifics for emergency responders
  - Cross Street: _____
  - Job site entrance: _____
  - CEI employee designated to direct EMS: _____

Location(s) of water: _____

_____

Person(s) responsible for replenishing drinking water: _____

_____

Location(s) of shade: _____

_____

_____

Person(s) responsible for setting up/moving shade: _____

_____

CPR trained personnel: _____

_____

Safety Representative & Phone #: _____

IN CASE OF HEAT ILLNESS EMERGENCY

- Foreman Name & Phone#: _____
- Secondary Contact & Phone#: _____
- Foreman and Safety Representative must be notified immediately in case of a heat illness emergency
- Direct # to city local emergency dispatch: _____
- Clinic Name: _____
  Address: _____

  _____

  Phone #: _____

HEAT STROKE IS A MEDICAL EMERGENCY

CALL 911

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Section 2.29 – Cold Stress Hazards

When the body is unable to warm itself, serious cold related illnesses and injuries such as frost bite and hypothermia can occur, which may result in permanent tissue damage or death. Cold related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.

Frost bite occurs when deep layers of skin and tissue freeze. The skin may take on a waxy-white skin color and become hard and numb. Frost bite usually affects the fingers, hands, toes, feet, ears, and nose. If an employee is suspected of having frost bite:

1. Move the person to a warm dry area. Don't leave the person alone.
2. Remove any wet or tight clothing that may cut off blood flow to the affected area.
3. Do not rub the affected area, because rubbing causes damage to the skin and tissue. Gently place the affected area in a warm (105°F) water bath and monitor the water temperature to slowly warm the tissue. Seek medical attention as soon as possible.

Hypothermia is a potentially life-threatening illness that occurs when the normal body temperature drops to 95°F or below. Normal body temperature is around 98.6°F. It can occur when land temperatures are above freezing (32°F). Symptoms of hypothermia include fatigue or drowsiness, uncontrolled shivering, cool bluish skin, slurred speech, clumsy movements, and irritable, irrational, or confused behavior. If an employee is suspected of having hypothermia:

1. Call for immediate emergency help (Call 911).
2. Move the person to a warm, dry area. Don't leave the person alone. Remove any wet clothing and replace with warm, dry clothing or wrap the person in blankets.
3. Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if they are alert. Avoid drinks with caffeine (coffee, tea, or hot chocolate) or alcohol.
4. Have the person move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck, and head areas. Do not rub the person's body or place them in warm water bath, as this may stop their heart.

There are personal factors which may increase a worker's risk for developing a cold stress illness or injury. These include:

1. Predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
2. Use of certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you while working in cold environments).
3. Poor physical conditioning or poor diet.

To prevent cold stress illnesses and injuries, select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (i.e. polypropylene, etc.). Take frequent short breaks in warm dry shelters to allow the body to warm up. If possible, perform work during the warmest part of the day. In addition, avoid exhaustion or fatigue because energy is needed to keep muscles warm. Use the buddy system when working in cold environments and drink warm, sweet beverages (sugar water, sports- type drinks) throughout the day. Avoid drinks with caffeine, such as coffee, tea, or hot chocolate).

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Section 2.30 – Heavy Equipment/Material Handling and Earthmoving Equipment

1. Equipment shall be maintained in good working order. At the beginning of each shift, inspect equipment for defects in:
    a. Service brakes, trailer brake connections, parking brake system, and emergency stopping system (brakes).
    b. Tires, horn, steering mechanism, seat belts, operating controls, back-up alarm, and safety devices.
    c. Lights, reflectors, windshield wipers, defrosters, and fire extinguishers.
2. When equipment is used in the dark or when visibility conditions warrant additional light, vehicles in use shall be equipped with at least two headlights and two taillights in operable condition.
3. All vehicles shall be equipped with an audible warning device (horn) and automatic back-up alarm that sounds immediately upon backing.
    a. In congested areas or areas with high ambient noise which obscures the audible alarm, a spotter will be provided in clear view of the operator to direct the backing operation.
4. Immediately replace any cracked or broken windshields.
5. Seat belts must be used at all times.
6. Trucks with dump bodies must be equipped with a positive means of support that is permanently attached to prevent accidental lowering of the body while maintenance or inspection work is being done.
7. Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device that will prevent accidental starting or tripping of the mechanism.
8. Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the operator will be in the clear.
9. All rubber-tired motor vehicle equipment must be equipped with fenders.
10. Before starting the motor, the operator shall check to make sure that all operating controls are in the neutral position.
11. Before starting the equipment, the operator shall walk around the equipment to make sure that no other personnel, equipment or material will be struck.
12. Never leave a piece of equipment unattended while the motor is running.
13. Block or chock wheels when parking on inclines.
14. No employee other than the operator shall ride on the equipment.
15. Turn the motor off during refueling. Smoking and cell phone use is prohibited during refueling.
16. Remove keys from unattended equipment.
17. Equipment shall be under control at all times and shall be kept in gear when descending grades.
18. No vehicle shall be driven at a speed greater than is reasonable and proper, with due regard for weather, traffic, intersections, width and character of the roadway, type of motor vehicle, and any other existing conditions.

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Section 2.31 – Raised Access Floors

When work is to be performed under a raised access floors, the following guidelines should be followed. Review integrity or raised access floor support system and pedestals prior to beginning work.

1. Use a secure trench/straight ladder or other safe method to enter the area.
2. Avoid stepping on insulated pipe. Report damage if it occurs.
3. Use knee pads or kneeling pads and wear a long sleeve shirt or kevlar arm guards if wearing short sleeves.
4. During equipment move-in, do not come within 2 floor tiles of the barricaded area move-in pathway. Never cross red danger tape or disregard spotters.
5. Do not push open a floor tile from below without properly barricading the area above unless it is an emergency evacuation.
6. Use head lamps and/or provide temporary lighting (as needed).
7. Use fans if additional air flow is needed.
8. When traveling a distance under the floor, pull tiles in advance and barricade openings to provide designated areas where employees can surface/stretch.
9. Take micro breaks to stretch when in awkward sustained postures under the floor.
10. Stay well hydrated.
11. Rotate under floor activities. Employees should not work under the floor for the entire day.
12. Provide safe storage for removed floor tiles, as they can become a slip/trip hazard for employees walking in the area (place tiles on a cart, provide a cone/barricading, etc.).
13. Provide cones, delineators, or barricading for open floor tile areas (and signage as applicable). Provide delineators and barricade tape if more than one floor tile must be removed.
14. Reinforce flooring on equipment move-in pathways to distribute weight over a larger surface area to avoid floor tile collapse.

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Section 2.32 – Safety Pre-Task Planning

Safety Pre-task plans (SPTP's) are used as a tool to prevent incidents and injuries in the workplace. A SPTP is required for any and all field activities performed by CEI employees and/or subcontractors. It is the responsibility of the Foreman to ensure that whatever tasks are to be performed are documented on the SPTP with what hazards are involved and ways to eliminate those hazards. The CEI Job Hazard Analysis (JHA) book is a key resource for potential hazards and control strategies for commonly performed tasks. The most current version of the SPTP and the JHA book can be found on Livewire (CEI Intranet) or from your Division or General Superintendent.

Foreman Responsibility

1. Ensure SPTP has been completed prior to work starting.
2. Review SPTP with all crew members and solicit any feedback.
3. Ensure all crew members participate in the SPTP and understand, sign, and follow the SPTP for their task.
4. Keep the SPTP in the work area of the crew so that when conditions change edits can be made to the plan. (preferably with red ink)
5. Submit/file any expired SPTP to the jobsite files.

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Section 2.33 – Working in and Around Water

Water Rescue

1. When employees are engaged in work where the danger of drowning exists, employees are required to wear a U.S. Coast Guard approved Personal Floatation Device (PDF)
2. Before or after each use, the buoyant work vest or life preservers must be inspected for defects that would alter their strength or buoyancy. Defective units must not be present and dis-guarded.
3. Ring buoys with at least 90 feet of line must be provided and readily available for emergency rescue operation. The distance between ring buoys must not exceed 200 feet.
4. At least one lifesaving skiff must be immediately available at the locations where employees are working over or adjacent to water.

Personal Floating Devices

PFD Inspections

1. Employees must ensure their PFD's are in good condition before leaving the dock. Check for rips, tears and holes.
2. Make sure seams, straps and hardware are secure.
3. Make sure there is no sign of water logging, mildew odor or shrinkage of buoyant materials. If your PFD is discolored, torn or has torn straps, discard and replace it before starting work.

PFD Storage

1. Let your PDF drip dry thoroughly before putting it away.
2. If your PFD has been in salt water, rinse it thoroughly with fresh water.
3. Store PFD out of direct sunlight and in a well-ventilated place.

Boat Operations

Any boat operation must be communicated and approved by your Division Superintendent and Division Safety Manager.

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Section 2.34 – Housekeeping and Site Conditions

1. Maintain good housekeeping standards. Keep your work areas free of debris and clean as you go. Do not leave slip / trip hazards unattended or without barricades / warnings signs posted. Whenever possible collect debris as it is being generated using nose bag or other by means.
2. Maintain awareness of potential hazards when walking about the job site.
3. Keep tools, materials and equipment out of walkways and stairways at all times.
4. Sharp wires or protruding nails must be kept bent.
5. Place tools and equipment so they will not slide off the roof.
6. Tie material down at day's end so the wind will not blow it off a roof or other areas where it can be moved by wind or other environmental conditions.
7. When material is stored in tiers make sure materials are stable and secure. Always:
    a. Stack, rack, block, interlock or otherwise secure materials.
    b. Limit height.
    c. Stack so weight is equally distributed and the pile is not top heavy.
8. Block or rack cylindrical materials to prevent spreading.
9. For barrel or reel storage, store on their sides, place in racks or secure with chalks.
10. Do not block marked passageways, exits, fire extinguisher, emergency safety equipment, and electrical panels.
11. Ensure safe access and egress is maintained on the project.
12. For any changes in elevation of 19 inches or more in access or egress routes, a stair, ramp or ladder must be provided.
13. For work in cold climates subject to snow and ice, ensure access and egress paths are properly maintained to prevent slips and falls.
14. For work in preformed in muddy terrain ensure access and egress paths are properly maintained to prevent slips and falls.
15. Rebar/impalement hazard protection:
    a. Employees working at grade or at the same surface as exposed rebar or other similar projections shall be protected from impalement by guarding all exposed ends that extend up to 6 feet above grade or other work surface with protective covers or troughs.
    b. Employees working above grade or at any surface and exposed to rebar or other similar projections shall be protected from impalement by the use of guardrails, approved fall protections systems, or protective covers.

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Section 2.35 – Infection Control

The following section addresses infection control measures applicable to hospitals and other health care environments. Additional requirements and permits may be required by the owner or general contractor. Requirements are based on the type of construction activity being performed and the level of risk.

Step 1: Identify the Type of Construction Activity

Construction activity types are defined by the amount of dust that is generated, the duration of the activity, and the amount of shared HVAC systems. Prior to starting work, select which of the following types best describes the planned scope of work.

Type "A" Inspection and non-invasive activities. For example, painting (but no sanding) of wall covering, minor plumbing, electrical trim work, or the removal of ceiling tile for inspection when limited to less than 1tile per 50 square feet and activities which do not generate dust or require cutting walls or access ceilings other than for visual inspection.

Type "B" Small scale, short duration activities that create minimal dust. For example, access to chase spaces, cutting of walls or ceilings where dust migration can be controlled, or installation of data and/or telecom lines.

Type "C" Any work that generates a moderate to high amount of dust or requires demolition or removal of any fixed building components or assemblies. For example, major cabling activities, new wall construction, sanding walls for painting or wall covering, removal of floor coverings, ceiling tiles and casework, minor ductwork or electrical work above ceilings, and any activity that cannot be completed during one shift.

Type "D" Major demolition and construction projects. Including, but not limited to, floor or wall systems, multiple consecutive work shifts, new construction, heavy demolition and/or removal of the complete ceiling, and any activity creating a large breach in the existing containment system for a space.

Step 2: Identify the Infection Control Risk Group

Using the table below choose the risk group for the proposed scope of work based on the greatest potential impact:

Group 1 Lowest Risk	Group 2 Moderate Risk	Group 3 Moderate to High Risk	Group 4 High Risk
Office Areas	Patient Care Units	Medical & Cardiac	Transplant Unit
Engineering	Cardiac Rehab	Telemetry	Operating Rooms, CVOR & Outpatient Surgery
Hospital Admitting	Respiratory Therapy	Emergency Room	Sterile Processing
Environmental Services	Linen Rooms	Emergency Room Trauma Centers	ICU
Mail Room	Outpatient Waiting Areas	Post-partum Newborn Nurseries	Burn Units
Warehousing & Storage Areas	Physical Therapy	Labor & Delivery Pediatrics	Labor & Delivery Operating Rooms
Shipping & Receiving	Echocardiography	Medical & Surgical Units	Cardiac Catheterization & Angiography Areas
Public Areas: lobbies, waiting rooms, etc.	Exercise Labs	Laboratories (specimen / research)	Pulmonary Function
Equipment & Electrical Rooms	Non-invasive Lab	Physical Therapy (tank areas)	Dialysis Area
	Mechanical Rooms	Radiology / MRI	Oncology Unit
		Nuclear Medicine	Radiation Oncology
		Infusion Center	Cardiac Unit
		Cafeteria / Kitchen	Pharmacy Admixture
		Packaging Areas	All Endoscopy Areas
		Fermentation Areas	Anesthesia & Pump Area
			Post-Anesthesia Care
			Pre-Induction Areas
			Negative Pressure Isolation Areas
			Production Areas
			Vialing Areas
			Weigh & Dispense Areas

Step 3: Construction Activity and Infection Control Matrix

Match the infection control risk group with the construction type in the matrix below to determine the level of control measure needed.

Risk Level	Construction Type			
	Type A	Type B	Type C	Type D
Group 1	I	II	II	III/IV
Group 2	I	II	III	IV
Group 3	I	II	III/IV	IV
Group 4	I	III/IV	III/IV	IV

CONTROL MEASURES

Class I

- Immediately replace any ceiling tiles displaced for visual inspection
- Execute work by methods to minimize raising dust from construction operation
- Cleanup and dispose debris immediately

Class II

- Provide active means to prevent air-born dust from dispersing into atmosphere
- (e.g. negative air machines, HEPA vacuums, dust collectors on tools, etc.)
- Block off and seal air vents
- Wipe surfaces with disinfectant
- Place tacky mats at entrances and exits of work area
- Water mist work surfaces to control dust while cutting
- Seal unused doors with low tack adhesive tape, visqueen or other similar product
- Contain construction waste before transport in tightly covered containers
- Wet mop and/or vacuum with HEPA filtered vacuum before leaving work area
- Remove or isolate HVAC system in areas where work is being performed
- Cleanup and dispose debris immediately

Class III

- Isolate HVAC system in area where work is being done to prevent contamination of the duct system
- Contain construction waste before transporting in tightly covered containers
- Cover transport receptacles or carts. Tapes covering if lid or covers are not tight
- Cleanup and dispose debris immediately
- Complete all critical barriers or implement control cube method before construction begins

- Maintain negative air pressure within the work site utilizing HEPA equipped air filtration units
- Do not remove barriers until the entire work area has been thoroughly cleaned and disinfected
- Air should be vented directly outside or to appropriate scrubber
- Vacuum work area with HEPA filtered vacuums
- Wet mop with disinfectant
- Remove barrier materials careful to minimize spreading of dirt and debris associated with construction

Class IV

- Isolate HVAC system in area where work is being done to prevent contamination of the duct system.
- Do not remove barriers until the entire work area has been thoroughly cleaned and disinfected
- Vacuum work with HEPA filtered vacuums
- Cover transport receptacles or carts. Tape cover if lid or covers are not tight
- Cleanup and dispose debris immediately
- Complete all critical barriers or implement control cube method before construction begins.
- Maintain negative air pressure within the work site utilizing HEPA equipped air filtration units
- Negative air should be vented directly outside or to appropriate scrubber
- Seal holes, pipes, conduits, and punctures appropriately
- Construct anteroom and require all personnel to pass through this room so they can be vacuumed using a HEPA vacuum cleaner before leaving work site or they can wear cloth or paper coveralls that are removed each time they leave the work site
- All personnel entering the work site are required to wear shoe covers
- Wet mop with disinfectant
- Remove barrier materials carefully to minimize spreading of dirt and debris associated with construction
- Contain construction waste before transport in tightly covered containers

COVID-19 Exposure Control Plan (ECP)

Policy Number: CEIEHS-101	Review Date: 12/15/2020	Revision Date: 12/15/2020	Revision: H

Approvals:

Corporate Safety	12/15/20	Bruce Baxter	12/15/20
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1. Purpose:

This plan has been developed to provide CEI Office employees, Field employees, subcontractors and vendors with the necessary guidelines to prevent the contraction or spread of the COVID-19 virus in the workplace as recommended by the Center for Disease Control (CDC), World Health Organization (WHO) and the Occupational Safety and Health Administration (OSHA).

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The best way to prevent and slow down transmission is to be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol-based rub frequently and not touching your face.

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes.

People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. **Older adults and people who have severe underlying medical conditions** like heart or lung disease or diabetes seem to be at a higher risk for developing more serious complications from COVID-19 illness.

Symptoms may appear **2-14 days after exposure to the virus**. People with these symptoms may have COVID-19:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

(This list is not inclusive. Please consult your medical provider for any other symptoms that are severe or of concern.)

2. Scope:

This plan shall be implemented at all project locations (small or large) where CEI employees, visitors or CEI subcontractors work. There is to be no deviation to this plan without the approval of the Executive Leadership Team (ELT).

3. Responsibilities:

Managers and Supervisors:
All CEI Managers and Supervisors shall be responsible for ensuring that those employees assigned to their respective areas are in compliance with this plan. Managers and supervisors must follow, and role model all elements of this plan at all times.

Employees, Subcontractors, Visitors and Vendors:
It is the responsibility of every CEI employee, visitor, vendor and subcontractor to adhere to this plan, follow all directives and assist in maintaining a safe work environment.
Employees are to report any positive COVID-19 test, regardless if work related or not, to their supervisor or Human Resources at benefits@cei.com.

Subcontractors performing work on CEI projects are required to submit a COVID-19 Exposure Control Plan that meets or exceeds CEI's plan. Where dissimilarities to CEI's program exist, the more stringent shall apply.

4. Communication to Employees:

Field or office employees must immediately report to their supervisor or Human Resources if they are experiencing any signs or symptoms of COVID-19 or if they believe they have been exposed to someone with COVID-19. Employees shall also immediately report to their supervisor or Human Resources if they believe they may have been exposed to any COVID-19 hazards in the workplace.

Any employee that reports any of the items above should do so without fear of reprisal. CEI has a strict non-retaliation and non-discrimination policy and will not tolerate anyone retaliating against, discriminating against, or harassing any employee for informing CEI of COVID-19 hazards or health status.

Employees may be entitled to COVID related benefits depending on the state in which they live. To determine eligibility, please contact benefits@cei.com.

Please note that documented employee answers to symptom questions will be in line with current privacy policies including CCPA, HIPAA, and any relevant state and federal laws and will be secured as a confidential private medical record. For further assistance please contact benefits@cei.com

Note: Due to the evolving nature of the current COVID-19 situation, this plan is subject to changing conditions and recommended practices. When revisions are made to this plan, it will be communicated to employees as soon as practical.

5. General Requirements:

This plan has been structured to provide employees with the guidelines and precautions to take based on those activities most common to CEI field operations. Employees are to be provided with this plan at the time of hire and prior to returning to a project.

- Project Leadership shall designate a site-specific COVID-19 supervisor or supervisors for all projects.

- COVID-19 supervisor(s) must always be present on the construction site during construction activities. A COVID-19 supervisor may be a General Foreman or Foreman depending on the project size.
- The COVID-19 supervisor shall complete COVID-19 Hazard Assessment audits **daily** in the SmartTagIt system.
- The COVID-19 supervisor must review this ECP with all CEI workers and visitors to the construction site.
- Personal protective equipment (PPE) specifically for use in construction, including gloves, goggles, face shields, and face coverings as appropriate for the activity being performed will be provided. At no time may an employee secure or use medical-grade PPE, unless required due to the medical nature of a job site.
- Drinking water will be strictly limited to bottled water.
- During any in-person safety meeting, avoid gathering in groups of more than ten (10) people; participants must remain at least six (6) feet apart.
- Employees must avoid physical contact and shall direct others (co-workers/contractors /visitors) to increase personal space to at least six (6) feet, where possible. Where office trailers are used, only necessary employees should enter the trailers and all employees shall maintain social distancing while inside the trailers.
- All in-person meetings will be limited. To the extent possible, meetings will be conducted by telephone.
- Employees will be encouraged to stagger breaks and lunches, if practicable, to reduce the size of any group at any one time to less than ten (10) people.
- Workers are prohibited from using others' phones or desks. Any work tools or equipment that must be used by more than one worker must be cleaned with disinfectants that are effective against COVID-19 before use by a new worker.
- Wash stations or hand sanitizers that are effective against COVID-19 will be placed at entrances to the jobsite and dispersed in multiple locations throughout the jobsite as warranted.
- Jobsites must maintain a daily attendance log of all workers and visitors that includes contact information, including name, address, phone number, and email. Daily logs shall be available **within seven (7) calendar days** of project mobilization.
- All CEI projects shall post the required signage listed in Appendix A. COVID-18 Required Signage.
- A COVID-19 community spread reduction plan shall be implemented as part of the Site-Specific Health and Safety Plan that includes, at minimum, the following restrictions and requirements:
    i. Prohibit all carpooling to and from the jobsite except by workers living within the same household unit, or as necessary for workers who have no alternative means of transportation.
    ii. Prohibit the sharing of PPE of any kind.
    iii. The sharing of any food or beverage is strictly prohibited; if sharing is observed, the worker must be sent home for the day.
    iv. Prohibit the use of microwaves, water coolers, and other similar shared equipment.
- Notification of a positive COVID-19 test result shall be communicated to Production Leadership and Corporate Safety within one (1) hour of confirmation. Some states and counties have additional reporting requirements for positive test results, making this very important.

- Where construction work occurs within common areas of an occupied residential or commercial building or a mixed-use building in use by on-site employees or residents, any separate work area must be sealed off from the rest of the common areas with physical barriers such as plastic sheeting or closed doors sealed with tape to the extent feasible. If possible, workers must access the work area from an alternative building entry/exit door to the building entry/exit door used by residents or other users of the building. Every effort must be taken to minimize contact between worker and building residents and users, including maintaining a minimum of six feet of social distancing at all times. *If the Project Team and customer interpretation of this section differ and there is conflict, the Project Team shall elevate to senior management.*

- Where construction work occurs within an occupied residential unit, any separate work area must be sealed off from the remainder of the unit with physical barriers such as plastic sheeting or closed doors sealed with tape to the extent feasible. If possible, workers must access the work area from an alternative entry/exit door to the entry/exit door used by residents. Available windows and exhaust fans must be used to ventilate the work area. If residents have access to the work area between workdays, the work area must be cleaned and sanitized at the beginning and at the end of workdays. Every effort must be taken to minimize contact between workers and residents. *If the project team and customer interpretation of this section differ and there is conflict, the project team shall elevate to senior management*

Employee Screening- Jobsites/Offices

- Prescreening at jobsite or office entrances will be required.
- Employees will be required to "pass" a non-contact temperature screening and health questionnaire prior to entry.
- Any employee/contractor/visitor showing symptoms of COVID-19 will be asked to leave the jobsite/ office, return home and encouraged to get a COVID-19 test.
- Standard issued PPE including face coverings shall be worn by all CEI screeners and employees.
- Any employee who falsifies information on their health screening may result in discipline, up to and including termination of employment.
- Please note that documented employee answers to symptom questions will be in line with current privacy policies including CCPA, HIPAA, and any relevant state and federal laws and will be secured as a confidential private medical record. The information collected is only the basic information essential to the public health and safety at CEI and not for any business use. In the case that the company needs to inform other employees or customers about potential exposure from an individual who has tested positive, we share only the information necessary for employees and customers to assess their own potential exposure and medical needs with as little identifiable personal information as possible. For further assistance please contact benefits@cei.com.

Use of Face Coverings:

- CEI will provide approved face coverings to all employees on jobsites and in offices.
- Face coverings are required to be worn by all employees at all times, including private offices, except when actively eating or drinking.
- Face coverings must **be made of at least two (2) layers of fabric.** Exceptions to wearing a multilayer face covering will be determined by Production Leadership and Corporate Safety to determine the

appropriate protection needed on the project. *See Appendix G. COVID-10 Frequently Asked Question (FAQ)*

- Face coverings shall be worn covering the nose and mouth, fitting securely under the chin. *Note- The CDC does not recommend the use of neck gaiters or face shields as an alternative to face coverings. Evaluation of these face covers is on-going, but effectiveness is unknown at this time.*
- Failure to follow these rules may result in discipline, up to and including, termination.
- When removing face coverings (i.e., eating, drinking), employees must:
    - Avoiding touching their eyes, nose and mouth; and
    - Wash their hands with soap and water for at least 20 seconds. If soap and water is unavailable, use an alcohol-based hand sanitizer containing at least 60% alcohol.
- Employees who cannot wear face coverings due to a medical or mental health condition or disability, or, who are hearing-impaired or communicating with a hearing-impaired person should contact HR and Corporate Safety to discuss reasonable accommodation requirements on a case-by-case basis. Please contact us at benefits@cei.com or Safety_Communication@cei.com for further information.

Social Distancing Requirements:

- Stagger stop- and start-times for shift schedules to the extent feasible, to reduce the quantity of workers at the jobsite at any one time.
- Stagger trade-specific work to minimize the quantity of workers at the jobsite at any one time.
- Require social distancing by maintaining a minimum six-foot distance between workers at all times, except as strictly necessary to carry out a task associated with the project. When six-foot social distancing cannot be maintained, the Project Team shall elevate the situation for approval by the production superintendent.
- Prohibit gatherings of any size on the jobsite, except for safety meetings or as strictly necessary to carry out a task associated with the project. When six-foot social distancing cannot be maintained, the Project Team shall elevate the situation for approval by the production superintendent.
- Strictly control “choke points” and “high-risk areas” where workers are unable to maintain minimum six-foot social distancing and prohibit or limit use to ensure that minimum six-foot distancing can easily be maintained between workers.
- Minimize interactions and maintain social distancing with all site visitors, including delivery workers, design professionals and other project consultants, government agency representatives, including building and fire inspectors, and residents at residential construction sites.

Requirements When CEI is Acting as a General Contractor: *(Bay Area Counties Only)*

Project Leadership must assign a COVID-19 Safety Compliance Officer (SCO) to the jobsite and ensure the SCO’s name is posted on the Site-Specific Health Safety Plan. Project Leadership has fourteen (14) days to be in compliance before being elevated to senior management. Small construction projects require a COVID-19 Supervisor, see *general requirements*.

Duties of the SCO:

- Implementation of all recommended safety and sanitation requirements regarding the COVID-19 virus at the jobsite.
- Compile daily written verification that each jobsite is compliant with the components of this Large Construction Project (LCP) Protocol. Each verification shall be documented using the COVID-19 audit in the SmartTagIt application. Projects must make this information available upon request to? any County official.
- The SCO must conduct a COVID-19 audit in SmartTagIt anytime an employee on the project tests positive.
- Establish a daily screening protocol for arriving staff, to ensure that potentially infected employees do not enter the construction site. If workers leave the jobsite and return the same day, establish a cleaning and decontamination protocol prior to entry and exit of the jobsite. Post the daily screening protocol at all entrances and exits to the jobsite.
- Conduct daily briefings in person or by teleconference that must cover the following topics:
    - New jobsite rules and pre-job site travel restrictions for the prevention of COVID-19 community spread.
    - Review of sanitation and hygiene procedures.
    - Solicitation of worker feedback on improving safety and sanitation.
    - Coordination of construction site daily cleaning/sanitation requirements.
    - Updated information regarding COVID-19.
    - Emergency protocols in the event of an exposure or suspected exposure to COVID-19.
- Develop and ensure implementation of a remediation plan to address any non-compliance with this LCP Protocol and post remediation plan at entrance and exits of jobsite during remediation period. The remediation plan must be translated as necessary to ensure that all non-English speaking workers are able to understand the document.
- The SCO must not permit any construction activity to continue without bringing such activity into compliance with these requirements.
- Report repeated non-compliance with this LCP Protocol to the appropriate jobsite supervisors and a designated County official.

Additional Requirements When CEI is Acting as a General Contractor: *(Bay Area Counties Only)*

Project Leadership must also assign a COVID-19 Third-Party Jobsite Safety Accountability Supervisor (JSAS) to the jobsite, who, at a minimum holds an OSHA-30 certificate and first-aid training within the past two years, who must be trained in the protocols herein and verify compliance, including by visual inspection and random interviews with workers.

If CEI is not acting as a general contractor, the general contractor on the project should supply this position. Project Leadership has fourteen (14) days to be in compliance before being elevated to Senior management.

Duties of the JSAS:

- Within seven calendar days of each jobsite visit, the JSAS must complete a written assessment identifying any failure to comply with this LCP Protocol. The written assessment must be copied, stored, and, upon request by the County, be sent to a designated County official.
- If the JSAS discovers that a jobsite is not in compliance with this ECP or LCP Protocol, the JSAS must work with the SCO to develop and implement a remediation plan.
- The JSAS must coordinate with the SCO to prohibit continuation of any work activity not in compliance with rules stated herein until addressed and the continuing work is compliant.
- The remediation plan must be sent to a designated County official **within five (5) calendar days** of the JSAS's discovery of the failure to comply.

Reporting Requirements When CEI is acting as a General Contractor (*Santa Clara County Only*)

- Whenever CEI learns that a person who has tested positive for COVID-19 was at the jobsite within 48 hours of the date they were tested or within 48 hours of becoming symptomatic, CEI must immediately implement the jobsite-specific Revised Social Distancing Protocol for when a person tests positive for COVID-19. All positive cases must be reported by following the instructions at www.sccsafeworkplace.org.
- All subcontractors must **immediately** (within 1 hour, regardless of the time of day) alert CEI as soon as they learn that an employee who is currently at the jobsite has tested positive, or who was at the jobsite within 48 hours of the date they were tested or within 48 hours of becoming symptomatic. This reporting requirement is in addition to the subcontractor's own reporting requirements under the Order and the procedures in the subcontractor's Revised Social Distancing Protocol.

Travel *(Santa Clara County Only):*

All persons traveling into Santa Clara County, whether by air, car, train, or any other means, directly or indirectly from a point of origin greater than 150 miles from the County's borders must quarantine for 14 days upon arrival.

- Persons solely transiting through Santa Clara County and not staying overnight are not required to quarantine.

The following persons are required to quarantine, but may leave their home or place of quarantine solely for work:

- Persons traveling solely for the purpose of performing essential critical infrastructure work, as defined by the State Public Health Officer, but only to the extent that the employer determines that it would otherwise lack sufficient staffing to perform such work.
- Persons traveling to Santa Clara County to obtain services from a Healthcare Facility, as defined in the Order, are required to quarantine upon arrival, but may leave their household or place of quarantine to obtain those services.

6. Training

Training will be provided to employees at time of hire and/or on the jobsite via Appendix I. COVID-19

Exposure Control Plan (ECP) Training Toolbox that includes:

- Our COVID-19 policies and procedures to protect employees from COVID-19 hazards.
- Information regarding COVID-19-related benefits to which the employee may be entitled under applicable federal, state, or local laws.
- Ensure that employees are trained in the use of PPE. Maintain and make available a log of all PPE training provided to employees and monitor all employees to ensure proper use of the PPE.
- The fact that:
    - COVID-19 is an infectious disease that can be spread through the air.
    - COVID-19 may be transmitted when a person touches a contaminated object and then touches their eyes, nose, or mouth.
    - An infectious person may have no symptoms.
- Methods of social distancing of at least six feet and the importance of combining social distancing with the wearing of face coverings.
- The fact that particles containing the virus can travel more than six feet, especially indoors, so physical distancing must be combined with other controls, including face coverings and hand hygiene, to be effective.
- The importance of frequent hand washing with soap and water for at least 20 seconds and using hand sanitizer when employees do not have immediate access to a sink or hand washing facility, and that hand sanitizer does not work if the hands are soiled.
- Proper use of face coverings and the fact that face coverings are not respiratory protective equipment - face coverings are intended to primarily protect other individuals from the wearer of the face covering.
- COVID-19 symptoms, and the importance of obtaining a COVID-19 test and not coming to work if the employee has COVID-19 symptoms.

7. Investigating and Responding to Potential or Positive COVID-19 Cases

When to Use this Protocol

If the person diagnosed with COVID-19 ever had symptoms, use this protocol if they were ever symptomatic while at work or developed symptoms within 48 hours of being at work.

If the person diagnosed with COVID-19 never had symptoms, use this protocol if they tested positive within 48 hours of being at work.

Reference *Appendix B: Potential COVID-19 Exposure Identification Process for Employees and Contractors* for more instructions.

Step 1: Provide instructions to the COVID-19 positive or suspected positive worker

Work Exclusion & Isolation Period:

Positive Results:

The worker should be sent home immediately and instructed to **isolate for 10 days** from the date they

tested positive **AND**, if symptomatic, **24 hours** after resolution of fever without the use of fever-reducing medication and improvement in any other symptoms; (whichever is longer). The individual may return to the worksite after **both** of these criteria are met (10/1 rule).

Suspected and Denied Entry:

If an employee is suspected of having COVID-19 and denied entry to the jobsite or office, ***Appendix D: COVID-19 Contact Tracing and Monitoring Form*** shall be completed by the site leader or designee for the denied entry employee. The Superintendent must add this case to the Master COVID-19 Spreadsheet and update as new information is learned. If the suspected employee tests positive for COVID-19, Appendix D must be updated and submitted to Corporate Safety (including Bruce Baxter) and Regional Safety within **1 hour** of positive case notification.

Step 2: Identify all close contacts of? the COVID-19-positive or suspected positive worker

If CEI learns that an employee has tested positive, Project Leadership will investigate to determine which, if any, employees had close contact with the positive employee. **Direct contact** (a.k.a. close contact) is defined as someone who was, for at least 15 minutes, within six feet from the person who tested positive..

Maintain Confidentiality

CEI must keep employees' personal and medical information confidential in accordance with federal and state laws. Do not disclose the identity of the COVID-19 positive worker in your effort to identify close contacts.

Identify Close Contacts During the Exposure Period

CEI will investigate and document the employee's schedule and work location to determine: 1) the day their symptoms began (if applicable); 2) the date of their first positive test; and 3) the last day that the person diagnosed with COVID-19 was present at the workplace. This information is to be documented on ***Appendix D: COVID-19 Contact Tracing and Monitoring Form.***
The information obtained should then be used to identify all individuals who may have had close contact with the confirmed positive employee during the exposure period.

The exposure period is defined as:

- **Start:** 2 days (48 hours) before the person had symptoms (or 2 days before date of first positive test for employees who are asymptomatic)
- **End:** last day the positive person was at work

Complete the Case and Contact Data Collection

CEI must gather the following information for all people who have been identified as close contacts to the positive employee, including any vendors/suppliers, visitors, or others who had close contact with the employee at the worksite.

- Name
- Phone number
- Address
- Language spoken (if not fluent in English)

In addition, we will evaluate common areas and commonly used items (such as equipment and materials), or places people congregated or visited in the workplace (such as the restroom, hallways, aisles, walkways, elevators, break areas, etc.) associated with the COVID-19 case during the infectious period.

Step 3: Communicate with All Employees

Work Exclusion, Quarantine & Testing Recommendations for Close Contacts to a Positive Case

Anyone who has been determined as close contact with the person diagnosed with COVID-19 during the exposure period (defined above) will be notified and should not be allowed at the worksite and should stay at home for 14 days, starting the last day that the person diagnosed with COVID-19 was at work.

Close contacts who start to show COVID-19 symptoms should get tested **immediately.** Close contacts who do not show symptoms should get tested 7 days after they were exposed. If testing was done earlier than 7 days after exposure, close contact should repeat testing at the end of their 14-day quarantine period. Even if the test is negative, close contacts should remain in quarantine for the full 14 days. Test results, positive or negative, should be shared with CEI.

Testing will be required of those employees who were identified as having potential COVID-19 exposure through close contact to the positive worker. Records for these tests will be kept in accordance with title 8 Cal. Code Regs. § 3204.

General Advisory & Symptom Monitoring for All Other Employees

All others present at the workplace, but NOT identified as close contacts, should be advised to self-monitor for symptoms for 14 days after the last day that the person diagnosed with COVID-19 was at work. See Return to Work requirements for additional information.

8. Return-to-Work Criteria

COVID-19 cases with COVID-19 symptoms will not return to work until all of the following have occurred:
  - At least 24 hours have passed since a fever of 100.0 or higher has resolved without the use of fever-reducing medications.
  - COVID-19 symptoms have improved.
  - At least 10 days have passed since COVID-19 symptoms first appeared.
- COVID-19 cases who tested positive but never developed COVID-19 symptoms will not return to work until a minimum of 10 days have passed since the date of specimen collection of their first positive COVID-19 test.
- When testing for COVID-19, a molecular PCR test will be required. Rapid Antigen tests will not be accepted.
- When an employee tests positive for COVID-19:
  - A negative COVID-19 test shall not be required for an employee to return to work after their isolation period *(California operations only).*

9. Field Sanitation Guidelines

In the event of a confirmed case of COVID-19 at any jobsite, the following must take place:

- Immediately removal of the infected individual from the jobsite with directions to seek medical care.
- Each location the infected worker was at must be decontaminated and sanitized, and work in these locations must cease until decontamination and sanitization is complete.
- The County Public Health Department must be notified immediately (Corporate Safety will make this notification) and any additional requirements per the County health officials must be completed, including full compliance with any tracing efforts by the County.

How to clean and disinfect

Hard (Non-porous) Surfaces:

- Wear disposable gloves when cleaning and disinfecting surfaces. Gloves should be discarded after each cleaning.
- Clean hands immediately after gloves are removed.
- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.

Tools / Equipment

Shall be wiped down with soap and water or disinfecting wipes prior to use. Use of a bleach solution is not recommended on tools.

Phones/Tablets/Radios/Other Mobile Electronic Equipment

Shall be wiped down using disinfecting wipes prior to use. No sharing of devices is allowed.

Hard Hats

Wipe down hard hat exterior with water and soap or a cleaning solution, scrubbing with a soft brush or sponge. Do not dry with heaters; hard hat can be reassembled before or after drying. Prior to re-use, conduct checks as recommended by the manufacturer's manual to ensure that the hard hat is in working condition.

Garments

Garments worn off the project must be laundered prior to returning to work.
If garments are left at the project, they will be placed in the designated lined container for cleaning.
Wear disposable gloves when handling dirty laundry from an ill person and then discard after each use.
Clean hands immediately after gloves are removed.
If possible, do not shake dirty laundry. This will minimize the possibility of dispersing virus through the air.

Eyeglasses / Face Shields

Safety glasses should be cleaned regularly throughout the shift with approved Isopropyl wipes including the frame and stems.
Face masks or face shields shall be wiped down with soap and water or other disinfecting agent prior to and after each use. Face masks or shields will be issued to the individual employee and shall not be shared.

Gloves

Gloves shall be new at the beginning of the shift and replaced at each break or after touching common use surfaces. Gloves will be placed in a designated lined container for cleaning.

Vehicles and Refueling Operations

Sharing of vehicles will be minimized to the extent feasible. Steering wheel, door handles, seatbelt buckles, armrests, shifters, etc., will be disinfected between users. Ensure hands are sanitized after any refueling operation.

Fall Protection

Fall protection equipment shall be wiped down with soap and water after each use.

- It is best to begin with the harness on a flat surface, leaving open to visible inspection.
- Using a moist sponge, wipe down the harness to remove excess dirt and dust.
- Mix a cleaning solution using laundry detergent or dish soap. DO NOT use any cleansers that contain chlorine, bleach, or abrasives.
- Dip your sponge into the solution and thoroughly scrub each portion of the harness until a thick lather forms.
- Using a sponge dipped in CLEAR water, wipe down the harness to remove the suds and soap residue.
- When cleaning multiple harnesses, store each in a separate, dry compartment. Hang them in such a way that they are not crushed, worn, or creased.

Two important cautions:

- Dampen but DO NOT SOAK the harness. The excessive expansion of the fibers by soaking (and the contraction by drying) can compromise the fabric's effectiveness and shorten the harness's life.
- NEVER put a harness in the dryer. Excessive heat and tumbling can (and will) damage the harness.

Project Trailers, Plan Shacks and Other Common Areas (including offices)

Surfaces shall be wiped down with soap and water or other disinfecting agent prior to each use. To include, but not limited to, the following:

- Handrails in stairways and walkways
- Gang box handles
- Entry gates
- Doors
- Interior and exterior doorknobs, handles, locks
- Lunch areas, conference rooms and other tables/chairs (including backs and arms)
- Shared hand/power tools, battery charging stations, etc.
- Restrooms – including handles, seats, locks, hand-wash stations, and soap dispensers
- Climate control/thermostat knobs
- Call buttons for elevators/personnel hoists
- Light switches
- Plan tables
- Printers
- Laptops / cell phones/ tablets (do not use soap and water, use other disinfecting agents)

Other shared/common areas

10. Reporting, Recordkeeping and Access

- CEI will report all COVID-19 cases as required by the local department of health whenever required by law.

- CEI will report any COVID-19 serious illness or death in accordance with applicable state or local health departments.
- CEI will maintain records of steps taken to implement this plan.
- A copy of this Plan will be available at the workplace to all CEI employees, authorized employee representatives and to Cal/OSHA upon request.
- CEI will maintain a record of all employee COVID-19 positive cases including the name, contact information, job title, locations where the employee worked, the date last worked and the date of the positive test at minimum.
- Records will be maintained using ***Appendix D. COVID-19 Contact Tracing and Monitoring Form.***
- In Santa Clara County - All businesses (and governmental entities) are legally required to report to the Public Health Department within **4 hours** if they learn that any of their workers are confirmed to be positive for COVID-19.

11. Multiple COVID-19 Infections and COVID-19 Outbreaks *(Cal/OSHA only)*

This policy is specific to California operations unless a general contractor or owner has the same requirements. This policy will go into effect if the workplace is identified by a local health department as the location of a COVID-19 outbreak, or if there are three or more COVID-19 cases in the workplace within a 14-day period. This section of ECP will stay in effect until there are no new COVID-19 cases detected in our workplace for a 14-day period.

COVID-19 Testing

COVID-19 testing will be required for all employees in our exposed workplace except for employees who were not present during the period of an outbreak identified by a local health department or the relevant 14-day period. COVID-19 testing will be provided at no cost to employees during employees' working hours.

- COVID-19 testing consists of the following:
  - All employees in our exposed workplace will be immediately tested and then tested again one week later. Negative COVID-19 test results of employees with COVID-19 exposure will not impact the duration of any quarantine period required by, or orders issued by, the local health department.
  - After the first two COVID-19 tests, we will continue to provide COVID-19 testing of employees who remain at the workplace at least once per week, or more frequently if recommended by the local health department, until there are no new COVID-19 cases detected in our workplace for a 14-day period.

Investigation of Workplace COVID-19 Illness

An investigation will immediately take place to determine possible workplace-related factors that contributed to the COVID-19 outbreak in accordance with this ECP.

COVID-19 Investigation, Review and Hazard Correction

CEI will immediately perform a review of potentially relevant COVID-19 policies, procedures, and controls and implement changes as needed to prevent further spread of COVID-19.

The investigation and review will be documented and include:

- Investigation of new or unabated COVID-19 hazards including:
    - Our leave policies and practices and whether employees are discouraged from remaining home when sick
    - Our COVID-19 testing policies
    - Insufficient outdoor air
    - Insufficient air filtration
    - Lack of physical distancing

Updating the review:

    - Every thirty days that the outbreak continues
    - In response to new information or to new or previously unrecognized COVID-19 hazard
    - When otherwise necessary
- Implementing changes to reduce the transmission of COVID-19 based on the investigation and review:
    - Moving indoor tasks outdoors or having them performed remotely
    - Increasing outdoor air supply when work is done indoors
    - Improving air filtration
    - Increasing physical distancing as much as possible
    - Respiratory protection

Notifications to the Local Health Department

- Immediately, but no longer than 48 hours after learning of three or more COVID-19 cases in our workplace, we will contact the local health department for guidance on preventing the further spread of COVID-19 within the workplace.
- In Santa Clara County - All businesses (and governmental entities) are legally required to report to the Public Health Department within **4 hours** if they learn that any of their workers are confirmed to be positive for COVID-19.
- We will provide to the local health department the total number of COVID-19 cases and for each COVID-19 case, the name, contact information, occupation, workplace location, business address, hospitalization and/or fatality status, North American Industry Classification System code of the workplace of the COVID-19 case, and any other information requested by the local health department. We will continue to give notice to the local health department of any subsequent COVID-19 cases at our workplace.

12. Major COVID-19 Outbreaks *(Cal/OSHA Only)*

This policy will go into effect when the workplace experiences 20 or more COVID-19 cases within a 30-day period. This section of ECP will stay in effect until there are no new COVID-19 cases detected in our workplace for a 14-day period.

COVID-19 Testing

All employees present at our exposed workplace during the relevant 30-day period(s) and who remain at

the workplace will be required to undergo twice a week COVID-19 testing, or more frequently if recommended by the local health department. COVID-19 testing will be provided at no cost to employees during employees' working hours.

Exclusion of COVID-19 Cases

CEI will ensure COVID-19 cases and employees with COVID-19 exposure are excluded from the workplace in accordance with our ECP Exclusion of COVID-19 Cases and Return to Work Criteria, and any relevant local health department orders.

Investigation of Workplace COVID-19 Illnesses

CEI will immediately investigate and determine possible workplace-related factors that contributed to the COVID-19 outbreak in accordance with this ECP.

COVID-19 Hazard Correction

In addition to the requirements of our ECP, CEI will take the following actions:

- In buildings or structures with mechanical ventilation, filter recirculated air with Minimum Efficiency Reporting Value (MERV) 13 or higher efficiency filters if compatible with the ventilation system. If MERV-13 or higher filters are not compatible with the ventilation system, filters with the highest compatible filtering efficiency shall be used. We will also evaluate whether portable or mounted High Efficiency Particulate Air (HEPA) filtration units, or other air cleaning systems would reduce the risk of transmission and implement their use to the degree feasible.
- We will evaluate whether to halt some or all operations at our workplace until COVID-19 hazards have been corrected.

Notifications to the Local Health Department

CEI will comply with the requirements of our Multiple COVID-19 Infections and COVID-19 Outbreaks-Notifications to the Local Health Department.

- In Santa Clara County- All businesses (and governmental entities) are legally required to report to the Public Health Department within **4 hours** if they learn that any of their workers are confirmed to be positive for COVID-19.

13. COVID-19 Prevention in Employer-Provided Transportation to and from Work

Assignment of Transportation

We will prioritize shared transportation assignments in the following order:

- Employees residing in the same housing unit will be transported in the same vehicle.
- Employees working in the same crew or worksite will be transported in the same vehicle.
- Employees who do not share the same household, work crew or worksite will be transported in the

same vehicle only when no other transportation alternatives are possible.

Physical Distancing and Face Coverings

- Physical distancing and face coverings are required to be worn by all employees while waiting for transportation.
- Vehicle operator and any passengers are separated by at least three feet in all directions during the operation of the vehicle, regardless of the vehicle's normal capacity. Vehicle operator and any passengers are required to wear face coverings at all times.

Screening

Effective procedures for screening and excluding drivers and riders with COVID-19 symptoms **prior** to boarding shared transportation will be required. See screening protocols for more information.

Cleaning and Disinfecting

- All high-contact surfaces (door handles, seatbelt buckles, armrests, etc.) used by passengers are cleaned and disinfected before each trip.
- All high-contact surfaces used by drivers, such as the steering wheel, armrests, seatbelt buckles, door handles and shifter, are cleaned and disinfected between different drivers.
- We provide sanitizing materials, training on how to use them properly, and ensure they are kept in adequate supply. *Reference 9.. Field Sanitation Guidelines for further information.*

Ventilation

Vehicle windows are to be kept open, and the ventilation system set to maximize outdoor air and not set to recirculate air. Windows do not have to be kept open if one or more of the following conditions exist:

- The vehicle has functioning air conditioning in use and the outside temperature is greater than 90 degrees Fahrenheit.
- The vehicle has functioning heating in use and the outside temperature is less than 60 degrees Fahrenheit.
- Protection is needed from weather conditions, such as rain or snow.
- The vehicle has a cabin air filter in use and the U.S. EPA Air Quality Index for any pollutant is greater than 100.

Hand Hygiene

Hand sanitizer shall be available in each vehicle and ensure that all drivers and riders sanitize their hands before entering and exiting the vehicle. Hand sanitizers with methyl alcohol are prohibited.

15. Definitions

The definitions below are included to assist managers and employees in understanding the ECP.

"COVID-19" means coronavirus disease, an infection disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

A **"COVID-19 case"** means a person who:

(1) Has a positive "COVID-19 test";
(2) Is subject to COVID-19 related order to isolate issued by a local or state health official; or
(3) Has died due to COVID-19 in the determination of the local health department or per inclusion in the COVID-19 statistics of a county.

Once a doctor or licensed health care professional determines the person does not have COVID-19, then the person is no longer considered a COVID-19 case.

"COVID-19 exposure" means being within six feet of a COVID-19 case for a cumulative total of 15 minutes or greater in any 24-hour period within or overlapping with the "high-risk exposure period." Facemasks do not limit exposure pursuant to this definition.

"COVID-19 symptoms" means fever of 100.0 degrees Fahrenheit or higher, chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, or diarrhea, unless a licensed health care professional determines the person's symptoms were caused by a known condition other than COVID-19. Some common other conditions with similar symptoms include pregnancy, asthma, allergies, etc.

"Exposed workplace" means any work location, working area, or common area at work used or accessed by a COVID-19 case during the high-risk period, including bathrooms, walkways, hallways, aisles, break or eating areas, and waiting areas. The exposed workplace does not include buildings or facilities not entered by a COVID-19 case.

As of January 1, 2021, the **"exposed workplace"** also includes but is not limited to the building, store, facility, agricultural field, or other location where a worker worked during the infectious period.

"Face covering" means a tightly woven fabric or non-woven material with no visible holes or openings, covering the nose and mouth.

"High-risk exposure period" means the following time period:
(1) For persons who develop COVID-19 symptoms: from two days before they first develop symptoms until 10 days after symptoms first appeared, and 24 hours have passed with no fever, without the use of fever-reducing medications, and symptoms have improved; or
(2) For persons who test positive who never develop COVID-19 symptoms: from two days before until ten days after, the specimen for their first positive test for COVID-19 was collected.

16. Appendix

Appendix A. COVID-19 Required Signage

The following signs along with the COVID-19 ECP shall be displayed at the entry of projects in a visible location for all CEI employees, vendors and subcontractors on site or at the office.

- Shared Facts About COVID-19
- Steps to prevent the spread COVID-19 if you are sick
- COVID-19 Protect Yourself and Loved Ones
- Keep Calm and Wash Your Hands
- COVID-19 Rules

SHARE FACTS ABOUT COVID-19 *Appendix A*

Know the facts about coronavirus disease 2019 (COVID-19) and help stop the spread of rumors.

FACT 1
Diseases can make anyone sick regardless of their race or ethnicity.

Fear and anxiety about COVID-19 can cause people to avoid or reject others even though they are not at risk for spreading the virus.

FACT 2
For most people, the immediate risk of becoming seriously ill from the virus that causes COVID-19 is thought to be low.

Older adults and people of any age who have serious underlying medical conditions may be at higher risk for more serious complications from COVID-19.

FACT 3
Someone who has completed quarantine or has been released from isolation does not pose a risk of infection to other people.

For up-to-date information, visit CDC's coronavirus disease 2019 web page.

FACT 4
There are simple things you can do to help keep yourself and others healthy.

- Wash your hands often with soap and water for at least 20 seconds, especially after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Stay home when you are sick.
- Cover your cough or sneeze with a tissue, then throw the tissue in the trash.

FACT 5
You can help stop COVID-19 by knowing the signs and symptoms:

- Fever
- Cough
- Shortness of breath

Seek medical advice if you

- Develop symptoms

AND

- Have been in close contact with a person known to have COVID-19 or if you live in or have recently been in an area with ongoing spread of COVID-19.

cdc.gov/COVID-19

CS 315446-A 03/16/2020

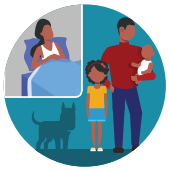
Steps to help prevent the spread of COVID-19 if you are sick

FOLLOW THE STEPS BELOW: If you are sick with COVID-19 or think you might have COVID-19, follow the steps below to help protect other people in your home and community.

Stay home except to get medical care

- **Stay home:** Most people with COVID-19 have mild illness and are able to recover at home without medical care. Do not leave your home, except to get medical care. Do not visit public areas.
- **Stay in touch with your doctor.** Call before you get medical care. Be sure to get care if you have trouble breathing, or have any other emergency warning signs, or if you think it is an emergency.
- **Avoid public transportation:** Avoid using public transportation, ride-sharing, or taxis.

Separate yourself from other people in your home, this is known as home isolation



- **Stay away from others:** As much as possible, stay away from others. You should stay in a specific "sick room" if possible, and away from other people in your home. Use a separate bathroom, if available.
  - See COVID-19 and Animals is you have questions about pets. https://www.cdc.gov/coronavirus/2019-ncov/faq.html#COVID19animals

Call ahead before visiting your doctor

- **Call ahead:** Many medical visits for routine care are being postponed or done by phone or telemedicine.
- If you have a medical appointment that cannot be postponed, call your doctor's office, and tell them you have or may have COVID-19. This will help the office protect themselves and other patients.

If you are sick wear a facemask in the following situations, if available.

- **If you are sick:** You should wear a facemask, if available, when you are around other people (including before you enter a healthcare provider's office).
- **If you are caring for others:** If the person who is sick is not able to wear a facemask (for example, because it causes trouble breathing), then as their caregiver, you should wear a facemask when in the same room with them. Visitors, other than caregivers, are not recommended.

Note: During a public health emergency, facemasks may be reserved for healthcare workers. You may need to improvise a facemask using a scarf or bandana.

Cover your coughs and sneezes

- **Cover:** Cover your mouth and nose with a tissue when you cough or sneeze.
- **Dispose:** Throw used tissues in a lined trash can.
- **Wash hands:** Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not available, clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.

Clean your hands often

- **Wash hands:** Wash your hands often with soap and water for at least 20 seconds. This is especially important after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- **Hand sanitizer:** If soap and water are not available, use an alcohol-based hand sanitizer with at least 60% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry.
- **Soap and water:** Soap and water are the best option, especially if hands are visibly dirty.
- **Avoid touching:** Avoid touching your eyes, nose, and mouth with unwashed hands.

Avoid sharing personal household items

- **Do not share:** Do not share dishes, drinking glasses, cups, eating utensils, towels, or bedding with other people in your home.
- **Wash thoroughly after use:** After using these items, wash them thoroughly with soap and water or put in the dishwasher.

CS 316120-A 04/02/2020

Clean all "high-touch" surfaces everyday

Clean high-touch surfaces in your isolation area ("sick room" and bathroom) every day; let a caregiver clean and disinfect high-touch surfaces in other areas of the home.

- **Clean and disinfect:** Routinely clean high-touch surfaces in your "sick room" and bathroom. Let someone else clean and disinfect surfaces in common areas, but not your bedroom and bathroom.
  - If a caregiver or other person needs to clean and disinfect a sick person's bedroom or bathroom, they should do so on an as-needed basis. The caregiver/other person should wear a mask and wait as long as possible after the sick person has used the bathroom.
- High-touch surfaces include phones, remote controls, counters, tabletops, doorknobs, bathroom fixtures, toilets, keyboards, tablets, and bedside tables.
- **Clean and disinfect areas that may have blood, stool, or body fluids on them.**
- **Household cleaners and disinfectants:** Clean the area or item with soap and water or another detergent if it is dirty. Then, use a household disinfectant.
  - Be sure to follow the instructions on the label to ensure safe and effective use of the product. Many products recommend keeping the surface wet for several minutes to ensure germs are killed. Many also recommend precautions such as wearing gloves and making sure you have good ventilation during use of the product.
  - Most EPA-registered household disinfectants should be effective. A full list of disinfectants can be found hereexternal icon.

Monitor your symptoms

- Common symptoms of COVID-19 include fever and cough. Trouble breathing is a more serious symptom that means you should get medical attention.
- **If you are having trouble breathing, seek medical attention, but call first.**
  - Call your doctor or emergency room before going in and tell them your symptoms. They will tell you what to do.
- **Wear a facemask:** If available, put on a facemask before you enter the building. If you can't put on a facemask, cover your coughs and sneezes. Try to stay at least 6 feet away from other people. This will help protect the people in the office or waiting room.
- **Follow care instructions from your healthcare provider and local health department:** Your local health authorities will give instructions on checking your symptoms and reporting information.

If you develop **emergency warning signs** for COVID-19 get **medical attention immediately.**

Emergency warning signs include*:

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

*This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

Call 911 if you have a medical emergency: If you have a medical emergency and need to call 911, notify the operator that you have or think you might have, COVID-19. If possible, put on a facemask before medical help arrives.

How to discontinue home isolation

- People **with COVID-19 who have stayed home (home isolated)** can stop home isolation under the following conditions:
  - ***If you will not have a test*** to determine if you are still contagious, you can leave home after these three things have happened:
    - You have had no fever for at least 72 hours (that is three full days of no fever without the use medicine that reduces fevers)
      AND
    - other symptoms have improved (for example, when your cough or shortness of breath have improved)
      AND
    - at least 7 days have passed since your symptoms first appeared
  - ***If you will be tested*** to determine if you are still contagious, you can leave home after these three things have happened:
    - You no longer have a fever (without the use medicine that reduces fevers)
      AND
    - other symptoms have improved (for example, when your cough or shortness of breath have improved)
      AND
    - you received two negative tests in a row, 24 hours apart. Your doctor will follow CDC guidelines.

In all cases, follow the guidance of your healthcare provider and local health department. The decision to stop home isolation should be made in consultation with your healthcare provider and state and local health departments. Local decisions depend on local circumstances.

More information is available https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html.

Additional information for healthcare providers: Interim Healthcare Infection Prevention and Control Recommendations for Persons Under Investigation for 2019 Novel Coronavirus.

COVID-19

Protect yourself and loved ones

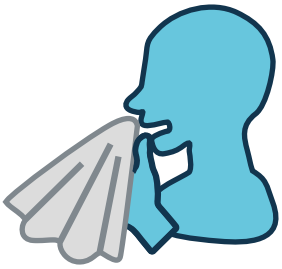
Help prevent the spread of respiratory diseases like COVID-19

WASH YOUR HANDS

Wash your hands with soap and warm water regularly.

COVER A COUGH OR SNEEZE

Cover your cough or sneeze with your sleeve, or tissue. Dispose of tissue and wash your hands afterward.

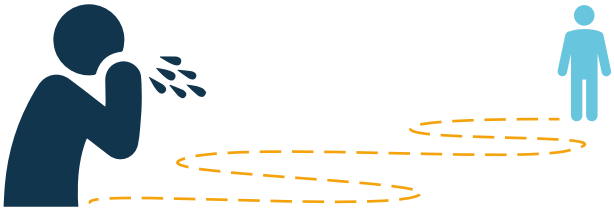


DON'T TOUCH

Avoid touching eyes, nose or mouth, especially with unwashed hands.

KEEP YOUR DISTANCE

Avoid close contact with people who are sick.



STAY HOME

If you experience respiratory symptoms like a cough or fever, stay home.

GET HELP

If you experience symptoms of COVID-19 (cough, fever, shortness of breath), call your health care provider or local health department before seeking care.

MORE INFORMATION

Follow the California Department of Public Health: @capublichealth and www.cdph.ca.gov/covid19

Appendix A

CDPH

KEEP CALM AND WASH YOUR HANDS

Appendix A

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CS243041B

COVID-19 RULES

Appendix A

CUPERTINO ELECTRIC INC.

1. Do not touch your face with unwashed hands or with gloves.
2. If equipment is shared, it must be fully sanitized before and after each use.
3. Frequently wash your hands with soap and water for at least 20 seconds or use hand sanitizer with at least 60% alcohol.
4. Clean and disinfect frequently touched objects and surfaces such as workstations, keyboards, telephones, handrails, machines, shared tools, elevator control buttons, and doorknobs.
5. Cover your mouth and nose when coughing or sneezing or cough or sneeze into the crook of your arm at your elbow/sleeve.
6. Do not enter the jobsite if you have a fever, cough, or other COVID-19 symptoms. If you feel sick, or have been exposed to anyone who is sick, stay at home.
7. Constantly observe your work distances in relation to other staff. Always maintain the recommended minimum distance of six feet when not wearing the necessary PPE for working in close proximity to another person.
8. Do not carpool to and from the jobsite with anyone except members of your own household unit, or as necessary for workers who have no alternative means of transportation.
9. Do not share phones, tablets or PPE.

Appendix B

Potential COVID-19 Exposure Identification Process for Employees and Contractors

Scenario A

Worker tested positive for COVID 19 **or** has been tested for COVID-19 and is still awaiting results.

The worker to be sent home immediately and instructed to isolate for **10 days** from the date they tested positive **AND**, if symptomatic, **24 hours** after resolution of fever without the use of fever-reducing medication **AND** improvement in any other symptoms; (whichever is longer).

The worker may return to the worksite after these criteria are met (10/1 rule).

CEI Project Leadership Team / Office Supervisor engaged to identify exposure and take following actions:

- Notify Corporate Safety incl. Bruce Baxter, w/in1hr
- Document the following on **Appendix D** in ECP.
  - Collect dates worker was at workplace
  - Identify work area of infected person
  - Identify people who were in direct/indirect contact with the infected person
  - Record dates symptoms started
  - Record date of test
  - Project Leadership assesses and cleans potentially exposed areas per ECP

CANNOT IDENTIFY PERSON BY NAME PER FEDERAL REGULATIONS

Direct Contact

- All co-workers to be sent home for 14 days self quarantine regardless of any test results.
- Reference Scenario B for Direct Contact
- If no symptoms occur over 14 days, co-worker may return to work with medical clearance.
- If the co-workers develop symptoms, notify supervisor and managed to Scenario C.

Indirect Contact

- Notify co-workers of a potentially infected worker and confirm indirect contact.
- If the co-worker indicates they have had direct contact, follow **"Direct Contact"** box above.
- Send anyone home who has shown any COVID-19 symptoms and encourage testing.
- Those that have not shown symptoms are to continue working and self-monitor for any changes.
- If symptoms develop, self-quarantine and notify supervisor.

Scenario B

Worker indicates **direct contact**/lives with/ provides care for someone that is confirmed to have COVID-19.

Worker will be in self-quarantine for 14 days and shall be requested to perform COVID-19/viral testing

CEI Project Leadership / Office Supervisor engaged to identify exposure and take following actions:

- Document the following on **Appendix D** in ECP.
  - Collect dates worker was at workplace
  - Identify work area of infected person
  - Identify people who were in direct/indirect contact with the infected person
  - Record dates symptoms started
  - Record date of test
  - Project Leadership assesses and cleans potentially exposed areas per ECP

CANNOT IDENTIFY PERSON BY NAME PER FEDERAL REGULATIONS

Direct Contact

- All co-workers who have been identified as **"Direct Contact"** shall be sent home for 14 days of self-quarantine, starting the last day that the person diagnosed with COVID-19 was at work.
- Close contacts who start to show COVID-19 symptoms should get tested immediately.
- Close contacts who do not show symptoms should get tested 7 days after they were exposed. If testing was done earlier than 7 days after exposure, close contact should repeat testing at the end of their 14 day quarantine period.
- Even if the test is negative, close contacts should remain in quarantine for the full 14 days
- If no symptoms occur over 14 days, co-worker(s) may return to work. If they develop symptoms, they are to notify their Supervisor and be managed to Scenario C.

Indirect Contact

- Notify co-workers of a potentially infected worker and confirm indirect contact.
- If the co-worker indicates they have had direct contact, follow **"Direct Contact"** box above.
- Send anyone home who has shown any COVID-19 symptoms and encourage testing.
- Those that have not shown symptoms are to continue working and self-monitor for any changes.
- If symptoms develop, self-quarantine and notify supervisor.

Scenario C

Worker at site location showing COVID-19 symptoms

Worker will be in self- quarantine for 14 days and shall be requested to perform COVID-19/viral testing.

CEI Project Leadership / Office Supervisor engaged to identify exposure and take following actions:

- Document the following on **Appendix D** in ECP.
  - Collect dates worker was at workplace
  - Identify work area of infected person
  - Identify people who were in direct/indirect contact with the infected person
  - Record dates symptoms started
  - Record date of test
  - Project Leadership assesses and cleans potentially exposed areas per ECP

CANNOT IDENTIFY PERSON BY NAME PER FEDERAL REGULATIONS

Direct Contact

- Notify co-worker(s) of the situation and advise to be on alert. Direct co-workers to self-monitor over the next 14 days and continue to work.
- If COVID-19 symptoms occur, send co-worker home to begin 14 days self-isolation and encourage testing.
- In certain situations, the co-worker may be sent home to self isolate without COVID-19 symptoms.

Indirect Contact

None

Scenario D

Worker indicates **direct contact** to someone with COVID-19 symptoms but not COVID-19 confirmed

If the worker is showing or develops COVID-19 symptoms s/he is to be managed to Scenario C.

- If the worker is not showing COVID-19 symptoms they are to self-quarantine for 14 days. Document on Appendix D in ECP.
- If person with symptoms produces negative test result, employee can cancel quarantine and self monitor for 14 days and continue to work.
- If employee develops symptoms, they are to notify their Supervisor and be managed to Scenario C.

Notes on Process

Process identifies the minimum requirement for dealing with COVID-19 exposure. Business units have discretion to take further action, as needed.

Contact Definitions:

Direct Contact (close contact)

- Being within 6 ft/2 m for a prolonged period of time (more than 15 min.)
- Having direct contact with infectious secretions, such as being coughed or sneezed on.

Indirect Contact

- Occupied the same room on the same day after person in question has occupied room
- Passed by someone within the 6 feet social distance
- Potentially touched common items (door handle, sink, railing) in common areas
- Interaction with person and strictly adhering to 6 ft/2 m physical distance.

If any employee tests positive for COVID-19, regardless if its work related, the project team must notify:

- **Corporate Safety including Bruce Baxter, shall be contacted under Scenarios A, B and C at minimum, within 1 hour of positive test notification.**

CEI Points of Contact (POC)

Production

Bruce Baxter
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CEI COVID-19 Exposure Control Job Hazard Analysis (JHA) Appendix C		
Sequence of Basic Job Steps	**Potential Job Hazard**	**Required Action or Procedure**
ALL	COVID-19 Exposure	No employee should report to work if they are experiencing any symptoms associated with the COVID-19 virus. Where possible establish alternate days or extra shifts to reduce total workers on project. Coordinate and communicate with general contractors about their exposure control plan regarding large gatherings (maintain social distancing) and promoting best practices. If an employee has had a known exposure to or, has been in contact with someone who is symptomatic or has been diagnosed with the COVID-19 virus, he or she will not be allowed onto the project and must follow current CDC guidelines. *Reference CEI Potential COVID-19 Exposure Identification Process for Employees and Contractors.* Employees who appear to have symptoms associated with the COVID-19 virus will be removed from the project and not allowed to return until cleared by their medical provider. *Reference CEI Potential COVID-19 Exposure Identification Process for Employees and Contractors.* Employees who have been determined to be eligible to work remotely and can accomplish his or her responsibilities will not be allowed on-site without approval from their respective manager.

		Essential employees who must be on-site will follow the guidelines of social distancing (6'). This includes accessing and egressing the project through designated entry and exit points. Employees are to wash their hands with soap and water before and after touching their face or eyes, eating or drinking, smoking, sneezing, blowing nose, coughing, using toilet facilities or removing their gloves. Workers should refrain from touching their face. Field leadership shall provide a lined trash receptacle and designate it for disposal of any leftover food or trash from lunch/meal containers or used PPE. Field leadership shall also provide lined PPE containers for vests and gloves that shall be delivered to a designated location for cleaning or replacement at the end of each shift. All liners must be disposed of at the end of each shift. Sharing of any food or beverage is strictly prohibited and if sharing is observed, the worker must be sent home for the day. Projects must implement a COVID-19 community spread reduction plan as part of the Site-Specific Health and Safety Plan. All carpooling is prohibited to and from the jobsite except by workers living within the same household unit or as necessary for

		workers who have no alternative means of transportation. All projects must assign a COVID-19 Safety Compliance Officer (SCO) to the jobsite and ensure the SCO's name is posted on the Site-Specific Health and Safety Plan. The SCO will conduct at least one (1) COVID-19 audit in SmartTagIt **daily.** *Reference the General Requirements section for duties of this role.* If CEI is acting as a General Contractor on the project, in addition to assigning a SCO, Project Leadership must also assign a: • COVID-19 Third-Party Jobsite Safety Accountability Supervisor (JSAS) for the jobsite *Reference the General Requirements section for duties of this role.*
Meetings (Tailgate/Stretch & Flex)	COVID-19 Exposure	Communicate CDC, WHO, and county health organizations guidelines, mandates, or directives, daily. All mass, all-hands type meetings shall be avoided. Tailboard/Daily Huddle meetings shall be held outdoors when possible and all persons shall maintain a minimum of 6' separation. Attendance rosters and sign-in sheets shall be discontinued. In lieu of these, the Managers shall take a photo of the group to document attendance in Smart Tag It. Project coordination meetings shall be limited to call-in or online when possible.

		Safety meeting attendance shall be limited to <10 persons and shall be conducted in an area where the 6’ social distancing can be maintained. General Foremen shall provide crew FM with necessary information to pass on to their respective crews. Crew FM shall ensure that employees are able to maintain the 6’ social distancing requirement when conducting daily huddles and SWI-Task Plan reviews.
Project Access/Egress	COVID-19 Exposure	All employees are required to have their temperature taken prior to being allowed on site. Prescreening at site entrance will be required. Employees will be expected to complete a verbal questionnaire prior to entry. Until hands free temperature devices are available, employees are to provide personal temperature devices and validate non-fever conditions (<100.0 degrees per CDC guidelines) to the job site supervision at the job site. If temperature exceeds 100.0 degrees per CDC guidelines, the worker will not be permitted on the project. Ensure social distancing is maintained while taking temperatures. Stretch & Flex activities must occur at the crew level and in an area where the 6’ social distancing requirement can be met. Project leadership shall work with client/owner representatives to schedule work activities and shift schedules to minimize required on-site personnel and trade stacking.

		Site supervision will ensure any lunch or break areas can accommodate social distancing requirement (6'). This area must be cleaned and disinfected after each use. See attached Field Sanitization Guidelines. Site supervision will coordinate with client/owner representatives to designate entry/exit routes in order to eliminate bottlenecks in line while also maintaining social distancing requirements. Projects where employees are required to enter or exit through areas open to the general public shall minimize their time in those areas and maintain the 6' social distancing requirement. Strictly control "choke points" and "high-risk areas" where workers are unable to maintain minimum six-foot social distancing and prohibit or limit use to ensure that minimum six-foot distancing can easily be maintained between workers. Every employee shall arrive to work with freshly laundered outerwear. Employees required to utilize man-lifts to access decks will limit capacity to 3 people (excluding operator) and avoid close contact with other personnel. Supervision to discourage the use of man-lifts when stairs are available. Place wash stations or hand sanitizers that are effective against COVID-19 at entrance/exit of the jobsite and in multiple

		locations dispersed throughout the jobsite as warranted. Jobsites shall maintain a daily attendance log of all workers and visitors that includes contact information, including name, address, phone number, and email. Daily logs shall be made available within seven (7) calendar days of project mobilization.
Personal Protective Equipment Use	COVID-19 Exposure	Employees shall ensure that all PPE is kept clean and in serviceable condition. Hard hats shall be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Safety glasses should be cleaned regularly throughout the shift with approved Isopropyl wipes including the frame and stems. See attached Field Sanitization Guidelines. Gloves shall be new at the beginning of the shift and replaced at each break or after touching common use surfaces. Gloves shall be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Disposable Latex or Nitrile gloves may be used as outer covering for cut resistant or leather gloves but must be disposed of after each use. Ear plugs must be inserted or removed with clean washed hands and replaced daily or if dropped on the ground or other surface. Muff type hearing protection must be cleaned before each use and after being dropped or laid down on any common use surface.

		Vests or other high visibility garments should be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Fall protection equipment shall be wiped down with soap and water after each use. See attached Field Sanitization Guidelines. Face coverings are required to be worn by all employees (except when employees are actively eating or drinking) to slow the spread of the COVID-19 virus. Face coverings must be made of at least two (2) layers of fabric and worn covering the nose and mouth, fitting securely under your chin. *Note- The CDC does not recommend the use of gaiters or face shields as an alternative to face coverings. Evaluation of these face covers is on-going but effectiveness is unknown at this time.* Social distancing protocols must still be followed while wearing a face covering. Face coverings will be issued to the individual employee and shall not be shared. Employees may choose to wear their own face covering so long as it meets the minimum guidelines for a face cover. Exceptions to wearing a multilayer face covering will be determined by Production Leadership and Corporate Safety to determine the appropriate protection needed for the project. At no time may a contractor secure or use medical-grade PPE, unless required due to the medical nature of a job site. Face coverings must be worn in compliance with Section 5 of the Health Officer's Order, dated June 5,

		2020, or any subsequently issued or amended order. Respiratory protection equipment will be in STRICT accordance with CCR, Title 8, Section 5144. The CDC, WHO and OSHA still does not currently recommend that healthy people wear a **N95 or greater respirator face mask**. If the specific task requires this level of protection to be worn, then you must follow the guidelines in the CEI Respiratory Protection Program. Ensure that employees are trained in the use of PPE. Maintain and make available a log of all PPE training provided to employees and monitor all employees to ensure proper use of the PPE.
MEWP Use	COVID-19 Exposure	Mobile Elevated Work Platforms shall be sanitized at the end of each shift or after each operator use. *See attached Field Sanitization Guidelines.* Employees required to utilize man-lifts to access decks will limit capacity to 3 people (excluding operator) and avoid close contact with other personnel. Any aerial lift is limited to 1 person. The use of double bucket (2 men in a bucket) is strictly prohibited.
Ladders	COVID-19 Exposure	Ladders are to be sanitized at the end of each shift and prior to being used by another employee. See attached Field Sanitization Guidelines.
Confined Spaces	COVID-19 Exposure	Confined space operations will be prohibited

Material Handling	COVID-19 Exposure	Hand hold areas on material/debris bins shall be sanitized at the end of each shift. See attached Field Sanitization Guidelines. Wooden bins should be avoided, but if necessary, hand hold areas should be sprayed with disinfectant aerosol at the end of each shift. Employees shall not dispose of food waste or lunch containers in debris/material carts. Drinking water will be strictly limited to bottled water. Water dispensing coolers are not allowed. Employees are required to remove gloves and sanitize hands prior to grabbing water bottles for use.
Toilet & Hand Washing Facilities	COVID-19 Exposure	Supervision shall ensure adequate toilet and hand washing facilities are available based on a 20 to 1 ratio or fraction thereof. Toilets are 20 to 1 per sex or fraction thereof. Toilet facilities shall be pumped on a (daily/48hr/weekly) cycle and sanitized at the end of each shift. Restrooms must have alcohol based antibacterial hand sanitizer available. Supervision should make every effort to provide toilet paper and disposable hand towels to individual employees (1 roll per person as needed, etc.) Employees shall avoid using of community-use toilet paper and hand towels. Employees shall wash their hands with soap and water for a minimum of twenty seconds after visiting toilet facilities. Employees observed not following hand washing requirements will be removed from the project.

		Handwash stations and or hand sanitizer stations shall be available at project entrances and exits.
Smart Tag It	COVID-19 Exposure	Audits/Observations must be verbalized between the employee and manager maintaining social distancing requirements. Photos can be taken from a safe distance for upload. COVID-19 audits shall be completed by the designated COVID-19 Safety Compliance Officer / COVID-19 Supervisor **daily** at a minimum. Signature on PRAs & SWIs are not permitted (Photo documentation only) Coaching shall be provided verbally. Daily Safety Huddles or Weekly Safety Meetings should be documented in Smart Tag It with appropriate hashtag. Ensure devices are disinfected each day. See attached Field Sanitization Guidelines.
Hand and Power Tools	COVID-19 Exposure	The transfer of tools, radios, cell phones, materials, documents, etc., shall be sanitized **prior** to transfer. No direct (handshake) transfer is allowed. See attached Field Sanitization Guidelines.

Field Office/ Office Staff	COVID-19 Exposure	Have hand sanitizers available at all doors. Following current CDC guidelines, simple cloth face coverings will be worn by all employees, subcontractors and vendors to slow the spread of the COVID-19 virus. Social distancing protocols must still be followed while wearing a face covering. No visitors are allowed at company offices without a company escort and prior approval. Microwaves, water coolers, and other similar shared equipment is prohibited. Every employee shall arrive to work with freshly laundered outerwear. Wash hands regularly for no less than 20 seconds. Use electronic communication where possible. Do not shake hands. Use hand sanitizer after any contact with other employee's body, materials, tools, or documents. Maintain social distance in offices and office trailers. Limit physical contact with others. Direct employees to increase personal space (to at least 6 feet). Employees are to wash their hands with soap and water before and after touching their face or eyes, eating or drinking, smoking, sneezing, blowing nose, coughing and using toilet facilities. Workers should refrain from touching their face.

		Do not allow people to congregate during lunch and break or in break areas. Must maintain social distancing requirements. Disinfect work area after each shift. See attached Field Sanitization Guidelines. Regularly sanitize door handles including entrance doors, refrigerators, worksurfaces etc. See attached Field Sanitization Guidelines. If an employee has had a known exposure to or, has been in contact with someone who is symptomatic or has been diagnosed with the COVID-19 virus, he or she will not be allowed onto the project or into the office and must follow current CDC guidelines. *Reference CEI Potential COVID-19 Exposure Identification Process for Employees and Contractors*

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Appendix D.
COVID-19 Employee Contact Tracing and Monitoring Guidelines

Notifications Made:
- ☐ County Health Dept.
- ☐ OSHA

Employee Name: _____ Date: _____
Employee ID: _____ Project: _____
Employee Phone Number: _____ Job #: _____
Date Symptoms Reported: _____ SCO: _____
Date Symptoms Started: _____ SITE SUP _____
Total Number of Days Onsite: _____ GEN SUP _____
Last Date Onsite: _____ Project
Total Employees (all trades) Onsite: _____ Address: _____

Identified Symptoms (circle all that apply):
Cough Shortness of breath (or difficultly breathing) Fever or Chills Headache
Repeated Shaking (with chills) Muscle Pain (muscle or body ache) New Loss of Taste or Smell
Fatigue Congestion or Runny Nose Sore Throat Nausea Vomiting Diarrhea
List any other symptoms below:

Was worker in Direct Contact with any person on site? Circle: Yes or No
Does the worker carpool or live in the same household with the direct contact? Circle: Yes or No
Direct Contact definition: Being within 6 ft for a prolonged duration of 15 minutes or greater within a (24) Hour Period OR Having direct contact with Infectious secretions (i.e. being coughed or sneezed on).

Identify people who were in Indirect Contact. (EE worked with? Took lunch or rode in buggy with)?

Identify areas of work & tasks performed within the past 2 days.
Areas must be specific. Add dates employee worked in the area.

Circle the EIP Scenario that will be implemented A B C D
Quarantine: Used when EE may have been exposed to COVID-19 or has symptoms of.
Isolation: Used to separate people infected with COVID-19 from people who are not infected.
Action Taken (Circle One): Quarantine (14) Day Rule or Isolation (10) + 1 Day Rule

(if applicable) 1st COVID Test Date:_____Test Result **POSITIVE or NEGATIVE**
(if applicable) 2nd COVID Test Date:_____Test Result **POSITIVE or NEGATIVE**
Final Day with any Symptoms:_____
Return to work Date:_____
Isolation: Day 1)_____ Day 10)_____
Quarantine: Day 1)_____ Day 14)_____

This form should be completed electronically only. DO NOT distribute with Personal Information outside of the distribution team.
Positive cases must be sent to Corporate/Regional Safety including Bruce Baxter within 1 hour of notification.

Appendix E.
Employee Tests or is Suspected Positive for COVID-19

Manager/Supervisor Overview

Manager/Supervisor is notified that a CEI employee has tested **positive** for COVID-19 (work related or not) or is suspected positive and has been turned away from the office/jobsite.

Manager/Supervisor to follow instructions per **ECP** *section **7. Investigating and Responding to Potential or Positive COVID-19 Cases***

Manager/HR/Corporate Safety to interview positive employee and electronically document contact tracing results on ***Appendix D: COVID-19 Contact Tracing and Monitoring Form***.

Manager/Supervisor to submit completed ***Appendix D: COVID-19 Contact Tracing* Form** to Corporate Safety and HR within **1 hour** of positive case notification. Corporate Safety will notify Risk Management, county or state agencies, as applicable

*SCC has 4 hour reporting requirement

Manager/Corporate Safety/HR to communicate to affected employees per section ***7. Investigating and Responding to Potential or Positive COVID-19 Cases***

(We must maintain confidentiality, do not distribute Personal Identifiable Information; Name, DOB, Address, etc. outside of the distribution team)

Corporate Safety/HR/ Facilities assesses exposure and schedule's a cleaning of exposed areas per ECP section ***9. Field Sanitation Guidelines***. If outbreak status, additional requirements are needed. Follow ECP section ***11. Multiple COVID-19 Infections and COVID-19 Outbreaks.***

END

For any questions on the process, please contact the Corporate Safety Team

Brent Bowers
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Brent_Bowers@cei.com

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Allan_Moore@cei.com

Tim Kepler
408-712-4058
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Appendix F.
Employee Tests or is Suspected Positive for COVID -19
Field Overview

Project Leadership is notified that a CEI employee has tested **positive for COVID-19 or suspected positive** and being turned away from the jobsite

Project Leadership to provide instructions per ECP (***section 7. Investigating and Responding to Potential or Positive COVID-19 Cases)*** to employee

Site leader or designee to interview employee and electronically document contact tracing results on ***Appendix D: COVID-19 Contact Tracing and Monitoring Form***.

Superintendent to submit completed ***Appendix D: COVID-19 Contact Tracing and Monitoring Form*** to Corporate Safety, including Bruce Baxter & Regional Safety within **1 hour** of **positive case** notification. Superintendent to also complete the Master COVID spreadsheet. Safety will notify county or state agencies, as applicable

Project Leadership to communicate positive case to any affected employees, general contractor/owner, or other trade.

(We must maintain confidentiality, do not distribute Personal Identifiable Information; Name, DOB, Address, etc. outside of the distribution team)

Project Leadership assesses and disinfects potentially exposed areas per section **9. Field Sanitation Guidelines in ECP.** *If outbreak status, see section* ***11. Multiple COVID-19 Infections and COVID-19 Outbreaks*** *in ECP.*

END

For any questions on the process, please contact the Corporate Safety Team

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Appendix G.

COVID-19 Employee Self-Monitor Template

Employee name: **Project name:**

Employee number: **Date of potential exposure (mm/dd/yyyy):**

Step 1: Employee completing this form is to self-monitor for symptoms for 14 days from the time of potential exposure.

Step 2: The employee is responsible to send this document to their RTO Captain or supervisor e**very day via text or email prior to accessing the project screening protocols.**

Supervisor/RTO Captain: Will review employee self-monitor template and approve or deny employee from accessing the project site-specific screening protocols.

	I.e.	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
1. Temperature below 100.0 degrees? (Pass/Fail)	Pass														
2. Any exposures in your household? (Y/N)	N														
3. Any other potential exposures? (Y/N)	N														
4. Are you or your family currently experiencing any flu like symptoms? *(i.e. loss or change in taste or smell, headache, body aches, fatigue, etc.)*	N														

If **'Yes or Y'** is answered above, follow ECP for further guidance.
If no symptoms develop during 14-day self-monitoring, you can discontinue using this form.

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Appendix H.

COVID-19 Face Covering Policy Change
Frequent Asked Questions (FAQs) ECP
Rev. H

1. ***Why are we making a mask change companywide?***
   In accordance with new CDC guidelines and recent studies from independent organizations, we feel that making this mask change will better protect our employees from COVID-19, while also limiting the spread of the disease.
2. ***What happens when using a multi-layer mask creates more of a hazard than a single-layer mask?***
   Risk assessments will be conducted by CEI Corporate Safety and Production leadership on a project-by-project basis.
3. ***When is CEI's new mask policy going into effect?***
   All CEI project/office locations will implement this new mask policy no later than October 14th, 2020.
4. ***Can I wear my own face covering to work?***
   Yes; if it meets CEI's minimum requirements for face coverings as outlined in the COVID-19 Exposure Control Plan (ECP) Rev. H, you can wear your own face covering.
5. ***What materials should my face covering be made of?***
   Per CDC guidelines, face coverings with at least two (2) layers of breathable/washable fabric are recommended because they are most likely to reduce the spread of COVID-19.
6. ***Do I need to wear a face covering at work or at my desk?***
   Yes; face coverings must be worn at all times while working at all CEI facilities.
7. ***Are CEI subcontractors required to comply with the provisions of our ECP?***
   Yes, subcontractors, vendors and visitors are still required to follow our ECP.
8. ***Can I wear my current neck gaiter and fold it in two?***
   We are not allowing the 1-ply neck gaiters to be folded in half, making it a 2-layer mask, at this time.
9. ***Can I wear two single-layer neck gaiters?***
   We do not want to see two single-layer neck gaiters worn in an attempt to achieve the 2-layer minimum requirement.
10. ***Can I wear a 2-ply neck gaiter instead of the behind-the-ear style?***
    We are allowing a manufacturer-created 2-layer neck gaiter to be worn, if it clearly states from the manufacturer that it has 2-layers.
11. ***How can I order these face coverings for my jobsite?***
    To order face coverings, please use RSS to purchase them, just like any other material orders.

Appendix. I
COVID-19 Exposure Control Plan (ECP) Training
Rev. H

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus.

- Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment.
- Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The best way to prevent and slow down transmission is be well informed about the COVID-19 virus, the disease it causes and how it spreads. Protect yourself and others from infection by washing your hands or using an alcohol-based hand sanitizer with at least 60% alcohol frequently and not touching your face.

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. COVID-19 can also be spread by droplets on surfaces; however,

People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. **Older adults and people who have severe underlying medical conditions** like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

Symptoms may appear **2-14 days after exposure to the virus**. People with these symptoms or may have COVID-19:

- Fever (100.0° F) or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

(This list is not inclusive. Please consult your medical provider for any other symptoms that are severe or of concern.)

It is important to remember that some persons with an active case of COVID-19 may never develop symptoms and can weather the entire disease remaining asymptomatic (without symptoms), while shedding COVID-19 virus contamination everywhere they go. This is one of the reasons that contact tracing becomes so vitally important.

This Exposure Control Plan (ECP) shall be implemented at all project locations (small or large) where CEI employees, visitors or CEI subcontractors work. There is to be no deviation to this plan without the approval of the Executive Leadership Team (ELT).

Responsibilities of Employees, Subcontractors, Visitors and Vendors:
It is the responsibility of every CEI employee, visitor, vendor and subcontractor to adhere to this plan, follow all directives and assist in maintaining a safe work environment.

Communications to Employees
Employees must immediately report any COVID-19 positive test, symptoms or if they believe they have been exposed to someone with COVID-19 regardless if work related or not, to their supervisor or Human Resources at benefits@cei.com.
Employees shall also immediately report to their supervisor or Human Resources if they believe they have possibly been exposed to any COVID-19 hazards in the workplace.

CEI has a strict non-retaliation and non-discrimination policy and will not tolerate anyone retaliating against, discriminating against, or harassing any employee for informing CEI of COVID-19 hazards or health status. Any employee that reports any of the items above should do so without fear of reprisal.

Employees may be entitled to COVID related benefits depending on the state in which they live. To determine eligibility, please contact benefits@cei.com.

Employee Screening- Jobsites/Offices

- Prescreening at jobsite or office entrances will be required.
- Employees will be required to "pass" a non-contact temperature screening and health questionnaire prior to entry.
- Any employee/contractor/visitor showing symptoms of COVID-19 will be asked to leave the jobsite/office return home and encouraged to get a COVID-19 test.
- Standard issued PPE including face coverings shall be worn by all CEI screeners and employees at minimum.
- Any employee who falsifies information on their health screening may result in discipline, up to and including termination of employment.

Use of Face Coverings:

- CEI will provide approved face coverings to all employees on jobsites and in offices.
- Face coverings are required to be worn by all employees at all times including private offices, except when actively eating or drinking.
- Face coverings must **be made of at least two (2) layers of fabric.** Exceptions to wearing a multilayer face covering will be determined by Production Leadership and Corporate Safety to determine the appropriate protection needed on the project.
- Face coverings shall be worn covering the nose and mouth, fitting securely under your chin. *Note- The CDC does not recommend the use of neck gaiters or face shields as an alternative to face coverings. Evaluation of these face covers is on-going, but effectiveness is unknown at this time.*
- Failure to follow these rules may result in disciplinary action, up to and including, termination.
- When removing face covering, Employees must:

- Avoiding touching their eyes, nose and mouth; and
- Wash their hands with soap and water for at least 20 seconds. If soap and water is unavailable, use an alcohol-based hand sanitizer with at least 60% alcohol.

Social or Physical Distancing Requirements:

- Stagger stop- and start-times for shift schedules to the extent feasible, to reduce the quantity of workers at the jobsite at any one time.
- Stagger trade-specific work to minimize the quantity of workers at the jobsite at any one time.
- Employees must avoid physical contact with all others and shall direct others (co-workers/contractors /visitors) to increase personal space to at least six (6) feet, where possible.
  - Where office trailers are used, only necessary employees should enter the trailers and all employees should maintain social distancing while inside the trailers.
- Require social/physical distancing by maintaining a minimum six-foot distance between workers at all times, except as strictly necessary to carry out a task associated with the project. When six-foot social/physical distancing cannot be maintained, the Project Team shall elevate the situation for approval by the production superintendent.
- Strictly control “choke points” and “high-risk areas” where workers are unable to maintain minimum six-foot social/physical distancing and prohibit or limit use to ensure that minimum six-foot distancing can easily be maintained between workers.

General Requirements:

Employees are to be provided with this plan at the time of hire and prior to returning to a project.

- Drinking water will be strictly limited to bottled water.
- During any in-person safety meetings, avoid gathering in groups of more than ten (10) people and participants must remain at least six (6) feet apart.
- Employees will be encouraged to stagger breaks and lunches, if practicable, to reduce the size of any group at any one time to less than ten (10) people.
- Workers are prohibited from using others’ phones or desks.
- Any work tools or equipment that must be used by more than one worker must be cleaned with disinfectants that are effective against COVID-19 before use by a new worker.
- Place wash stations or hand sanitizers that are effective against COVID-19 at entrances to the jobsite and in multiple locations dispersed throughout the jobsite as warranted.
- Implement a COVID-19 community spread reduction plan as part of the Site-Specific Health and Safety Plan that includes, at minimum, the following restrictions and requirements:

1. Prohibit all carpooling to and from the jobsite except by workers living within the same household unit, or as necessary for workers who have no alternative means of transportation.
2. The sharing of PPE of any kind is prohibited.
3. Sharing of any food or beverage is strictly prohibited and if sharing is observed, the worker must be sent home for the day.

4. Microwaves, water coolers, and other similar shared equipment is prohibited.

- Where construction work occurs within common areas of an occupied residential or commercial building or a mixed-use building in use by on-site employees or residents,
    1. Any separate work area must be sealed off from the rest of the common areas with physical barriers such as plastic sheeting or closed doors sealed with tape to the extent feasible.
    2. If possible, workers must access the work area from an alternative building entry/exit door to the building entry/exit door used by residents or other users of the building.
    3. Available windows and exhaust fans must be used to ventilate the work area.
    4. If residents have access to the work area between workdays, the work area must be cleaned and sanitized at the beginning and at the end of workdays.
    5. Every effort must be taken to minimize contact between worker and building residents and users, including maintaining a minimum of six feet of social distancing at all times.
        a. *If the Project Team and customer interpretation of this section differ and there is conflict, the Project Team shall elevate to senior management.*

INVESTIGATING AND RESPONDING TO POTENTIAL OR POSITIVE COVID-19 CASES
Reference *Appendix B: Potential COVID-19 Exposure Identification Process for Employees and Contractors* for more instructions.

Step 1: Provide instructions to the COVID-19 positive worker

Work Exclusion & Isolation Period

The worker should be sent home immediately and instructed to **isolate for 10 days** from the date they tested positive **AND**, if symptomatic, **24 hours** after resolution of fever without the use of fever-reducing medication and improvement in any other symptoms; (whichever is longer). The individual may return to the worksite after both of these criteria are met (10/1 rule).

Step 2: Identify all close contacts to the COVID-19-positive worker

If CEI learns that an employee has tested positive, Project Leadership will investigate to determine which, if any, employees had close contact with the positive employee. **Direct contact** (aka close contact) is defined as someone who was within six feet from the person who tested positive for at least 15 minutes.

Maintain Confidentiality

CEI must keep employees' personal and medical information confidential in accordance with federal and state laws.

Identify Close Contacts During the Exposure Period

CEI will investigate and document the employee's schedule and work location to determine: 1) the day their symptoms began (if applicable); 2) the date of their first positive test; and 3) the last day that the person diagnosed with COVID-19 was present at the workplace.

The exposure period is defined as:

- **Start:** 2 days (48 hrs) before the person had symptoms (or 2 days before date of first positive test for employees who are asymptomatic)
- **End:** last day the positive person was at work

Complete the Case and Contact Data Collection

CEI must gather information for all people who have been identified as close contacts, including any vendors/suppliers, visitors, or others who had close contact with the employee at the worksite.

In addition, we will evaluate common areas and commonly used items (such as equipment and materials), or places people congregated or visited in the workplace (such as the bathroom, hallways, aisles, walkways, elevators, break areas, etc.) associated with the COVID-19 case during the infectious period. This information is to be documented on the ***CEI COVID-19 Contact Tracing and Monitoring Form.***

Step 3: Communicate with All Employees

Work Exclusion, Quarantine & Testing Recommendations for Close Contacts

Anyone who has been determined as close contact with the person diagnosed with COVID-19 during the exposure period (defined above) will be notified and should not be allowed at the worksite and should stay at home for 14 days, starting the last day that the person diagnosed with COVID-19 was at work.

Close contacts who start to show COVID-19 symptoms should get tested **immediately.** Close contacts who do not show symptoms should get tested 7 days after they were exposed. If testing was done earlier than 7 days after exposure, close contact should repeat testing at the end of their 14-day quarantine period. Even if the test is negative, close contacts should remain in quarantine for the full 14 days. Test results, positive or negative, should be shared with CEI.

Testing will be required to those employees who were identified as having potential COVID-19 exposure through close contact.

General Advisory & Symptom Monitoring for All Other Employees

All others present at the workplace, but NOT identified as close contacts, should be advised to self-monitor for symptoms for 14 days after the last day that the person diagnosed with COVID-19 was at work. See Return to Work requirements for additional information.

Return-to-Work Criteria

COVID-19 cases with COVID-19 symptoms will not return to work until all the following have occurred:

- At least 24 hours have passed since a fever of 100.0 or higher has resolved without the use of fever-reducing medications.
- COVID-19 symptoms have improved.
- At least 10 days have passed since COVID-19 symptoms first appeared.

- COVID-19 cases who tested positive but never developed COVID-19 symptoms will not return to work until a minimum of 10 days have passed since the date of specimen collection of their first positive COVID-19 test.
- When testing for COVID-19, a molecular PCR test will be required. Rapid Antigen tests will not be

accepted.

- When an employee tests positive:
  - A negative COVID-19 test Shall not be required for an employee to return to work *(California operations only).*

FIELD SANITATION GUIDELINES

In the event of a confirmed case of COVID-19 at any jobsite, the following must take place:

1. Immediately removal of the infected individual from the jobsite with directions to seek medical care.
2. Each location the infected worker was at must be decontaminated and sanitized and work in these locations must cease until decontamination and sanitization is complete.
3. The County Public Health Department must be notified immediately (Corporate Safety will make this notification)

How to clean and disinfect

Hard (Non-porous) Surfaces:

1. Wear disposable gloves when cleaning and disinfecting surfaces. Gloves should be discarded after each cleaning.
2. Clean hands immediately after gloves are removed.
3. If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.

Tools / Equipment

Shall be wiped down with soap and water or disinfecting wipes prior to use. Use of a bleach solution is not recommended on tools.

Phones/Tablets/Radios/Other Mobile Electronic Equipment

Shall be wiped down using disinfecting wipes prior to use. No sharing of devices is allowed.

Hard Hats

Wipe down hard hat exterior with water and soap or a cleaning solution, scrubbing with a soft brush or sponge. Do not dry with heaters; hard hat can be reassembled before or after drying. Prior to re-use, conduct checks as recommended by the manufacturer's manual to ensure that the hard hat is in working condition.

Garments

Garments worn off the project must be laundered prior to returning to work.

If garments are left at the project, they will be placed in the designated lined container for cleaning.

Wear disposable gloves when handling dirty laundry from an ill person and then discard after each use. Clean hands immediately after gloves are removed.

If possible, do not shake dirty laundry. This will minimize the possibility of dispersing virus through the air.

Eyeglasses / Face Shields

Safety glasses should be cleaned regularly throughout the shift with approved Isopropyl wipes including the frame and stems.

Face masks or face shields shall be wiped down with soap and water or other disinfecting agent prior to and after each use. Face masks or shields will be issued to the individual employee and shall not be shared.

Gloves

Gloves shall be new at the beginning of the shift and replaced at each break or after touching common use surfaces. Gloves will be placed in a designated lined container for cleaning.

Vehicles and Refueling Operations

Sharing of vehicles will be minimized to the extent feasible. Steering wheel, door handles, seatbelt buckles, armrests, shifters, etc. will be disinfected between users. Ensure hands are sanitized after any refueling operation.

Fall Protection

Fall protection equipment shall be wiped down with soap and water after each use.

1. It is best to begin with the harness on a flat surface, leaving open to visible inspection.
2. Using a moist sponge, wipe down the harness to remove excess dirt and dust.
3. Mix a cleaning solution using laundry detergent or dish soap. DO NOT use any cleansers that contain chlorine, bleach, or abrasives.
4. Dip your sponge into the solution and thoroughly scrub each portion of the harness until a thick lather forms.
5. Using a sponge dipped in CLEAR water, wipe down the harness to remove the suds and soap residue.
6. When cleaning multiple harnesses, store each in a separate, dry compartment. Hang them in such a way that they are not crushed, worn, or creased.

Two important cautions:

a. Dampen but DO NOT SOAK the harness. The excessive expansion of the fibers by soaking (and the contraction by drying) can compromise the fabric's effectiveness and shorten the harness's life.
b. NEVER put a harness in the dryer. Excessive heat and tumbling can (and will) damage the harness.

CUPERTINO ELECTRIC INC. CLASS/LAB ATTENDANCE ROSTER

Contractor Name: *Cupertino Electric, Inc.*		**Agreement No.:** Not Applicable
Training Date: *(Day):* *(Date):*	**Training Site:** Job#: Job Name:	**Start Time:** **End Time:**

Type of Training/Course Topic	Class/Lab Hours
COVID-19, Exposure Control Plan (ECP) Training	30 minutes
ECP Rev____	

Employee Number *Required*	Trainee Name (Print Clearly or Type)	Trainee Signature

Print Instructor Name:	**Print Instructor Name:**
Instructor Signature:	**Instructor Signature:**

Requirements When CEI is Acting as a General Contractor:

(Small Projects - Bay Area Counties Only)
Project Leadership must assign a COVID-19 Safety Compliance Officer (SCO) to the jobsite and ensure the SCO's name is posted on the Site-Specific Health and Safety Plan. Project Leadership has fourteen (14) days to be in compliance before being elevated to senior management. Small construction projects require a COVID-19 Supervisor, see ECP *general requirements*.

Additional Requirements When CEI is Acting as a General Contractor: *(Large Projects - Bay Area Counties Only)*
Project Leadership must also assign a COVID-19 Third-Party Jobsite Safety Accountability Supervisor (JSAS) for the jobsite, who at a minimum holds an OSHA-30 certificate and first-aid training within the past two years, who must be trained in the protocols herein and verify compliance, including by visual inspection and random interviews with workers.

If CEI is not acting as a general contractor, the general contractor on the project should supply this position. Project Leadership has fourteen (14) days to be in compliance before being elevated to Senior management.

Travel *(Santa Clara County ONLY)*
All persons traveling into Santa Clara County, whether by air, car, train, or any other means, directly or indirectly from a point of origin greater than 150 miles from the County's borders must quarantine for 14 days upon arrival.

The following persons are required to quarantine, but may leave their home or place of quarantine solely for work:

- Persons traveling solely for the purpose of performing essential critical infrastructure work, as defined by the State Public Health Officer, but only to the extent that the employer determines that it would otherwise lack sufficient staffing to perform such work.

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APPENDIX A - Written Exposure Control Plan (ECP) template

Respirable Crystalline Silica Program

PURPOSE

The Cupertino Electric (CEI) Respirable Crystalline Silica Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It is intended to meet the requirements of the Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA).

All work involving chipping, cutting, drilling, grinding, or similar activities on materials containing Crystalline Silica can lead to the release of respirable-sized particles of Crystalline Silica (i.e. Respirable Crystalline Silica). Crystalline Silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of Crystalline Silica. Many materials found on constructions sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.

SCOPE

This Respirable Crystalline Silica Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to Respirable Crystalline Silica in construction work, except where employee exposure will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air (25 $\mu g/m^3$) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

RESPONSIBILITIES

CEI firmly believes protecting the health and safety of our employees is everyone's responsibility. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.

Safety Department

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an employee's exposure will be above 25 µg/m^3 as an 8-hour TWA under any foreseeable conditions

- Select and implement into the project's Exposure Control Plan (ECP) the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written ECP, exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

  NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.

- Ensure that Project Manager, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

- Assist Production and Risk management with maintaining written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.

- Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

Superintendents/Project Managers

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.

- Assist the Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.

- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.

- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

Competent Person

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.

- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.

- Notify the Project Manager, Superintendent and/or Division Safety Manager of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.

- Assist the Project Manager and Safety Department conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

Employees:

- Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
- Use the assigned PPE in an effective and safe manner.
- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.
- Report any unsafe conditions or acts to the Site Manager and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica illness.

DEFINITIONS

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your Safety Department.

- Action Level means a concentration of airborne Respirable Crystalline Silica of 25 µg/m^3, calculated as an 8-hour TWA.
- Competent Person means an individual who is capable of identifying existing and foreseeable Respirable Crystalline Silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.
- Employee Exposure means the exposure to airborne Respirable Crystalline Silica that would occur if the employee were not using a respirator.
- High-Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.
- Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to Respirable Crystalline Silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
- Permissible Exposure Limit (PEL) means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica in excess of 50 µg/m^3, calculated as an 8-hour TWA.

- Physician or Other Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.

- Respirable Crystalline Silica means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size- selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

- Specialist means an American Board Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

REQUIREMENTS

Specified Exposure Control Methods

When possible and applicable, CEI will conduct activities with potential Silica exposure to be consistent with OSHA's Construction Standard Table 1.
Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA's Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless CEI has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

The task(s) being performed by CEI identified on OSHA's Construction Standard Table 1 are listed below:

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	• Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
6	Rig-mounted core saws or drills	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	• Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and	• Use tool equipped with commercially available	None	N95 (or

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	handheld powered chipping tools when used outdoors	shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
11	Handheld grinders for mortar removal (i.e., tuckpointing)	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None
12c	Handheld grinders for	• Use grinder equipped with commercially	None	N95 (or

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	uses other than mortar removal when used indoors or in an enclosed area	available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		Greater Efficiency) Filtering Facepiece or Half Mask
13a	Walk-behind milling machines and floor grinders	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	• Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
14	Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of	• Use a machine equipped with supplemental water spray designed to suppress dust.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	four inches in depth or less on any substrate	• Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.		
16	Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

When implementing the control measures specified in Table 1, CEI shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust (dustless tools);
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
    - Is maintained as free as practicable from settled dust;
    - Has door seals and closing mechanisms that work properly;
    - Has gaskets and seals that are in good condition and working properly;
    - Is under positive pressure maintained through continuous delivery of fresh air;
    - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
    - Has heating and cooling capabilities.
- Where an employee performs more than one task included on OSHA's Construction Standard Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA's Construction Standard Table 1, or where CEI cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

First, CEI will assess the exposure of each employee who is or may reasonably be expected to be exposed to Respirable Crystalline Silica at or above the Action Level in accordance with either the Performance Option or the Scheduled Monitoring Option.

- **Performance Option** – CEI will assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica.

- **Scheduled Monitoring Option:**

  - CEI will perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, CEI will plan to monitor a representative fraction of these employees. When using representative monitoring, CEI will sample the employee(s) who are expected to have the highest exposure to Respirable Crystalline Silica.

  - If initial monitoring indicates that employee exposures are below the Action Level, CEI will discontinue monitoring for those employees whose exposures are represented by such monitoring.

  - Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, CEI will repeat such monitoring within six months of the most recent monitoring.

  - Where the most recent exposure monitoring indicates that employee exposures are above the PEL, CEI will repeat such monitoring within three months of the most recent monitoring.

  - Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the Action Level, CEI will repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the Action Level, at which time CEI will probably discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. CEI will reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the Action Level, or when CEI has any reason to believe that new or additional exposures at or above the Action Level have occurred.

  - CEI will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e. a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e. accredited to ANS/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).

  - Within five working days after completing an exposure assessment, CEI will

individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

- Whenever an exposure assessment indicates that employee exposure is above the PEL, CEI will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

- Where air monitoring is performed, CEI will provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Respirable Crystalline Silica. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, CEI will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

- Once air monitoring has been performed, CEI will determine its method of compliance based on the monitoring data and the hierarchy of controls. Engineering and work practice controls will be used to reduce and maintain employee exposure to Respirable Crystalline Silica to or below the PEL, unless it can be demonstrated that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, CEI will nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

- In addition to the requirements of this program, CEI will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using Crystalline Silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain Crystalline Silica.

Control Methods

CEI will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to Silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Listed below are control methods to be used when Table 1 is not followed:

Respiratory Protection

Where respiratory protection is required by this program, CEI will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Respiratory protection is required where specified by the OSHA Construction Standard Table 1,

for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1. Situations requiring respiratory protection include:

- Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
- Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
- During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

Housekeeping

CEI does **not allow** dry sweeping or dry brushing where such activity could contribute to employee exposure to Respirable Crystalline Silica. All housekeeping activities shall use wet sweeping or HEPA- filtered vacuuming that minimize the exposure of silica. If these methods are infeasible, then other methods that minimize the likelihood of silica exposure shall be used.

CEI does not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to Respirable Crystalline Silica unless:

- The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
- No alternative method is feasible.

Written Exposure Control Plan

When employee exposure on a construction project is expected to be at or above the Action Level, a Written Exposure Control Plan (ECP) will be established and implemented with the following elements:

- A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task;
- A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to Respirable Crystalline Silica and their

level of exposure, including exposures generated by other employers or sole proprietors.

The written ECP will designate a Competent Person to make frequent and regular inspections of job sites, materials, and equipment to ensure the ECP is implemented.

The written ECP will be reviewed at least annually to evaluate the effectiveness of it and update it as necessary. The written ECP will be readily available for examination and copying, upon request, to each employee covered by this program and/or ECP, their designated representatives, and OSHA.

Medical Surveillance

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their Respirable Crystalline Silica exposure. Medical surveillance (i.e. medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

CEI will make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

- A medical and work history, with emphasis on past, present, and anticipated exposure to Respirable Crystalline Silica, dust, and other agents affecting the respiratory system in addition to any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing), history of tuberculosis, and smoking status and history;

- A physical examination with special emphasis on the respiratory system;

- A chest X-ray (a single postero-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader;

- A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;

- Testing for latent tuberculosis infection; and

- Any other tests deemed appropriate by the PLHCP.

CEI will make available medical examinations that include the aforementioned procedures

(except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

CEI will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and the following information:

- A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Respirable Crystalline Silica;
- The employee's former, current, and anticipated levels of occupational exposure to Respirable Crystalline Silica;
- A description of any personal protective equipment (PPE) used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and
- Information from records of employment-related medical examinations previously provided to the employee and currently within the control of CEI.

CEI will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators;
- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and;
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

CEI will also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following in order to protect the employee’s privacy:

- The date of the examination;
- A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard; and

- Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion shall also contain either or both of the following:

- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and/or

- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

If the PLHCP's written medical opinion indicates that an employee should be examined by a Specialist, CEI will make available a medical examination by a Specialist within 30 days after receiving the PLHCP's written opinion. CEI will ensure that the examining Specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

CEI will ensure that the Specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report will contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;

- Any recommended limitations on the employee's use of respirators; and

- Any recommended limitations on the employee's exposure to respirable crystalline Silica.

In addition, CEI will obtain a written opinion from the Specialist within 30 days of the medical examination. The written opinion shall contain the following:

- The date of the examination;

- Any recommended limitations on the employee's use of respirators; and

- If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure to Respirable Crystalline Silica.

Hazard Communication

CEI will include Respirable Crystalline Silica in the company’s Hazard Communication

Program established to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

CEI will ensure that each employee has access to labels on containers of Crystalline Silica and those containers respective Safety Data Sheets (SDS's).

All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard and the Training Section of this program. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

CEI will ensure that each employee with the potential to be exposed at or above the Action Level for Respirable Crystalline Silica can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to Respirable Crystalline Silica;
- Specific tasks in the workplace that could result in exposure to Respirable Crystalline Silica;
- Specific measures CEI has implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used;
- The contents of the OSHA Respirable Crystalline Silica Construction Standard;
- The identity of the Competent Person designated by CEI, and
- The purpose and a description of the company's Medical Surveillance Program.

CEI will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

Recordkeeping

CEI will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica. This record will include at least the following information:

- The date of measurement for each sample taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;

- Identity of the laboratory that performed the analysis;
- Type of personal protective equipment (PPE), such as respirators, worn by the employees monitored; and
- Name, employee number, and job classification of all employees represented by the monitoring, indicating which employees were monitored.

CEI will ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020. Exposure records will be kept for at least 30 years.

The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. This record shall include at least the following information:

- The Crystalline Silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

CEI will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020. Objective data records will be kept for at least 30 years.

CEI will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and/or Specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and Specialists.

CEI will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after

exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends, as long as the employer gives those records to the employee.

PROGRAM EVALUATION

This program will be reviewed and evaluated on an annual basis by the Corporate Safety Department unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.

APPENDICES

APPENDIX A - Written Exposure Control Plan (ECP) template

Cupertino Electric Project Silica Exposure Control Plan (ECP)
Appendix A

Company: **Cupertino Electric**	**Person Compiling the Plan/Title:**
Jobsite/Project:	**Description of Work:**
Competent Person:	

Material:	**Task:**
Equipment and Control(s):	
Task/Control Description:	

Material:	**Task:**
Equipment and Control(s):	
Task/Control Description:	

Material:	**Task:**
Equipment and Control(s):	
Task/Control Description:	

Material:	**Task:**
Equipment and Control(s):	
Task/Control Description:	

Cupertino Electric Project Silica Exposure Control Plan (ECP)
Appendix A

Material:	**Task:**
Equipment and Control(s):	
Task/Control Description:	

Safety of Others:

Demolition work will be scheduled during night shift to minimize number of employees exposed to airborne dust. Water spray will be used to control dust. Non-authorized individuals will not be allowed in work area during drilling and shotcrete application.

Worker Training:

Employees trained in silica hazard, proper work procedures to control dust, proper use of safety equipment, and respirator use. Training provided through combination of tool box safety talks and formal “classroom” training.

Housekeeping:

Dry sweeping will be prohibited. Wet sweeping, HEPA filtered vacuuming or other methods will be used, unless not feasible. Compressed air will not be used to clean equipment or worker clothing. HEPA vacuum will be provided to clean clothing .

Medical Surveillance:

All employees using respiratory protection due to silica exposure for 30 or more days per year will be included in the Medical Surveillance Program which includes initial examination (medical history, physical examination with emphasis on respiratory system, chest x-ray, pulmonary function test, testing for latent tuberculosis infection, and any other tests deemed necessary by the physician). Periodic examinations will also be provided at least every three years.

Other Considerations:

Hearing protection will be provided for employees operating drilling rig, compressed air lances, and during shotcrete application. Precautions taken to avoid electrical shock by ensuring power cords are not damaged and Ground Fault Circuit Interrupters (GFCI) are provided and functioning properly.

Respiratory Protection Program
Cupertino Electric, Inc.

1. Purpose

This guideline provides information and assistance in the proper selection, use, care and acquisition of respiratory protection. The purpose of the Guideline is to ensure that respirators are properly selected and used to provide adequate protection for employees from airborne health hazards.

2. Scope

This Program applies to all uses of respirators including NIOSH approved disposable respirators (e.g., "dust masks"), and voluntary use of respirators. Voluntary respirator users are not included in the full scope of this program.

3. References

The following references contain supporting information for the Guideline:

- OSHA Respirator Standards; 29 CFR 1910.134 and CCR Title 8 Section 5144
- ANSI Z88.2, Respiratory Protection, 1992
- ANSI Z88.6

4. Program Requirements

A. Design Criteria

Respirators must meet a number of important design criteria to ensure adequate protection for users. The table below highlights the four main classifications of respirators.

All respiratory protection must be approved by the National Institute for Occupational Safety and Health (NIOSH), the Mine Safety and Health Administration (MSHA), or other applicable local regulatory agencies. This approval is indicated by an approval number shown on the respirator which starts with TC and is followed by a code corresponding to the type of protection the respirator is approved for and the specific approval number for that model of respirator.
For example:

TC -23C-158 Approved for dusts, fumes and mists (23C designation) with the individual approval number 158

NOTE: Supplied air respirators and Self Contained Breathing Apparatus (SCBA) are not currently used.

CLASSES OF RESPIRATORS

Class of Respirator	Characteristics of Class	Size/Design Types
1. Air Purifying (APR)	Consists of facepiece plus cartridge or filter; protection depends on specific filter or cartridge. Works by cleaning up outside air with cartridge or filter. Good for most (but not all) chemicals. Disposable respirators do not require maintenance or storage, but are available only in half-face. Not appropriate for oxygen deficient atmospheres.	• half-face - disposable • half-face - dual cartridge • full-face - dual cartridge
2. Supplied Air	Consists of facepiece, regulator, source of breathing air = compressor or compressed air cylinders. Supplies clean breathing air usually through airline, (exception, escape pack) to respirator facepiece; does not require special filters cartridges. Good for all types of chemicals. Time limits for operation depend upon supply of air available. More complicated and expensive than PAPR.	• full-face - pressure demand • full face with 5 minute egress, escape pack
3. Self-Contained Breathing Apparatus (SCBA)	Consists of facepiece, regulator, source of breathing air = cylinder on back. Supplies clean breathing air to respirator facepiece. Does not require special filters or cartridges. Highest level of protection available. Limit on use determined by capacity of cylinder; typically 30 minutes.	• full-face - pressure demand
4. Powered Air-Purifying Respirators (PAPRS)	Consists of facepiece, cartridges and battery-operated fan; protection depends on type of specific filter or cartridge. Works by forcing air through cartridge using fan to clean up outside air. Good for limited number of chemicals. More complicated and expensive than APR.	• hard hat with face shield - air blows down in curtain in front of face.
5. Mouthbit Escape Respirators	Used for escape from non-IDLH (immediately dangerous to life & health) emergency situations as a safety precaution against a potential chemical leak.	• Mouthpiece attached to a air purifying respirator cartridge and nose clip.

B. Performance Criteria

1. Engineering and Administrative Controls vs. Respiratory Protection

The implementation of protective measures to reduce exposures to air contaminants must be based upon the use of engineering and administrative controls, whenever feasible. These types of controls involve controlling exposures by preventing the release of a contaminant into the work environment through changes to the operation or the use of safe operating procedures, rather than through the use of protective equipment worn by the employee. Examples of engineering controls include the following:

- Installation of local exhaust ventilation.
- Isolating the operation away from other operations.
- Enclosing the operation.
- Substituting less hazardous chemicals for more hazardous chemicals.

Examples of administrative controls include:

- Changing the procedure to reduce the amount of contaminant produced; e.g., using liquid solution rather than dry powder in order to reduce the creation of dust.

In general, respirators should only be used when: (1) engineering and administrative controls are not adequate or feasible to control employee exposures, (2) for emergencies, and (3) while controls are being developed and implemented.

2. Performance Criteria for Selection of Respirators

A number of performance criteria have been established for respiratory protection which must be considered for proper selection and use of respirators. These criteria include the following:

a. Operational criteria on the atmosphere in the work environment, nature of the contaminants of concern, and exposure criteria.
b. Limitations of respiratory protection by class of respirator.
c. Protection provided by different types of respirators. This protection is defined in terms of the protection factor; i.e., the ratio of the concentration outside of the facepiece to the concentration inside the facepiece.

3. Performance Criteria for Proper Use of Respirators

a. Facial Hair

Facial hair cannot be present in areas of the face against which the seal with the respirator will be made. This may include side burns and beards. Facial hair can prevent a good seal and void the protection provided by the respirator. Long mustaches and beards can also interfere with the inhalation and exhalation valves on air purifying respirators. Users of respirators must be required to be clean shaven on all portions of the face where facial hair could interfere with the seal and proper operation of the respirator.

b. Good Fit

Users of respirators must obtain a good fit between the respirator facepiece and their face. Because faces vary widely in terms of facial dimensions, it is usually not possible to obtain a good fit on all users with a single size of facepiece. This is analogous to the need to have different shoe sizes for a population of employees. In order to ensure that employees can obtain a good fit with a respirator, the following steps should be taken:

Provide several sizes of facepiece from which employees can select the best fitting facepiece.

Where a good fit or comfort cannot be obtained, other makes of respirators will be tried for alternative models/sizes/styles.

c. Interchanging of Respirator Parts

It is not acceptable to interchange parts from different manufacturers or replace parts for one model with parts from a different manufacturer. The NIOSH approval for the respirator is based upon the specific design and construction of the respirator at the time the model was evaluated by NIOSH. Changing parts will void this approval and may reduce the effectiveness of the protection provided.

d. Specific Applications

Respirators are selected for use in specific applications based upon the design criteria and performance criteria described above and the nature of the operation in question. They should not be used for applications which have not been evaluated or for operations not intended when initially selected. NOTE: Employees are not currently authorized to work in IDLH environments.

e. Need for corrective lenses with Respirators

Either eyeglasses, spectacle kits, or contact lenses may be acceptable options depending on the type of respirator.

Information on spectacle kits (e.g., lens inserts in respirator facepiece), can be obtained from the Safety Department.

The use of contact lenses with full facepiece respirators is allowed where the employee has successfully worn contact lenses before, and practices wearing them with the respirator.

C. Procedures

1. Overall Selection and Use Process

The Safety Department should be contacted to provide assistance in the following areas:

- Assessing the hazard. When appropriate, this may include performing industrial hygiene monitoring to measure the level of exposure received by the employee to ensure the appropriate protection is afforded.
- Assessing the need for respiratory protection, including voluntary use where individual sensitivity makes it appropriate.
- Selecting the proper respiratory protection based upon design and performance criteria.

2. PPE Hazard Assessment

The PPE hazard assessment is performed to identify the types of hazards present and the level of protection required (see PPE Program). This assessment takes into account the following items:

- Nature of the operation in terms of the length of exposure, how the exposure occurs and tasks performed by the employees. Levels of exposure: When possible, this should be based upon measurements of the exposures received by employees. In some cases, it may be possible to use other factors; e.g., odor threshold of the contaminant, experience with other similar operations.
- Information on the contaminant; e.g., physical properties, chemical properties, odor threshold, etc.

3. Obtaining a Respirator

The process for obtaining a respirator consists of the following:

a. Contact the Safety Department.

b. Determination of proper respirator (with help from the Safety Department).
c. Medical authorization for use of respirator for each user (see Section C.4 below).
d. Training of users (see Section D below).
e. Fit testing of each user on the specific models of respirator to be used, as applicable (see Section C.5 below).
f. Issuance of respirator to the individual users. Each employee must satisfactorily complete the medical, training and fit testing steps before a respirator can be issued. Completion of the medical evaluation, training, and fit testing shall be documented in writing.
g. Fit testing, training and medical clearance must be repeated annually for as long as the employee continues to use respiratory protection.
h. Respirators, medical evaluations, fit testing, and training are provided to employees at no charge.

4. Medical Exam

Each user of a respirator must be medically evaluated prior to respirator use and annually thereafter (as advised by a Medical Care Provider) as long as the employee continues to use respiratory protection. Exception: Mouthbit escape respirators do not require a medical evaluation. The medical evaluation is performed by a Medical Care Provider at an Occupational Health Clinic during normal working hours to verify that the employee is medically capable of using and wearing the respirator without adverse health effects. The results of medical evaluation are to be kept confidential. Employees will be given an opportunity to discuss the results of the medical evaluation with a Medical Care Provider.

5. Fit Testing for Respirators

Fit testing consists of checking for leakage around the respirator's facepiece to face seal using a safe test atmosphere. This is performed while the employee is wearing either the actual respirator to be used during the operation of concern, or the same make/model/type of respirator to be used. Fit testing shall be performed for all tight-fitting respirators, including air line and SCBA face pieces, and filtering face pieces, and must use an OSHA acceptable protocol. Fit testing is not required for mouthbit escape respirators.

The fit testing must be performed annually, usually as part of the annual training (see Section D). The employee can only be assigned models on which he/she has successfully been fit tested.

Either of the two types of fit testing can be used:

- Qualitative fit testing
- Quantitative fit testing

Qualitative fit testing is based upon the use of a safe test agent which the employee can sense inside of the facepiece if there is a leak. The methodology requires the preparation of a sensitivity test solution at the time of testing, and the preparation of a test solution also to be prepared at the time of testing. All four OSHA approved methods involve screening users with the sensitivity solution prior to donning respirators, and performing the fit test with the test solutions.

The four qualitative fit testing methods are:

a. Isoamyl Acetate (not appropriate for particulate cartridges or masks unless fitted with organic filters)
b. Saccharin – This agent will not be used at Cupertino Electric, Inc. due to being listed as a Proposition 65 carcinogen.
c. Bitrex
d. Irritant Smoke - This agent will not be used at Cupertino Electric, Inc. due to strong negative reactions experienced by some individuals.

Quantitative fit testing is based upon measuring the concentration inside and outside of the respirator in order to determine the level of protection provided.

Positive-pressure respirators, including full-facepiece respirators (i.e. PAPR's, or SCBA's) must be fit tested in the negative pressure mode by using either qualitative or quantitative methods. When quantitative fit testing is used to fit test a positive-pressure respirator of this type, the fit factor must be equal to or greater than 500.

When quantitative fit testing is used to fit test a tight fitting, full-facepiece negative pressure respirator, a fit factor of 500 or greater is required. See Table I below to illustrate this point.

Table I. Fit factors and assigned protection factors for various respirators.

Type of respirator	mode of operation	required fit factor when using quantitative fit testing	Assigned protection factor
full-face	positive pressure	500*	10,000
half face	negative pressure	100	10
full-face	negative pressure	500	50

* The OSHA regulation effective 10-5-98 does not specify a fit factor for this circumstance. However, when positive pressure respirators are quantitatively fit tested in the negative pressure mode, ANSI Z 88.2 -1992 recommends a fit factor of 100. Intel decided to adopt a value of 500 as it is more conservative.

6. Maintenance/Inspection of Respirators

a. General

Respiratory Protection must be properly inspected, cleaned and maintained, per manufacturer's recommendations, each day the respirator is used. Face pieces should be inspected to ensure that all of the parts are present and the facepiece is not damaged. Mouthbit escape respirators must be inspected before being carried into the workplace for use.

Cleaning -Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition. Those used by more than one employee must be cleaned and disinfected before being worn by different individuals.

- Cleaning of the respirator facepiece shall be done in warm water with a mild detergent or cleaner. Isopropyl or other alcohol wipes are not to be used for cleaning of respirator facepieces. They degrade the materials used for the facepieces, and do not act as a disinfectant.
- If the cleaner does not contain a disinfecting agent, the facepiece shall be immersed in a separate disinfecting agent (e.g. 1:20 bleach solution).
- The face piece shall be rinsed thoroughly in warm water. It is important to remove all cleaning and disinfecting agents to avoid skin irritation (dermatitis).
- The face piece shall be air-dried or hand dried with a clean lint-free cloth.
- Alternative cleaning procedures recommended by the manufacturer of the respirators may be used as long as they are at least as effective as the procedures summarized here. Other respirator components, such as supplied air respirator regulators, shall be cleaned according to manufacturer's recommendation.
- Disinfectant products designed specifically for respirator facepieces are commercially available from safety supply vendors carrying respiratory protection.
- Cartridges must be removed before cleaning, since they will be damaged by water. APR filter /chemical cartridges must be replaced as required.
- Air-purifying respirators and/or cartridges should be replaced on a periodic basis. The Safety Department will determine a schedule for changing filter or cartridge elements based on data on exposure levels and breakthrough times for the contaminants present in the workplace.

- OSHA's previous Respiratory Protection Standard used odor detection as the sole criterion for determining the need for routine change of a gas or vapor APR cartridge. In the past, when an odor threshold was below the permissible exposure limit of a particular substance in gas or vapor form, it has been a time-honored practice to allow the employee's first sensing of odor to indicate breakthrough and the need to replace the air-purifying elements. This approach has always had limited efficacy, mainly because of subject and variability in odor detection related to individual differences (e.g., acute conditions such as upper respiratory tract infections, olfactory fatigue) as well as differences in test methodology.
- The revised OSHA Respiratory Protection Standard deleted odor detection as a means of determining breakthrough. The revised standard requires either (1) the use of APR cartridges equipped with end-of-service-life indicators (ESLI) -or- (2) implementation of a change-out schedule for canisters and cartridges. Change-out schedules establish the time periods for replacing cartridges and canisters, to ensure they are replaced before the end of their service life.
- To date, OSHA has provided limited direction on criteria for cartridge change-out schedules. The following approaches should be used to determine cartridge change-out schedule:

  -If disposable respirator, dispose of respirator at end of shift or job task
  -If available, use the respirator manufacturer's recommended change-out schedule for a particular cartridge.
  -Use cartridge breakthrough data from existing literature
- Respirators should be stored in a clean dry area which is protected from dust, sunlight, heat, extreme cold, excessive moisture, damaging chemicals, and mechanical damage. Labeled storage cabinets can be purchased specifically for respirators from safety supply vendors carrying respiratory protection.

7. Emergencies

In the event of an emergency during respirator use, immediately leave the work area and go to an area of fresh, clean air. Seek medical attention as required.

D. Training

Users of respirators must receive training on an annual basis on the following:

- An opportunity to handle the respirator;
- Proper fitting, including demonstrations and practice in wearing, adjusting and determining the fit of the respirator;
- Test of facepiece-to-face seal, for negative pressure respirators;
- A familiarization period of wearing the respirator in normal air;
- Wearing the respirator in a test atmosphere, for negative pressure respirators ;
- Instruction in the nature of the hazard, whether acute, chronic, or both, and potential health effects;
- Explanation of why other methods of controlling air contaminant exposure, (e.g. exhaust ventilation) are not immediately feasible; this should include recognition that every reasonable effort is being made to reduce or eliminate the need for respirators;
- Discussion of why this is the proper type of respirator for a particular purpose;
- Discussion of the respirator's capabilities and limitations;
- Instruction, training and actual use of the respirator (especially one for emergency use), and close, frequent supervision to ensure that it continues to be used properly;
- Storage procedures;
- Basic program - availability of and access to respiratory protection equipment;
- Classroom and field training to recognize and cope with emergency situations; and
- Instruction to leave the area of respirator use to wash up, change cartridges, or if breakthrough/breathing resistance is detected.

Supervisors shall receive training on the basic elements of the respiratory protection program and their responsibilities within the program

E. Documentation

The following aspects of the Respiratory Protection Program should be documented in writing:

a. Safety Department Authorization for respirator use.
b. Medical authorization to use respirator.
c. Annual Fit testing records.
d. Type of respirator assigned to each employee (model, brand, etc.).

e. Annual Training Records.
f. Voluntary Use of a Disposable Respirator Form:

CUPERTINO ELECTRIC INC.

Voluntary Use of a Disposable Respirator

Name: _____ **Date:** _____ **Project:** _____

I am requesting the use of a disposable filtering face piece (also known as a dust mask) for my personal comfort. Cupertino Electric has indicated that there are no tasks that I will be performing that requires the use of a respirator. If I have any concerns or questions regarding any potential hazards I can stop work and get clarification from my foreman or safety rep at any time.

If at any time I am assigned a task that requires the use of a respirator, I will be enrolled in Cupertino Electric's respiratory protection program and trained, medically cleared and fit tested for the appropriate respirator.

Appendix D to Section 5144 (Cal-OSHA)/29 CFR 1910.134 (Federal OSHA): (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designated to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

I _____, hereby acknowledge that I have read, understand and been given the opportunity to ask questions regarding the provisions of Appendix D to Section 5144.

_____ _____

Signature **Date**

References: 29 CFR 1910.134 and CCR Title 8, Subchapter 7. General Industry Safety Orders; Group 16. Control of Hazardous Substances; Article 107. Dusts, Fumes, Mists, Vapors and Gases; §5144. Respiratory Protection.

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G. Self Audit of the Program

A review of the Program should be performed at least annually by the Safety Department.

5. Responsibilities

A. Employees

- Use the respirator correctly in accordance with the training.
- Maintain all non-disposable respirators by cleaning after each use, and storing in designated location.
- Review and sign the Voluntary Use of a Disposable Respirator form if a disposable filtering face piece (dust mask) is desired for personal comfort.
- Report problems to supervisor.
- Maintain clean shaven face in areas where the face piece seals.
- If cartridge respirator, replace cartridges in accordance with instructions. Dispose of used cartridge properly.
- Inspect the respirator and perform the applicable pressure fit tests each time before using the respirator.
- Attend training

B. Foreman/General Foreman

- Initiate PPE hazard assessment (see PPE Program) and selection of respirators. Contact Safety Department to review hazard assessment and authorize respirator use.
- Document jobsite tasks requiring respiratory protection.
- Schedule employees for annual training, medical exam and fit testing.
- Ensure that employees do not use respirators before successfully completing the steps in the previous line item.
- Identify areas for storage of respiratory protection.
- Perform self-audit on periodic basis.
- Attend training
- Ensure employees review and sign the Voluntary Use of a Disposable Respirator form prior to the issuance of a disposable filtering face piece (dust mask) for personal comfort.

C. Superintendent

- Verify that a Respiratory Protection Program has been established for jobsites requiring the use of respirators.
- Verify that employees using disposable filtering face pieces (dust masks) for personal comfort have completed the Voluntary Use of a Disposable Respirator form.

D. Safety Department

- Provide assistance in setting up a Respiratory Protection Program including the proper selection, use of respirators and in the establishment of training, fit testing and maintenance programs.
- Perform PPE hazard assessments (see PPE Program) for all operations requiring respiratory protection.
- Document the selection of the respirator based upon the hazards and the work environment.
- Coordinate the medical exams for each user of respirators.
- Perform yearly inspections to verify that an effective Program is in place. Review shall include interviews with a subset of respirator users regarding fit, selection, use, and maintenance to evaluate Program effectiveness. The Corporate Safety Manager has been identified as the Program Administrator.
- Keep copies of respirator authorization, medical clearance, fit testing, and training documentation for users in employee file in accordance with 29CFR 1910.1020.

6. Review History

Date of Review	Reviewer	Changes Made
May 7, 2008	Patricia Davis	Updated Scope to clarify that voluntary respirator use is not included in the full scope of this program.
April 20, 2010	Patricia Becker	Added information on the use of mouthbit escape respirators.
March 16, 2016	Patricia Becker	Added a copy of the Voluntary Use of a Disposable Respirator Form. Added roles and responsibilities for the Voluntary Use of Disposable Respirator Form. Changed Program Administrator.

1.0 PURPOSE

The purpose of this program is to establish minimum requirements for protecting employees from wildfire smoke hazards in the workplace in compliance with Title 8 Cal. Code of Regulations 5141.1, Protection from Wildfire Smoke.

2.0 SCOPE

This section applies to all Cupertino Electric employees in workplaces where:

- The current Air Quality Index (AQI) for PM2.5 is 151 or greater, regardless of the AQI for other pollutants; and
- CEI should "reasonably anticipate" that our employees may be exposed to wildfire smoke.

The following workplaces and operations are exempt from this section:

- Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and that CEI project leadership ensures that windows, doors, bays, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.
- Enclosed vehicles in which the air is filtered by a cabin air filter, ensuring that windows, doors, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.
- Employees exposed to a current AQI for PM2.5 of 151 or greater for a total of one hour or less during a shift.

3.0 DEFINITIONS

Term	Description
Air Quality Index (AQI)	The AQI is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. AQI chart included in this document
N95	An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles.
Medical Evaluation	A Medical Evaluation is required to wear a respirator. See CEI Respirator Program for details.
PM 2.5	Particulate Matter of 2.5 micrometers in diameter or smaller which can be inhaled.
Particulate Matter (PM)	A mixture of solid particles and liquid droplets found in the air that may large enough to be seen with the naked eye.

4.0 ROLES & RESPONSIBILITIES

- **Management:**
  - Ensure all employees are trained and knowledgeable in the requirements detailed in this policy.
  - Corporate Safety is responsible for reviewing and updating this program
  - Shall make the written Protection from Wildfire Smoke program available, upon request, to employees, their designated representatives, Cal/OSHA.
- **Supervision (Superintendent, Foreman):**
  - Responsible for understanding and implementing this policy when AQI levels for PM2.5 is **151 or greater.**
  - FM must receive determination on whether to Stop Work or proceed with working under this policy.
  - Must determine employee exposure to PM-2.5 before each shift and periodically thereafter.
  - The current AQI for PM 2.5 can most easily be obtained by going to, https://www.airnow.gov in the state of California or by the **EPA AirNow** app located in the Apple App store.
  - Ensure employees are trained as described in section 6.0 Training.
  - Encouraging employees to inform supervisors of:

    (A) Worsening air quality; and

    (B) Any adverse symptoms that may be the result of wildfire smoke exposure such as asthma attacks, difficulty breathing, and chest pain.

- **Employees/Subcontractors:**
  - Employees and subcontractors exposed to wildfire smoke must follow the requirements in this document and take all appropriate measures to protect themselves from wildfire smoke while working.
  - Responsible for understanding and implementing this policy when AQI levels for PM2.5 is 151 or greater.
  - Ensure they are trained on how to use a respirator.
  - Responsible to don and dispose of respirators appropriately.
  - Required to notify supervisor immediately if any issues occur while wearing a respirator.

5.0 PROCEDURE

- Supervisors are required to:
  - Determine daily, before each shift or upon notification of a wildland fire, if there is potential for employee exposure to PM2.5 for worksites covered by this

section.

- Check AQI forecasts and the current AQI for PM2.5 from any of the following: U.S. EPA AirNow website, U.S. Forest Service Wildland Air Quality Response Program website, California Air Resources Board website, local air pollution control district website, or local air quality management district website; or
- Obtain AQI forecasts and the current AQI for PM2.5 directly from the EPA, California Air Resources Board, local air pollution control district, or local air quality management district by telephone, email, text, or other effective method; or
- Measure PM2.5 levels at the worksite and convert the PM2.5 levels to the corresponding AQI in accordance with Appendix A.
- Utilize engineering controls whenever feasible (for example, using a filtered ventilation system in indoor work areas)
- Utilize administrative controls if practicable (for example, limiting the time that employees work outdoors)
- Ensure approved respiratory protective equipment is provided for employees as required in this document.

6.0 TRAINING

Training shall be provided to employees on hazards of wildfire smoke, how to obtain the exposure information and means of mitigation including **suspension of work in areas with a concentration AQI of 500 or greater.**

- **Training**

  Employees shall be trained in the health hazards associated with wildfire smoke as well as the measures they can take to protect themselves from these hazards, including:

  a. Specific procedures CEI has implemented to protect employees from exposure to wildfire smoke, which include:

  - Appropriate work practices
  - Emergency procedures and
  - Personal protective equipment to be used

  b. Employees shall be trained in the details of the hazard communication program developed by CEI, including:

  - An explanation of the hazards from wildfire smoke.
  - How employees can obtain and use the appropriate hazard information.

  c. CEI shall inform employees of their right:

  - To personally receive information regarding hazardous smoke to which they may be exposed
  - For their physician or collective bargaining agent to receive information regarding hazardous smoke to which the employee may be exposed

- Against discharge or other discrimination due to the employee's exercising their rights afforded to them under the pursuant provisions of the *Hazardous Substances Information and Training Act*
- Whenever the employer receives a new or revised safety data, the new information shall be provided to the employees. If the new information on the effects of wildfires indicates significantly increased risks to, or measures necessary to protect, employee health as compared to those stated on a previously provided training material, it will be provided to the employees not to exceed 30 days after receipt

7.0 ADDITIONAL INFORMATION

- Obtain NIOSH approved N95 Respirators
- N-99, N-100, R-95, P-95, P-99 or P-100 Respirators are also approved if N95's become unavailable
- AQI in work area link: https://airnow.gov/
- **If the AQI reaches 500, work shall be suspended immediately or relocated to an area of lower AQI**

AQI Rating and Health Concern Chart

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
When the AQI is in this range:	*..air quality conditions are:*	*...as symbolized by this color:*
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Documents & External References

- **Cal-OSHA 5144 Respiratory Protection** https://www.dir.ca.gov/title8/5144.html
- **Cal-OSHA 5141.1 Protection from Wildfire Smoke** https://www.dir.ca.gov/Title8/5141_1.html
- **OSHA** https://www.osha.gov/video/respiratory_protection/voluntaryuse_transcript.html
- **Air Now** https://www.airnow.gov
- https://ohsonline.com/Articles/2011/05/01/Voluntary-Use-of-Respirators.aspx
- https://hrwatchdog.calchamber.com/2019/08/california-emergency-wildfire-smoke-regulation-now-in-effect/

8.0 RECORDKEEPING

Documentation of safety and health training required by CCR 5194 subsection (a)(7) for each employee, including:

- Employee name or other types of identifiers,
- Training dates,
- Type(s) of training, and
- Trainer information

This documentation shall be maintained for at least one (1) year.