



# RTD FasTracks Construction Safety Guidelines

Corridor Projects ▪ Version 1.0 ▪ May 2008



*Regional Transportation District*

## Statement of Safety Policy

It is the policy of the Regional Transportation District to maintain a safe working environment for all District employees, contractor employees and the public.

The active support of and participation in the safety program by all RTD personnel, consultants, contractors, subcontractors and work force is mandatory. The RTD FasTracks Construction Safety Guidelines is one of RTD's construction documents and noncompliance with safety specifications will be treated the same as noncompliance with any contract item. The RTD FasTracks Construction Safety Guidelines does not take the place of the applicable OSHA, Federal, State, or Local safety regulations. The contractors and subcontractors are responsible for compliance with all applicable regulations.

Workers on all projects are expected to maintain safe work practices, observe known and posted safety rules, and conduct themselves in a manner which will not place themselves, fellow employees or the public in danger.

A job must never become so routine or urgent that safety precautions are ignored. The prevention of accidents, injury and damage to property hold equal priority to efficient production. Therefore, safety must remain a priority in the minds of every employee.

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## 1.0 Scope And Application

RTD is committed to jobsite safety and our intention is to ensure that the safest possible working conditions are provided for all workers and visitors. This will be achieved through the implementation of these safety guidelines and all contractor's and subcontractor's safety programs. By promoting jobsite safety, incidents that increase cost to the project and suffering to the workers, will be eliminated or reduced. It is our belief that with complete cooperation and compliance from all contractors, subcontractors and workers, these safety programs and guidelines will continue to achieve commendable results.

Contractors are required to assure that all employees, subcontractors, and their suppliers or vendors, (while on the work site and in the conduct of RTD business), comply with the provisions, rules and policies within these guidelines. Only RTD has the authority to waive any specific requirements.

Project managers, superintendents, assistant superintendents, safety coordinators, and foreman are the key individuals for implementing and maintaining an effective safety program.

It is the responsibility of each of these individuals to ensure the men and women working under their control are maintaining safe work areas, and are performing their task in a safe manner. It is also the primary responsibility of each worker to follow every precaution and safety rule in order to protect themselves and their fellow workers. All contractors/subcontractors are required to know and follow the contents of these safety guidelines and their corporate safety program. Training and educating of workers and/or visitors, as to the contents of these programs is required. Documentation of this training, and all training, is the responsibility of the contractor and subcontractor and proof of the training shall be submitted to the Project Superintendent.

As the CM/GC of this project, Denver Transit Construction Group (DTCG), will ensure the implementation and monitoring of contractor's and subcontractor's safety programs to ensure all contractors and subcontractors strive to comply with all applicable rules, regulations and laws as well as the RTD FasTracks Construction Safety Guidelines, by providing a safe workplace for ALL workers, at all times.

Contractors and subcontractors are solely responsible for the safety of their workers and/or visitors, as required by the RTD Construction Safety Guidelines, their corporate safety program, OSHA 29 CFR 1926 Safety Standards for the Construction Industry and all other local, state, and federally recognized current standards and codes.

All contractors and subcontractors will be expected to familiarize themselves with the contents applicable to their operations. The provisions of the RTD FasTracks Construction Safety Guidelines and contractors safety manual will be strictly

enforced. Noncompliance with safety will be treated the same as noncompliance with any contract provision. As a result of unsafe work practices, noncompliance with the RTD Construction Safety Guidelines, or noncompliance with OSHA regulations, the RTD safety manager shall maintain authority to suspend part, or all work activities (at the CONTRACTOR'S EXPENSE) until suitable corrective action takes place.

In the event a situation arises whereby a site practice is not covered in this program, contractor program, or subcontractors program, the most applicable and stringent safety standard shall apply. Using the OSHA standards as a minimum. The Occupational Safety and Health Act, as well as future revisions or additions are required to be followed on all contract work. These regulations are MINIMUM standards.

Revisions to the RTD FasTracks Construction Safety Guidelines will be made as needed or required. Any changes made will be subject to the approval of the RTD Safety Manager and RTD project manager.

Should any question arise regarding the requirements of the RTD FasTracks Construction Safety Guidelines, Federal, State, or local regulations, the governing requirement will be determined by RTD's safety manager.

## 2.0 Project Safety Goals and Objectives

The following are the objectives of the accident prevention program:

- To achieve an injury free, or minimal injury experience for the project,
- To achieve maximum property conservation,
- To reduce direct and indirect costs.

Accomplishing the above objectives will provide for:

- A greater efficiency as a result of a safer working environment,
- A reduction of the construction work interruptions which develop when unsafe environments are created and when accidents occur.

Effectiveness of the Accident Prevention Program depends on the comprehensive participation and cooperation extended by all participants in support of the basic requirements listed below.

The contractor's authorized representative shall be informed immediately of any recognized factors or problems related to safety, which may have an impact on the effectiveness of the Project's Accident Prevention Program.

### 2-1. *The major accident prevention requirements are:*

- A. Initiation and maintenance of programs, plans, training, etc. as necessary to comply with the requirements of this manual, and applicable Federal, State and Local standards.
- B. Allocating manpower, as required, to provide professional safety personnel on site.
- C. Planning and coordinating all work to avoid personal injury, property damage and loss of productive time.
- D. Establishing and maintaining a system for prompt detection, reporting and correction or control of unsafe practices and unsafe conditions.
- E. Assuring the availability of and enforcing the use of appropriate personal protective equipment (PPE).
- F. Establishing and maintaining an effective and comprehensive system of tool and equipment inspection and maintenance. This system will include records required by applicable regulations or internal directives. The tool and equipment inspection and maintenance program shall include all employee-owned items brought onto the work site.

- G. The contractor will establish and support an educational and job skill training program designed to foster and maintain accident prevention knowledge and cooperation at all levels of employment by:
  - 1. Providing for new employee orientations,
  - 2. Conducting targeted subject safety meetings,
  - 3. Posting adequate safety requirements for all operations,
  - 4. Maintain a list of adequately trained employees authorized to operate specific equipment, and
  - 5. Investigating all accidents to determine cause(s) and taking prompt, reasonable and prudent necessary action to eliminate or control responsible factors.
- H. Providing visitor control and hazard protection and work site security.
- I. Establishment and maintenance of a first aid and/or medical facility.
- J. Controlling the safe placement of materials or equipment received, or used, consistent with established traffic control patterns and progression of construction on the work site.
- K. Providing maintenance of traffic control plans and procedures consistent with the work to be performed in accordance with the contract documents.
- L. Providing work site fire prevention and protection in coordination with local authorities and applicable standards.
- M. Establishment and maintenance of an effective program in accordance with Federal, State, and Local regulations for the storage, use and disposal of hazard substances, materials and waste.

**2-2. RTD'S Project Manager will:**

- A. Receive from the contractor an Accident Prevention Program within 30 days after receipt of a Notice of Contract award.
- B. Verify that the contractor plans and executes the work in compliance with the stated objectives of their Accident Prevention Program, the RTD FasTracks Construction Safety Guidelines and applicable regulations.
- C. Schedule and preside at safety meetings to be held monthly at which appropriate supervisory staff of the contractor and subcontractors will be required to attend.



- D. Authorize work site inspections by RTD Systems Safety and Environmental Compliance (SSEC) personnel or other RTD representatives, to ensure contractor compliance with the RTD FasTracks Safety Guidelines, OSHA regulations, and safe work practices.
- E. Authorize prompt remedial action to correct substandard or illegal safety and/or health conditions reported or observed by RTD SSEC or other representatives.
- F. Verify that the contractor has adequate fire prevention and protection equipment maintained in ready-operating status at all times.
- G. Verify that the contractor has temporary lighting and power systems during the construction phase set up and utilized in such a manner as to reduce hazards to a minimum.
- H. Ascertain that trained first aid personnel are available and certified for their work.
- I. Verify that good housekeeping procedures are maintained at all times by the contractor and subcontractor.
- J. Establish procedures for the reporting of all fire incidents or damages as stated herein.
- K. Instruction on how to establish an identification program for all employees at the work site.
- L. Verify that the contractor reports all accidents immediately, as required by this manual, contract requirements and all Federal, State and Local regulations.
- M. Instruct the contractor that employee access to unauthorized or restricted areas on RTD property requires the contractor to provide prior notification to, and receive authorization from RTD.

## 3.0 Contractor Safety Qualifications

### 3-1. *Scope and Application*

The goal is to evaluate a contractor's and subcontractor's statistical safety data, written safety programs, and current safety activities in order to determine the level of safety performance that can be expected if awarded work on the RTD FasTracks project.

The RTD management team shall evaluate the safety information submitted by the contractor's and the contractor's subcontractor's at all tiers.

All contractors are responsible for collecting and evaluating the safety information of tiered subcontractors and submitting it to RTD management at least two weeks prior to the start of work. If warranted, a copy of the required evaluation paper work will be forwarded to the insurance carrier(s) at the request of RTD management.

The following terms are utilized in the qualification process:

- A. Experience Modification Rate (EMR) - This rating is available from the contractor's worker compensation carrier or their insurance broker; it is determined by the frequency, costs, and severity of incidents.
- B. OSHA Lost Time Incident Rate- The number of Incidents that involve a contractor worker receiving a work related injury that does not allow the worker to return to work (based on the restriction of work by the attending physician) on their next regularly scheduled work shift per 200,000 work hours.
- C. OSHA Recordable Incident Rate- The number of Incidents that involve a contractor worker receiving a work related injury that results in loss of consciousness, restriction of work or motion, transfer to another job, or requiring medical treatment considered beyond that of first aid per 200,000 work hours.
- D. Additional Information- Any additional safety information or loss records as deemed necessary to properly evaluate a contractor or subcontractor. Additional information may include, but not be limited to: insurance companies loss/claim reports and inspection reports, loss ratios, NCCI worksheets, OSHA inspections and citations, OSHA 300 logs, etc. A minimum of 3 to 5 years data can be requested.

### 3-2. *Procedures*

Before considering a contractor for work on the RTD FasTracks project and awarding a contract, RTD shall request the contractor to complete the RTD

Prequalification Form and submit it along with any other requested safety information to their attention.

Contractors will also be responsible for their subcontractors (at all tiers) submitting a Subcontractor Safety Prequalification Forms, along with all attachments, for evaluation and consideration.

RTD will evaluate the submitted information. If the contractor's or subcontractor's data is deemed acceptable, the contractor can be considered for work on the RTD FasTracks project.

If the contractors or subcontractors data is not acceptable (i.e.: EMR exceeds 1.0), RTD may utilize one or a combination of the following options:

- A. Request additional safety information and loss records to further evaluate the contractors or subcontractor safety record and performance,
- B. Use an alternative contractor or subcontractor,
- C. Contractor or subcontractor will develop a safety plan outlining how they will achieve an acceptable rating,
- D. Justify to top management (i.e. new technology, emergency situation, past onsite experience, positive trends in Incident rates, etc.) that despite the contractors or subcontractors safety record, they must be utilized,
- E. Only top management of RTD, with the approval of the Project Safety Manager and/or Bob Medina, may allow the contractor or subcontractor to be awarded work.

### **3-3. Contractor Responsibilities:**

- A. Submit, in writing to the project manager, an Accident Prevention Program for approval within 30 days after receipt of a Notice of Contract Award. Information shall include:
  - 1. Name ,qualifications, and a 24 hour phone number for the contractor's authorized representative who shall be devoted full time to the work site as defined by the contract general conditions.
  - 2. No work on the work site shall begin until RTD approval is given of the contractor's Site Specific Safety Program, and the contractor's authorized representative qualifications.
  - 3. In regards to furnish and install contracts, the stated approval period will commence 10 days prior to the beginning of work at the work site.

- B. In case of work activity adjacent to or near the Light Rail System, a permit must be obtained from Light Rail Central Control 48 hours before any work may begin. They may be contacted at (303) 299-3480.
- C. Substantiate, in writing, to the project manager that the contractor's authorized representative possesses at least two years of construction safety experience in a managerial supervisory capacity related to the work contemplated under this contract.
- D. Not relinquish or defer responsibility for project safety on the work site for his own or subcontractor's employees at any time, under any circumstances.
- E. After approval of the contractor's authorized representative, the contractor, his authorized representative and the project manager will be required to attend a meeting with the staff of SSEC and RTD. At that time, a formal presentation and discussion of the Accident Prevention Program will be conducted.
- F. Follow all of the requirements and procedures of the RTD FasTracks Project Safety Guidelines Program, ROCIP Insurance Program Manual and contract documents.
- G. Promptly provide the project manager with a detailed written submission of the safety and/or health hazards unique to his work and a detailed program to control all such hazards (Pre-shift Job Hazard Analysis). Any such program must be consistent with the Corporate Safety Program and conform in all respects to legal and safety requirements, including those of OSHA, and other applicable Federal, State and Local regulations. All such programs must be approved by the project manager prior to the commencement of work.
- H. Require each new hire/employee be oriented by the contractor on the safety rules, procedures and requirements established for the work tasks to be performed. Tool-box safety meetings are not an acceptable substitute for new employee orientation. The name of the employee, company name, orientation date and badge (sticker) number, shall be on record at the work site and available for review by the RTD.
- I. Provide an overall traffic control plan for pedestrians, vehicular traffic and construction operations; and establish a general visitor control program. All jobsite visitors/vendors will sign a "General Release - Visitors" form prior to accessing the project.
- J. Set up and implement a program to protect persons and property in the event of emergencies.

- K. Complete supervisory investigation report of all injuries/incidents and submit one copy to the project manager and one copy to the RTD safety manager.
- L. Require supervisory employees (foreman) to attend the CM/GC's weekly subcontractor's meeting. Safety will be included as part of meeting.
- M. Weekly "tool-box" safety sessions will be held by the job supervisor for all employees. A record, including date, employee attendance and subjects covered shall be kept of these meetings for the duration of the construction project. The project manager shall coordinate the time and location of the scheduled meetings (usually Monday's).
- N. Ensure that supervisory employees at all levels have a good working knowledge of applicable safety standards as they pertain to their areas of supervisory control and encourage all supervisory personnel and employees to improve their accident prevention awareness.
- O. Take immediate action to correct unsafe practices and unsafe conditions. All trades and personnel are responsible for jobsite safety. Company superintendents and/or foreman have the right to stop any work activity to correct any unsafe act or condition, regardless of company, trade, or level.
- P. Establish and provide the necessary first aid facilities for treatment of employees.
- Q. Maintain a copy of the OSHA Construction Industry Standards 29 CFR 1926/1910 Site Specific Safety Programs and MSDS's at the worksite. These must be available for the contractor and employees' reference, as needed.
- R. Ensure that prior to accessing restricted areas on RTD property; the contractor has provided proper notification to, and received proper authorization from, RTD officials, via the project manager.
- S. Ensure during all times employees are at the work site that an acceptable and reliable means of communication with local emergency response personnel is available.
- T. In addition to complying with these guidelines, the contractor must comply with all applicable Federal, State and Local safety standards including the OSHA Construction Standards 29 CFR 1926/1910, the Federal Hazard Communication Act, Worker's Compensation Laws, etc., and maintain the necessary documentation, programs and/or training required by such standards.

- U. Ensure all subcontractors and subcontractors' employees comply with the requirements of the RTD Construction Safety Guidelines and applicable Federal, State and Local regulations.
- V. Comply with the current edition of the Local Municipal Building Codes unless specifically exempt, in writing, by the project manager.

## 4.0 Site Safety Responsibilities

### 4-1. *Scope and Application*

The assignment of a project safety manager and insurance loss prevention consultant personnel to monitor jobsite safety responsibilities, is not intended to relieve the contractor, subcontractor, or tiered-subcontractor of their responsibilities for providing a safe and healthy work environment for their workers. It is the sole responsibility of the contractor, subcontractors, and tiered-subcontractors on the project, to comply with all federal, state, and local safety and health guidelines and requirements, and the provisions within this governing RTD FasTracks Construction Safety Guidelines. These guidelines are to supplement and assist in their efforts for such compliance.

This section is to confirm the contractors and subcontractors safety responsibilities on the RTD FasTracks project. Outlined below are some specific safety and health responsibilities for all contractors, subcontractors, and tiered-subcontractors.

### 4-2. *Responsibilities:*

#### **Project Safety Manager**

- A. Responsible for monitoring the overall safety activities for all on site contractors and subcontractors. Responsibilities include the following:
  - 1. Assists in the design and continuity of the contractor and subcontractor safety process;
  - 2. Assist in the implementation and enforcement of all project safety programs;
  - 3. Conduct safety orientations for all new hires/employees;
  - 4. Monitor the Substance Abuse Drug Program and assist in coordinating the pre employment drug testing;
  - 5. Collect and maintain contractors and subcontractors safety information and submit to the RTD Safety Manager, as requested;
  - 6. Conduct preconstruction meetings with the contractors and subcontractors to discuss safety and insurance requirements, and review their site-specific safety plans;
  - 7. Conducts documented safety audits of the project;
  - 8. Chair the weekly safety meetings and safety coordinator meetings;
  - 9. Coordinate owner, insurance and state consultation visits;

10. Monitor claims to ensure compliance with established Return to Work procedures;
11. Provide detailed accident/incident reports, track incident statistics, and monthly presentation of statistic, goals, and corrective measures;
12. Consult with the on site ROCIP administrator to help ensure contractors and subcontractors are properly enrolled in the ROCIP Insurance Program;
13. Authorize and coordinate immediate action to correct safety deficiencies reported, or observed;
14. Authorize and coordinate safety disciplinary program (verbal, written violations, suspension and terminations) and report disciplinary information to the RTD Safety Manager, as requested;
15. Additional responsibilities may be implemented by RTD management, so as to accommodate any work changes or owner requirements.

#### **Project managers, superintendents and assistant superintendents**

- A. These individuals are responsible for the following:
  1. Assists in the design and continuity of the contractor and subcontractor safety process;
  2. Assists in the implementation and enforcement of all project safety programs;
  3. Communicates potential contractor and subcontractor created hazards to the project safety manager;
  4. Communicates potential project hazards to contractors, subcontractors, and the project safety manager;
  5. Attends Incident Review Board meetings;
  6. Conduct weekly or monthly documented safety compliance audits;
  7. Conduct monthly safety meetings;
  8. Plan and execute all work so as to comply with stated safety objectives;
  9. Comply with all the provisions of the contract dealing with all safety requirements;
  10. Cooperate with the project safety manager, owner's safety representatives, insurance loss control, and city and utilities personnel;



11. Authorize immediate action to correct safety deficiencies reported or observed.

### **Contractors & Subcontractors Safety Coordinators**

- A. The designated on-site safety coordinator will be responsible for the following:
  1. Implementation and enforcement of the RTD FasTracks Construction Safety Guidelines, their contractors Safety Program, and all their tiered subcontractors Safety Programs;
  2. Distribution of the RTD FasTracks Construction Safety Guidelines to all tiered subcontractors;
  3. Conduct all necessary safety and health training as required by CFR 1926 and the RTD FasTracks Safety Guidelines;
  4. Communicates and enforces the mandatory requirements of the RTD FasTracks Construction Safety Guidelines to their workers and all levels of subcontractors tiered workers;
  5. Collects and provides the following reports to the Project Safety Manager:
    - a. Weekly Toolbox Talks Meeting Minutes - Weekly,
    - b. Incident/Near misses investigation reports – 24 Hours,
    - c. Daily Safety Pre-Task Planning Meetings Reports – Daily or Weekly,
    - d. Industrial Hygiene monitoring results (i.e.: Noise, Air Quality, etc.) – Upon receipt,
    - e. Daily Crane Inspection Reports - Weekly,
    - f. Insurance, safety consultant, and company safety reports – Upon receipt.
  6. Maintain a master or central file (as warranted) for safety and health related documentation on the jobsite. Files shall be maintained in such a manner that distinguishes each contractor and their tiered-subcontractors from other subs & tiered-subcontractors. Recommended file information is below:
    - a. Written Safety & Loss Prevention Program,
    - b. Site specific Hazard Communication Plan and MSDS,
    - c. Site specific Crisis Management Plan,

- d. Accident Investigations and Claims Management,
  - e. Incident investigation reports,
  - f. Site Specific Hazardous Materials Management Plan,
  - g. Specific Job Hazard worker training documentation,
  - h. Equipment inspection reports,
  - i. Crane inspection reports,
  - j. Orientation training records,
  - k. Daily Safety Pre-Task Planning Meeting reports,
  - l. Designated Competent Person qualifications,
  - m. Industrial Hygiene monitoring results for Noise & Air Quality.
7. Assists the project safety manager in regards to their company and their subcontractors safety activities;
  8. Disciplines and takes corrective actions when directed by the project safety manager, or when conditions warrant such actions;
  9. The inclusion of a modified duty/return to work program;
  10. Ensures their company's workers and subcontractors workers follow all aspects of this program;
  11. Make daily safety inspections of the job site and make necessary immediate corrective action to eliminate unsafe acts and conditions;
  12. Maintain the OSHA 300 Injury and Illness Log Form Report;
  13. Review accident/incident reports and incident review board reports and initiate immediate corrective action;
  14. Provide job foreman with appropriate safety material relevant to jobsite work activities for use in conducting weekly "tool box" safety meetings;
  15. Attend foreman "tool box" safety meetings and evaluate their effectiveness;
  16. Assist in the preparation and review of the incident investigation and reporting procedures;
  17. Encourage programs for recognition of individual workers safety efforts and their contribution toward improved work procedures;

18. Be responsible for the control and availability of the necessary safety equipment, including worker's personal protective equipment;
19. Coordinate safety activities with all contractors, subcontractors, project safety manager, and the owners representatives;
20. Attend weekly safety coordinators and claims meetings for safety and health training, discussing safety issues, reviewing claims, accidents, incidents, and current work activities, etc.;
21. Attend the Preconstruction meetings to review ROCIP Safety and Insurance Requirements;
22. Conduct and document Daily Safety Pre task Planning Meetings with all workers before the start of each work shift;
23. Attend and document all safety preplanning meetings.

#### **4-3. Contractor Provision of Safety Coordinators**

All contractors and subcontractors on the project will designate an on site Safety Coordinator. If a subcontractor on the project has less than 50 workers on site, then they are permitted to be represented by the CM/GC's Safety Coordinator.

The recommended Safety Coordinator should be a representative of management with formal safety training in OSHA's 10 hour (contractors < 10 workers) or 30 hour (contractors > 10 workers) programs.

#### **4-4. Competent Persons**

All contractors and subcontractors on the project will designate a Competent Person as warranted by OSHA 29 CFR 1926 Safety Standards for the Construction Industry. A Competent Person Acknowledgement Form will be completed for each work area and/or competent person and submitted, along with the competent person's qualifications, prior to the start of work on the project. If there is a change in competent persons, this form must be updated and resubmitted to CM/GC's jobsite Management, prior to the new competent person accessing the jobsite.

The competent person for the contractors and subcontractors will be responsible for recognizing and correcting all safety hazards and safety compliance issues associated with the execution of their work. This person will also have the authority to stop work in the event of any safety or compliance concerns on the jobsite and will be the primary contact person for CM/GC on safety and compliance related issues.

#### **4-5. Contractors and Subcontractors Safety Information**

Contractual requirements of this project require each contractor and subcontractor to provide the CM/GC Project Safety Manager and RTD with the following information, prior to the start of work:

- A. Corporate Safety Program;
- B. Hazard Communication Program and jobsite specific MSDS's;
- C. Site Specific Fall Protection and Rescue Program;
- D. A signed copy of the "Competent Persons Acknowledgement" form with the name and qualifications of the OSHA required competent persons for scaffolding, trenching/excavating, fall protection, ladders, etc. working onsite on this project;
- E. The name and qualifications of the safety coordinator working onsite on this project;
- F. The name of OSHA 30 hour certified workers working onsite on this project;
- G. The name of emergency contacts and phone numbers working onsite on this project;
- H. The name of First Aid and CPR certified workers working onsite on this project;
- I. The name, phone number, fax number, and email address of the WC claims coordinator;
- J. A signed copy of the ROCIP Contractor Safety Agreement form;
- K. The name, phone number, fax number, and email address of the onsite and offsite manager who is responsible for implementation and enforcement of the contractor safety program;
- L. The safety process for preplanning all critical work tasks for developing detailed work plans/procedures for the successful completion of these identified critical work tasks. Critical work tasks include, but not limited to: fall protection, steel erection, decking, precast and/or pour in place concrete, scaffolding, roofing, traffic control, electrical, welding/torching, dusts/vapors/noise, large equipment, blasting, aerial lifts, trenching/excavating, cranes, confine space, or any other hazardous operations;
- M. The method by which all jobsite visitors and vendors will sign a "General Release - Visitors" form prior to accessing the project;

- N. An annual inspection certification for all cranes in conjunction with written crane operator's qualifications;
- O. Subcontractor Safety Prequalification Form and attachments.
- P. Note: Please submit forms to the project safety manager. Do NOT submit to the state. To assist in assembling safety material, a checklist can be supplied.

#### **4-6. Safety Responsibility Evaluation**

All contractors and subcontractors implementation of the RTD FasTracks Construction Safety Guidelines and contractor/subcontractors safety programs will be used in measuring safety performances and activities. Evaluation of safety and job performance on the RTD FasTracks project will be based on this evaluation and overall safety performance. Claims cost and performance including return to work efforts and thorough accident investigation efforts will be included in this evaluation.

## 5.0 Safety Meetings, Training, and Education

### 5-1. *Scope and Application*

With designated contractor and subcontractor safety coordinators managing safety and potential exposures, jobsite hazards can be eliminated and/or minimized to create a safe and healthy work environment. This environment will further be enhanced through safety meetings, training, and education of workers assigned to this project. This will include items contained in, but not limited to, the RTD Construction Safety Guidelines, the contractor's safety program, OSHA 29 CFR 1926 Standards, and pertinent OSHA 29 CFR 1910 Standards.

Contractors and subcontractors are solely responsible for all federal and/or state required safety training and certification of their personnel on this project.

### 5-2. *Training and Education Procedures*

All contractors and subcontractors are required to comply with the following meeting, training, and education program requirements. Contractors and subcontractors with Hispanic workforces are also responsible for providing an interpreter for all training sessions.

Contractors and subcontractors are strongly encouraged to implement "Transition of Empowerment" by rotating the responsibility of conducting meetings and training sessions among all workers.

#### **Weekly "Toolbox Safety" Meetings:**

- A. Contractors and subcontractors will conduct weekly "Toolbox Safety" Meetings at the jobsite for all workers to increase safety awareness on this project. The safety topics for these meetings must relate to the work that is underway or immediately up coming.
- B. Every worker that attends these weekly toolbox safety meetings will sign their signature documenting attendance.
- C. A copy of the weekly toolbox safety meeting minutes with signatures will be forwarded to the project safety manager within 5 days of conducting the meeting.
- D. Subcontractor's workers may attend the contractor's weekly toolbox safety meeting if a separate list of signatures identifying the subcontractor workers is maintained.

**Daily Safety Pre-task Planning Meetings:**

- A. Contractors and subcontractors are required to conduct “Daily Safety Pre-task Planning” meetings with all workers at the beginning of each work shift to discuss safety and upcoming daily work activities (i.e.: specific work task, equipment to be utilized, hazards associated with the work tasks, safety procedures, etc.).
- B. All meetings will be documented on the “Daily Safety Pre-task Planning” meeting form and submitted to the Project Safety Manager on a daily or weekly basis. See attachments.
- C. The original “Daily Safety Pre-Task Planning Meeting” form with workers signatures must be submitted. Photocopies of the form with copied signatures or computer print out of workers names is prohibited.

**Jobsite Safety Orientations:**

- A. Contractors and subcontractors are responsible for ensuring that all workers assigned to this project attend the jobsite safety orientation provided by CM/GC’s project safety manager. No workers will be permitted to work onsite until the safety orientation has been successfully completed. See Appendix 48.5 for Orientation Form.
- B. The jobsite safety orientation program will contain the following:
  - 1. Site Specific Safety requirements
  - 2. RTD FasTracks On-Track Safety Training
  - 3. ROCIP Project Safety Orientation Form
  - 4. Reviewing the following policies and procedures:
    - a. Accident/Incident reporting procedures.
    - b. Medical provider information
    - c. PPE policies
    - d. Safety aspects of the particular job/operation being performed
    - e. Lifting/Material Handling techniques
    - f. Fall protection policy
    - g. Drug & alcohol policy
    - h. Return to Work Program
    - i. Jobsite Disciplinary Procedures

Note: Policies and procedures reviewed at the safety orientation may be expanded/modified as warranted.

### **OSHA 10 Hour Training:**

- A. As stipulated in the contract, all contractors and subcontractors will have onsite workers who have completed the OSHA 10 hour training program. If training has not been completed, then contractors and subcontractors worker(s) must be enrolled and work towards completion of the training program before project and/or contract termination. Upon completion, an OSHA refresher course must be completed every 3 years to maintain certification.
- B. Outside OSHA 10 hour training programs and certifications will be accepted if approved by the Project Safety Manager. However, training and certifications must be less than 3 years old. If older than 3 years, then retraining and recertification is required.

### **Safety Preplanning Meetings:**

- A. All contractors and subcontractors will be responsible for participating in a formal Safety Preplanning Meeting prior to the start of all work activities involving the following exposures. Contractors and subcontractors are responsible and accountable for contacting CM/GC representatives, Project Safety Manager, arranging a date and time for the meeting, etc..
- B. All Safety Preplanning Meetings will be documented and maintained on file.
- C. Attendance at the meetings should include the contractor and subcontractor superintendent, foreman, and safety coordinator, superintendent, assistant superintendent, and/or field engineer, and the project safety manager.
- D. The following exposures mandate Safety Preplanning Meetings:
  - 1. Fall Exposures
  - 2. Concrete Forming
  - 3. Trenching
  - 4. Noise
  - 5. Scaffolding
  - 6. Welding/Torching
  - 7. Aerial Lifts



8. Blasting
9. Dust/Vapors
10. Confine Spaces
11. Traffic Control
12. Overhead and Underground Utilities
13. Cranes (Set up, location, critical lifts, operator qualification, etc)
14. Electrical
15. Equipment/Vehicles
16. Masonry
17. Demolition
18. Storage Tanks
19. Steel Erection
20. Painting/Sealing
21. Any work activities which represent a serious work exposure to contractors, subcontractors, general public, etc

**Preconstruction Meeting- Project Safety Requirements:**

- A. Prior to the start of work on the project, contractors along with their subcontractors will meet with the project safety manager or another CM/GC representative to review ROCIP safety requirements for the project. Attendance at the meeting should include the contractors and subcontractors onsite and/or offsite field/office management staff, safety director, and their designated safety coordinator.

## 6.0 Emergency Procedures

### 6-1. *Scope and Application*

For the purpose of accident prevention and loss control, an emergency is any situation that poses an immediate threat to life (workers, visitors, general public) or property. This would include, but not be limited to, collapse of a building or a portion thereof, fire, explosion, flooding, equipment failure (i.e.: collapse of a crane), release of toxic gases, dusts, fumes, smoke, fire, natural gas, etc, or any other occurrences requiring the response of the local fire department or reporting to the Environmental Protection Agency.

In order to facilitate a prompt and orderly response to jobsite emergencies, all contractors and subcontractors shall comply with the emergency procedures outlined in this program. These emergency procedures are designed to guide contractors and subcontractors in minimizing the impact of jobsite emergencies in regards to safety of the workers, safety of the general public, and/or property damage.

### 6-2. *Emergency Contact List – Contractor and Subcontractor*

To maintain effective communication in the event of an emergency, a list of “key” onsite and corporate office personnel (with phone numbers) will be developed by each contractor and subcontractor. This list of primary contacts will be submitted to the RTD management team (i.e., project superintendent, project safety manager) prior to commencing work on the project. The contractor and all other participants in the program shall instruct their employees and all other concerned personnel in the following procedures to be used if an employee is injured.

### 6-3. *Reporting an Emergency*

In the event of an emergency, immediately contact the Project Safety Manager or Project Superintendents to report the emergency.

- A. Project Superintendent: Corey Abourezk – DTCG Project Superintendent 303-435-7163
- B. Project Safety Manager: George Brathwaite – DTCG Safety Manager – 303-238-2240

Be prepared to report the following information:

- A. Type of Emergency
- B. Severity of the Emergency
- C. Location of the Emergency

See Section 47.0 Crisis Management for more information.

#### **6-4. Injuries and Illnesses**

In the event a worker is injured on the job, which requires first aid, medical, or emergency medical treatment, the following procedures are to be followed.

#### **6-5. First Aid**

All contractors and subcontractors are responsible for any on site first aid treatments rendered to their workers by a certified first aid responder. On site first aid treatment is defined as minor injuries requiring no off premises medical treatment.

All contractors and subcontractors will maintain their first aid kits in accordance with Federal OSHA Regulations 1926.50 and 1926.50 Appendix A Standards.

All first aid treatments are to be documented on a "Jobsite First-Aid Log" (or daily construction activity log) maintained by the contractor or subcontractor rendering treatment. See attachment.

#### **6-6. Medical Treatment**

For treatment of minor injuries, the employee and their supervisor are required to report to one of the two designated medical clinics, as outlined in the ROCIP manual. The choice between these two clinics is the employee's to make. See the ROCIP manual for guidance.

For after hour's medical treatment, the medical facility outlined in the ROCIP manual should be contacted.

Serious injuries resulting in off premises medical treatment should be handled at the hospital emergency room, as outlined in the Emergency Telephone Numbers Section.

The contractors' or subcontractor's injured workers immediate foreman or supervisor will provide transportation and escort the injured worker to the designated medical clinic or hospital (after hours) for all minor injuries. In event that a worker is seriously injured the supervisor will meet the EMS transport at the hospital and will not attempt to transport the injured worker. Injured workers are prohibited from driving themselves to the medical clinic or hospital emergency room for initial treatment. However, treating workers are permitted to drive themselves to follow-up visits.

NOTE: The RTD Safety Manager is to be notified prior to any employee leaving the jobsite for medical treatment. The designated medical clinic will be notified of the injury, thus granting authorization for proper medical care.

### **6-7. Emergency Medical Treatment**

Serious, life-threatening injuries will result in the immediate assistance of emergency medical technicians (EMTs) or other emergency personnel by calling 911. Time permitting this emergency call is to be made by one of the following: project superintendents, project safety manager, contractors or subcontractors management representative. Information provided to emergency personnel should include:

- A. Type of injury
- B. Severity of the injury
- C. Location of the injured worker
- D. Closest route for emergency vehicles and access

Prior to arrival of the EMT, or other emergency personnel, the contractor or subcontractor will initiate the following steps:

- A. Designate personnel to escort/direct emergency vehicles from the gate to the injured workers location.
- B. Have available necessary equipment to expedite the rescue of the injured worker.

In case of a fatality, or five or more employees are seriously injured in the same accident, the contractor's authorized representative shall conduct the following:

- A. Cease work IMMEDIATELY and notify the project manager and RTD safety manager. Work may begin once a preliminary investigation is conducted by the contractor and the RTD safety manager and the site is determined safe.
- B. Notify the office of the OSHA Area Director in accordance with OSHA requirements.

The employer of any injured employee shall be required to complete the Notice of Injury Form, as required by state of Colorado Worker's Compensation Division.

The supervisor of the injured employee shall fill out the Supervisor's Report of Accident and make it and the Notice of Injury report available to the project manager and the RTD safety manager.

All participants in this ROCIP Program shall cooperate fully in the investigation of any accident and/or occurrence.

The contractor and other participants in the Accident Prevention Program shall instruct employees (and all other concerned personnel) of the procedures to follow for loss or damage to property of others, including damage to equipment or tools, at the work site.

See Section 47.0 Crisis Management for more information.

#### **6-8. Severe Weather**

Weather conditions will be monitored by the CM/GC by utilizing local weather stations, monitoring daily weather reports on the internet (i.e., weather.com), and other reliable sources of weather reports (i.e., weather channel radio).

Contractors and subcontractors will also be responsible for monitoring all weather conditions on the jobsite. Methods for monitoring weather conditions by contractors and subcontractors will be at their discretion.

#### **Tornado, Thunderstorms/Lightning, High Winds**

- A. In the event of severe weather, immediate evacuation of the workers on the jobsite to designated shelter locations will be by the following method.
- B. Workers will be verbally instructed by jobsite personnel to take shelter.

Should time permit, the following steps should be taken to prepare the jobsite for severe weather.

- A. Secure all loose material (i.e.: plywood, decking, foam board, tarpaulins, etc.) on the ground and in the buildings that may become airborne.
- B. Crane booms should be lowered, secured by cables, or permitted to weathervane (i.e.: free swing).
- C. Free standing or unsecured walls or form panels should be properly braced.

Note: If weathervane is chosen, check to assure that swinging booms will not come in contact with other objects (i.e.: power lines, building structures, tower cranes, etc.).

#### **6-9. Fire**

In the event an “out of control” fire is detected on the jobsite, the following procedures will be implemented immediately.

- A. Workers will be instructed by jobsite personnel to evacuate the building and meet in designated assembly areas.

- B. 911 will be called by one of the following: project superintendents, Project safety manager, or the contractors/subcontractors management representatives.

Information provided to emergency personnel should include:

- A. Type of emergency
- B. Severity of the fire
- C. Location of the fire
- D. Closest gate for emergency vehicles
  - 1. Prior to the arrival of emergency equipment, the contractor or subcontractor will initiate the following step:
  - 2. Designate personnel to escort/direct emergency vehicles from the gate to the location of the fire.

### **Incipient Fires**

Contractors and subcontractors workers may be permitted to extinguish incipient fires if the worker meets the following criteria.

- A. The worker is trained and qualified to recognize fire hazards and use portable fire extinguishers, fire hoses, or other fire fighting equipment.
- B. A safe attempt can be made without endangering the life of the worker or other workers.

### **6-10. Bomb Threats**

In the event a worker should receive a bomb threat over the phone or discover a suspicious looking object, the following procedures will be implemented immediately.

#### **Phone Call**

- A. The worker should remain calm and obtain information.
- B. The worker will immediately contact their foreman or supervisor.
- C. The foreman or supervisor will immediately contact the project superintendents and project safety manager.
- D. Evacuate all workers and keep the area clear for authorities.
- E. Notify the proper authorities while evacuating workers.

#### **Suspicious Looking Objects**

- A. DO NOT TOUCH THE OBJECT!

- B. The worker will immediately contact their foreman or supervisor.
- C. The foreman or supervisor will immediately contact the project superintendents and project safety manager.
- D. Evacuate all workers and keep the area clear for authorities.
- E. Notify the proper authorities while evacuating workers.

#### **6-11. Property Damage**

In the event of property damage, all contractors and subcontractors will immediately notify the project superintendents or project safety manager of the damage.

When reporting property damage, be prepared to report the following information:

- A. Type of property damage
- B. Severity of the property damage
- C. Location of the property damage

Contractors and subcontractors upon discovering the property damage will also assess the property damage to determine if the possibility of collapse, fire, explosion, electrical injury, or any other threatening conditions exist. If threatening conditions exist, one or a combination of the following actions will be initiated.

- A. Evacuate workers from the area.
  - 1. Keep all nonessential workers back and away from the evacuated area.
  - 2. Prohibit reentry into the area until designated safe by the project superintendents or project safety manager.

#### **6-12. Evacuations**

All contractors and subcontractors will designate shelter locations and assembly areas for emergency evacuation of work personnel upon mobilizing on the jobsite. As the project progresses, shelter locations and assembly areas are to be reviewed on a regular basis to determine if changes are warranted.

Shelter locations and assembly areas are to be posted by all contractors and subcontractors in a conspicuous location on their jobsite trailer. Should the shelter locations or assembly areas change, the new locations will be posted.

The CM/GC's shelters and assembly areas will be posted as a Safety Bulletin on the jobsite bulletin board.

All workers assigned to the jobsite will be instructed by the contractor or subcontractor on the location of all shelter locations, assembly areas, and the emergency alert systems that have been developed for the jobsite. Should work assignments, shelter locations, assembly areas, or the emergency alert system change, affected workers will be reinstructed on the changes.

Should evacuation to a designated shelter or assembly area be warranted, contractors and subcontractors will be responsible for accounting (head count) of their workers on the jobsite. All workers will remain in the shelters or assembly areas until released by the project superintendent's, project safety manager's, contractor's, or subcontractor's management representatives.

Due to changing weather conditions and jobsite exposures, all contractors and subcontractors are responsible and accountable for updating emergency evacuation plans and procedures for Tornado's, Thunderstorms/Lightning, High Winds, Fire, Bomb Threats, and Property Damage. Revising these plans and procedures will include, but not limited to, training new and reassigned workers, posting new shelter and assembly area locations, and any other safety related issues which are warranted to maintain effective communication on the jobsite.

#### **6-13. News Media**

Should a jobsite emergency occur, all contractors and subcontractors would instruct all workers to refer any news media coverage to the attention of RTD Crisis Management Department.

Under no circumstances are workers to express their opinion, volunteer "off the record" statements, state "No comment" or make any other detrimental statements which could be construed by the news media or general public as negative or negligent.

#### **6-14. Additional Considerations**

All contractors and subcontractors should know the location of all main utility shutoff valves for gas, water, and electricity in the portion of the project (building) they are working in. In the event of an emergency, the shutting down of utilities could be crucial in terms of saving lives and reducing further property damage.

In the event of a power failure on the project, all contractors and subcontractors are required to maintain an adequate supply of flashlights or other emergency lighting equipment on the project for evacuating workers from dark areas.



## 7.0 Incident Reporting and Investigation

### 7-1. *Scope and Application*

The following reporting procedures are to be followed by all contractors and subcontractors in order to ensure proper reporting and documentation of all incidents.

### 7-2. *Responsibilities*

All incidents resulting and/or involving physical injuries, property damage, general public, and near misses are to be reported at the time of occurrence to the project safety manager and/or project superintendent by the contractor or subcontractor in charge of the worker(s) involved.

Responsibilities will include completing the required incident reporting form, written statements of the worker(s) involved, witness statements, photos, diagrams, physical evidence, and other pertinent information. All investigation paperwork by the contractor or subcontractor will immediately be provided to the RTD safety manager and/or project superintendent for review. At the discretion of the RTD project safety manager and/or project superintendents, a more detailed investigation report may be requested. Upon this request, contractors or subcontractors shall immediately comply by submitting the requested information.

RTD also reserves the right to confiscate and hold at their discretion any evidence such as equipment, material, etc. involved in the incident.

### 7-3. *Incident Reporting Procedures*

The following incident reporting procedures shall be complied with by all contractors and subcontractors:

- A. The contractor and/or subcontractor safety coordinator and/or management representative will immediately notify the project safety manager and/or project superintendent within 1 hour of the incident.
- B. The incident investigation will be completed within 24 hours with proper paperwork submitted to the RTD safety manager, project safety manager and/or project superintendent.
- C. The incident investigation paperwork/process will include the following:
  1. RTD – Incident Investigation Report
  2. Written statements by the involved parties
  3. Witness statements
  4. Photos

5. Diagrams
  6. Physical evidence (i.e.: tools, material, etc.)
  7. Other pertinent information (i.e.: brochures, MSDS's, etc.)
- D. An Incident Review Board will be scheduled and conducted within 3-days of the incident as outlined by the RTD safety manger. This shall include superintendent, upper management and the involved field personnel.
  - E. In the event of a fatality, the project safety manager and/or project superintendent will contact OSHA within 8 hours of the incident. In addition, consultation with RTD management and pertinent insurance representatives is required.
  - F. All media inquiries will be referred to RTD Crisis Management Department.

## 8.0 Return to Work

### 8-1. *Scope and Application*

In order to return injured workers back to work on the RTD FasTracks project as quickly as possible, each contractor and subcontractor at every tier will comply with the requirements of this “Return to Work” program. This program has been established to provide “light duty” or “restricted duty” work for workers injured on this project and cannot perform their normal daily work duties. Outlined below are the “Return to Work” procedures for this project:

### 8-2. *Procedures*

The “return to work” policy for this project is to return all contractor and subcontractor workers to work as quickly as possible after a job-related injury or illness has occurred.

The “return to work” policy for this project will also consider “restricted duty” or “modified duty” work for workers injured off the project site, but associated with this project. Locations associated with the project need to be established and spelled out, prior to the commencement of work.

All contractors and subcontractors shall ensure that work is provided for all workers who have been released to “restricted duty” or “modified duty” by the attending physician. If work is unavailable, then the employee will be designated as a Safety Coordinator and assist in promoting safety on the jobsite.

If work is unavailable on the jobsite, then the employee will be provided with modified duty at the contractor’s office, yard, warehouse, etc.

All contractors must have the injured worker complete the “return to work agreement”. See Appendices.

If a worker is released to “restricted duty” status, the Rule- 6 Letter shall be incorporated as part of this process.

No worker released by the attending physician under “restricted duty” or “modified duty” will be placed in a lost time status without the approval of the RTD safety manager or another representative of RTD management.

All injuries and illnesses will be evaluated on a case-by-case basis by the RTD ROCIP Insurance carrier, attending physician, and the RTD safety manager or another representative of the RTD construction management.

All workers must receive a full medical release from the attending physician before resuming normal work activities.

“modified or restricted duty” is provided to the worker only for the duration which the attending physician places work activity restrictions on the worker.

No worker on “restricted duty” or “modified duty” will be allowed to work more than forty (40) hours per week.

Subcontractors are prohibited from engaging workers in work activities on the project site that are currently under medical restrictions due to an occupational injury/illness that occurred on an unrelated project.

Workers of subcontractors injured on this project, currently under the medical care of a physician who has placed the injured worker under the guide lines of a light duty or restricted work program, shall be prohibited from being terminated and/or laid off as a result of work completion, work slow down, etc. until such time the worker is released for full duty by the attending physician.

Failure to implement this policy will result in disciplinary action, as outlined in the RTD FasTracks Construction Safety Guidelines.

## 9.0 Incident Review Board

### 9-1. *Scope and Application*

The Incident Review Board meeting will serve two basic purposes: first acting as an organized and documented process for the contractor and subcontractors to present to RTD the facts surrounding an incident, second as a process for the corrective actions developed by the contractor and subcontractors to prevent a similar type of incident.

The CM/GC's safety manager and/or project superintendent will be directly responsible for scheduling and facilitating the Incident Review Board meeting within 3 days of the incident.

The RTD safety manager will have full discretion to involve any personnel or management from the contractor or subcontractor during an incident review board meeting.

Contractors and subcontractors are responsible for promptly investigating all incidents, identifying causal factors, and developing corrective action.

### 9-2. *Procedures*

The following procedures will be followed:

- A. Contractors and subcontractors will immediately report all incidents within 1 hour.
- B. Contractors and subcontractors will complete and submit all appropriate incident forms and paperwork within 24 hours.
- C. The Project Safety Manager and/or Project Superintendent directly responsible for the project/area where the incident took place will schedule an Incident Review Board meeting within 3 days of the incident.
- D. Attendees may include: RTD's director of safety, project safety manager, project executive(s) corporate management/superintendent/foreman, contractors and/or subcontractors management representative, insurance safety coordinator, contractor and/or subcontractor safety coordinator, affected workers, witnesses, and other designated individuals as deemed appropriate at the sole discretion of the RTD safety manager.
- E. The project safety manager and/or project manager will chair the meeting by discussing all the facts surrounding the incident and corrective measures to be taken by all parties to prevent similar incidences from reoccurring.
- F. Disciplinary action based on the facts surrounding the incident may be imposed against the contractor, subcontractor, and/or worker(s) involved.

## 10.0 Noncompliance to Safety Policies

### 10-1. *Scope and Application*

In an effort to ensure compliance with the insurance requirements, the RTD Construction Safety Guidelines for this project, Federal OSHA standards, state regulations, local laws, and contractor and subcontractor individual safety programs, RTD hereby implements this program of “noncompliance” for all contractors and subcontractors working on this project.

This program of “noncompliance” has been established to promote safety on the project with all contractors and subcontractors. It is designed to eliminate offenders, repeat offenders, and contractors and/or subcontractors who violate the requirements of this safety and insurance program.

This “noncompliance” program may be used or superseded with more severe disciplinary action based on the degree of the infraction(s). In any case, RTD reserves the right and sole authority in determining what type of discipline is initiated, up to and including removal of the worker(s), contractor(s), or subcontractor(s) from the project, in conjunction with mandatory training, reorientation or purchase of safety equipment.

For safety infractions, the following is a suggested guideline:

- A. 1st offense: Verbal warning is given to the offender. Reorientation will be required, training or safety equipment purchase may be required at the discretion of the RTD safety manager.
- B. 2nd offense: Written warning is issued and the offender’s supervisor and project manager are brought into the office for a “discussion” with the general/project superintendent and/or the project executive/manager. A copy of the written warning is sent to the offending workers contractor and/or subcontractor office stating that a third offense will result in the worker being removed from the project. Reorientation will be required, training or equipment purchase may be required at the discretion of the RTD safety manager.
- C. 3rd offense: The offender is removed from the project.

**NOTE: SERIOUS SAFETY INFRACTIONS MAY RESULT IN IMMEDIATE REMOVAL OF THE WORKER (ZERO TOLERANCE) AND/OR REMOVAL OF THE WORKER’S SUPERVISOR.**

**IF REPEAT SAFETY INFRACTIONS WITH OTHER CREW MEMBERS OCCUR, THE SUPERVISOR OF SAID OFFENDERS SHALL BE SUBJECT TO REMOVAL FROM THE PROJECT AND/OR TRAINING OR OTHER MEASURES WILL BE ISSUED.**

## **10-2. Safety Enforcement System**

To assist in our efforts to provide a safe workplace for all workers and visitors, the following options are available for application at the discretion of the project superintendent, project safety manager, RTD safety manager or any project superintendent representative. Depending on the frequency and nature of the violation any or all of these measures can be assessed per exposure, per worker, and/or per day. Category of a training or equipment purchase mandate is at the discretion of RTD and the CM/GC.

Contractors will be responsible for any requirements made of subcontractors under their direct contract.

### **A. Training or Safety Equipment Enforcement**

1. OSHA 10 hour training for an employee or group of employees.
2. OSHA 30 hour training for supervisor, supervisors or others.
3. Other: Training as deemed appropriate by the RTD safety manager or CM/GC may be assigned to any employee, group of employees, supervisors or management of any contractor or subcontractor.
4. Mandated safety equipment purchase as deemed appropriate by the RTD safety manager or CM/GC.

## **10-3. OSHA Violations and Fines**

Contractors and subcontractors responsible for OSHA jobsite inspections and/or multi-employer citations and fines, will be responsible for paying all fines and cost (i.e.: legal, personnel cost, etc.) associated with the inspection and citations. All cost associated with the inspection and citations will be charged through an invoice or a deduct change order to the contractor or subcontractor. For subcontractors, the prime contractor they are under contract with, will be charged for all fines and associated cost.

## 11.0 Visitors

### 11-1. *Scope and Application*

All visitors (i.e. tour groups, vendor representatives - i.e. suppliers, rental companies, etc.) will report to the project field office prior to entering the project site to sign a “General Release – Visitors” release form. If any individual(s) do not have justifiable business on the job site, access to the site shall be denied. Like wise, any unauthorized visitors will be immediately escorted off site.

### 11-2. *Tour and Visitors Procedures*

Requests for tours of the project site shall be carefully screened and limited in frequency and numbers of visitors. Tours of the site must be approved by RTD, CM/GC’s project manager and/or superintendent and shall be conducted during nonworking hours when possible.

The CM/GC shall establish the time and travel route for any and all tours. Work areas, which may present hazards to the tour group, shall be prohibited. The tour’s travel route shall be cleared of any tripping hazards, cleaned, and properly protected to avoid potential personal injury. A member of the RTD management team or CM/GCs designated representative shall guide the approved tours.

If minors tour the site, the minor’s parents must sign the “General Release – Visitors” release form for the minor. All tours involving minors must be approved by the project safety manager.

All visitors must wear appropriate clothing such as skirts or dresses, long pants, shirts with sleeves, hard hats, eye protection, and hard-soled leather boots/shoes when on site. No penny loafers, soft leather dress shoes, tennis shoes, or open toe/heel shoes of any type are shall be permitted on site. Any deviations from appropriate clothing must be approved by the CM/GC.

All visitors must attend a safety orientation prior to entering the project site. This orientation will be conducted by the project safety manager, CM/GC Construction Management Team member, or a designated representative. This orientation will be “visitor” specific in relation to potential hazards, restricted access areas and cover other safety related matters, not covered in these guidelines.

All contractors and subcontractors will be responsible and accountable for their visitors, vendors, supply companies, rental companies, etc. signing a “Visitors Waiver of Liability & General Release” form. At no time will contractors or subcontractors leave any visitor(s) unattended on the site



project. Failure to comply with this requirement could result in removal from site.

A copy of the "Visitors Waiver of Liability & General Release " form is located in the appendices section.

## 12.0 Cranes and Derricks

### 12-1. *Scope and Application*

Prior to the commencement of any work using hoisting equipment on the work site, the contractor will provide the project manager with a valid certificate of compliance for equipment. Equipment shall comply with the American National Standard B30 Safety Codes for Cranes, Hoists and Derricks and to the Occupational Safety and Health Standard 29 CFR 1926.550 Subpart N - Cranes, Hoists and Derricks.

Rated Load capacities, including wind load ratings, and recommended operating speeds, special hazard warnings or instructions shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator.

The contractor shall provide a current annual inspection certificate of the crane to the CM/GC, before a crane is put into service. Copies are to be provided to the project safety manager and maintained in the contractor file. Record keeping requirements include:

**All cranes used on the project must meet the following minimum criteria:**

- A. No crane shall be put into use until an annual crane inspection and supplemental repair reports (if warranted) are submitted to the contractor, indicating the crane meets minimum safety criteria and is acceptable for use.
- B. A daily and monthly inspection shall be performed while the cranes are in use on the project. These daily and monthly forms are to be maintained on file by the contractor and a copy provided to CM/GC, on a weekly basis.
- C. If the crane manufacturer's rated lifting chart for the specific crane configuration is not available on the crane; the crane must be immediately taken out of service.
- D. All crane operators must have been licensed by an approved agency or union and meet the requirements of Chapter 5, ANSI B30. Written qualifications must be submitted to contractor prior to the start of work.
- E. Supervision of all testing, examinations, inspections, heat treatments and record keeping procedures shall be carried out by a designated person, as outlined in OSHA 29 CFR 1926.

- F. Certificates issued by an accredited person (agency) shall be signed. All register entries must be made by persons authorized, by such accredited person (agency).
- G. Certification shall not be issued until all conditions cited for correction on the semi-annual certification report form have been corrected in a manner satisfactory to the certifying agency.
- H. In the event deficiencies remain uncorrected, no certification shall be issued.
- I. An accredited person (agency) shall maintain records of all performed tests, including reports of work or tests performed by others (non destructive testing, heat treating, etc.), in relation to each certification. Such records shall be available for examination upon request by the project manager, or their authorized representatives.
- J. A copy of each certificate relating to semi-annual examination and/or unit proof load test shall be available with each crane or derrick.

It's recommended that all contractor superintendents have a current copy of:

- A. The Mobile Crane Operator's Manual
- B. Rigging Manual

Both are available from: The Construction Safety Association, 74 Victoria Street, Toronto, Canada M5C2A5, 416-674-2726.

ALL CRITICAL LIFTS, including the utilization of man baskets, must be safely preplanned, documented in writing, and submitted to the project safety manager for review, prior to the lift, utilization of a man basket, etc.

A checklist will be prepared and submitted to the project manager by the contractor for any lift where the load exceeds 75% of the load chart capacity for the crane or derrick, or where the lift involves the use of two or more cranes.

No lifts meeting the above criteria will be made without prior submission of a Critical Lift Checklist.

Any lift exceeding 75 percent of the cranes rated capacity or multiple crane lifts shall be considered a critical lift. Prior to any critical lift, a safety preplanning meeting (see safety pre planning meeting section) will be held with the contractor and/or subcontractor, and a documented pre lift meeting shall be held in the field with the crew involved in making the lift. The following minimum items should be reviewed:

- A. Calculation of gross weight of load performed.

- B. Correct crane lifting capacity chart reviewed.
- C. Full radius of crane movement calculated and confirmed in field with tape measure.
- D. Footing for crane confirmed to be sound and level.
- E. Minimum clearances from electric lines.
- F. Wind speed checked and reviewed.
- G. Confirmation lift is in conformance of approved erection plan (if applicable).
- H. Emergency procedures in the event of an incident.

Prior to making the lift, the conditions shown on the drawing submitted, will be verified by the contractor's representative at the work site. Any deviations from the erection drawing submitted, will be reviewed and verified as safe by the contractor's representative.

When two cranes are working in the same area, a procedure shall be submitted to the project safety manager explaining the method of coordination to be used between cranes to ensure the possibility of a collision is prevented.

Mobile cranes and cement pumpers are only to be used with outriggers fully extended and tires off the ground unless manufacturer's recommendations allow otherwise. Outrigger pads must be utilized, remain level at all times, and be of appropriate size to safely handle the pumper or cranes lifting capacity.

If supporting ground for crane is soft, the lift shall not be made until firm bearing is provided including crane mats if necessary. No lift shall be made if the crane is not on level ground.

If the full range of motion of the lift is not visible to the operator, signalmen or a radio communicator must be provided.

For multiple crane lifts, reduce the cranes rated capacity by 25 percent.

The maximum number of pieces for "Christmas Treeing" should be 5 pieces.

All cranes shall be equipped with anti-two blocking devices except those directly involved in pile driving operation.

Accessible areas within the swing radius of the crane must be adequately protected by warning/danger tape, to prevent workers from being struck or crushed by the crane.

The interior of the crane cab must be clean and debris free at all times.

A rescue basket will be provided by the subcontractor for all tower cranes and mounted at the base of the tower crane for emergency use only.

Operation of boom equipment, or other equipment such as forklifts, backhoes and the handling of any load in the proximity of electrical transmission lines is forbidden within a minimum of 10 feet. Further, if such equipment is positioned so that it is possible, by rotation or any other movement to contact high voltage lines, de-energizing of the lines, restraints, "hold-backs," or other positive physical means will be required. (Note: "High Voltage" is defined as voltage in excess of 400 volts.)

All cranes shall be equipped with spirit level, or equivalent, to indicate the level of crane before and after, and across the width. As nearly as possible, the crane shall be operated in level position.

After normal working hours and during other extended periods of non-usage, crane booms shall be lowered to a horizontal position to minimize the chance of movement due to wind. If this cannot be accomplished, load lines shall be securely fastened to a substantial anchoring point.

Except for floor-controlled overhead track cranes, a bell or other effective audible warning signal shall be provided for each crane equipped with power traveling mechanism, which shall be automatically engaged and immediately audible when the crane begins to travel.

All pinch points, drive mechanisms other hazardous moving parts shall be effectively guarded.

## **12-2. Wire Ropes, Chains, & Ropes**

Wire rope, attachments, fittings, sheaves, and safety devices shall be inspected weekly with a copy of the inspection record, including a maintenance lubrication check, submitted to the CM/GC Superintendent every week. The contractor designated competent person other than the person who installed, reaved, and attached the wire rope shall make the weekly inspections.

Wedge sockets and fittings shall be the proper size to match the wire rope and shall move to wedge and hold the wire rope under load construction. The dead end shall be terminated according to ANSI B30.5 and shall not be attached in any manner to the live side of the load line. All replacement parts shall be as specified by the manufacturer.

An anti two-block device is required on all cranes except pile driving equipment.

Wire ropes, chains, ropes and other rigging equipment shall be inspected prior to use as necessary to assure their safety. Defective gear shall be removed from service.

Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other attachments, shall not be used.

When U-bolts are used for eye splices, the U-bolts shall be applied so that the "U" section is in contact with the dead end of the rope.

When U-bolt wire rope clips are used to form eyes, the following table shall be used to determine the number and spacing of clips:

<b>Number and Spacing Of U-Bolt Wire Rope Clips</b>			
<b>Improved plow steel, rope diameter inches</b>	<b>Number of clips</b>		<b>Minimum Spaces (inches)</b>
	<b>Drop Forged</b>	<b>Other Materials</b>	
1/2	3	4	3
5/8	3	4	3-3/4
3/4	4	5	4-1/2
7/8	4	5	5-1/4
1	5	6	6
1-1/8	6	6	6-3/4
1-1/4	6	7	7-1/2
1-3/8	7	7	8-1/4
1-1/2	7	8	9

## 13.0 Electrical

### 13-1. *Scope and Application*

Use of electricity on the jobsite poses serious hazards, with workers potentially being exposed to such dangers as electric shock, electrocution, fires and explosions. Recognizing the importance and widespread use of the National Electrical Code (NEC) in promoting electrical safety, OSHA has incorporated those parts of the NEC that relate to worker safety on construction sites directly into its regulations covering this area.

The OSHA regulations are divided into four parts:

- A. Installation safety requirements, (rules concerning electric equipment and installations used to provide electric power and light on job sites).
- B. Safety-related work practices (hazards arising from use of electricity at job sites and hazards arising from Incidental contact, direct or indirect, by workers with all energized lines, above or below ground, passing through or near the job-site).
- C. Safety-related maintenance and environmental considerations.
- D. Safety requirements for special equipment.

Contractors are required to follow all of the parts of the most current standards.

### 13-2. *Ground Fault Circuit Interrupters*

All 120 volts single-phase 15 and 20-ampere receptacle outlets which are not a part of the permanent wiring of the structure and which are in use by workers shall have approved GFCI's.

A program of testing and documentation of testing for the GFCI system shall be implemented. Upon initial completion or extension of the temporary power system, the installing contractor shall test each power receptacle for proper polarity and GFCI operation using a simple, commercially available tester. The results of this commissioning shall be documented and copies given to the CM/GC. Afterward, the same contractor shall conduct routine documented weekly tests.

All projects are to be 100% GFCI compliant. An assured grounding program may be used in addition to the GFCI Program. If an assured equipment grounding conductor program is used, the following must be provided:

- A. Submit a written program, developed by a licensed electrician, including specific procedures adopted by the contractor and given to the project manager and SSEC.

### **13-3. Electric Tools**

All contractors shall have a system in place for routine testing and maintaining of electrical tools, equipment, extension cords, and other equipment, in safe working condition. The program shall be in writing.

All portable electric tools such as saws, hammers, drills, vibrators and float machines, shall bear the label of a nationally certified testing agency, such as Underwriters Laboratories, CSA, ETL, or the like.

Single-phase motors shall have three-wire cable; two for current to motor and one (insulation GREEN) connected from motor casing in a suitable ground. Three-pronged plugs shall be used on extension cords, which carry a third or ground wire.

Three-phase current requires a fourth wire for grounding. This ground is connected to an outlet of temporary wiring system which itself shall be grounded to, a water pipe or copper rod driven into the earth.

Certain small electric tools may only provide a two-pronged connector as supplied from the factory. These are categorized as “double insulated.” However, double insulated tools shall be identified by the manufacturer’s rating label attached to the tool, not simply because only two prongs are present.

All tools shall be maintained in their original condition. This includes damage to the case or housings of a tool, condition of the power cord, etc. One vital item is that the third (grounding) pin on a power plug shall remain in place. If a tool is damaged severely or has the grounding pin removed from its plug, physical removal of the power plug shall be completed by the contractor.

### **13-4. Electric Equipment**

Heavy stationary electric equipment with dead metal parts like housings, boxes and hoist frames shall be grounded.

### **13-5. Extension Cords**

Extension cords and temporary lighting electrical cords shall conform to the current edition of the National Electrical Code Table 400.11 “Hard Usage” or “Extra Hard Usage,” and shall be protected against all types of abrasion and damage.



Extension cords shall not be fastened with staples, hung from nails, or suspended by wire. Only round, heavy duty (type S, ST, SO, STD) are acceptable on this project.

Cords shall be maintained in their original designed configuration. Any cord which is damaged (i.e., outer insulation is cut or torn) or has a grounding pin removed shall be positively removed from service by cutting off the male plug by the contractor and subcontractor.

The contractor shall remove cords from project site that have been spliced or repaired with electrical tape. There will be no taping of cords in any manner.

The gauge of wire of the cord shall be sized for the designated use, but in no case less than 16 gauge. For an overall length over 100 feet, one size larger shall be used. Temporary (extension) cords used to supply tools shall be limited to a maximum length of 200 feet, except that additional length may be used if supplemental positive equipment grounding is maintained within 200 feet of the tool or power use.

All extension cord shall be plugged into job-site power that has proper over current and ground fault circuit protection (GFCI).

Whenever an extension cord is plugged into an existing building outlet for construction work, a GFCI is required between the extension cord and the tool.

Ground-Fault Circuit interrupters will be installed on all 120 volts, single phase, 15 and 20 ampere receptacles on the work site.

All extension cords shall be kept out of walkways, equipment travel ways, protected from sharp edges (i.e., metal stud), and out of wet conditions on the floor.

### **13-6. Portable Generators**

All portable power generators shall be grounded

### **13-7. Temporary Wiring & Lighting**

Temporary wiring shall be at a minimum nonmetallic sheathed cable and shall suite the conditions and environment where it is to be installed. Temporary wiring shall be maintained at least 6'6" above the ground or floor and secured by nonconductive wiring.

No single conductor cable will be permitted. Temporary wiring shall be promptly removed after it is no longer in service.

All power cords connected to panels or breaker boxes shall be connected using plugs. No direct wiring is permitted.

Temporary lighting shall not be put on the same circuit as temporary receptacles. A separate lighting circuit for stairways and exit areas is required.

Temporary lighting shall be secured high enough above the floor to avoid contact with workers and secured by insulated wire. Bare wire is prohibited.

The minimum illumination level shall be 10 foot-candles for all work areas and 5 foot-candles for travel areas.

The contractor(s) installing all wiring and lighting shall be responsible for the maintenance of such materials. Burned out, broken, or missing light bulbs will be replaced immediately and bulb covers will be maintained in good condition.

### **13-8. Lockout/Tagout**

Valves, switches, electrical panels, and other mechanical, pneumatic, hydraulic, or electrical equipment must be properly locked and tagged out of service to prevent the system from being energized and/or operating while installation, maintenance, or repair work is in progress.

The contractor safety coordinator, project manager, and superintendent through preplanning and surveying field operations will determine if workers are required to perform tasks that may expose them to any hazards associated with mechanical and/or energized equipment. If detected, the CM/GC must be notified immediately prior to the start of any work.

Prior to the start of any work, the contractor safety coordinator will establish an energy control and training program. This program shall include written procedures for the control of potentially hazardous energy when workers are engaged in maintenance and/or servicing activities. This program will be presented to the CM/GC, at the preplanning meeting. The contractor's procedures must clearly outline the scope, purpose, authorization, rules, techniques, PPE, workers training, etc. to be used for the control of hazardous energy, and the methods of compliance.

The contractor must ensure that before any of their workers performs any installation, servicing, or maintenance on machines or equipment, the machines or equipment are isolated and rendered inoperative, zero energy, etc.. If unable to render inoperative, zero energy, etc., compliance with the most current edition of NFPA 70E will be complied with by the contractor and/or subcontractor.

The contractor safety coordinator will ensure that worker training has been accomplished. Written certification will show worker names and dates of training.

The Lockout/Tagout procedures developed for all equipment shall be used to protect against incidental or inadvertent operation when such operation could cause injury to personnel. The contractor completing the work, which requires lockout tagout, is solely responsible to notify all affected workers, implement these procedures, along with their own company procedures, and to get approval from the CM/GC, prior to the operation commencing.

**13-9. Working Around Overhead or Underground Electrical Power Lines**

It shall be the responsibility of the contractor performing work adjacent to overhead electrical power lines to protect workers and equipment from coming in contact with all power lines. Protection should include, but not limited to one or a combination of the following: appropriate distance, de-energized lines, blanketed lines, ground monitors, warning signs or flag lines, or any other means necessary to protect workers and equipment.

It is also the contractor's responsibility to coordinate locating all underground electrical power lines prior to commencing any excavating or trenching work. This will be outlined in the CM/GC's site specific safety requirements.

## 14.0 Demolition

### 14-1. Scope and Application

Before the start of every demolition job, the demolition contractor should take a number of steps to safeguard the health and safety of workers at the job site. These preparatory operations involve the overall planning of the demolition job, including the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to perform the work safely. Planning for a demolition job is as important as actually doing the work. Therefore, all planning work should be performed by a competent person experienced in all phases of the demolition work to be performed.

The American National Standards Institute (ANSI) in its ANSI A10.6-1983 - Safety Requirements For Demolition Operations states:

*“No employee shall be permitted in any area that can be adversely affected when demolition operations are being performed. Only those employees necessary for the performance of the operations shall be permitted in these areas.”*

### 14-2. Engineering Survey

Prior to starting all demolition operations, OSHA Standard 1926.850(a) requires that an engineering survey of the structure must be conducted by a competent person. The purpose of this survey is to determine the condition of the framing, floors, and walls so that measures can be taken, if necessary, to prevent the premature collapse of any portion of the structure. When indicated as advisable, any adjacent structure(s) or improvements should also be similarly checked. The demolition contractor must maintain a written copy of this survey. Photographing existing damage in neighboring structures is also advisable.

The engineering survey provides the demolition contractor with the opportunity to evaluate the job in its entirety. The contractor should plan for the wrecking of the structure, the equipment to do the work, manpower requirements, and the protection of the public. The safety of all workers on the job site should be a prime consideration. During the preparation of the engineering survey, the contractor should plan for potential hazards such as fires, cave-ins, and injuries.

If the structure to be demolished has been damaged by fire, flood, explosion, or some other cause, appropriate measures, including bracing and shoring of walls and floors, shall be taken to protect workers and any adjacent structures. It shall also be determined if any type of hazardous chemicals,

gases, explosives, flammable material, or similar dangerous substances have been used or stored on the site. If the nature of a substance cannot be easily determined, samples should be taken and analyzed by a qualified person prior to demolition.

During the planning stage of the job, all safety equipment needs should be determined. The required number and type of respirators, lifelines, warning signs, safety nets, special face and eye protection, hearing protection, and other worker protection devices outlined in this manual should be determined during the preparation of the engineering survey. A comprehensive plan is necessary for any confined space entry.

### **14-3. Utility Location**

One of the most important elements of the pre-job planning is the location of all utility services. All electric, gas, water, steam, sewer, and other services lines should be shut off, capped, or otherwise controlled, at or outside the building before demolition work is started. In each case, any utility company that is involved should be notified in advance, and its approval or services, if necessary, shall be obtained.

If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated as necessary and/or protected. The location of all overhead power sources should also be determined, as they can prove especially hazardous during any machine demolition. All workers should be informed of the location of any existing or relocated utility service.

#### **Fire Prevention and Protection.**

- A. **POLICE AND FIRE CONTACT.** The telephone numbers of the local police, ambulance, and fire departments should be available at each job site. This information can prove useful to the job supervisor in the event of any traffic problems, such as the movement of equipment to the job, uncontrolled fires, or other police/fire matters. The police number may also be used to report any vandalism, unlawful entry to the job site, or accidents requiring police assistance.
- B. **FIRE PLAN.** A "fire plan" should be set up prior to beginning a demolition job. This plan should outline the assignments of key personnel in the event of a fire and provide an evacuation plan for workers on the site. Common sense should be the general rule in all fire prevention planning, as follows:
  - 1. All potential sources of ignition should be evaluated and the necessary corrective measures taken.

2. Electrical wiring and equipment for providing light, heat, or power should be installed by a competent person and inspected regularly.
  3. Equipment powered by an internal combustion engine should be located so that the exhausts discharge well away from combustible materials and away from workers.
  4. When the exhausts are piped outside the building, a clearance of at least six inches should be maintained between such piping and combustible material.
  5. All internal combustion equipment should be shut down prior to refueling. Fuel for this equipment should be stored in a safe location.
  6. Sufficient firefighting equipment should be located near any flammable or combustible liquid storage area.
  7. Only approved containers and portable tanks should be used for the storage and handling of flammable and combustible liquids.
- C. Heating devices should be situated so that they are not likely to overturn and shall be installed in accordance with their listing, including clearance to combustible material or equipment. Temporary heating equipment, when utilized, should be maintained by competent personnel.
- D. Smoking should be prohibited at or in the vicinity of hazardous operations or materials. Where smoking is permitted, safe receptacles shall be provided for smoking materials.
- E. Roadways between and around combustible storage piles should be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other materials. When storing debris or combustible material inside a structure, such storage shall not obstruct or adversely affect the means of exit.
- F. A suitable location at the job site should be designated and provided with plans, emergency information, and equipment, as needed. Access for heavy firefighting equipment should be provided on the immediate job site at the start of the job and maintained until the job is completed.
- G. Free access from the street to fire hydrants and to outside connections for standpipes, sprinklers, or other fire extinguishing equipment, whether permanent or temporary, should be provided and maintained at all times, as follows:
1. Pedestrian walkways should not be so constructed as to impede access to hydrants.

2. No material or construction should interfere with access to hydrants, Siamese connections, or fire extinguishing equipment.
  3. A temporary or permanent water supply of volume, duration, and pressure sufficient to operate the firefighting equipment properly should be made available. Standpipes with outlets should be provided on large multi story buildings to provide for fire protection on upper levels. If the water pressure is insufficient, a pump should also be provided.
  4. An ample number of fully charged portable fire extinguishers should be provided throughout the operation. All motor-driven mobile equipment should be equipped with an approved fire extinguisher.
- H. An alarm system, e.g., telephone system, siren, two-way radio, etc., shall be established in such a way that employees on the site and the local fire department can be alerted in case of an emergency. The alarm code and reporting instructions shall be conspicuously posted and the alarm system should be serviceable at the job site during the demolition. Fire cutoffs shall be retained in the buildings undergoing alterations or demolition until operations necessitate their removal.

#### **14-4. Safe Work Practices for Demolition of Special Structures**

- A. Inspection and Planning:
1. When preparing to demolish any chimney, stack, silo, or cooling tower, the first step must be a careful, detailed inspection of the structure by an experienced person.
  2. If possible, architectural/engineering drawings should be consulted.
  3. Particular attention should be paid to the condition of the chimney or stack. Workers should be on the lookout for any structural defects such as weak or acid-laden mortar joints, and any cracks or openings.
    - a. The interior brickwork in some sections of industrial chimney shafts can be extremely weak. If stack has been banded with steel straps, these bands shall be removed only as the work progresses from the top down.
    - b. Sectioning of the chimney by water, etc. should be considered.
- B. Safe Work Practice:
1. When hand demolition is required, it should be carried out from a working platform.

2. Experienced personnel must install a self-supporting tubular scaffold, suspended platform, or knee-braced scaffolding around the chimney. Particular attention should be paid to the design, support, and tie-in (braces) of the scaffold.
3. A competent person should be present at all times during the erection of the scaffold.
4. It is essential that there be adequate working clearance between the chimney and the work platform.
5. Access to the top of the scaffold should be provided by means of portable walkways.
6. The platforms should be decked solid and the area from the work platform to the wall should be bridged with a minimum of two-inch thick lumber.
7. A back rail 42 inches above the platform, with a midrail covered with canvas or mesh, should be installed around the perimeter of the platform to prevent injury to workers below. Debris netting may be installed below the platform.
8. Excess canvas or plywood attachments can form a wind-sail that could collapse the scaffold.
9. When working on the work platform, all personnel should wear hard hats, long-sleeve shirts, eye and face protection, such as goggles and face shields, respirators, and safety belts, as required.
10. Care should be taken to assign the proper number of workers to the task. Too many people on a small work platform can lead to accidents.
  - a. An alternative to the erection of a self-supporting tubular steel scaffold is to “climb” the structure with a creeping bracket scaffold. Careful inspection of the masonry and a decision as to the safety of this alternative must be made by a competent person. It is essential that the masonry of the chimney be in good enough condition to support the bracket scaffold.
  - b. The area around the chimney should be roped off or barricaded and secured with appropriate warning signs posted. No unauthorized entry should be permitted to this area. It is also good practice to keep a worker, i.e., a supervisor, operating engineer, another worker, or a “safety person,” on the ground with a form of communication to the workers above.



- c. Special attention should be paid to weather conditions when working on a chimney. No work should be done during inclement weather such as during lightning or high wind situations. The work site should be wetted down, as needed, to control dust.

C. Debris Clearance:

1. If debris is dropped inside the shaft, it can be removed through an opening in the chimney at grade level.
2. The opening at grade must be kept relatively small in order not to weaken the structure. If a larger opening is desired, a professional engineer should be consulted.
3. When removing debris by hand, an overhead canopy of adequate strength should be provided. If machines are used for removal of debris, proper overhead protection for the operator should be used.
4. Excessive debris should not be allowed to accumulate inside or outside the shaft of the chimney as the excess weight of the debris can impose pressure on the wall of the structure and might cause the shaft to collapse.
5. The foreman should determine when debris is to be removed, halt all demolition during debris removal, and make sure the area is clear of cleanup workers before continuing demolition.

D. Demolition by Deliberate Collapse:

1. Another method of demolishing a chimney or stack is by deliberate collapse. Deliberate collapse requires extensive planning and experienced personnel, and should be used only when conditions are favorable. There must be a clear space for the fall of the structure of at least 45 degrees on each side of the intended fall line and 1½ times the total height of the chimney. Considerable vibration may be set up when the chimney falls, so there should be no sewers or underground services on the line of the fall. Lookouts must be posted on the site and warning signals must be arranged. The public and other workers at the job site must be kept well back from the fall area.

E. The use of explosives will not be allowed on any RTD project.

F. Demolition of Prestressed Concrete Structures:

1. The different forms of construction used in a number of more or less conventional structures built during the last few decades will give rise to a variety of problems when the time comes for them to be demolished. Prestressed concrete structures fall in this general

category. The most important aspect of demolishing a prestressed concrete structure takes place during the engineering survey. During the survey, a qualified person should determine if the structure to be demolished contains any prestressed members.

2. It is the responsibility of the demolition contractor to inform all workers on the demolition job site of the presence of prestressed concrete members within the structure. They should also instruct them in the safe work practice which must be followed to safely perform the demolition. Workers should be informed of the hazards of deviating from the prescribed procedures and the importance of following their supervisor's instruction.
3. Pretensioned members usually do not have any end anchors, the wires being embedded or bonded within the length of the member. Simple Pretensioned beams and slabs of spans up to about 7 meters (23 feet) can be demolished in a manner similar to ordinary reinforced concrete. Pretensioned beams and slabs may be lifted and lowered to the ground as complete units after the removal of any composite concrete covering to tops and ends of the units. To facilitate breaking up, the members should be turned on their sides. Lifting from the structure should generally be done from points near the ends of the units or from lifting point positions. Reuse of lifting eyes, if in good condition, is recommended whenever possible. When units are too large to be removed, consideration should be given to temporary supporting arrangements.
4. Categories Of Prestressed Construction
  - a. There are four main categories of prestressed members. The category or categories should be determined before attempting demolition, bearing in mind that any prestressed structure may contain elements of more than one category.
    - Category 1 Members are prestressed before the application of the superimposed loads, and all cables or tendons are fully bonded in the concrete or grouted within ducts.
    - Category 2 Like Category 1, but the tendons are left ungrouted. This type of construction can sometimes be recognized from the access points that may have been provided for inspection of the cables and anchors. More recently, unbonded tendons have been used in the construction of beams, slabs, and other members; these tendons are protected by grease and surrounded by plastic sheathing, instead of the usual metal duct.

- Category 3 Members are prestressed progressively as building construction proceeds and the dead load increases, using bonded tendons as in Category 1.
  - Category 4 Like Category 3, but using unbonded tendons as in Category 2.
- b. Examples of construction using members of Categories 3 or 4 are relatively rare. However, they may be found, for example in the podium of a tall building or some types of bridges. They require particular care in demolition.
- G. Precast Units Stressed Separately From The Main Frames of the Structure, with End Anchors and Grouted/Ungouted Ducts:
1. Before breaking up, units of this type should be lowered to the ground, if possible. It is advisable to seek the counsel of a professional engineer before carrying out this work, especially where there are ungrouted tendons. In general, this is true because grouting is not always 100% efficient.
  2. After lowering the units can be turned on their side with the ends up on blocks after any composite concrete is removed. This may suffice to break the unit and release the prestress; if not, a sand bag screen, timbers, or a blast mat as a screen should be erected around the ends and demolition commenced, taking care to clear the area of any personnel. It should be borne in mind that the end blocks may be heavily reinforced and difficult to break up.
- H. Monolithic Structures:
1. The advice of the professional engineer experienced in prestressed work should be sought before any attempt is made to expose the tendons or anchorages of structures in which two or more members have been stressed together.
  2. It will usually be necessary for temporary supports to be provided so that the tendons and the anchorage can be cautiously exposed. In these circumstances it is essential that indiscriminate attempts to expose and destress the tendons and anchorages not be made.
- I. Progressively Prestressed Structures:
1. In the case of progressively prestressed structures, it is essential to obtain the advice of a professional engineer, and to demolish the structure in strict accordance with the engineer's method of demolition.

2. The stored energy in this type of structure is large. In some cases, the inherent properties of the stressed section may delay failure for some time, but the presence of these large prestressing forces may cause sudden and complete collapse with little warning.
- J. Safe Work Practices When Working in Confined Space:
1. Demolition contractors often come in contact with confined spaces when demolishing structure at industrial sites. These confined spaces can be generally categorized in two major groups: those with open tops and a depth that restricts the natural movement of air, and enclosed spaces with very limited openings for entry. Examples of these spaces include storage tanks, vessels, degreasers, pits vaults, casing, and silos.
  2. The hazards encountered when entering and working in confined spaces are capable of causing bodily injury, illness, and death. Accidents occur among workers because of failure to recognize that a confined space is a potential hazard. It should therefore be considered that the most unfavorable situation exists in every case and that the danger of explosion, poisoning, and asphyxiation will be present at the onset of entry.
  3. No Blasting or Use of Explosives will be allowed.
- K. Additional Safety Notes:
1. All sidewalks and walkways open to the public shall have abrasive, nonskid surface and shall be kept clean and free of tripping hazards at all times.
  2. "NO SMOKING" zones with appropriate signs and barricades shall be displayed adjacent to buildings being demolished.
  3. Water or other means of dust control shall be used where dust presents a health or environmental hazard, property damage potential or nuisance.
  4. Adequate protection shall be provided to prevent damage to pipes, conduits, wires, cables, or structures above or below ground which are designated for removal.
  5. Overhead protection shall be erected over sidewalks and shall extend at least ten feet beyond the building lines along direction of the sidewalks. Overhead planking shall be a minimum of three inch full dimension lumber placed on adequately designed, metal or timber frames.

6. Substantial catch platforms shall be erected around all sides of the building prior to any demolition. Design must be approved by the project manager.
7. Solid barriers 3/4 inch exterior B/D Plywood, at least eight feet high, shall be erected around the structure at ground or sidewalk level to protect the public.
8. Full time flaggers shall be provided to assist truck egress and ingress.
9. All mechanical, electrical, air conditioning, heating, ducting, skylights, windows and any other equipment, material or objects on roofs or walls of adjoining or adjacent structures to buildings under demolition shall be adequately protected from falling material and activity of wrecking crews and equipment.
10. No mechanical equipment (i.e. headache ball, impact equipment, other than hand held) shall be used with six feet of any adjoining structure.
11. Employees engaged in the demolition or removal of any pipes, structures or machinery covered or insulated with asbestos shall conform with all requirements of OSHA 1910.1001, 1926.58 and all applicable Federal, State and Local laws.
12. Asbestos containing material shall be tested and if required, removed by certified personnel prior to demolition.
13. Any hazardous or "unknown" material found on a site to be demolished shall be properly tested, manifested and disposed of in accordance with all applicable Federal, State and Local regulations. The project manager and SSEC shall be notified of the discovery, handling and disposal of all hazardous materials prior to disposition.

## 15.0 Excavation, Trenching & Shoring

### 15-1. *Scope and Application*

This section provides requirements to ensure the safety of all who are required to work in and around excavations and to provide guidelines for locating existing underground utilities.

A thorough pre-task planning meeting must be conducted with the appropriate permitting and procedures in place, to ensure all possible exposures are addressed. Attendee's will consist of the contractor/subcontractor foremen and competent person, and designated site safety manager/representatives. A disruption avoidance may be required in certain situations.

The contractor shall call the Underground Utilities Location Center prior to any excavation regarding utilities. Any initial excavation which exposes subsurface utilities shall be done by hand, so to prevent any damage. When exposed, utilities shall be protected at all times by suitable bridging, boxing, hangers or other supports during the execution of the work.

### 15-2. *Soil Classification*

Soil classification means a method of categorizing soils and/or rock into categories and is performed before contractors are allowed in the excavation. The competent person shall classify soils using the OSHA definitions for soil types. Soil results are based off at least one visual (to test integrity) and one manual analysis (to determine dry/compressive strength and plasticity).

#### A. Type A Soil

Type A soil means cohesive soils with an unconfined compressive strength of 1.5 tons per square foot or greater.

Examples of cohesive soils are clay, silty clay, sandy clay, clay loam, and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A.

However, soil cannot be classified as Type A if the soil is fissured, or subject to vibration from heavy traffic, pile driving or similar effects or the soil has been previously disturbed.

#### B. Type B Soil

Type B soil means cohesive soils with an unconfined compressive strength greater than 0.5 but less than 1.5 tons per square foot.

Examples of Type B soils are: granular cohesion less soils including angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in

some cases, silty clay loam and sandy clay loam. Included also are previously disturbed soils except those which would otherwise be classed as Type C soil and soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration or dry rock that is not stable.

#### C. Type C Soil

Type C soil means soil with an unconfined compressive strength of 0.5 tons per square foot or less.

Examples of Type C soil are; granular soils including gravel, sand, and loamy sand, or submerged soil or rock and previously disturbed soils.

Unclassified soil shall be sloped 1½:1 (horizontal to vertical) or shored when excavation exceeds 4 feet in depth.

Note: All soils will be classified as Type C soil, unless proven otherwise.

#### **15-3. Surface Encumbrances**

All surface encumbrances that are located so as to create a hazard to contractors and subcontractors shall be removed or supported, as necessary, to safeguard workers in the excavation.

#### **15-4. Underground Installations**

Prior to any type of digging, each contractor and subcontractor is solely responsible for following the CM/GC's underground utility locate program. No work is to proceed without the proper utility company marking out the area(s) of their underground material(s). Any damage to any utility is to be reported immediately to the CM/GC.

When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by hand digging only.

While the excavation is open, underground installations shall be protected, supported or removed as necessary, to safeguard workers.

#### **15-5. Requirements**

A pre-task meeting will be conducted prior to the trenching/excavating of ground on the project.

The contractor's competent person responsible for the excavation shall be on site during all operations relating to the open excavation.

The contractors/subcontractors appointed competent person in charge of the excavation work shall ensure that:

- A. All preparatory work is conducted as described in this program before any excavation work begins.
- B. Excavation and trenching work is performed within the guidelines of this program.
- C. The design of the proper access and egress for the excavation.
- D. The selection of the appropriate support system for each excavation. This system may include one or more of the following; sloping, benching, shoring, or shields.
- E. Daily inspection (with documentation) and after (rain, snow, etc) man made event (blasting, etc) occurs.
- F. Stopping all work immediately if a hazardous condition exists.  
Reinspecting the excavation after determining and eliminating the cause.
- G. Deciding if the soil classification needs to be changed during the course of work.
- H. For excavation over 20 feet deep, a registered professional engineer hired by the contractor shall design all shoring, sloping or benching. All designs shall be submitted to the CM/GC and filed at the contractor's field office.
- I. All excavated materials and stockpiled materials shall be placed a minimum of 2 feet from the edge of the excavation. Loose soil or rocks shall be removed from the sides of excavation walls.
- J. Excavations 4 feet in depth or greater shall have a stairway, ladder, ramp, or other safe means of egress within 25 feet of any worker in the excavation.
- K. All excavations before entry shall be inspected and documented by the contractor's designated competent person in accordance to the following requirements. Inspection logs will be maintained on site where they are readily available for review.
  - 1. At the start of each shift
  - 2. After measurable rains
  - 3. After freezing and/or thawing temperatures occur
  - 4. After any condition that can change the integrity of the soil
- L. For all excavations 4 feet in depth or greater where hazardous material may exist, the atmosphere in the excavation shall be tested prior to entry



and periodically throughout the operation as determined by the competent person.

- M. The competent person responsible for the crew working in the excavation shall inspect the excavation throughout the work period and stop operations when unsafe conditions exist.
- N. The number of workers in the excavation shall be limited to the number needed to perform the work.
- O. Water shall not be allowed to accumulate in excavations at any time. Pumps, drains, or other means shall be used to remove water constantly.
- P. Stability of adjacent structures shall be evaluated before starting an excavation and monitored daily thereafter by the contractor.
- Q. Emergency rescue equipment shall be readily available by the contractor.
- R. No worker shall be permitted underneath loads handled by lifting or excavating equipment.
- S. Proper handrails and toe boards, fencing, warning tape, etc. shall be erected and maintained at the top of the excavation when required for fall protection.
- T. The contractor shall have a copy of the water main and gas drawings. These drawings must be clearly marked to show the valves that control flow in the area, and at the construction site. At least two valves in all directions outside the net lines shall be shown. The contractor's superintendent shall mark and keep clear the location of valves for ready identification, should trouble develop.
- U. Access for emergencies shall be provided at all times. Access shall be maintained for the routine inspections, including inspection of valves on water, gas, mains, electrical power, communications, signal, alarm, junction boxes and other services. Manholes that are decked over shall have trap doors of a suitable size, with identifying steel plates securely attached thereto, and shall be provided at all times, in the decking.
- V. Walkways shall be kept clean and free of all hazards at all times.
- W. Internal combustion engines used in confined areas, such as in excavations or utility vaults where natural ventilation is limited, shall have exhaust fumes dispelled with forced ventilation or equivalent means.
- X. All excavations, caisson holes, pits, vaults and similar work areas where an exposure to the public or work personnel exists shall be promptly and completely fenced or barricaded, signed and covered when feasible,

except in those areas temporarily required to be open for the conduct of the work, then these openings shall be guarded to prevent access.

- Y. Adjustment screws on cross braces or trench jacks shall not be extended beyond the manufacturer's recommendations or 2/3 of the threaded length, whichever is more restrictive.
- Z. No one shall be permitted to climb or work from cross bracing.

Supervision: - Excavation work shall at all times be under the immediate supervision of someone with authority to modify the shoring system or work methods, as necessary, to provide greater safety. The supervisor shall frequently examine the material under the excavation and improve the shoring or methods beyond the minimum requirements, as necessary, to insure protection of workers from moving material.

Removal of Shoring: - No part of the shoring system of any excavation shall be removed until proper steps have been taken to avoid hazard to workers from moving material. If a newly installed masonry or concrete wall is to be depended upon for this protection, it must have attained adequate strength to sustain resulting pressures.

Blasting will not be permitted on the work site without prior approval of the project manager and RTD.

IF any excavation(s) are required or requested to be left open by a utility company, municipality, or government agency, the excavation will remain the sole responsibility of the contractor for proper barricading, fencing, signing, protection and security.

## 16.0 Fall Protection

### 16-1. *Scope and Application*

Each employee who is exposed to a fall of 6ft (or more) shall be protected 100% of the time. The sequence of protection shall be: elimination, prevention, control.

- A. Eliminate: Change procedure, preplan to eliminate exposure/hazards.
- B. Prevention: use of guard rails/barriers to distance workers away from exposure.
- C. Control: Use of fall arrest systems.

### 16-2. *Site Specific Fall Protection and Rescue Program*

All contractors and subcontractors will submit prior to work on the project a Site Specific Fall Protection and Rescue Program. The program will include as a minimum, the following topics:

Type of Exposures:	Perimeter, Aerial Lifts, Scaffolding, Scissor Lifts, etc.
Type of Systems:	Fall Arrest, Fall Restraint, Handrails, Warning Lines, etc.
Type of Equipment:	Harnesses, Lanyards, Retractable, Static Lines, Skyhooks, etc.
Competent Person:	Competent Persons qualifications
Preplanning:	Procedures for preplanning all work where workers are exposed to falls greater than 6'.
Training Workers:	How will workers be trained in fall protection and rescue.
Rescue:	Rescue procedures for safely rescuing workers who have fallen.

### 16-3. *General Requirements*

There will be a 6-foot positive fall protection rule on this project. This means the use of guardrails, warning lines, personal fall protection devices, safety nets, hole covers, etc. must be utilized whenever ANYONE is working over 6-feet above the surface below them.

The ONLY exception is when is when the employee can demonstrate that a greater or more probable hazard exists. The employee (or his employer) shall develop and implement a fall protection system for that hazard. This may be used for only the individuals on that crew and must be approved by the project safety manager.

All contractors and subcontractors workers are required to wear safety harnesses when working on swing scaffolds, hydraulic boom lifts, working

above protection systems, floor openings, unprotected perimeters, and whenever a fall of more than 6-feet could occur.

Lifelines shall be a minimum of 3/4" manila or equivalent secured above the point of operation to an anchorage/structural member capable of supporting a minimum of 5,000 pounds. Lanyards shall be a minimum of 5/8" nylon or equivalent with a shock absorbing system. Maximum fall exposure is limited to 6 feet with a deployed shock absorber. The rope shall have a nominal breaking strength of 5,000 pounds. Anchor points should be within OSHA compliance.

Prior to the removal of any handrails installed for protection on building perimeters, stairways, holes, elevator shafts, etc., by any contractors or subcontractors, a "Perimeter Protection Removal Permit" must be obtained from the project safety manager or project superintendent.

During scaffolding erection and dismantling, workers will be required to tie off while working in a stationary position two stages or more above the ground. In addition to tying off, a minimum of two planks will be provided for erection and dismantling. Utilizing one plank for standing on is prohibited.

The 6-foot fall policy does not apply to moving up and down ladders. However, when working from ladders, and an individual's work requires him/her to lean out over the side rails of the ladder, positive fall protection utilization is mandatory. Fall protection is required when using a ladder next to any drop off area (such as, stair wells, elevator shafts, pits and leading edges).

Steel erectors and metal deck installers are required to utilize 100% 6-foot positive fall protection at all times.

Safety monitors will not be utilized by any contractor or subcontractor on this project.

The contractor or subcontractor is solely responsible for the development, implementation, and enforcement of this policy.

Only a qualified person is authorized to design and/or inspect, a fall arrest system.

**RTD has a Zero Tolerance Policy for any workers, contractors or subcontractor not abiding by this policy. Anyone caught in violation of this policy shall be subject to immediate dismissal from the project. The contractors and subcontractors shall also be subject to dismissal from the project or subject to non-compliance with safety policies measures.**

#### 16-4. Protection from Falling Objects

It is mandatory that all employees wear a hard hat, in addition, they must be protected by one of the following:

- A. A guardrail system
- B. A canopy
- C. A barricade
- D. Debris nets

#### 16-5. Definitions

Anchorage:	All anchorage points will be capable of supporting 5000lbs unless otherwise stated.
Leading Edges:	An edge which changes location as material is being installed.
Low Sloped Roof:	A slope less than, or equal to 4:12 (V to H)
Warning Line System:	A barricade installed on a roof to warn employees of an unprotected edge. It must be a minimum of 6ft back, from the leading edge.

#### 16-6. Personal Fall Arrest Systems

Anchorage points may not be used for other purposes and must be capable of supporting 5000lbs. The fall arrest system must be designed and inspected by a qualified person.

When ever possible, only one employee should be tied off to a horizontal lifeline. If this is not practical, the system must be capable of supporting 5000lbs/person. (i.e.: 3 persons X 5000lbs = 15,000 lbs).

Fall arrest systems must be designed to limit the free fall distance to less than 6ft. (before expansion) to prevent contact with the lower level.

Only shock absorbing lanyards may be used.

Rescue procedures must be planed and reviewed, prior to work commencement.

Self retracting lifelines must automatically limit the free fall distance to 2 ft, and must have a minimum tensile strength of 3,000 lbs.

All manufacturers recommendations must be followed.

Positioning device systems must limit the free fall distance to 2 ft.

Anchorage points must be capable of supporting 5,000lbs unless otherwise stated.

#### **16-7. Safety Harnesses and Lanyards**

Only approved (company supplied) body harnesses and lanyards (in accordance with OSHA 29 CFR 1926.104) shall be worn and used by employees. Body belts are prohibited.

All components must be inspected daily (prior to use).

The anchor end of the lanyard shall be secured at a level not lower than a worker's waist, except; where the waist is not possible, connections at feet level may be permitted.

Only double-locking type snap lock may be used and must be sized to be compatible with the member to which it is being connected.

Lanyards shall be secured to a substantial member.

All connecting members must have a minimum 5000lbs tensile strength.

Shock absorbing lanyards and lifelines must have a minimum breaking strength of 5000lbs.

The D-ring on a body harness/lanyard for the connection to a fall arrest system, must be located in the center of the wearer's back, near shoulder level.

None of the components of the fall arrest system (harness, lifeline, etc) may be used for any other purpose other than fall arrest. D-rings may be used for positioning device purposes.

All components of a fall arrest system, exposed to a fall (impact loading) must be removed from service and sent to the project safety manager.

Life lines must be protected from damage (cuts, burns, abrasions, etc.).

#### **16-8. Controlled Access Zone**

A controlled access zone must be established and conform to the following:

- A. The controlled access zone must be established prior to the start of construction of masonry wall, steel erection, over head lifting, and lower levels exposed to falling objects.
- B. The zone must be equal to the height of the wall to be constructed, plus 4 feet, and must run the entire length of the wall.

- C. The zone must be restricted to entry by employees not actively engaged in constructing the wall. No other employees must be permitted to enter the zone.
- D. The zone must be established on both sides of the wall when needed.
- E. The zone must be marked in a way that is obvious to all craft workers.
- F. The zone must stay until the wall is braced and the scaffolding has been removed.
- G. During high wind conditions, all craft workers must leave the zone.

#### **16-9. Safety Nets**

Safety nets shall be provided when workplaces are over roads, tracks, or more than 25 feet above other surfaces where the use of ladders, scaffold catch platforms, temporary floors, safety lines, or safety belts, is impractical.

Where nets are required, operations shall not be undertaken until the net is in place and has been tested.

Lanyards shall be secured to a substantial member of the structure, or to securely rigged lines, using a positive descent control device.

## 17.0 Fire Hazards and Prevention

### 17-1. *Scope and Application*

In order to reduce to a minimum, the possibility of fire damage and associated losses incurred during the construction of the project, the following are guidelines and requirements to be followed by all workers, contractors, and subcontractors involved on the project.

The control of fire hazards and the reduction of losses from fire depend upon four fundamental principles.

- A. Fire prevention engineering/jobsite preplanning.
- B. Early detection and extinguishment.
- C. Damage control.
- D. Prevention of personal injuries from fire or panic.

### 17-2. *Fundamentals of Fire Safety*

Preplanning the site is crucial to the protection of lives and property. All federal, state and local fire codes must be followed at all times, on the jobsite. The basic sequence of actions that must be taken in case of fire, is the basis for establishment of the site fire plan. Understanding the actions and why the sequence is important will aid in the plan's development. The actions are, in order:

- A. Evacuate.
- B. Notify the Fire Department.
- C. Fight the fire.

**The priority of this sequence should not be broken, however, this does not mean that more than one item cannot occur at a time.**

- A. Evacuation

The first action to be taken in case of fire is the protection of lives. The fire protection program must provide for the ability of all workers to exit in case of an emergency. Key considerations include:

1. Stairways and ladders used for egress must be kept free of combustible and flammable materials.
2. Stairways and ladders shall not be used for storage of materials.
3. Temporary lighting must be installed and maintained in working condition.



4. Post and maintain Exit signs.

Contractors need to be aware of their surroundings at all times and plan for an evacuation with documented procedures given to their workers.

#### B. Fire Department Notification

If a fire occurs, notify the CM/GC management immediately, after evacuating personnel. If it is a fire, which cannot be extinguished immediately, notify the Fire Department by dialing 911. Extinguish the fire with non combustibles such as sand or an available fire extinguisher, only if you are not putting yourself or others in harm's way. Remove or shut off fuel supply such as removing debris or stored material or shutting off propane. Each contractor is to clear the way for the Fire Department and assist in any way directed.

The superintendent must notify the local Fire Department and:

1. Ask for support and input during planning;
2. Request periodic review of the site;
3. Develop and agree upon an emergency response plan;
4. Inform of any changes to site conditions/access, which may deviate from the emergency response plan.

#### C. Types of Fires

The Underwriters Laboratory classifies fires by three general types of extinguishing agents.

1. Class A Fires - Fires in ordinary materials such as wood, paper, excelsior, rags and rubbish. The quenching and cooling effects of water or solutions containing large percentages of water are of first importance in these fires.
2. Class B Fires - Fires in such flammable liquids as gasoline, oil and grease require smothering action. Solid streams of water are likely to spread the fire (under certain circumstances water fog nozzles may prove effective).
3. Class C Fires - Fire in or near electrical equipment must be smothered by using a nonconducting agent such as carbon dioxide or dry chemical compounds.

Fire extinguishment is usually accomplished by three methods:

1. Eliminate oxygen from the air. Replace air with an inert gas. Apply a noncombustible cover or a chemical that will dilute the oxygen below point of combustion.
2. Remove or shut off the fuel supply. Divert or shut off valves in liquid or gas fuel supply lines and remove the burning fuel.
3. Reduce the temperature below the ignition point. Cool the burning material with water or chemicals.

While the use of one or more than one method generally produces better results, it is important that the most effective method be employed first.

#### D. Fire Extinguishers

Although there are many types of extinguishers, only one type of fire extinguisher is approved for use on RTD projects, the 20 pound "ABC" all-purpose dry chemical extinguisher for use on wood, paper, textiles, electrical and flammable liquids. The use of carbon tetrachloride extinguishers is prohibited.

Fire extinguishers must be:

1. Inspected at least weekly (records must be kept);
2. Maintained in good working condition;
3. Refilled immediately after discharge;
4. Conspicuously stored, well marked and never blocked off by stored materials or debris.

Manufacturer's instructions should be followed for each type of extinguisher. Complicated types of extinguishers shall be avoided. Workers shall be taught how to operate each type provided so that prompt action when a fire starts can be assured. Care should be used in selecting extinguishers for each job. Each contractor and subcontractor is responsible for the training of their workers.

Extinguishers shall be highly visible and easily accessible at all times. They must be distributed so that the distance to an extinguisher from any point on a floor is not more than 75 feet.

#### **17-3. Storage**

Flammable materials must be stored in approved cans, cabinets, containers, to reduce the risk of ignition. Special hazards must be located away from ignition sources. These storage areas must be clearly marked and guarded and comply with applicable safety and fire regulations.

Driveways must be a minimum of 15ft wide for emergency access.

- A. Special hazards include storage such as;
  - 1. Site gasoline supply tanks
  - 2. LPG tanks
  - 3. Oxygen/acetylene cylinders
  - 4. Compressed gas cylinders
  - 5. Combustibles - Combustible materials must not be stored within 10ft of any building.
- B. Shanties, tool sheds, etc, shall meet the following:
  - 1. Shall be constructed of fire-restraint materials and heated with approved fire-safe heating devices.
  - 2. Shall be constructed at least 10 feet from materials, which present extraordinary fire hazards.
  - 3. Shall be equipped with a minimum of one, 20-pound ABC fire extinguisher each.
  - 4. Shall have a 55-gallon waste container adjacent to it.
  - 5. Shall not be used to store oily rags, oily clothes, or fuels of any type.
  - 6. Shall be constructed such that a shanty fire will not spread to adjacent areas.
  - 7. Rubbish shall not be permitted to accumulate within an adjacent area to any shanty.

#### **17-4. Signs/ Posting/ Permits**

Emergency fire numbers must be conspicuously posted.

Fire extinguishers and fire fighting equipment must be located and clearly marked with signs.

Flammable materials storage area and special fire hazards must be marked with appropriate warning and instructional signs.

Hot Work Permits will be required as the phases of operation change, or welding in an existing facility/building occurs. A Hot Work Permit designates the procedures to handle the hot work operations.

#### **17-5. Fire Prevention**

All temporary electric shall be in accordance with all current existing codes.

Storage of any material within 10 feet of fire hydrants is strictly prohibited.

Work areas shall be cleaned daily to prevent accumulation of material.

No motors or machinery shall be left running during nonworking hours except as specifically directed by CM/GC.

All heating equipment shall have necessary safety devices and shall be wired, piped, and operated according to all applicable Codes, Rules and Regulations.

All tarps and blankets shall be of fire retardant material.

All fuel and solvent containers shall be placed on drip pans.

No open burning or fires shall be permitted on site. Anyone doing so is subject to immediate dismissal.

No solid fuel shall be permitted on the site.

All gas cylinders such as propane, oxygen and acetylene shall be stored and tied in a vertical position in areas designated by the CM/GC. All stored cylinders shall be capped. Oxygen will not be stored within 20 feet of any other gas.

All gas cylinders in use shall be tied in the vertical position and capped at the end of the working day.

All oxygen and acetylene in use shall be on proper carts and with a fire extinguisher readily available.

Contractors and subcontractors are responsible for training their workers in the proper use of fire extinguishers.

Roofer's kettles shall be kept a minimum of 15ft away from buildings, finished walls, and material storage areas. A minimum of two 20# ABC fire extinguishers are required next to the kettles.

Individuals are not permitted to wear oil or tar soaked clothing.

Spark screens are required on hoist engines and salamanders.

## 18.0 Hot Work Permits

A hot work permit issued by the CM/GC will be required for all cutting, welding, brazing, abrasive cut off that will produce sparks or any other heat and ignition source causing work. During welding or cutting operations, a fire extinguisher, moving of combustibles 35 feet from the area or shielding them, fire watch after work completion and when appropriate pre wetting will be required and shall be the responsibility of the contractor and/or subcontractor performing the work.

## 19.0 Gasoline Power

### 19-1. Scope and Application

Most construction sites have gasoline equipment and thus introduce the hazard of potential fire and dangerous vapors. All welding equipment, generators, equipment that must be used inside the confines of an enclosed building shall have alternative means of energy production, i.e. propane or electrical powered. All contractors on this project shall abide by the following procedures and requirements.

### 19-2. Fire

OSHA and fire departments have regulations regarding quantity and methods of handling gasoline. The following rules will minimize the danger from fire:

- A. Review OSHA and local fire department requirements and comply with these standards.
- B. Storage of gasoline containers must comply with OSHA regulations, and fuel transfer operations must be conducted outside of the building.
- C. When drums are used for storage, use drum pumps that are designed specifically for flammable liquids. Use safety bungs for the vent opening. These are equipped with perforated cylindrical screens, which act as fire baffles. The use of a gravity feed or bottom draw drum is prohibited.
- D. Only UL listed metal safety cans with self-closing safety latch covers and flash arrestors are permitted on site. Plastic containers are prohibited on site.
- E. Shut down engine when refueling and allow exhaust to cool off.
- F. A 20-pound ABC dry chemical fire extinguisher must be available wherever flammable liquids are handled.
- G. No smoking near gasoline.
- H. All drum/containers will be properly labeled per OSHA 1926.59 Hazard Communication.

### 19-3. Gases

Gas engines exhaust carbon dioxide and carbon monoxide. A mixture of the gases usually is heavier than air although heat may cause it to rise. Both are without color, taste or smell. Light concentrations cause headache and nausea. Death is swift in heavy concentrations. Therefore, extreme caution must be taken when operating gas engines.

Do not run gas engines in pits, excavations, manholes, pipe or crawl spaces, confined spaces, etc. without positive ventilation. Always pipe gas engine exhausts to outside air when an engine is operated in an enclosed space. Start blower before engine. If engine stops, be sure space is well blown out before sending anyone in to restart. If in doubt, check for gas with CO Tester.

## 20.0 Hand and Power Tools

### 20-1. *Scope and Application*

The contractor is responsible for the safe condition and maintenance of all tools and equipment to be used by all contractor and subcontractor workers. When necessary, contractor superintendents shall be able to explain:

- A. Each step of a job or task.
- B. What is to be done and why.
- C. What hazards are involved.
- D. How to perform the job safely.
- E. Capacities and limitations of equipment.

The contractor superintendent shall ensure that their workers know how to safely use the tools with which they are required to work.

### 20-2. *Procedures*

Know the application, limitation, and potential hazards of the tool used.

Select the proper tool for the job.

Remove adjusting keys and wrenches before turning on tools.

Do not use tools with frayed cords or loose or broken switches.

Keep guards in place and in working order.

Have ground prongs in place or use tools marked "double-insulated."

Maintain working areas free of clutter.

Keep alert to potential hazards in the working environment such as damp locations or the presence of highly combustible materials.

Dress properly to prevent loose clothing from getting caught in moving parts.

Use safety glasses, dust, or facemasks, or other protective clothing and equipment when necessary.

Do not surprise or distract anyone using a power tool.

Hammers with broken or cracked handles, chisels and punches with mushroomed heads, wrenches with sprung jaws, or bent or broken wrenches shall not be used and will be promptly removed from service.



Most hand-held electrical tools must be equipped with a “dead-man” or “quick-release” control so that power is shut off automatically whenever the operator releases the control.

Portable circular saws must be equipped with guards above and below the base plate or shoe. The lower guard must retract when the blade is in use and automatically return to the guarding position when the tool is withdrawn from the work.

All hand-held portable electrical equipment must have its frame grounded or be double insulated and identified as such.

All operators of magazine fed or powder actuated tools shall reference the section entitled “Powder Actuated Fastening Tools”.

### **20-3. Training Requirements**

The contractor and/or subcontractor shall provide training, or retraining on safe tool usage and maintenance for workers.

#### **A. Grinding Wheels**

1. Grinding wheels shall not be operated at speeds in excess of the manufacturer’s RPM rating as labeled on the wheel.

Tool rests shall be adjusted to 1/8” from the grinding wheel.

Face AND eye protection, or safety goggles shall be worn by all employees using grinding wheels, jack-hammering, slag chipping, power actuated tools or similar operations.

#### **B. Radial Saws**

1. The upper hood shall completely enclose the upper portion of the blade down to a point that will include the end of the saw arbor. The sides of the lower exposed portion of the blade shall be guarded to the full diameter of the blade, by a device that will automatically adjust itself to the thickness of the stock.
2. Radial saws for ripping shall be provided with non kickback finger or dogs approved by the manufacturer.
3. The saw and table shall be designed to prevent the blade from traveling beyond the front of the table.
4. Installation shall be in such a manner so that the front end of the unit will be slightly higher than the rear, so as to cause the cutting head to return gently to the starting position when released by the operator.

- C. Table saws shall be equipped with a functioning hood, guard, anti-kickback device and splitter.
- D. Only power saws specifically designed by the manufacturer for cutting concrete block, or similar materials, shall be used for this purpose. Cutting shall be done with water spray and the operator shall wear a face shield.
- E. All hose couplings, pneumatic or hydraulic equipment, and tools shall be equipped with appropriate safety clips, or retainers and shall be properly installed and maintained.
- F. All appropriate machine and tool guarding devices shall be provided, be operational and used when the equipment is in operation.

## 21.0 Hearing Conservation Policy

### 21-1. Scope and Application

Workers are sometimes exposed to excessive noise levels on the job, without even knowing. Excessive noise can, and often does, cause permanent hearing loss if engineering controls or personal protective equipment is not used.

Limiting exposure to excessive noise through engineering controls is the preferred method of control. (Engineering controls may be as simple as removing a generator from the work area and using a longer power cord.) Where engineering controls are not feasible, supervisors shall provide and ensure that their workers wear hearing protection. When hearing protection is necessary, the use of protective equipment is required.

The objective of this policy is to prevent the unnecessary loss of hearing due to excessive noise levels.

- A. Contractors will be aware of and will notify their workers who may be exposed to sound levels equivalent to an average of 85 decibels (dB) over an eight-hour period that hearing protection is available and shall be utilized.
- B. As a rule of thumb, 85 dB may be defined as any level at which one has to shout in order to communicate at a distance of three feet.
- C. Contractors exposed to noise levels of 90 decibels or more shall be provided with and required to wear hearing protection, such as earmuffs or ear inserts.
- D. Contractors are solely responsible for any required noise monitoring for their workers in their work areas.
- E. When protective equipment is necessary; workers shall be given the opportunity to select their hearing protection from two different types of hearing protection.
- F. Earplugs or earmuffs, or a combination of the two.
- G. Workers who are issued hearing protective equipment shall receive training, which includes informing workers of the effects of noise on hearing and the purpose, use and care of hearing protection.
- H. This training is the responsibility of the contractor.

Warning signs stating "High Noise Area – Hearing Protection required" will be posted by the contractor on the periphery of all work areas where contractor workers may be exposed to excessive noise levels. Areas which require

posting and the use of hearing protection include at least the following. This list is not all inclusive and remains the responsibility of the contractor to determine hearing protection and posting needs.

- A. Abrasive cut off saw areas
- B. Powder actuated fastening tool areas
- C. Table saw areas
- D. Pneumatic hammers, drills, or other used on metal or other reverberating materials.
- E. Portable radios, Ipods, Walkmans, etc. are prohibited on all project sites. In all cases, where the sound levels exceed the values shown in the table below, a continuing, effective hearing conversation program shall be administered.

PERMISSIBLE NOISE EXPOSURE TABLE (Source: OSHA, 29 CFR 1926.52)

Duration per day, hours	Sound Level dBA slow response
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 or less	115

Plain cotton is not an acceptable protective device. Hearing protection shall be used only when it meets OSHA requirements and is suitable to correct the exposure.

## 22.0 Housekeeping

### 22-1. *Scope and Application*

During the course of construction, alterations, or repairs, forms, packing material, scrap lumber and other debris, shall be kept cleared from work areas, passageways, and stairs in and around buildings, other structures, and on the project site by the contractor completing the work. All protruding nails shall be either bent over or removed by the contractor and subcontractor.

Construction scrap and debris shall be removed daily during the course of construction, alterations, and repairs. Safe means shall be provided to facilitate such removal. At no time shall debris be allowed to accumulate. Contractors are solely responsible for the daily cleanup of their immediate work areas.

Individual containers shall be provided for the collection and separation of combustible waste and trash from oily and solvent soaked rags. Containers used for oily and solvent soaked rags containing combustible and flammable liquids, or other hazardous wastes such as caustics, acids, or harmful dusts, shall be equipped with covers.

Any dumpster in use shall use an "open door" policy or have a proper step platform built up to its side. Garbage and other waste shall be disposed of daily.

Storage areas and tool rooms must be kept free from the accumulation of material and debris that may cause tripping, fire, explosion, or harboring of rats and other pest hazards.

Contractors are responsible for providing trash receptacles for lunch and break trash. Littering by workers is prohibited on the jobsite.

Contractors are required to participate in a general cleanup effort on a weekly basis if specified by contract. If a contractor fails to complete housekeeping tasks, CM/GC will assign those duties to another contractor and back charge the failing contractor for all expenses incurred.

## 23.0 Ladders

### 23-1. *Scope and Application*

Ladders shall be inspected by the contractor's competent person. The use of ladders with broken or missing rungs or steps, broken or split rails, or other faulty or defective construction is prohibited. When ladders with such defects are discovered, they shall immediately be withdrawn from service and tagged to prevent use, or destroyed.

Portable ladders shall be placed on a substantial base of a 4-1 pitch (toes touching at base of ladder with arms fully extended to side rails), have clear access at top and bottom, extend a minimum of thirty-six (36) inches above the landing and be secured against movement while in use.

Ladders used in any location where they could be displaced by traffic shall be secured to prevent displacement and shall be barricaded. The area around the top and bottom of a ladder shall be kept clear of debris and material.

Extension ladders shall be secured at the top and bottom unless a second employee is assigned to a "spotter" job.

When ascending or descending a ladder, the user shall face the ladder using at least one hand to grasp the ladder (3-point contact). A worker shall not carry an object that could cause the worker to lose balance and fall. Tool ropes shall be provided for hoisting and lowering objects.

When working from ladders, special consideration for fall protection equipment shall be taken when working near the building perimeter or open shafts. Refer to the project fall protection policy included in this program.

Each contractor worker shall be trained by their Competent Person to recognize the hazards relating to ladders.

Maximum ladder height for any extension ladder is 24' from the base to the top landing. If greater than 24', other means of access must be provided by the contractor.

### 23-2. *Step Ladders*

Stepladders shall only be used in an open (fully extended) position. The top and top two (2) steps of a stepladder shall not be used as a step. The use of stepladders as extension ladders is prohibited.

### 23-3. *Metal Portable Ladders*

Portable metal ladders are not permitted on this project. The only exception to this policy is metal ladders designed and used specifically for attachment to scaffolds or skeleton steel during steel erection.

#### **23-4. Job-Made Ladders**

Determine the height the ladder is to reach and add 36 to 42 inches to allow side rails to extend adequately above the top landing to provide a handhold. Set rails on level, even and with solid footing at locations where there will be no danger of being struck by passing vehicles or equipment. Where ladders shall be placed in passageways or other thoroughfares, they shall be protected by barricades around their base.

The maximum length of single-cleat ladders shall not exceed 24 feet between supports (base and top landing). If ladders are to connect different landings, or if the length required exceeds the recommended maximum length, use 2 or more separate ladders staggered with a protected platform between each ladder. The maximum length of double-cleat ladders shall not exceed 24 feet. If ladders are to be used by masons or hod carriers, the length shall not exceed 20 feet.

Job-made ladders will not be fabricated with double head nails unless the nails are driven flat.

All job-made ladders, landings and lashings shall be inspected at least every week by the creating contractor and any defects shall be corrected immediately.

## 24.0 Material and Personnel Hoists

### 24-1. *Scope and Application*

Material and personnel hoists must comply with the following general requirements.

### 24-2. *General Requirements*

All hoists shall comply with the manufacturers' specifications and limitations applicable to their operation. Where manufacturers' specifications are not applicable, the limitations assigned to the equipment shall be based on the determination of the using contractor's professional engineer competent in the field. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be posted on cars and platforms.

Following assembly or erection of hoists, and before being put into service, an inspection and test of all functions and safety devices shall be completed by the contractor or installation contractor. A similar inspection and test is required following any major alterations or repairs. All hoists shall be inspected at least every 3 months by the contractor. Records shall be maintained on-site by the contractor.

When hoist platform/cage is on upper levels, first floor level shall be guarded to prevent entry of personnel or storage of material.

Material hoists shall conform to the regulations of ANSI A10.5 and personnel hoists to ANSI A10.4.

Smoking is prohibited in all hoists. No Smoking signs should be posted in all hoists.

A portable fire extinguisher with a minimum rating of 5A will be installed in all hoists and inspected monthly by the hoist operator.

Arm and hand guards should be installed on all floors by the contractor to prevent workers from coming in contact with the hoist while it is in operation, opening of the gate, etc.



## 25.0 Material Handling and Storage

### 25-1. *Scope and Application*

Material handling whether manual or mechanical represents a significant exposure if not performed properly. Likewise, improper storage of material could result in worker injuries and property damage.

### 25-2. *General Requirements*

All materials shall be handled and stored with the utmost care. Contractors and subcontractors shall ensure that their workers are trained in proper moving, lifting, grabbing, hoisting, team lifting, and any accessories for handling materials.

No workers are to be exposed to manual material handling that could result in injury to themselves or others. Therefore, a maximum lifting capacity of 50 pounds per worker has been established for this project. If manual material handling exceeds 50 pounds per worker, then a preplanning meeting must be held with the Superintendent and/or Site Safety Manager.

In lieu of manual material handling, mechanical equipment should be utilized as much as possible.

The wearing of gloves by workers handling material with sharp edges (i.e.: metal studs, duct work, etc.), using utility knives for cutting sheetrock, etc. will be mandatory on the project to reduce potential lacerations. The subcontractor, in conjunction with the CM/GC, will select the appropriate cut resistant glove that best protects the workers from potential lacerations.

Gloves will also be worn by all workers exposed to harmful substances, abrasions, punctures, burns, and any harmful temperature extreme (hot and/or cold) while performing work.

### 25-3. *Storage*

All temporary storage of material shall be neat, orderly, and out of walkways, stairways, fire escapes, etc.. Materials shall not be haphazardly piled or strewn about in any work area.

**AT NO TIME WILL MATERIAL BLOCK ANY MEANS OF EGRESS.**

The storage of material shall not create hazards. Bags, bundles, pipes and other containers or materials must be stacked, blocked (cribbed), interlocked, and limited in height so they do not slide or collapse.

All material should be secured down at all times to avoid being airborne in the event of high winds and stored off the ground on pallets, 3 x 4 or 4 x 4 timbers. 2 x 4 timbers are prohibited unless laying flat.

Material subject to water damage must be protected from the weather or other sources of water by storage on braces to keep it elevated above the ground level as well as inside storage, tarps or removal from the outside storage area.

The CM/GC's management shall designate areas for storage for each contractor's materials. The contractor is responsible for notifying the CM/GC five days prior to a material shipment arriving at the project site to ensure proper planning for storage. The contractor and subcontractor is solely responsible for any materials brought on to the site.

All equipment utilized in the movement and storage of materials shall be in good condition and shall meet the manufacturer's specifications, and all applicable federal, state, and local standards and codes. All personnel utilizing such equipment shall be properly trained as to the operation of such equipment. The contractor and/or subcontractor is solely responsible for such training and retraining if required.

The hoisting of material in 55-gallon drums with torched out handle holes for rigging straps or cables is prohibited. If 55-gallon drums are to be utilized for moving material onto the building, they must be secured in a drum cradle.

## 26.0 Compressed Gas Cylinders

Valve protection caps shall be in place when compressed gas cylinders are transported, moved or stored for more than 24 hours.

Cylinder valves shall be closed when work is finished and when cylinders are empty or are moved.

Compressed gas cylinders shall be secured in an upright position at all times, except when cylinders are actually being hoisted or carried.

Cylinders shall be kept at a safe distance or shielded from welding or cutting operations and shall not be placed where they can contact an electrical circuit.

## 27.0 Welding

### 27-1. Scope and Application

There are a number of hazards associated with electric or arc welding, which can be safely handled and executed, when safety precautions are taken.

### 27-2. General Requirements

Contractors and subcontractors shall comply with the following general requirements:

- A. The frame of a portable welding machine operating from an electric power circuit shall be grounded. Switching equipment for shutting down the welding machine shall be provided on or near the welding machine.
- B. The electrode holder and connecting cable shall be fully insulated. Light holders shall not be used for heavy work, and welders shall avoid standing on damp or wet surfaces while welding. All equipment shall be checked regularly to make certain that electrical connections and insulation on the holders and cable are in good order. Cables shall be kept dry and free from oil and grease. They shall be arranged in such a manner that they do not lie in water, in oil, in ditches, or on bottoms of tanks. A certified electrician shall perform electrical repairs and maintenance work on welding machines. Electric stubs shall be placed in containers provided by the contractor for this purpose.
- C. Where welding or cutting has to be done in the vicinity of combustible material, special precautions shall be taken to make certain that sparks do not reach such material and start a fire. If the work cannot be moved a safe distance away (35ft), exposed combustible materials shall be covered with fire retardant material or sheet metal during welding operations. Tanks, drums, and pipelines that have contained flammable liquids shall be cleansed of all solid or liquid flammable material and purged of all flammable gases and vapors before welding operations are started.
- D. Where welding or cutting is required as described in above paragraph, a "HOT WORK PERMIT " will be required. This permit shall be issued by project safety manager.
- E. Wood floors shall be swept clear before welding or cutting operations are started.
- F. Portable 20 pound ABC fire extinguishers and water shall be readily accessible at the site of work.

- G. Welders shall be taught to keep welding cables in an orderly fashion and away from places where it could cause a stumbling hazard or become damaged. Where possible, it shall be strung overhead high enough to permit free passage of vehicles and persons.
- H. The contractor shall barricade or isolate the areas below any welding (or torching) operation with danger tape to prevent other trades or the public from being exposed to falling sparks or slag. Proper signage should be posted. The contractor shall provide a fire watch throughout the operation and at least one (1) hour after the operation is completed.
- I. Welding screens shall be provided to protect workers/visitors in the immediate area.
- J. Contractors shall instruct employees in the safe and proper use of cutting and welding equipment, prior to use.
- K. Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use. Each regulator shall be provided with an anti-flashback device for protection against excessive oxygen back pressure in the fuel gas supply.
- L. Combustible materials shall be protected from sparks and slag.
- M. Proper personal protective equipment shall be worn while welding and cutting.
- N. Welding screens shall be used in areas where prefabrication work is to be performed.
- O. Oxygen and fuel gas regulators and hoses shall be maintained and in proper working order while in use.
- P. All oxygen cylinders and fittings shall be kept free of grease and oil.

## 28.0 Oxy-Acetylene Burning and Welding

### 28-1. *Scope and Application*

The task of cutting metal with an acetylene flame shall be assigned only to experienced workers. Goggles meeting a minimum requirement of 7, 8, or 9 tinted shade shall be worn at all times while cutting. Proper gloves shall be worn. Outer clothing shall be free from oil or grease and of fire resistant material. Sleeves and pockets shall be kept buttoned. High top shoes and fire resistant leggings or high boots shall be worn.

Where welding or cutting is required a "HOT WORK PERMIT" shall be required. This permit shall be issued by Project Safety Manager.

Contractors shall provide some means of catching sparks and slag when cutting or welding. Portable, hand-operated 20# ABC fire extinguishers and a source of water shall be within 25' of the work area. Contractors shall also provide a 1 hour fire watch prior to, during, and after all burning or welding operations.

Workers below all welding and cutting operations shall be protected by the following means: verbal warning, ground monitor, warning signs, and taping off the area with "Caution" tape (yellow) or "Danger" tape (red).

Welding screens shall be provided to protect workers/visitors in the immediate area.

Acetylene shall never be used at a pressure of more than 15 pounds per square inch, as it is likely to explode above this pressure. All torched used shall be of the type with built in anti-reverse flow valves/flashback suppressors.

### 28-2. *Handling Storage of Cylinders of Oxygen*

Compressed oxygen plus oil is explosive. No oil or grease of any kind may come in contact with valve, regulator or any other portion of the cylinder or apparatus.

When shipping empty oxygen cylinders to distributors, lower portion of the green tag attached to cylinder shall be removed at the perforated line. Any green sticker label found pasted to the cylinder shall be removed. Bill of lading shall specify that the cylinders are empty and serial numbers of the cylinders shall be noted thereon.

Cylinders of oxygen except those in actual use or required for the day's supply, shall be stored in a place designated by the CM/GC's Management, where they will not be tampered with by unauthorized persons. Oxygen cylinders shall be stored in a vertical position with caps in place.

Cylinders of oxygen shall never be stored in the same room used for the storage of calcium carbide, cylinders of dissolved acetylene or other fuel gases, or with acetylene generators. The stored oxygen cylinders shall be at least 20 feet from acetylene cylinders or separated by at least a one-half hour, 5-foot high barrier.

Open flames of any description shall not be employed in any building used for the storage of oxygen cylinders.

If cylinders are stored on the ground or open platforms, such locations shall not be adjacent to points where there is a large amount of combustible material.

### **28-3. Acetylene**

When cylinders of acetylene are not in use, outlet valves shall be kept tightly closed and valve caps replaced, even though cylinders may be considered empty.

Cylinders shall be stored in a safe, dry, well-ventilated place where they will not be unduly exposed to the heat of the stoves, radiators, furnaces or the direct rays of the sun, designated by the CM/GC.

Cylinders of dissolved acetylene shall always be stored standing upright with valve end up and capped.

When shipping empty acetylene cylinders and other fuel gas cylinders to manufacturers, lower portion of red shipping tag attached to cylinders shall be removed at the perforated line. Any red sticker label found pasted to a cylinder wall also shall be removed. Bill of lading shall specify that the cylinders are empty, enumerating the type and individual numbers of such cylinders.

Under no circumstances shall an attempt be made to transfer acetylene from one cylinder to another or to compress acetylene into a cylinder.

### **28-4. General**

When transporting, moving and storing compressed gas cylinders valve protection caps shall be in place and secured.

When oxygen and acetylene cylinders are hoisted, they shall be secured on a cradle, sling board or pallet. They shall not be hoisted or transported by means of magnets or choker slings. They shall not be used as a weight for crane cables.

Cylinders shall be secured in an upright position at all times. Oxygen and acetylene cylinders not in use shall be separated by 20-feet or a ½-hour fire

rated wall. Gauges shall be removed at the end of each work shift and properly stored.

Cylinders shall be handled carefully, never shall be dropped, and shall be placed so they will not fall or be struck by other objects. ‘

Partially used cylinders shall be closed at the valves.

When exhausted, cylinders shall be returned as rapidly as practicable to the storage building or place and from there to the manufacturer. Empty cylinders shall be marked “Empty” and stored apart from full cylinders to prevent confusion. Valves shall be closed and valve protection caps replaced.

Fuel and oxygen hoses, including couplings, shall be inspected frequently to ensure they are not frayed or otherwise damaged.

Storage of compressed gas hoses shall only be in a ventilated gang-box.



## 29.0 Powder Actuated Fastening Tools

### 29-1. *Scope and Application*

Generally, two types of powder actuated fastening tools are available for use on our work. They are high velocity and low velocity types. Fasteners driven by both types have approximately equal holding power. The greatest number of serious injuries and fatalities has been from misuse of high velocity tools.

Therefore, to reduce the possibility of injuries, only LOW VELOCITY POWDER ACTUATED FASTENING TOOLS shall be used on this project. The stud, pin, or fastener of these tools shall be caused to have a velocity not to exceed 300 feet per second when measured 6-1/2 feet from the muzzle by accepted ballistic test methods.

### 29-2. *Procedures*

Contractor superintendents shall enforce compliance with Federal OSHA regulations governing the use of the tools along with the contents of this bulletin.

The use of Powder Actuated Fastening Tools shall be governed by the following rules:

- A. Tools shall meet requirements of the latest edition of ANSI A10.3.
- B. Only employees who have been trained in the operation of the particular tool in use shall be allowed to operate a power actuated tool. ANSI Standard A10.3-1970.
- C. Only contractor workers qualified by instructions of the manufacturer's qualified representative and/or licensed by the state or local authorities shall be assigned to use a powder actuated fastening tool. All qualified workers shall carry proof of training by way of a training identification card at all times.
- D. Only cartridges and fasteners supplied by the manufacturer of the tool shall be used.
- E. Powder actuated fastening tools shall be handled with the same care as firearms. Horseplay by any contractor worker (i.e. pointing an armed or unarmed tool at anything other than the work, target practice, making safety devices inoperative, or other unsafe acts, etc.) will be grounds for immediate and permanent removal from the job site.
- F. All safety devices incorporated in the tool by the manufacturer shall be used at all times. A sign, minimum 8" x 10" with 1" letters, stating "Powder

Actuated Tool in Use” or equivalent shall be posted by the contractor in area of use. (ANSI A10.3) maintained within a 50ft radius.

G. Powder actuated fastening tools approved for use on this project:

Piston Tool - A Low Velocity type utilizing a piston activated by the power of a blank cartridge furnished by the Tool Manufacturer to drive a stud, pin, or fastener into a work surface.

Powder Assisted Hammer Drive Tool - A Low Velocity type utilizing a captive piston activated by a blow from a 4 lb. hammer supplemented by the power of a blank cartridge furnished by the Tool Manufacturer to drive a stud, pin, or fastener into a work surface.

H. All used and unspent cartridges shall properly be disposed of per manufacturer recommendations. Throwing cartridges on the floor is prohibited.

**29-3. Powder Actuated Tools Firing Mechanism and Misfire**

Firing of the tools shall be dependent upon at least two separate and distinct operations of the operator.

- A. The final firing movement being separate from the operation of bringing the tool into firing position. The tool shall be designed to operate when being held against a work surface with a force of at least five pounds greater than total tool weight. Caution must be exercised to ascertain the proper color coded charge, for the materials involved, is utilized.
- B. In case of misfire, the operator shall hold the tool in the operating position for at least 30 seconds. The operator shall then try to operate the tool a second time. The operator shall wait again for 30 seconds, holding the tool in the operating position. Then proceed to remove the explosive load in strict accordance with the manufacturer's instructions. Misfired cartridges shall be placed carefully in a metal container filled with water and returned to the supervisor for disposal.

## 30.0 Personal Protective Equipment

### 30-1. *Scope and Application*

Personal protective equipment (PPE) guidelines are written in order to standardize the use of PPE on the jobsite. When contractors are exposed to flying material chips, falling objects, heat, light and other hazards, special personal protective equipment is required. Each individual contractor is responsible for requiring and enforcing the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions. Federal, State and local safety rules shall be checked regarding the use of such equipment. Use only equipment approved by the National Institute of Safety and Health and comply with all OSHA regulations (29 CFR, Subpart E) regarding personal protection equipment.

Used personal protective equipment shall never be given to a worker without having been cleaned and sterilized.

The use of PPE shall be the last means in controlling exposures to the known hazard. When potential exposures are encountered, the following control measures must be applied before PPE is considered.

- A. Substitute the material (Eliminate the Hazard).
- B. Change the process (Reduce the Hazard).
- C. Make use of engineering controls (Reduce the Hazard).
- D. Implement administrative work practice changes (Minimize the Risk).
- E. Use of PPE.

### 30-2. *Head Protection*

All persons on the work site shall be protected by NONMETALLIC protective helmets which meet ANSI Z89. 1-1969 (Class A) Safety Requirements for Industrial Head Protection. Bump caps are not acceptable. Impact resistant hard hats provide protection only when the inside web suspension is intact and is adjusted to correct head size with proper crown clearance. All hardhats shall be worn with the brim forward. No "soft top" welding shall be permitted.

### 30-3. *Eye Protection*

Eye protection with side shields and/or one-piece goggles, complying with the requirements of ANSI Z87.1 are required to be worn by all job contractors and visitors while on the job site as a condition of employment or visitation.

Cup type chipper goggles and a face shield shall be used by workers in heavy breaking or drilling.

Face shields shall be worn in conjunction with safety glasses for protection from flying particles produced from light drilling, grinding, breaking, chipping, and all power saw usage. Adapters for use with hard hats or caps are required, if warranted.

Employees exposed to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be optical density (O.D.) adequate for the energy involved.

Shaded spectacle glasses or shaded face shields shall be worn by contractors engaged in oxy-acetylene burning and welding by contractors engaged as electric welders' helpers. Shade 7, 8, 9 or darker is required.

All contractors engaged in electric or arc welding shall use welding masks and hoods. Contractors shall consult suppliers for the exact shade to match the amperage tube used.

#### **30-4. Respiratory Protection**

Contractors exposed to dust, metal fumes, fibers, vapors, and gases shall be provided with proper respiratory protection. (NIOSH approved)

Respiratory protection must be designed to protect against the particular substance/exposure, be approved by the U.S. Bureau of Mines, or acceptable to the U.S. Department of Labor, for the specifications.

Employees required to use respiratory protective equipment must be trained in the use and limitations of such equipment. Documented evidence of this training shall exist on the site for viewing.

The contractor is solely responsible for the proper testing and training per Federal OSHA standards, and to provide the appropriate equipment.

Whenever feasible administration and/or engineering controls fail or are inadequate to prevent harmful exposures to employees; the contractor shall provide and require the use of appropriate respiratory protective devices in accordance with OSHA 1926.103.

Respiratory protective equipment shall be inspected regularly and maintained in good condition. Defective or worn parts shall be replaced.

#### **30-5. Hand Protection**

To protect workers from jobsite exposures, various types of gloves are to be worn by workers to protect their hands against particular hazards such as

harmful substances (chemicals, dust, concrete, etc.), lacerations, abrasions, punctures, burns, harmful temperature extremes (hot & cold) etc.

The wearing of gloves is required when exposed to specific hazards: rubber gloves to handle alkalis and other chemicals, leather gloves to handle rough items such as reinforcing steel, lumber, masonry, etc., special leather gloves to protect against welding heat sparks and slag, cut resistant gloves when exposed to sharp edges (i.e.: metal studs, duct work, etc) and using utility knives for cutting sheetrock, etc.

### **30-6. Foot Protection**

Contractors shall wear foot guards when working with soil tampers or where falling objects could be dropped on one's shoes. Steel toe boots are a mandatory requirement on this project.

Soft shoes or sneakers are not permitted. Visitors shall wear appropriate sturdy shoes or be kept out of the construction area.

### **30-7. Body Protection**

All personnel shall wear shirts and long trousers to protect against the elements and work site hazards. NO sleeveless or cutoff shirts, tank tops, mesh shirts, shorts, or sweat pants will be permitted. Sleeves shall extend a minimum of 4" from the top of the shoulder.

Special clothing is required when working in very hot, cold or wet work places, or when working with some chemicals, such as alkalis. Contractors are responsible to provide their workers with the proper clothing in these situations.

### **30-8. Special Protective Equipment**

Contractors working in certain operations (chemical work, etc.) shall be provided and wear the specialized protection equipment designed for that particular operation. (Wood-soled shoes, nonsparking tools, chemical goggles, etc.) The MSDS shall be consulted regarding protective equipment required.

### **30-9. Reflective Safety / High-Visibility Vests**

Reflective safety / high-visibility vests shall be worn by all contractors, subcontractors, and tiered-subcontractors working on the site for the duration of the project or as deemed necessary by site safety. The vest, complying with the requirements of ANSI 107.1999, shall be worn by all project contractors and visitors while on the job site as a condition of employment or visitation.

### **30-10. Signs, Signals, Barricades & Traffic Control**

All traffic signs or devices used for protection of construction workmen or the public shall conform to the Manual on Uniform Traffic Control Devices (MUTCD).

Barricades, cones and/or similar protective devices shall be used whenever men or equipment are exposed to traffic or similar hazards.

When traffic lanes are closed due to work activity, advance warning signals and high level warning devices shall be used as described in the MUTCD.

Flaggers and signalers shall be properly trained and use appropriate procedures as described in MUTCD.

All employees are required to wear a reflector vest at all times.

Whenever and wherever possible and necessary, line voltage (12 volt) protected lights shall be used to mark fences and barricades.

Where covered sidewalks are required they shall be provided with permanent lights to provide sufficient illumination for safe use by the public, day or night. All bulbs shall be cage-protected.

Public walkways shall be kept clean and free of hazards at all times.

Where the contractor is required to provide public walkways, they shall have an abrasive, non slip surface.

Where access to bus stops is disturbed or obstructed by the contractor's operations, safe access shall be maintained or the bus stop relocated as directed by the project manager. Coordination for maintaining or relocating bus stops with the appropriate agencies is the sole responsibility of the contractor.

When steel plates or similar covers are used on public ways to cover excavations, they shall be substantially secured to prevent movement imposed by traffic. Covers shall have a non-slip surface, conforming to OSHA standards.

When such covers are located where there is pedestrian exposure, they shall be tapered at all sides with cut-back cold mix or similar material to eliminate tripping hazards. Such covers shall have a non-slip surface.

Free access shall be maintained to every fire extinguisher, fire hydrant, fire alarm box, fire escape and standpipe connection, street and traffic control box. When required, hydrants shall be extended by suitable tube or piping to an accessible point as approved by the project manager. No obstructions shall be allowed at any time within 15 feet of a fire hydrant. Where materials

are placed in the vicinity of a fire hydrant or a fire alarm box or fire extinguisher, and to such a height as to prevent the same from being readily seen, the position of such hydrant or fire alarm box or fire extinguisher shall be indicated by suitable signals, both day and night.

The contractor shall erect and maintain fences and barricades to enclose the contractor's work area and provide watchmen where required to prevent unauthorized access.

## 31.0 Protection of Openings, Open Sided Floors and Decks

### 31-1. *Scope and Application*

Floor openings, perimeters/ leading edge work, and workers struck by falling objects, are one of the most severe hazards we face. The object of this policy is to present the common methods for reducing these hazards and the protection of workers.

Whenever there is a potential for a fall of 6 feet or more, the perimeter must be protected by a minimum of a standard guardrail.

When conducting leading edge work 6 feet or more above any lower levels, a fall protection system must be used. Note: the only exception is when an employee can demonstrate a greater or more probable hazard exists. The employee shall develop and implement an approved fall protection system. This will only be used for those individuals (in that crew) that are exposed to the greater hazard and approval must be issued by the Project Safety Manager, prior to implementation.

Any employees working outside the perimeter must be tied off with approved fall protection and to a sufficient anchorage point (capable of supporting 5000 lbs/ person).

Frequently, railings and covers shall be moved in order for material to be hoisted or to perform other work and then replaced. In either case, procedures and designs to facilitate swift and safe removal and replacement shall be developed during pre-job or preoperational planning and strict enforcement of those procedures required. 100% positive 6-foot fall protection is required and must be maintained during the installation and removal of these devices.

The use of metal banding or chains (except when furnished by the manufacturer of the equipment) is prohibited as perimeter or other fall protection.

### 31-2. *Floor/ Roof Openings and Covers*

A standard railing or cover shall protect floor and roof openings. All "skylights" shall be protected in the same manner.

Covers shall support without failure at least twice the weight of the contractor's equipment, and materials that may be imposed on the cover at any one time.

All covers shall be secured so as to prevent displacement.

All covers shall be color coded or marked with the words "hole" or "cover".



### **31-3. Standard Railing**

Whenever there is the potential for a fall of 6 feet or greater, or when employees have an extensive need to work beyond the perimeter guard system, a cabling system must be installed for tying off. The following specifications are a minimum standard and apply to all installations.

The top edge height of a top rail shall be 42 inches plus or minus 3 inches above the walking/working level.

Note: When contractors are using stilts, forming elevated concrete slabs, etc., the top height of the top rail shall be increased an amount equal to the height of the stilts, slab, etc.

Midrails shall be installed between the top rail and the walking/working surface at a height of 21 inches, or half the overall distance.

The top rail shall have a breaking strength of 200 lbs. applied within two inches of the top edge, in any outward or downward direction at any point along the top edge.

Midrail members shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the mid-rail. Additional mid-rail may be required if the top rail is greater than 45 inches in height.

Toe boards shall be a minimum of 3-1/2 inches in vertical height with only a quarter inch clearance off the floor. There shall be no opening greater than one inch between toe board members.

Toe boards shall be capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or outward direction at any point along the toe board.

For wood railings, the posts shall be at least 2" x 4" stock spaced not more than 8 feet apart. The top rail shall be of 2" x 4" stock, and the intermediate rail shall be at least a one by six-inch board. Toe boards may be constructed of 3-1/2 inch board. No double-headed nails are to be used in the construction of these railings.

For pipe railings, posts, top rails and intermediate railings shall be at least 1-1/2 inch nominal diameter (schedule 40 pipe) with posts spaced not more than 6 feet apart on centers.

For structural steel railings, posts, top rails and intermediate rails shall be at least 2" x 2" x 3/8" angles, with posts spaced no more than 6 feet apart on centers.

When wire rope is used for guardrails, the cables may be ½-inch wire rope, but in no situation may they be less than 3/8-inch steel cable. Any coatings used on the cables to prevent cuts or lacerations will be over the 3/8-inch diameter. When wire rope is used for top rails it shall be flagged at no more than six-foot intervals with highly visible materials. Proper tightening of cable clamps is required. Tension of cable lines is required for minimal deflection (approximately 3 inches in an upward and/or downward direction , per 30 foot span).

Posts shall not be more than 6-feet on center. For cable safety railings, cables shall be looped and triple clamped at the connecting points. Single cables running past each other are not acceptable.

**AT NO TIME WILL ANY GUARDRAIL BE USED AS A HORIZONTAL ANCHORAGE FOR PERSONAL FALL ARREST EQUIPMENT UNLESS SPECIFICALLY DESIGNED AND MAINTAINED FOR THIS PURPOSE.**

Contractors breaking, loosening, or removing, any handrails are responsible for replacing / restoring the handrails back to the handrail standards outlined in this RTD FasTracks Construction Safety Guideline.

## 32.0 Impalement Protection

### 32-1. Scope and Application

During construction contractors may erect forms or perform other duties over exposed vertical or upturned reinforcing bars, bolts, or other protrusions (i.e., conduits/pipes, form stakes, etc). Serious injuries and deaths have resulted from falls on these protrusions. Also, floor slab reinforcing that extends beyond a section of the slab, can be a tripping hazard.

All vertical or upturned protruding reinforcing steel, stakes, electrical conduit, water pipes, etc., which constitute an impalement hazard, shall be protected to eliminate the hazard of impalement.

Several approved methods to protect against this hazard are:

- A. Impalement caps which are designed with a metal plate inside.
- B. Continuous 2"x4" wood rail which are secured to avoid movement/displacement.
- C. Empty steel drums placed over the dowels until the column reinforcing is placed. The drums are then moved forward as the work progresses.
- D. Plank covers for rows of bond bars.
- E. "Bar guard": (produced by the American All Safe Company, Inc., Buffalo, New York) placed over each bar. (Check local or state regulations)
- F. Note: Mushroom caps do not constitute impalement prevention.
- G. 4" x 4" x 4" wood blocks drilled to bar size.
- H. Wire mesh or reinforcing bars extending beyond a section of slab in place shall be bent down and secured to eliminate a tripping hazard. Otherwise, contractors shall be prohibited from walking over the area.
- I. It is the responsibility of each company to assign an employee to check the impalement hazards on a daily basis and during changes in operations.
- J. If impalement protection can not be provided, the area must be made into a limited access zone. Any work performed in these areas must be away from any of the impalement hazards. Note: Do not store any material or tools within these limited access zones.

## 33.0 Safety Signs, Posters and Banners

### 33-1. *Scope and Application*

All required signage must be placed on the jobsite where most employees will see it frequently. An information/ bulletin board must be set up to share information.

Any jobsite signs and safety postings are the responsibility of the CM/GC.

Proper signage is important on any project. The jobsite superintendent is responsible for selection of proper signage and the locations to be installed.

Warning, Danger, No Trespassing and other signs, correctly posted, help to protect the public and contractor workers from accidents and incidences.

Proper signs shall be posted and maintained in good condition by the contractor wherever hazardous conditions exist. A sufficient supply of the necessary signs shall be kept on hand for replacement and to cover new hazards as they develop.

All employees must be trained in the meaning of the various signs, tapes, tags and postings. This training shall consist of recognizing the various danger signs in order to understand the hazard and take appropriate precautions.

Additional posting requirements to be completed by the contractors are found in the Federal Occupational Safety and Health Act, Construction Standards. Such requirements include but are not limited to posting for lasers, powdered actuated tools, and overhead hazards.

Note: Banners, signs, posters, stickers, etc. with political messages, obscene wording or drawings, or anything deemed offensive to the owner, owner's workers, other subcontractors workers and/or the general public, are prohibited from being posted or displayed on the jobsite.

## 34.0 Scaffolding- Work Platforms

### 34-1. Scaffolds OSHA 1926.450

Follow the general requirements listed below when constructing and using scaffolds.

- A. All scaffolding must be inspected by a Competent Person. The inspection must be documented on the "Daily Scaffold Inspection and Permit". The Stop and Go sign must be placed at the access point on the scaffold.
  - 1. On a daily basis, before it is used.
  - 2. After any event that could cause the scaffold to be unstable. Those events include:
    - a. Rain
    - b. Earthquake
    - c. Disturbance in soil
    - d. Being struck by a piece of equipment
- B. Footings or anchorage must be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects must not be used to support scaffold or planks.
- C. No scaffold may be moved, erected, dismantled, or altered except under the supervision of a Competent Person.
- D. Guardrails and toe boards must be installed on all open sides and ends of platforms more than 6 feet above the ground or floor. Scaffolds 4 feet high, and a minimum horizontal dimension in either direction of less than 45 inches, must also have standard guardrails installed.
- E. Guardrails must be 2 inches x 4 inches or equivalent, approximately 42 inches high with a 2 inch x 4 inch mid-rail. Supports must not be spaced more than 8 feet apart. Toe boards must be a minimum of 3 ½ inches high. Note: Cable may be used if the procedures outlined in 10.C are followed.
- F. When persons are required to work or pass under a scaffold, a screen must be installed from the floor of the scaffold to at least 21 inches high.
- G. When designing your scaffolding system, the system will be built using a minimum safety factor of 4 times the maximum intended load.
- H. Any scaffold members or accessories that are damaged must be repaired or replaced immediately.

- I. All scaffolding members must be "Scaffold Grade." All planks must be stamped or certified by a recognized grading agency.
- J. Maximum permissible spans can be found in the CFR 1926.451.
- K. All planking must overlap by at least 12 inches or be secured from movement.
- L. Scaffold planks must be at least 6 inches but no more than 12 inches over their end supports.
- M. Provide an access ladder or equivalent safe access. The access ladder must meet all OSHA requirements.
- N. Poles, legs, or uprights must be plumb and securely and rigidly braced to prevent swaying and displacement.
- O. All pieces of the scaffold must be installed before the scaffold is to be used.
- P. All necessary protection must be provided when the employees are exposed to a specific hazard.
- Q. All materials being hoisted on to the scaffold must have a tag time.
- R. If weather protection is used on scaffolds, the manufacturer's recommendations must be followed.
- S. The planking must be laid in a manner that minimizes changes in the walkway.

All personnel involved in the erection process who are working on partially completed levels must have been through documented training. No temporary day labor personnel must be exposed to hazards without specific approval from the on site safety manager or site superintendent.

#### **34-2. Baker Scaffolds**

A narrow, free-standing scaffold is generally referred to as a Baker scaffold. It measures 45 inches or less across the smallest horizontal dimension. All applicable conditions in "General Requirements" Chapter 10.A and in OSHA 1926.Subpart 'L' must be met.

##### **A. Additional Safety Requirements**

- 1. When an employee is positioned 4 feet or more above the ground, or floor directly below, standard guardrails and toe boards are required on all open sides and ends of the work platform.

2. If the scaffold has wheels, they must be locked and blocked from movement whenever employees are on the scaffold.
3. The scaffold must be set plumb on solid footing.

### **34-3. Form Scaffolds**

Forms used for concrete placement require employees to move around on wall and column forms. During the cycle of positioning on a form, stripping a form, and moving forms, employees move about repeatedly.

Form design and construction should include features that provide for safe movement of employees who are working on the forms. Contact Form Supply Engineer for information.

#### **A. Standard Features**

1. Provide fully planked work platforms, minimum of 18 inches in width.
2. Secure planks to platforms.
3. Guard all open sides with top-rails, mid-rails, and toe boards.
4. Guard all open platform ends.
5. Provide ladders to platform areas to avoid workers climbing the form structure. Ladder must meet all OSHA requirements.
6. Create tie-off anchors if none exist.
7. Employees on wall forms must not step up on the wall without being tied-off.
8. There must be a minimum safety factor of four times the maximum intended load.

#### **B. Gang Forms**

1. Gang forms that utilize more than one work platform require additional features:
2. Mount access ladders so employees can climb from one platform level to another.
3. Provide hinged hatch type doors in platforms that cover holes, yet allow access to and from ladders below.
4. Whenever possible, secure ladders to the form so employees must face away from the form while climbing ladders. This way, if an employee slipped while on ladder, they would fall back toward the form, rather than away from it.

5. The lowest trailing platform must be assembled so the platform is completely covering all opening right up to the wall. No open holes must exist between the wall and the platform.

#### C. General Practices

1. Keep platform areas clean.
2. Properly space lifting attachments points and securely attach devices.
3. Use taglines to control the movement of crane handled forms and all material being hoisted onto the finished scaffold.
4. Personnel are not allowed to ride a form or be directly under a form while it is being moved or while it is suspended in the air.
5. Know the weight of a form, the capacity of the hoisting equipment, and methods to safely move forms on the project.

#### D. Flying Deck Form Scaffold

1. These forms require the installation of an additional guardrail mounted above what is normally the toprail. The toprail will then be located at the proper height when employees are on the new floor.
2. It is a good practice to allow room on the outside of the deck form for a walkway and space for the finishers to work without being tied off.

#### E. Multi-Level Gang Form

Multi-level gang forms must have:

1. Fully planked platforms
2. Guardrails and toe boards
3. Access ladder
4. Platform hatch door
5. A lowest trailing platform that extends tight against the wall

#### F. Figure-Four Form Scaffold

1. Figure-four scaffolds are intended for light duty only, unless specifically designed for heavier loads.
2. Figure-four form scaffold frames must not be placed more than 8 feet on center, and constructed from sound lumber, as follows:



- a. The outrigger ledger must consist of two pieces of 1 inch x 6 inch or heavier material nailed on opposite sides of the vertical form support.
- b. Ledgers must project not more than 3 feet 6 inches from the outside of the form support and must be substantially braced and secured to prevent tipping or turning.
- c. The knee or angle brace must intersect the ledge at least 3 feet from the form at an angle of approximately 45°, and the lower end must be nailed to a vertical support.
- d. The platform must consist of two or more 2 inch x 10-inch planks, which must extend at least 6 inches beyond ledgers at each end, unless secured to the ledgers.
- e. The unsupported projecting ends of planks must be limited to an overhang of 12 inches.

#### **34-4. Swing Stages Suspended**

Before any suspended swing-type scaffold is set up on our projects, the Superintendent will review the following guidelines with the intended user of the scaffold. Coordinate all swing stage operations with the Site Safety Manager. Work using the scaffold will not begin until these guidelines are met.

##### **A. Guidelines**

1. Only commercial manufactured platforms are acceptable. (Example: Aluminum pick platform)
2. Suspension scaffold platform must be:
  - a. At least 20 inches, but not more than 36 inches wide overall.
  - b. Securely fastened to the hangers by U-bolts or other equivalent means.
3. The platform must be securely fastened to the steel hangers of the hoisting frame.
4. The platform:
  - a. Must be provided with a standard guardrail, an intermediate rail, and a toe board along the entire length of the platform on the outer side.
  - b. Both ends must also be guarded. Mesh can be used when practical.

- c. Will have the inner edge guarded in this manner if a fall exposure exists at this edge during the scaffold's travel.
  - d. The hangers of suspension scaffolds must meet the manufacturer's requirements.
5. The design of hoisting machines used on suspension scaffolds must be tested and approved by a credited agency.
  6. Suspension scaffolds must be suspended by wire, synthetic, or fiber ropes capable of supporting at least six times the rated load. All other components must be capable of supporting at least four times the rated load.
  7. The sheaves of all blocks, consisting of at least one double and one single block, must fit the size and type of rope used.
  8. Two-point suspension scaffolds must be secured to the building or structure to prevent them from swaying. Window cleaners' anchors must not be used for this purpose.
  9. Inspect before every installation:
    - a. All wire ropes
    - b. Fiber and synthetic ropes
    - c. Slings
    - d. Hangers
    - e. Platforms
    - f. All other supporting parts
  10. Daily documented inspections must be made while the scaffold is in use.
  11. The maximum allowable load on the scaffold must never exceed the rating of the weakest component of the system.
    - a. No more than two employees can be permitted to work at once on a scaffold rated for workloads of 500 pounds.
    - b. No more than three employees can be permitted on scaffolds rated for work loads of 750 pounds.
- B. Anchorage**
- All installations must be anchored twice with primary and secondary anchors. Primary anchors will consist of devices such as cornice hooks

and parapet clamps. Others include counter weighted devices such as outrigger beams, rolling outrigger towers, or rolling roof rigs. Plans will be submitted to CM/CG showing the information listed below.

#### C. Primary Anchors

Primary anchors must meet the following criteria:

1. Made of only structural metal.
2. Equipped with an eye bolt, a shackle, or other safe means of attaching supporting ropes and/or cables.
3. Each cable connection will have three appropriate sized fist-grip-type cable clamps.
4. When primary anchors are secured with counterweights, these weights must be securely fastened to the outrigger system as designed, or tied onto the beam. Counterweights must consist of a solid nonflowable material. Flowable material such as bags filled with sand are illegal.
5. The overhang of outrigger beams must not exceed the distance specified by the manufacturer. Use correct number of counterweights as specified or, if other methods of rigging are used, ensure that they are capable of safely supporting the maximum total load with a minimum safety factor of 4 – 1.

#### D. Secondary Anchors

1. Secondary anchors can be 3/8 inch cable or 3/4 inch manila rope used to secure the primary anchor to a structurally sound component of the building.
2. Each employee must be protected by an approved body harness attached to a lifeline. The lifeline must be securely attached to substantial members of the structure (not the scaffold), or to securely rigged lines which will safely suspend the employee in case of a fall. In order to keep the lifeline continuously attached with a minimum of slack, the attachment point of the lifeline must be appropriately changed as the work progresses.
3. Each employee on a stage must be secured to their own independent lifeline.
4. If a horizontal lifeline is used, one employee per 5,000 pound rating is allowed to tie-off to it. In other words, the lifeline and anchorage point

must be rated for 5,000 pound each per employee. Two employees 10,000+ rating.

5. Each employee must wear a full body safety harness.
6. Use a lanyard that features a shock-absorbing device.
7. Secure the lanyard to a rope or cable by means of an approved rope or cable grab device.
8. When setting up or relocating the primary anchor devices, employees must use a fall protection method that offers protection while they are near an edge.
9. Consult the Safety Department for safety guidelines on multi-level platforms.

E. Welded Frame Scaffold – OSHA 1926.451 d

The erection, inspection, use, and dismantling of scaffolds must be thoroughly planned by a Competent Person so the scaffolds will function as intended. To build a scaffold that is safe for employees to work on, you must provide all the materials needed to correctly assemble the scaffold. Then erect it straight, level, and plumb on firm footing. All heights over 125 feet must be designed by a Registered Professional Engineer. Note: Some states such as California, require CAL-OSHA permits for scaffolds over 60 feet in height. Review your state plan, if appropriate.

Proper Access must be provided. Ladders or Stair systems must follow the OSHA requirements.

A Competent Person is a person who has the authority to stop all work immediately, and the ability to recognize any hazardous condition involving the scaffold used at the project.

1. Foundation
  - a. The foundation must be capable of supporting the desired load including the building materials.
  - b. Mud sills are required on soil or soft footing.
  - c. Base plates must be placed under all legs on any scaffold.
  - d. When a scaffold is erected on uneven ground, adjusting screws must be used in all legs.
  - e. A scaffold being set up on uneven ground must not be leveled using building materials such as brick, or loose fill such as soil.

## 2. Frames

- a. Frames must be vertically aligned on the coupling or stacking pins.
- b. Frame sections must be pinned together to prevent them from separating, or secured together in another manner.
- c. When outrigger platforms are required, position the base frames to the platform will be within 3 inches of the wall when erected.

## 3. Bracing

- a. All vertical frame members must be connected horizontally at regular intervals with cross braces.
- b. Where a brace has been left out to allow for feeding materials onto the scaffold, a removable guardrail must be provided and kept in place during all other activities.
- c. Cross braces are not to be substituted for guardrails at any time.
- d. Cross braces are not to be used as a way to climb any scaffold.

## 4. Securing the Scaffold

- a. Secure the scaffold throughout its entire length and height. This can be done either by tying it solidly to the building structure, or by providing an alternative means of keeping the scaffold upright, such as guying it down or bracing it to existing supports.
- b. At a minimum, secure the scaffold every 30 feet horizontally and 26 feet vertically.

## 5. Planking

- a. Fully plank the scaffold to the full width of the platform employees will work on.
- b. If the platform cannot be fully planked, then erect the guardrails around the area that is planked.
- c. Planking must be 2 inches x 10 inches or wider and made of:
  - Scaffold grade wood plank
  - Or manufactured metal plank
- d. All wood planks must have cleats attached under the ends of the plank or a comparable method to prevent it from sliding. It should extend at least 6 inches over the end supports.

- e. Continuous horizontal runs of planking must overlap at least 12 inches and be secured in place.

## 6. Loads

- a. All loads are considered heavy. Heavy duty scaffolds require components that are rated to support at least 75 pounds per square foot of work platform.
- b. Material loads must be evenly distributed on platforms and not concentrated in one small area. Pallet loads of heavy materials such as block, brick, etc., may need to be broken down to prevent overloading the platform.
- c. Scaffolds, including accessories, must be designed, constructed, and erected to safely support four times the maximum rated load.
- d. Outrigger platforms must be used as a working platform for personnel only. No loads must be stored on them. When stocking material, the load's center of gravity must be located on the main scaffold assembly.
- e. When covering the scaffold with visqueen, tarps, or other material to protect from weather conditions, the following requirements must be met:
  - Manufacturer's data or maximum load capacity for this type of scaffold in use. This calculation must include all anticipated live and dead loads. A 4:1 safety factor must be maintained.
  - The manufacturer's recommendations as to any/all necessary precautions such as:
    - Extra internal bracing or support.
    - Extra external bracing to the structure or wall to prevent tipping.
    - Special securing requirements of the covering material to the scaffold.
    - Wind restrictions.
    - Other as required.

## 7. Guardrails and Toe Boards

- a. Top-rail, mid-rail, and toe boards are required on all frame scaffold platforms where employees will work. These components must be installed on platforms located 6 feet and higher above

the walking surface. Note: If there is a possibility that the craft worker could fall below the walking level, then the distance is measured to the lowest level.

- b. Support posts for guardrails must be positioned at no more than 8-foot intervals.
  - c. Locate top-rails 42 inches above the work platform.
  - d. Outrigger platforms require guardrails positioned across the ends of the platforms.
  - e. Body harness tie-off system will be used by employees when work activities expose them to unguarded areas on scaffolds.
8. Controlled Access Zone
- a. A controlled access zone must be established and conform to the following:
    - b. The controlled access zone must be established prior to the start of construction of masonry wall, steel erection, over head lifting, and lower levels exposed to falling objects.
    - c. The zone must be equal to the height of the wall to be constructed, plus 4 feet, and must run the entire length of the wall.
    - d. The zone must be restricted to entry by employees actively engaged in constructing the wall. No other employees must be permitted to enter the zone.
    - e. The zone must be established on both sides of the wall when needed.
    - f. The zone must be marked in a way that is obvious to all craft workers.
    - g. The zone must stay until the wall is braced and the scaffolding has been removed.
    - h. During high wind conditions, all craft workers must leave the zone.

### **34-5. Tube and Coupler Scaffolds**

#### Specific Requirements

#### A. Light Duty Tube and Coupler Scaffold Requirements:

1. Scaffolds must be evenly loaded not to exceed 25 pounds per square foot.
  2. Standard frames must be a maximum of 10 feet apart.
  3. All posts, bearers, runner, and braces must be 2 inch O.D. steel tubing.
  4. All pieces must be from the same manufacturer.
  5. Height must be a maximum of 125 feet.
- B. Medium Duty Tube and Coupler Scaffold Requirements:
1. Scaffolds must be evenly loaded not to exceed 50 pounds per square foot.
  2. Standard frames must be a maximum of 8 feet apart.
  3. All posts, runner, and braces must be 2 inch O.D. steel tubing.
  4. All bearers must be 2 ½ inches O.D. steel tubing.
  5. All pieces must be from the same manufacturer.
  6. Height must be a maximum of 125 feet.
- C. Heavy Duty Tube and Coupler Scaffold Requirements:
1. Scaffolds must be evenly loaded not to exceed 75 pounds per square foot.
  2. Standard frames must be a maximum of 6 feet apart.
  3. All posts, bearers, runner, and braces must be 2 inch O.D. steel tubing.
  4. All pieces must be from the same manufacturer.
  5. Height must be a maximum of 125 feet.
- D. General Requirements
1. Posts must be properly spaced, erected on good bases, and maintained plumb.
  2. Runners must be erected along the length of the scaffold, and located on both the inside and outside posts at even height. They must be interlocked and must form continuous lengths and be coupled to each post. The bottom runner must be located as close to the base as possible. Runners must be placed not more than 6 feet 6 inches on centers.



3. Bearers must be installed on the short side between posts and must be securely coupled to the posts bearing on the running coupler. If coupler connects directly to a runner, the connection should be as close as possible to the posts.
4. Bearers must be at least 4 inches but not more than 12 inches longer than the runner or post.
5. Crossing braces must be installed at least every three set of posts horizontally and every fourth set vertically. The bracing must be set diagonally from the inner/outer runner upwards towards the next inner/outer runner.
6. Longitudinal diagonal bracing on the inner and outer rows of poles must be installed at a 45° angle from near the base of the first outer post upward toward to the extreme top of the scaffold. This bracing must be installed every fifth post at a minimum. If necessary, this bracing can be attached to the runners.
7. The entire scaffold system must be tied to, and securely braced against the building every 30 feet horizontally, and 26 feet vertically at a minimum.
8. When covering the scaffold with visqueen, tarps, or other material to protect from weather conditions, the following requirements must be met:
  - a. Manufacturer's data or maximum load capacity for this type of scaffold in use. This calculation must include all anticipated live and dead loads. A 4:1 safety factor must be maintained.
  - b. The manufacturer's recommendations to any/all necessary precautions such as":
9. Extra internal bracing or support.
10. Extra internal bracing to the structure or wall to prevent tipping.
  - a. Special securing requirements of the covering material to the scaffold.
  - b. Wind restrictions.
  - c. Other as required.

#### **34-6. Manually Propelled Mobile Scaffold**

When free-standing mobile scaffold towers are used, they must conform to the requirements listed below.

- A. The height must not exceed four times the minimum base dimensions.
- B. Casters must be properly designed to support four times the maximum intended load and must be provided with a positive locking device to hold the scaffold in position.
- C. The scaffold must be fully assembled with all cross and horizontal bracing.
- D. Platforms must be tightly planked the full width of the scaffold, except for the necessary entrance opening, and secured in place. Note: If needed, a guardrail may be used to narrow the width of the scaffold at the work platform. If a guardrail is used, then all of the planks used as the walking surface will be secured from movement and planked 6 inches beyond the guardrail.
- E. A ladder or stairway must be used to access the scaffold. It must be fixed and located in a way that will prevent the scaffold from tipping when the ladder or stairway is being used.
- F. When it is necessary to move the scaffold to another location, the force pushing the scaffold must be applied at the base of the scaffold. Do not pull from the top of the scaffold.
- G. Scaffolds may only be moved on level floors which are free of obstructions and openings.
- H. A minimum of two workers are required to move any mobile scaffold.
- I. Employees must not ride on mobile scaffolds.
- J. When moving the scaffold:
  - 1. Move it on a level surface (within 3°), free from any holes or obstructions.
  - 2. The minimum base dimension must be at least 6 feet.
  - 3. Wheels must be equipped with rubber or comparable resilient tires.
  - 4. All tools must be secured from movement.

### **34-7. Access to Scaffolding**

Tubular welded frame scaffolds must be designed to provide a safe means of access for employees to move to and from work platforms.

- A. Requirements
  - 1. Climbing scaffold frames without an access ladder or stairway is prohibited.

2. Acceptable methods for providing access to the scaffold from the ground include:
  - a. Ladders used on single frame scaffolds no more than two tiers high (10 to 12 feet). Extend the ladder 36 inches above landing and secure. Note: Climbing through or over the guardrails is prohibited.
  - b. Scaffold frames with built-in ladders or scaffold systems with ladders designed to be added on used up to three tiers high (15 to 18 feet). These ladders must meet ladder requirements in 29 CFR Subpart 'X'.
3. Use of internal scaffold stairway systems which are mandatory on any scaffold higher than three tiers (15 to 18 feet). They are recommended for any scaffold. One stairway system must be installed for every 100 horizontal feet of multi-section scaffold.
4. Where the scaffold frames have built-in ladders, or scaffold systems that are designed to have ladders clamped on, they must:
  - a. Have a fall protection system in place when used for climbing 24 or more feet above ground;
  - b. Have a documented inspection before use by a Competent Person. Note: Ladders should be carefully checked during the daily inspection.
5. Wherever the scaffold is to be accessed from adjacent structures at various levels and when a fall hazard exists, properly constructed access ramps or walkways with fall protection installed must be provided.

#### **34-8. Scaffold Platforms OSHA 1926.451 (g)**

Temporary platforms can be used to transfer material into or out of multi-story buildings. When the platforms extend out beyond the face of the building, the guidelines for safe use listed below should be followed.

##### **A. Platform Design**

1. The platform must be a solid unit with steel I-beam outriggers. Platforms that consist of individual components assembled in place are prohibited.
2. Platform deck must consist of 2 inch x 10 inch wood planks or steel plates secured to the outrigger beams.

3. The sides and end of the platform must have rigid guardrails to include toprail, midrail, and toe boards. The end can be left open or unguarded only when a personnel net is supported horizontally at least 8 feet beyond the end of the platform. If this method is used, the side guardrails must be extended outward an additional 4 feet.
4. Outrigger beams shall extend not more 6 feet beyond the face of the building, unless designed by a Registered Professional Engineer.
5. The inboard end of outrigger beams, measured from the fulcrum point to the anchorage point, shall not be less than 1-1/2 times the outboard end in length, unless designed by a Registered Professional Engineer.
6. The beams must rest on edge, the sides must be plumb, and the edges horizontal.
7. The fulcrum point of the beam must rest on a secure bearing at least 6 inches in each horizontal dimension. The beam must be secured in place against movement and must be securely braced at the fulcrum point so it cannot tip.

#### B. Platform Installation

1. The inboard ends of outrigger beams must be held down with support posts that extend vertically to the structure above. Support posts must be secured to hold them in position at both the top and bottom.
2. The inboard ends of outrigger beams must also be securely anchored to the floor to prevent any horizontal displacement.

#### C. Platform Usage

1. Personnel and material are not allowed onto the platform until the design and installation requirements are complete.
2. Employees are required to be tied off when the end of the platform is unguarded, or when positioning material for rigging activities.
3. The weight of material to be landed on a platform must be known in advance and must be within the capacity of the platform.

### **34-9. Crane Hoisted Personnel Platforms**

It is RTD policy that the Crane Hoisted Personnel Platform be only used when an evacuation is needed or, as a last resort/ option to reach the work area. Scheduling and cost concerns are not sufficient to override this policy. This policy is designed to make it possible but not as a primary resort, to use

crane hoisted personnel platform. Note: A written plan and JHA must be approved by the Site Safety Manager to use hoist.

#### A. General

1. Project Staff must notify the Safety Department when crane hoisted personnel platform arrives on site.
2. A Personnel Lifting – Critical Lift Permit (See Section 10.0 of the Mobile Crane Safety Training Manual) must be completed and approved by the project manager and Safety Department for each lift set up before lifting begins.
3. Employees will be tied off to independent lifelines connected above the headache ball.
4. Employees must remain completely inside the man-basket at all times.
5. Tag-lines will be used at all times while the basket is in used.
6. The Crane Operator must remain at the controls at all times.
7. The personnel in control of the tag-lines must also remain at the control at all times.
8. Hoisting of employees during dangerous weather conditions is prohibited.
9. Employees being hoisted must remain in constant sight or in continuous communication with the Operator or Signalperson. Note: During all movement times the radio will be in the hand of the employee in the basket.
10. Hoisting is done in a slow controlled manner.

#### B. Crane Inspection

1. Prior to the daily proof test, the Competent Person and crane operator will check the following:
2. Crane charts confirm that the total weight of the man basket and related rigging will not exceed 50% of the rated capacity for the radius and configuration of the crane.
3. All safety devices are in place and functioning.
4. Outriggers are fully extended on solid footing and the crane is level to within 1%.
5. The crane has record of the annual inspection posted.

6. All daily, weekly, monthly, and quarterly inspections are up to date and all items are correct.
7. Verify that the load line hoist drum has a system on the power which regulates the lowering rate, other than the hoist brake. (Power up, Power down.) Free fall is prohibited.
8. The anti-tool block is functional and will stop the hoisting process. An alarm sounding device is NOT acceptable.
9. Man basket inspection is completed.
10. Prior to the proof test, the Competent Person(s) will inspect the man basket to determine if it meets the following requirements:
  - a. Certification from the manufacturer that the man basket was welded and inspected by a certified welder and will support without failure 5 times its rated load.
  - b. Designed by a Registered Professional Engineer.
  - c. Gate opens in or up and has a restraining device. (Does not open by itself.)
  - d. There is a grab railing on the inside of the entire perimeter.
  - e. Basket has guardrail, midrail, and mesh from the midrail to the toe board.
  - f. Plate located on the basket stating the manufacturer, rated capacity, and date of completion.
  - g. Each bridle leg must be connected to a master link.

#### C. Proof Test

1. Prior to hoisting employees, the crane will be proof tested to 125% of the man basket capacity for 5 minutes.
2. The proof test shall be performed:
  - a. At the beginning of the job.
  - b. After any repairs or modifications to the crane, boom, or basket.
  - c. When the crane is repositioned.

#### D. Test Lift

1. After the crane and man basket have been inspected, the Competent Person(s) and all of the employees involved in the use of the man basket will be trained in its safe use. They will perform a test lift of the

unoccupied man basket with a test load of 100% of the maximum intended load.

2. Load the basket to the anticipated weight and raise to the location where the work will be performed.
3. Conduct the test on a daily basis.
4. Operator shall make sure that all systems and safety devices are functioning properly.
5. Test lift will be repeated, prior to lifting employees, any time the crane is moved, or the lift route is changed.
6. Inspect the basket, rigging, and lines prior to lifting personnel.
7. A safety meeting shall be held daily before work.
8. The Competent Person is required to complete the checklist. This checklist is confirmation of their understanding of the practices with regards to safe utilization of the man basket.

#### **34-10. Aerial Lifts**

Aerial lifts include extensible boom platforms, aerial ladders, articulating boom platforms, vertical towers, or any combination of the above. (Note: Normally called 'JLG's')

##### **A. Requirements**

1. All lifts must be operated per the manufacturer's specifications and recommendations. Any modification to the lift must first be approved by the manufacturer.
2. Aerial lifts must not be used for material handling unless approved for that use by the manufacturer. Note: The weight limits will not be exceeded.
3. Only trained authorized personnel shall be allowed to operate an aerial lift.
4. Lifts shall be inspected daily before use.
5. Personnel in the basket shall be tied off to the basket with a body harness and lanyard. Tying off to an adjacent structure or equipment is not allowed, unless the person is tied off to a part of the structure capable of holding 5,000 pounds. (Note: In some states, such as California, this exception is not allowed.). (Note: It is not necessary to be tied off when inside a scissors lift.)

6. Personnel must always stand on the floor of the lift basket.
7. When in use, the brakes must be set. If outriggers are used, they must be set on pads or on a solid surface.
8. Aerial lifts must not be moved when the boom is extended except when specifically designed for this type of operation.
9. Articulating boom and extensible boom platforms shall have controls on the moveable platform and the lower machine.

#### **34-11. Erecting/Dismantling Fall Protection**

Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling, or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

The contractor shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The contractor shall have a competent person determine a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.



## 35.0 Traffic Control in Work Zones

Our work will periodically require traffic control and establishing controlled work zones in and around the project sites. Because of the unique dangers associated with working in and around traffic the project manager and project superintendent should review this type of work with the operating group safety director well in advance.

### 35-1. *Purpose*

The primary function of temporary traffic control is to provide for the safe and efficient movement of vehicles, bicyclists, and pedestrians through or around temporary traffic control zones while protecting construction workers and equipment. Temporary traffic control zones present constantly changing conditions that are unexpected by the road user. This creates an even higher degree of vulnerability for the workers on or near the roadway (see Section 6D.02 of the Manual on Uniform Traffic Control Devices (MUTCD)).

Consideration for road user safety, worker safety, and the efficiency of road user flow is an integral element of every temporary traffic control zone, from planning through completion.

Regardless of the situation or task, workers must not be allowed to perform any work task in an open traffic lane, no matter how briefly. Such behavior creates an unacceptable high risk of serious injury, and cannot be permitted to occur.

### 35-2. *Responsibility*

General – Travel lanes should not be closed unless there is a specific, identifiable reason to do so, such as when contractor access to the closed lane is necessary to complete the work safely and efficiently.

Workers with traffic control responsibilities – Workers assigned to setup and operate work zone traffic controls must be provided orientation and basic training and adequate technical training to carry out the work. This training may be provided at the job site, or through other programs approved or recommended by the operation group safety director. If work zone traffic control is the responsibility of a subcontractor, the project superintendent should assure that the subcontractor workers have received adequate training and have the necessary skills prior to the start of work zone activities.

Flaggers – Because they interact directly with traffic, and their actions directly impact safety of workers and the public, all flaggers must receive adequate training or be certified as required by the state. Use of flaggers who do not have proper knowledge of flagging procedures may result in an extremely

hazardous situation for the flagger, other workers, and the public, and must be avoided through adequate advance planning and preparation.

### **35-3. Work Zones**

#### Short-term Operations

Short-term operations impede the normal flow of traffic briefly for movement of equipment and materials in and out of the site, or for staging of materials from the street. All such activities require a traffic control plan prior to any work being performed in the traffic control area. Traffic control devices such as cones, barrels and sign boards must be in place for temporary lane closures before any work begins.

No work involving traffic control shall begin without a pre-task plan. Workers establishing traffic controls must be knowledgeable of how the setup is to be installed and removed. For long-term and complex traffic control setups, a detailed plan is necessary, and may require written procedures and/or the services of a traffic control specialty contractor.

### **35-4. Flagging Operations**

Flagging operations may be needed to control and direct traffic when other methods cannot adequately control the flow of traffic or alert drivers to controlled work zone conditions. Properly trained and competent flaggers, working in properly established flagging operations can safely and efficiently control traffic movement in most cases. However, even under the best of conditions, flaggers and other workers may be directly exposed to moving traffic. In addition, drivers must react to instructions that may be confusing or difficult for them to see or comprehend. For these and other reasons, flagging operations present elements of risk that may be greater than for other types of traffic control. These risks should be carefully reviewed during the preconstruction planning with the operating group safety director.

Flagging operations should be based on consideration of the following:

- A. The use of flagging operations should be limited to those situations where other methods cannot effectively control traffic movements, or where the very short-term nature of the operations makes it impractical to set up other types of work zone controls.
- B. All flaggers must be adequately trained or certified to ensure that they are knowledgeable and competent. In addition, each flagger must be supervised by a competent foreman to ensure acceptable performance.
- C. Requirements for flagger training vary from state to state, with a number of states requiring specific training or certification. Each subcontractor is

responsible to ensure that each flagger has met the training and certification requirements applicable to the state and highway agency having jurisdiction over the work. (See link below for specific state requirements.)

- D. Workers who flag only occasionally, or to relieve flaggers during breaks, or for very short-term operations, must receive flagger training and know proper flagging procedures.
- E. All flaggers and foremen must know the established procedure to be followed if a driver willfully disregards the flagger or otherwise endangers flaggers or workers. Usually, the procedure will include immediate reporting of the vehicle license plate number to the foreman or superintendent for telephone notification to local law enforcement.
- F. Flagging procedures must precisely follow the requirements of the MUTCD. It is critically important that signals be given as shown in the MUTCD to provide the highest probability that drivers will understand the flagger's instructions. The MUTCD procedures are shown below.
- G. The Stop-Slow paddle should be the standard device for flaggers, as it provides much better driver comprehension and visibility. Flags should be used only for emergency flagging operations.
- H. Each flagger station should be planned by a superintendent with adequate training and experience to provide the highest level of safety for the flagger, other workers, and the public.
- I. Proper advance warning signs, flagger warning signs, and other appropriate traffic control devices must be in place prior to the start of the operation and removed or covered when the operation is halted, even temporarily. Leaving flagger signs in place when the operation is not active diminishes credibility and increases the risk of drivers ignoring actual flagging operations.
- J. It is imperative that good sight distance is available for drivers approaching the flagger operation. Traffic control devices and the flagger must be visible far enough in advance for drivers to respond.
- K. Flaggers must be positioned where they will have two escape paths if a vehicle fails to stop or suddenly swerves toward the flagger. Under no circumstances shall a flagger be positioned immediately adjacent to work vehicles or equipment, between opposing streams of traffic, or in any other location where no escape path is available.
- L. The initial position for a flagger stopping traffic should normally be near the edge line or on the shoulder, out of the direct line of approaching

traffic. After the first vehicle has come to a complete stop, the flagger should move to (but not across) the centerline if necessary to provide approaching vehicles a better line-of-sight to the Stop-Slow paddle. Flaggers must not stand in the open lane as a vehicle approaches because of the risk of being struck if the driver fails to respond.

- M. The flagger should attempt to maintain eye contact with the approaching driver until the vehicle stops or commits to the proper path. Flaggers that turn away from an approaching vehicle are at increased risk, and should never turn their back to traffic.
- N. To avoid risk of rear-end or other vehicle collisions, flaggers should be trained and instructed to identify suitable gaps and opportunities for stopping traffic. The general rule should be to let moving traffic continue if possible. Traffic should be stopped mid-stream only if absolutely necessary, or if reasonable gaps in the stream are not available.
- O. Work vehicles should not be given priority if doing so would increase the risk of a rear-end collision when traffic is stopped abruptly or unnecessarily.
- P. The risk involved in flagging operations increase with increased traffic speed and volume. Using flaggers to stop traffic on high-volume roadways and on high-speed expressways and freeways is difficult, and should be avoided.
- Q. Nighttime flagging presents higher than normal risks and should be avoided whenever possible. If flagging is necessary at night, temporary lighting is essential to illuminate the flagger station. In addition, reflective or lighted flagging devices must be used as well as reflective suits, not just vests. Low-light, low-visibility or night flagging stations must be visible from 1000 ft. away.
- R. High quality vests meeting the requirements of the MUTCD are necessary to make flaggers as visible as possible. Vests must provide proper fit and must be closed front and back to provide good visibility. At night, reflective material must be added. Vests must be maintained clean and in good condition at all times. Various vest colors are acceptable. Vest color should be selected to make the flagger stand out from other workers and the background, to the greatest extent possible.
- S. In addition to vests, flaggers must be dressed in proper attire suitable for the project conditions. Sloppy or provocative clothing detracts from the flagger's authority and may distract drivers from the driving task, thus reducing the overall safety and effectiveness of the operation.

- T. When more than one flagger is involved in an operation, positive communication between flaggers is essential. This may be by means of hand signals if flaggers are in sight of each other, by radio, or other procedures listed in the MUTCD. It is imperative that positive coordination is ensured at all times so conflicts do not result between opposing traffic streams or traffic and work operations.

### **35-5. Vehicular Traffic on the Project Site**

The site utilization plan will show all vehicle routes for on-site purposes. All construction vehicles on the site will be routed to minimize congestion and interference with pedestrian walkways, doors, etc.

Off-road vehicles should not be operated on public thoroughfares without approval from the Project superintendent and must have DOT flashers and slow moving vehicle signage and may require special permits from the local authorities.

Signs, barricades, lights and signals, vests and other equipment for traffic control are available through the contractor's equipment manager or from the company submitting the traffic control plan approved by the governing authority. The operating group safety director can help make appropriate selection for the work being planned.

An employee parking area should be established. Take into consideration the safest access to the project site work areas when selecting this area.

Job sites in a downtown district or other congested areas may employ security and traffic control personnel to reduce the amount of contact between the general public and work vehicles.

### **35-6. Basic Principles for Work Zone Traffic Control**

To ensure adherence to the basic principles for work zone traffic control, the following points should be incorporated into the site-specific safety plan. The MUTCD introduces these eight basic principles that govern work zone traffic control. There is an active link to the MUTCD on-line at the bottom of this procedure.

- A. Control of traffic through the work zone, vehicles, pedestrians, and other highway users, will be treated as an integral part of the overall management of the project.
- B. All work activities will be conducted in a manner that inhibits road user movement as little as possible.
- C. Positive guidance will be provided to guide drivers and pedestrians through all projects safely and efficiently.

- D. Appropriate managers and supervisors to ensure acceptable levels of operations will perform routine day and night inspections of work zones.
- E. Attention will be paid to providing an acceptable level of roadside safety in all work zones.
- F. Each person whose actions affect work zone safety from executive managers and supervisors through individual workers, will receive adequate training appropriate to the job decisions each individual is required to make.
- G. All traffic control devices will be removed as soon as practical when no longer needed. Devices that may require immediate driver response, such as FLAGGER AHEAD and LANE CLOSED warning signs, will be removed or covered immediately upon completion of the operation. All unneeded signs will be removed by the end of the work shift if it is a temporary operation.
- H. All work zone traffic control operations will be conducted consistent with the legal authority of the agency having jurisdiction over the highway where the work takes place.

### **35-7. Basic Components of a Work Zone**

The basic components of a highway work zone, as defined in the MUTCD, should be incorporated into the site-specific safety plan. This may be done by incorporating the following work zone components directly into the program, or by incorporating one or more Work Zone Handbooks that includes this information.

- A. Advance warning area – This component of the work zone is essential to inform road users that they are approaching a work zone, and what actions they will be required to take. The length of the advance warning area varies with traffic speed and volume, the condition of the highway, and the complexity of the work zone. It may range from only a few hundred feet to two miles or more. Adequate advance warning signs and other necessary information must be provided to road users in the advance warning area prior to actually encountering any disruption in the normal highway conditions.
- B. Transition area – This component of the work zone transitions traffic into the revised traffic pattern necessary to travel through the area where the work occurs. This transition may entail a lateral shift in the travel lane, a reduction in the number of lanes available, relocation of the roadway, or simply a reduction in travel speed. In the transition area, additional signs

and channeling devices are typically provided to guide drivers and pedestrians into the new traffic pattern.

- C. Activity area – The work actually occurs in the activity area, which is broken down into three spaces. The workspace is provided for the conduct of the work, the travel space allows for the passage of traffic, and buffer spaces provide a clear zone between the work and traffic spaces. It is essential that these spaces be clearly defined so that both workers and travelers know where they are supposed to be. For work that occurs at a fixed location, or that moves slowly, a physical separation should be provided between the work and traffic space, consisting of channeling devices or temporary traffic barriers. However, for operations that move frequently or constantly, physical separation may not be feasible. In some situations, the workspace and traffic space must alternating occupy the same physical location. In such situations, positive control of traffic flow must be provided by flaggers, traffic signals, police officers or other positive means. Under no circumstances is it acceptable for traffic and workers to occupy the same location at the same time.
- D. Termination area – Once past the activity area, traffic must be redirected into the normal traffic pattern and made aware that they are leaving the work zone. For lengthy, complex work zones, an END ROAD WORK sign or other notification should be provided. For short, simple work zones, it is generally apparent that the work zone has ended and additional signs or devices are not necessary.

### **35-8. Traffic Tapers**

The site-specific traffic control plan should include a clear definition of the requirements for traffic tapers. This information may be incorporated from the material below, or by incorporating a Work Zone Handbook into the plan that includes this information. Drivers experience difficulty when required to execute abrupt changes in the traffic pattern. It is therefore essential to provide gradual transitions in the lateral travel path or other changes in the width and number of lanes available for use. This gradual adjustment, referred to as a taper, allows a relatively long distance in the direction of travel, compared to a lateral offset that must be made. The taper allows adequate distance over which the driver can comfortably move into the new traffic pattern. Figure 6C-2, taken from Part 6 of the MUTCD, illustrates the basic types of traffic pattern changes and tapers that may be used in a work zone. Those types of tapers are as follows:

- A. Merge taper – This taper is used when a lane closure requires two lanes of traffic to merge into one. Because drivers in the lane to be closed must identify an acceptable gap in traffic in the open lane, and merge into it,

this taper needs to be very gradual to provide adequate time and distance for drivers to make the merge safely and efficiently. When more than one lane is to be closed, it is highly desirable to provide distance between the successive lane closures for traffic flow to stabilize before encountering the second closure.

- B. Shift taper – When the number of lanes remains unchanged, but traffic is moved laterally, a shift taper is used. Because drivers do not need to merge into an adjacent lane, this taper need not be as long as a merge taper.
- C. Shoulder taper – Drivers expect shoulders to be available for emergency vehicle maneuvers, and as a buffer between the travel lane and roadside features. Abrupt termination or narrowing of a shoulder thus may adversely affect traffic flow, and should be avoided. A gradual narrowing or closure of a shoulder is accomplished by use of a shoulder taper, which gradually reduces the shoulder width.
- D. Downstream taper – This taper may be used to redirect drivers to the normal travel path past the downstream end of the activity area. If used, this taper may be very short in length.
- E. One-lane, two-way traffic taper – Although not shown in Figure 6C-2, the MUTCD provides one additional taper type for moving traffic into the opposing travel lane under control of a flagger or traffic signal. Because traffic is stopped or moving very slowly as it begins this maneuver, this shift is very short.

The site-specific traffic control plan should identify requirements for all tapers so that supervisors and foremen may determine and communicate to workers the correct length for each taper to be set up at the work site. Providing adequate taper lengths is essential to maintaining safe, smooth traffic flow through the work zone. Tapers should meet the length requirements specified by the highway agency identified in the contract documents or other agency requirements and guidelines. When specific agency requirements are not available, taper lengths should be based on the MUTCD as follows:

- A. Merge taper – Length is calculated as the width of the closed lane in feet times the normal travel speed in miles per hour, and is referred to as “L”. As an example, for a lane width of 12 feet and a travel speed of 60 mph, the taper length is  $12 \times 60 = 720\text{ft}$ . For speeds of 40 mph or less, the taper can be shortened considerably by multiplying the basic “L” by the reduction factor of travel speed divided by 60. As an example, the taper length for a 12-foot lane and a speed of 40 mph becomes  $12 \times 40 \times 40/60 = 320\text{ft}$ .



- B. Shift taper – Length is based on the width of the lateral shift and the travel speed and is calculated as  $\frac{1}{2}$  “L”, with “L” calculated the same as for a merge taper.
- C. Shoulder taper – This length is calculated as  $\frac{1}{3}$  “L”, using the same parameters as for a merge taper.
- D. Downstream taper – Typically, a length of 100 ft per lane is used.
- E. One-lane, two-way traffic taper – A maximum length of 100 ft. should be used to limit speed through the transition and to encourage drivers to move quickly into the opposing lane. Shorter lengths may be used, especially when speeds are low.

Authority to change taper lengths from the agency requirements or MUTCD guidelines should be clearly addressed in the site-specific traffic control plan.

The traffic control plan must specify how many traffic control devices and what type of devices will be needed.

### **35-9. Lane Closures**

The site-specific traffic control plan should clearly spell out the criteria and authority for closing traffic lanes. Closing one or more travel lanes and merging traffic into the lanes remaining open is frequently necessary to provide adequate work space for the contractor to complete the work. Closed lanes also provide a safety buffer between traffic and work operations that would otherwise occur immediately adjacent to moving traffic. However, closing travel lanes creates difficulty for drivers. At best, lane closures result in reduced traffic flow, delays, and congestion. Of greater concern, accident experience clearly shows that lane closures present a considerable increase in accident risk, both in the transition area and within the closure itself.

The decision to close traffic lanes must be based on careful consideration of conditions within the work zone, and must be made by individuals with adequate training and experience. Travel lanes should not be closed unless there is a specific, identifiable reason to do so, such as when contractor access to the closed lane is necessary to complete the work safely and efficiently.

The decision to close a lane must be based on requirements of the highway agency identified in the contract documents or other applicable agency guidelines and may require a permit. The layout of lane closures must also comply with the agency requirements when applicable, and should be determined by the superintendent. It is important to complete and submit traffic control plans, leaving sufficient time for the permit to be processed and obtained. Assistance should be provided by the operating group safety

director for unusual or complex situations. In addition to including an adequate taper length as discussed above, the location of the lane closure should be based on consideration of other highway features. To the extent possible, the start of lane closures should be located to avoid intersections and other areas that may introduce secondary traffic conflicts and confusion. It is also important that they are located where drivers have as much visibility as possible approaching the lane closure taper, avoiding sharp curves, hillcrests, and other sight distance obstructions.

Because lane closures cause delays and make drivers impatient, the length of closure should be limited to what is reasonably needed to carry out the operation safely and efficiently, but without resulting in frequent adjustments in the lane closure. It is especially desirable to avoid successive lane closures, separated by only short openings of the lane, because the lane closure taper often presents the greatest risk of accidents and congestion. Unless a long closure results in objectionable delay and congestion, one continuous closure should be carried throughout adjacent work operations in the same general area.

#### **35-10. Inspection of Lane Closures**

The site-specific traffic control plan should include a requirement to document all decisions regarding lane closures. A daily report prepared by the superintendent should document the reason for the lane closure, the basis for the lane closure layout including taper length and starting point of the closure, and the time the closure was installed and removed.

#### **35-11. Setting up and Removing Work Zones**

Installation and removal of traffic control setups often presents the greatest risk both to workers and to the public. During these phases, some or all of the traffic control devices and safety features are not yet in place to provide guidance to drivers and protect workers. Drivers may be confused by the changes in the traffic pattern. Workers and equipment are often more directly exposed to traffic.

#### **35-12. Short-term Operations**

Please see information at beginning of section.

#### **35-13. Long-term Operations**

Advance signing, as discussed below, should be used to alert drivers and help them adjust to changed traffic control patterns. Positive communications should also be used to inform other workers and adjacent operations of the traffic control setup and removal. Work operations should never be allowed to occupy the roadway before the setup is in place, or remain on the roadway

after removal of the setup. Planning for the setup and removal of traffic control must include communication with adjacent work operations and workers that may be affected.

In some situations, it is desirable to deploy traffic control devices such as portable signs and channeling devices along the roadside prior to the setup, and then to store the devices on the roadside between setups. This offers the advantage of reduced handling and exposure for workers and traffic during setup and removal, especially for larger devices such as drums that are not readily placed or retrieved from a work vehicle, and heavy portable sign supports. When devices are stored on the roadside, it is very important to ensure that they do not pose a risk to traffic, and they must not be visible to drivers in a manner that may cause confusion or distraction.

The following points must be addressed when devices are stored along the roadside:

- A. Devices should never be stored on the travel lanes, on the shoulder, or on sidewalks or other pedestrian ways.
- B. Signs must be stored in a manner that they are not visible to drivers or otherwise likely to distract or confuse them.
- C. Signs supports must either be folded flat or placed behind guardrails or in other locations inaccessible to vehicles. Any protrusions, such as unfolded legs, are a risk for windshield intrusion if impacted.
- D. Channeling devices must be stored in a manner that will not improperly indicate to drivers where it is safe or permissible to drive. The preferable location is behind guardrails or at the outside edge of the shoulder. Placing channeling devices some distance beyond the outside of the shoulder may be unacceptable because it may indicate to drivers, especially at night, that they can drive in that area.
- E. Large safety devices such as arrow panels and portable changeable message signs may cause serious harm if impacted by an errant vehicle. These devices must be stored in a location where they cannot be struck.
- F. Except where traffic volumes are low and conditions are otherwise acceptable, devices should not be stored in a manner that requires workers to cross travel lanes on foot to place them or remove them. Likewise, they should not be stored in locations that expose workers to other hazards such as falling from vertical retaining walls or contacting power lines.

Use of pickup trucks or the foreman's pickup to store and transport devices may be acceptable, especially for small numbers of devices. However, such

vehicles are not acceptable for the transporting of workers in the pickup bed or for the placement of devices directly from the bed of the moving pickup. Workers riding in the pickup bed is strictly prohibited, and especially seated on the open tailgate. Setting or retrieving cones from a pickup tailgate places workers at extreme risk from vehicle impacts and from falls from the pickup, and is prohibited.

The actual procedure for placing or removing traffic control setup will depend on the highway and traffic conditions and the complexity of the setup. The following points should be considered:

- A. Advance warning signs should be the first devices placed or uncovered and the last removed.
- B. Existing signs that no longer apply, including speed limit signs, should be covered as the work zone signs are placed, and restored to service as the work zone signs are removed.
- C. Channeling devices are typically installed in the direction of traffic flow, and removed in the opposite direction.
- D. Special devices such as arrow panels, changeable message signs, and other safety features should be placed in service at the appropriate time as the setup proceeds. For example, the arrow panel would be placed at the start of the taper and activated as workers begin to place the cones in the taper, and would remain in place until the taper is removed.
- E. Additional signs and other devices throughout the setup should be placed and activated in a coordinated manner such that the entire setup progresses together.
- F. If police or work vehicles are used to hold traffic, traffic can be released in most cases once the lane closure taper or other such elements are in place. It is not desirable to hold traffic until the entire setup is complete because lengthening the time traffic is delayed may increase the risk of an accident at the end of the queue, and it certainly adds to driver frustration and dissatisfaction.
- G. Removal of the setup generally proceeds in the opposite direction and order of the setup.
- H. Prior to opening a closed section of highway to traffic, confirm that all workers, equipment, and materials have been cleared from the roadway.
- I. Great care must be exercised if work vehicles drive in the opposite direction of traffic in a closed lane or shoulder, because drivers may be confused or startled and take evasive actions. This is especially

important during darkness when oncoming headlights from work vehicles increase the risk that drivers will be confused.

- J. During setup and removal operations, it is essential that all work vehicles activate the appropriate warning lights to alert drivers to the presence of slow-moving vehicles in or near travel lanes.
- K. Extreme caution is essential in the placement and retrieval of channeling devices to protect workers from traffic and work vehicles. Under no circumstances should workers be allowed to walk behind a backing vehicle to place or retrieve devices.
- L. Every reasonable effort should be used to eliminate the need for workers to cross open travel lanes to place or remove channeling or other traffic control devices, especially in heavy or high-speed traffic. This can normally be avoided by using workers on each shoulder, or by making two passes through the setup, one on each side.
- M. As soon as the setup or removal is completed, the work zone should be checked by the superintendent to ensure that the changed setup is properly deployed and all of the devices are present in the proper location.

When operations are such that signs, signals, and barricades do not provide the necessary protection on or adjacent to a highway or street, flagmen, or other appropriate traffic controls shall be provided by the contractor completing the operation.

Signaling directions by flagmen shall conform to American National Institute D6.1-1971. Hand signaling by flagmen shall be by use of red flags at least 18 inches square or sign paddles, and in periods of darkness, red lights. Flagmen shall be provided with and shall wear a red or orange warning garment while flagging. Warning garments worn at night shall be of reflector material.

All contractors receiving materials are solely responsible for the traffic control during the unloading processes and shall provide the necessary personnel to complete such tasks. All efforts shall be made to ensure trucks with materials are unloaded on site.

#### **35-14. Web Sites and Links**

Flagger National Database: <http://www.atssa.com/cs/flagger>

Manual of Uniform Traffic Control "MUTCD": <http://mutcd.fhwa.dot.gov/>

## 36.0 Parking, Workers and Transportation

### 36-1. *Contractor Parking*

Contractor and subcontractor workers will only park in authorized designated areas. Parking on the jobsite is prohibited and unauthorized vehicles may be subject to towing at the vehicle owners expense. Furthermore, any damage to any vehicles parked on the jobsite will be the sole responsibility of the workers and/or the contractor/subcontractor. RTD does not accept any liability for any vehicles on the project.

### 36-2. *Workers Transportation*

RTD is not responsible for the transportation of workers to and from the project. Contractor and subcontractor providing transportation for workers must comply with all federal and state laws. Workers riding in the back of pick up trucks, utility trucks, etc. on or off the project is prohibited. RTD will accept no liability for the unauthorized transportation of workers.

## 37.0 Utilities

### 37-1. *Scope and Application*

Prior to any type of digging each contractor is solely responsible to comply with the CM/GC's underground utility location program. No work is to proceed without the proper utility company marking out the areas of their underground materials. Any damage to any utility is to be reported immediately to the contractor.

After the locate has been completed, the utility company shall mark out the locations of their underground materials. When excavation operations approach the location of the marked underground installation, the exact location of the installations shall be determined hand digging within three feet of the anticipated location of the utility.

While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard workers.

Any damage to any utility is to be reported immediately to the contractor, and is the sole responsibility of the damaging contractor and/or subcontractor.

## 38.0 Security

Contractor and subcontractors shall establish and maintain a written security program conforming to, but not limited to the requirements of the RTD FasTracks Construction Safety Guidelines.

Contractors are required to develop their own security means and measures, while still maintaining their full responsibility for security of their work. If assistance with security vulnerability management is needed, construction management, in conjunction with RTD Security, Security and Facilities Division, may provide support.

Compliance with the safety and security requirements will be followed as the project progresses, from planning to design, through construction, installation, and testing of final revenue service, and completion of the project.

The following are provided as an example and do not constitute the requirements for a complete comprehensive security program:

- 38-1. Protection of the public**
- 38-2. Secure the construction site areas.**
- 38-3. Prevent theft of site property, material and equipment**
- 38-4. Lock all gang boxes and secure tools and equipment**
- 38-5. Prevention of vandalism and graffiti**
- 38-6. Choose an effective method for fencing and signage, for the site**
- 38-7. Decide what additional signage may be required (i.e.: NO TRESPASSING)**
- 38-8. Arrange for employee and visitor parking**
- 38-9. Maintain visitor log, visitor training and liability sign off**
- 38-10. Ensure availability for 24hr access for emergency and response personnel**
- 38-11. Secure site and all entrances for a site emergency**
- 38-12. Monitor winter heating equipment**
- 38-13. Establish an effective method for key control for site access**
- 38-14. Create a contact list for key project personnel and emergency contacts**
- 38-15. List specific guard duties such as check points and site areas that require monitoring**
- 38-16. Establish a reporting procedure for questionable activity**



## 39.0 First Aid / CPR and Bloodborne Pathogens

### 39-1. *Scope and Application*

All contractors shall have at least one person certified in first aid and CPR at the job site at all times. Contractors are solely responsible to ensure the required and proper training of their workers.

Contractors shall provide an ANSI (Z 308.1-1978) approved first aid kit on this job site. The contractor site superintendent is responsible for ensuring that the kit is properly stocked and maintained, and inspected weekly per OSHA requirements.

Only trained first aid personnel shall administer first aid at the job site.

This first aid kit will also contain equipment and materials to be compliant with 29 CFR 1910.1030 - Bloodborne Pathogens, including mouth-to-mouth resuscitation devices, powdered bleach, and disposable gloves.

### 39-2. *Bloodborne Pathogens Scope and Application*

Bloodborne Pathogens are disease-causing organisms transmitted through contact with infected blood and other bodily fluids. Diseases such as the Human Immunodeficiency Virus (HIV) and Hepatitis B are among the most common forms of bloodborne pathogens. Any exposure to an infected individual's body fluids may result in transmission of bloodborne pathogens, which could lead to disease or death.

### 39-3. *Requirements*

When dealing with blood or other bodily fluids, contractor workers are required to follow Universal Precautions. According to the concept of Universal Precautions, all human blood and other human body fluids are treated as if known to be infectious for HIV, Hepatitis B, and other bloodborne pathogens.

All contractors are required to make available to their workers rubber gloves rated at 5 microns or less and resuscitation masks.

All contractors certified first aid providers are required to wear disposable gloves and eye protection while performing first aid on an injured individual. If rescue breathing or CPR is performed, a resuscitation mask shall be provided by the contractor for the protection of the injured and the provider.

All blood spills shall be immediately contained and cleaned with an anti-viral solution, or by a solution of bleach and water by the contractor. (Unless local authorities prohibit such action.)

Any material saturated with blood shall be considered Regulated Waste. This means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; and items that are caked with dried blood or other potentially infectious materials. Discarded Band-Aids and gauze containing small amounts of blood products are not considered regulated waste. Disposal of all regulated waste shall be the responsibility of emergency medical personnel or the contractor of the injured worker.

#### **39-4. Training**

At least one of each contractor's onsite personnel shall be trained in First Aid and CPR, and they shall also be trained in the decontamination of blood spills. Contractors are solely responsible for this training.

## 40.0 Carbon Monoxide

### 40-1. *Scope and Application*

Carbon monoxide is formed by the incomplete combustion of carbonaceous materials such as coke, oil, gasoline, and natural or manufactured gas. It is flammable, toxic, nonirritating, tasteless, odorless, and heavier than air. When inhaled it combines with hemoglobin of blood, excluding oxygen from the tissues, ultimately resulting in asphyxia. Some of the common symptoms of carbon monoxide poisoning are shortness of breath, headache, dizziness, muscular weakness and nausea.

Temporary heaters and/or gasoline motors (i.e., pumps, welders, generators) used where people are working in confined, enclosed buildings, and/or depressed areas produce the greatest carbon monoxide poisoning exposures and are prohibited on this project.

### 40-2. *Contractor Testing Requirements*

Use of any device that discharges the products of combustion into an inside work area of any worker requires testing defined below:

Test the work area to determine the concentration of carbon monoxide at least three times each 8-hour period.

Test several different points within the area and at the breathing heights of an worker.

Maintain a record of these tests, noting the date, time and result of each test.

Remove the workers from the area when the concentration of carbon monoxide reaches 25 PPM (.005%). Ventilation shall be provided to reduce the concentration below 25 PPM before the workers are allowed to resume work in the area.

Test more often than 3 times per day when the concentration of gas increases to 20 PPM.

Contractor use of solid fuel salamanders is prohibited within buildings and on scaffolds.

## 41.0 Confined Spaces

### 41-1. *Scope and Application*

All confined spaces on RTD property are considered PERMIT-REQUIRED.

According to the National Institute of Occupational Safety and Health (NIOSH) the definition of a confined space is one that by design has limited openings for entry and exit, and unfavorable natural ventilation that could contain or produce dangerous air contaminants. On this project we may create many temporary confined spaces by operating in areas prior to the permanent ventilation system being installed. Hazardous confined spaces are divided into three main categories:

#### A. Lack Of Oxygen

Normal air is 21% oxygen by volume. Should the percentage drop to near 17%, drowsiness and impaired ability to think clearly occur. Anything below 12% causes unconsciousness.

#### B. Combustible Or Explosive

Any contaminant in a confined space creates the possibility of fire or explosion. Heat, static electricity, etc. can cause ignition. Many gases are heavier than air and collect in the bottom of pits, trenches, sewers, and rooms. Not only gases are a problem, dusts too can be explosive. Many operations, particularly cutting and welding, create hazards in confined spaces since the use of any combustible or explosive chemical in a confined space allows the buildup of dust and vapor.

#### C. Toxic Atmosphere

We are all aware of the dangers of toxic substances in storage tanks; the less obvious are the toxic situations you might find in construction. Toxic chemicals can be brought into confined spaces. Welding, cutting, painting, etc. can raise the level of chemicals in a confined space to hazardous levels. We shall recognize that confined space hazards exist in construction and are not a problem confined to storage tanks, silos, etc.

### 41-2. *Types of Confined Spaces*

There are two (2) types of confined space: Non-Permit Confined Space and Permit-Required Confined Space.

#### A. Non-Permit Required Confined Space.

NPRCS is defined as any space that:

1. Has a limited or restricted means for access and egress.
  2. Is large enough and configured in such a way that a worker can bodily enter and perform work.
  3. Is not designed for continuous occupancy.
  4. Does not pose a health or safety risk as described in permit-required confined space.
  5. Examples include but are not limited to nonenergized HVAC equipment, certain trenches and excavations. These shall be evaluated by the “competent person” in charge of the work who is fully familiar with the standards relating to confined space.
  6. All confined spaces on RTD property are considered PERMIT-REQUIRED.
- B. Permit Required Confined Space.

PRCS is defined as any space that:

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 could trap or asphyxiate an entrant.
4. Contains any other recognized serious safety or health hazard.
5. Examples of this type of space include but are not limited to: caissons, tanks, vessels, and underground piping and tunneling.

#### **41-3. Requirements**

Contractors are responsible for the following:

- A. Identify the Confined Space.
- B. Coordinate for shut off, lock out and tag out all energy sources and mechanical hazards.
- C. Verify ventilation or engineering controls of the confined space.
- D. Obtain test results of the atmosphere from the subcontractor.
- E. Verify rescue and fall protection requirements are being utilized.
- F. Coordinate with the CM/GC project staff all requirements for the confined space operation.
- G. Inform the CM/GC Construction Company Superintendent of the “competent person” designated for the work.

- H. Submit Confined Space Program to the CM/GC Superintendent for review and approval.
- I. Atmosphere testing at start of work and after a distinctive break (i.e. lunch break).
- J. Coordinate for local rescue teams services and confirm they are trained in confined space entry/rescue.
- K. Have on site the fall protection, perimeter protection, signage and personal protective equipment necessary for working in a confined space.
- L. Mechanical and alternate means to evacuate personnel from the confined space.

**41-4. Training**

The contractor or his designee, prior to performing any duties relating to permit-required confined space, shall train entrants, attendants, rescuers and entry supervisors.

**41-5. Recordkeeping**

Copies of all contractor atmosphere testing, entry logs, training, and any medical records shall be given to CM/GC for record retention.

## 42.0 Contaminated Spills

### 42-1. *Scope and Application*

A contaminated spill is the introduction of undesirable element or substances into the ground that may or may not impact the environment in a negative way. This can be caused by several sources both past and present. Contamination refers to the impact of these sources in any amount and at any degree below or above permissible levels for health and safety toward the environment or to life. Hazardous means it has elevated above the permissible levels for health and safety toward the environment and life and is regulated under government standards.

RTD's primary concern is to protect the workers and the environment in the event of an incidental spill on this project.

### 42-2. *Requirements of Contractors*

If a spill occurs at the project, the spill shall be isolated/contained to prevent contamination of the surrounding area, waterways, sewer systems or any other environmental impact.

The contractor and/or subcontractor is responsible for all costs associated with the cleanup and disposal of the contaminated/hazardous materials.

If a spill occurs, the Material Safety Data Sheet (MSDS) for the chemical will provide the emergency information necessary to address the spill. Also, the emergency cleanup team will need a copy of the MSDS in order to begin the cleanup process.

The contractor shall immediately notify RTD in the event of any spill.

### 42-3. *Training*

All contractors shall have the appropriate trained workers assigned to the project that are capable of handling spills. Whenever chemicals are brought on site the material safety data sheet shall be reviewed with all personnel exposed to its usage.

### 42-4. *Recordkeeping*

All contractor records regarding spills shall copied and given to the CM/GC and RTD for filing.

## 43.0 Hazard Communication

### 43-1. *Scope and Application*

The OSHA Hazard Communication Standard requires that all employers with workers exposed to hazardous chemicals at their worksite establish a hazard communication program. The regulation is more commonly known as “HazCom” or the “Right to Know Law”. This program shall transmit information to the workers about the hazardous chemicals they are, or may be, exposed to at the site. This is accomplished by labels on containers, Material Safety Data Sheets (MSDS), hazardous chemical jobsite survey, and training programs.

### 43-2. *Material Safety Data Sheets (MSDS's)*

Contractors and subcontractors are responsible for obtaining and maintaining on-site a file of all MSDS's available from distributors, manufacturers, and vendors. While all MSDS's may not be uniform in appearance, they shall convey the same message:

- A. Identity of the product.
- B. Known acute and chronic health effects.
- C. Exposure Limits Threshold Limit Values (TLV's).
- D. If the product is a suspected carcinogen.
- E. Personal protective equipment to be used.
- F. Emergency and First-Aid Procedure.
- G. Identification of the party responsible for the MSDS.
- H. Target organ affected.

Contractors and subcontractors shall ensure that an MSDS is obtained with each shipment of any material on the hazard substance survey list. Should one not be obtained at that time, they shall follow-up in writing to the parties involved to obtain one within 72 hours of the notification.

Current MSDS's on file are acceptable. However, they must be within a 3-year time period.

### 43-3. *Container Labeling*

Contractors and subcontractors shall verify that all containers received for use are:

- A. Clearly labeled as to content.



- B. Appropriate warnings are noted.
- C. Names and addresses of the manufacturers are listed.

A written description of the labeling system used by each subcontractor is required to be submitted, along with alternatives to the original label used. All secondary containers used with small quantities of a given material shall also be properly labeled.

Labels may be in writing, pictures, numerical system, or any combination of the above. The message shall be understood as to the nature of the hazard, personal protective equipment needed, parts of the body affected, and emergency procedures to take.

#### **43-4. Worker Training and Education**

Contractors and subcontractors are responsible for the training of their own workers in regards to the Hazard Communication policy and program.

Training of all workers can include, but not limited to:

- A. In-house seminar.
- B. Guest speakers (Use of visual aides).
- C. On-site updates of new products and materials and other related hazards.

Instruction shall include, but not limited to:

- A. How to read and understand the information provided on the MSDS's and labels supplied by the subcontractors and suppliers.
- B. An overview of the requirements contained in the Hazard Communication Standard.
- C. Discussion of chemicals included in welding or burning, cement, cleaning solvents, gluing processes, wood dust processes, and other such common items.

After attending the training session, each worker will sign a form to verify that they have been properly trained with regards to the Hazard Communication Standard and that they understood the project's policy regarding this standard. The form is to be filed at the jobsite.

#### **43-5. Hazardous Non-Routine Tasks**

Periodically, workers are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each affected worker will be given information by the contractor and/or subcontractor about hazardous

chemicals to which they may be exposed during such activity. The information shall include, but not limited to:

- A. Specific chemical or process hazards.
- B. Protective/safety measures that the worker will take to prevent exposure.
- C. Measures the project has taken to lesson the hazard including ventilation, respirators, presence of other workers, and emergency procedures.

An example of non routine tasks is confined space entry, i.e. checking the bottom of caissons, entering manholes, etc.

#### **43-6. Contractor Hazard Communication**

All contractors, subcontractors, and sub-subcontractors are solely responsible to abide by the Hazard Communication Standard in regards to the training of their own worker, their MSDS Recordkeeping, their notification procedures, and any other aspects of the requirement.

All contractors and subcontractors of any tier are to supply the CM/GC safety manager with a written copy of their Hazard Communication Program along with MSDS's of any chemical materials brought on to the jobsite.

#### **43-7. Exchange of MSDS's**

The exchange of MSDS's on this project shall take place initially when the contractor and subcontractor comes onto the site, at site safety meetings, or at any other time designated by the project safety manager or project superintendent.

All contractors, subcontractors, and sub-subcontractors are to abide by this exchange and are to immediately inform project safety manager and/or project superintendent of any new chemical substances brought onto the jobsite.

#### **43-8. Updating Inventory Listings**

The updating of chemical inventory lists shall be completed as new MSDS's are received. Updated lists shall be exchanged at site safety meeting, as new MSDS's arrive, etc.. A master list shall be maintained by the CM/GC, subcontractor, and/or the Construction office.

All contractors, are to abide by, update, exchange and immediately inform the Project Safety Manager and/or Project Superintendent, of any new chemical substances brought onto the jobsite.

**43-9. Reading & Understanding A Material Safety Data Sheet**

The purpose of a M.S.D.S. is to inform the employee of the known hazards and protection information on a hazardous chemical. All Material Safety Data Sheets used on each job site must be maintained along with a reference list of all hazardous materials kept on site.

**A. Section I—Identify**

1. Chemical name as it appears on label.
2. Name, address, telephone number of manufacturer.
3. Date prepared.

**B. Section II—Hazardous Ingredients/Identify Information**

1. Listing of hazardous parts of chemicals.
2. Chemical lists by common and specific names.
3. Compounds listed usually by percentage.
4. Lists exposure limits. OSHA's permissible exposure limit (P.E.L.) and the threshold limit value (T.L.V.). These limits specify the maximum amount of exposure to a substance a worker can have based on an 8-hour workday.
5. Limits are usually given in parts per million (PPM) or milligrams per cubic meter (mg/m<sup>3</sup>).
6. Maximum allowable exposure at one time or short-term (15 min) exposure limits.
7. Inform if substance is immediate danger to life or health (IDLH) use respiratory protection.

**C. Section III—Physical/Chemical Characteristics**

1. Lists chemical's normal state.
2. Chemical behavior when released.
3. Physical characteristics.
4. Appearance and odor.
5. Temperature Changes:
  - a. Melting Point
  - b. Boiling Point

- c. Evaporation Rate
  - d. Specific Gravity
  - e. Vapor Density/Pressure
- D. Section IV—Fire & Explosion Hazard Data
- 1. Flammable limits/flash point.
  - 2. States if chemical can explode or catch fire (UFL) (LFL) upper and lower flammable limits. (UEL) (LEL) upper and lower explosion limits.
  - 3. Fire fighting procedures and extinguishing methods.
- E. Section V—Reactivity Data
- 1. Stability of chemical.
  - 2. List of chemical or conditions to avoid.
  - 3. Any generated by-products the chemical could produce.
  - 4. Conditions to avoid.
- F. Section VI—Health Hazard Data
- 1. Effects and routes a chemical can take into the human body:
    - a. Inhalation/Breathing
    - b. Ingestion/Swallowing
    - c. Direct skin contact
  - 2. Potential Health Hazards:
    - a. Acute: Immediate effects
    - b. Chronic: Long Term Effects
  - 3. Symptoms of Exposure
- G. Section VII—Precautions for Safe Handling and Use
- 1. Normal Handling of Chemical.
  - 2. Spill Information.
  - 3. Clean Up Information (Evacuation).
  - 4. Disposing methods.
- H. Section VIII—Control Measures, P.P.E.

1. Types of Ventilation:
  - a. Local Exhaust
  - b. Mechanical Exhaust
  - c. Other
2. Respiratory Protection.
3. Recommended Protective Devices and Clothing.

## 44.0 Respiratory Protection

### 44-1. *Scope and Application*

To protect contractor and/or subcontractor workers from harmful airborne substances, contractors and/or subcontractors will implement necessary safety and health controls to eliminate/reduce airborne substances. This can be accomplished through engineering controls such as ventilation, substitution with a less harmful substance, through administrative controls limiting the duration of exposure, etc.. When these methods are not adequate, or if the exposures are brief and intermittent, or simply to minimize worker exposure to airborne substances, contractors are to provide respirators to allow their workers to breathe safely in potentially hazardous environments.

We recognize that respirators have limitations and their successful use is dependent on an effective respiratory protection program. Therefore, this project Respiratory Protection Program is designed to be a supplemental guide for contractors and subcontractors to: identify, evaluate and control exposure to respiratory hazards; select coordinate all aspects required for proper use, care and maintenance of the equipment. In all instances the contractor and/or subcontractor is to abide by their own company Respiratory Protection Program.

### 44-2. *Responsibility*

Contractor and subcontractor management are responsible for effective implementation and enforcement of their company's Respiratory Protection Program and this project's Respiratory Program.

All workers are responsible for complying with their company's Respiratory Protection Program and this project's Respiratory Program.

### 44-3. *Workplace Exposure Assessment & Ongoing Surveillance*

Contractors and subcontractors shall first complete an exposure assessment to identify harmful airborne contaminants, their extent and magnitude, and how to control them.

Results of these evaluations will be summarized and a record maintained in the contractors and/or subcontractors jobsite project files. Additional evaluations are necessary if exposures change due to new materials, process changes or other conditions increasing the degree of worker exposure or stress, and these evaluations will be added to the file.

#### **44-4. Respirator Selection**

In those instances where engineering and administrative means do not achieve the desired control, or in the case of an emergency, respirators shall be worn. Different types of respirators are available for a variety of applications, and contractors and/or subcontractors shall ensure that the proper NIOSH approved respirator is selected and used for the kind of work being performed (or anticipated) and hazards involved. The contractor and/or subcontractor is solely responsible for the proper selection of respirators for their workers.

#### **44-5. Evaluating Respirator Wearer's Health Status**

Even with appropriate equipment and adequate training provided, a worker's health status shall be considered before allowing respirator use. The wearer's physical and medical condition, duration and difficulty of the tasks, toxicity of the contaminant, and type of respirator all affect a worker's ability to wear a respirator while working. Also, respirators are uncomfortable and may reduce the wearer's field of vision. Therefore it is prudent for us to evaluate the worker's physical ability to wear a respirator. Construction work or work with lead, asbestos, cotton dust and certain carcinogens make this evaluation mandatory.

Each respirator candidate will be given a medical evaluation by the contractor's and/or subcontractors medical personnel. A Medical Evaluation and Work Restriction report as well as a Respiratory Protection Notification form allowing use of a respirator is to be obtained for each worker and kept on file at the contractors and/or subcontractors field office.

#### **44-6. Respirator Fit Testing & Assignment**

After the contractor and/or subcontractor selects the appropriate type of respirator and certify their worker's ability to work while wearing a respirator, they shall conduct a qualitative fit test to choose the best fitting face piece and determine the specific brand, model and size for each worker.

Qualitative fit testing and assignment will be performed by the contractors and/or subcontractors or their designee qualified to perform the testing and at a minimum comply with the applicable OSHA requirements. A Qualitative Fit Test Record form indicating successful completion of the test will be obtained from the firm providing the fit testing and filed at the contractors and/or subcontractors jobsite field office.

#### **44-7. Training**

Once the contractors and/or subcontractors worker is fitted with the correct respirator for the task, the contractor and/or subcontractor is to ensure the

individual is thoroughly trained in the need, use, limitations, inspection, fit checks, maintenance and storage of the equipment.

Detailed instructions for use and care of the respirator are provided by the manufacturer and local regulations, with the equipment, and this information is to be used in the training.

**44-8. Recordkeeping**

The contractor and/or subcontractor will document each major component of their program to:

- A. Verify that each activity has occurred.
- B. Evaluate the success of the program.
- C. Satisfy regulatory requirements.

These records include the written program, exposure determination, respirator selection, physical status evaluation, fit testing and respirator assignment, training form, program assessment and voluntary use of respiratory protection.

These records will remain as a permanent part of the contractors and/or subcontractors



## 45.0 Silica Dust

### 45-1. *Scope and Application*

Silica is the main component found in sand, quartz and granite rock. Excessive amounts of silica dust may be generated during activities such as: sandblasting, rock drilling, roof bolting, foundry work, stonecutting, drilling, quarrying, brick/block/concrete cutting, gunite operations, lead-based paint encapsulate applications, asphalt paving, cement products manufacturing, demolition operations, hammering, and chipping and sweeping concrete or masonry.

Potential for exposure will be considered prior to any operators similar to the above list.

### 45-2. *Requirements*

In order to determine whether a product contains silica, the Material Safety Data Sheet shall be obtained and inspected by the contractor. In the event silica is present in the products, the following safe working procedures shall be followed to eliminate or control silica dust exposure:

- A. Contractor and/or subcontractor initiated engineering controls shall be utilized to eliminate the hazard whenever feasible.
- B. Contractor and/or subcontractor initiated air tests or historical data are required to confirm the controls in place are working and whether PPE is or is not required.
- C. After working with products that contain silica, each worker will be required to thoroughly wash their hands before eating, drinking or smoking. Eating, drinking or smoking near silica is strictly prohibited.
- D. Wet down dry materials and surfaces before cutting, chipping, grinding, sanding, sweeping or cleaning. All block-cutting operations shall be performed by the wet cut method.
- E. Use power tools with built-in dust extraction units to capture the dust before it is released into the air.
- F. For abrasive blasting, replace silica sand with safer materials. The National Institute for Occupational Safety and Health highly discourages the use of sand or any abrasive with more than 1% crystalline silica in it. Garnet, slags, and steel grit and shot may be good substitutes.

### 45-3. *Respiratory Protection*

Dust masks or particulate respirators are the most common respiratory protective measure. However, a minimum half face respirator should be

considered. The type of respirator needed will depend upon the silica concentration levels and shall be determined by the contractor and/or subcontractor.

Medical surveillance/screening requirements are required for all workers exposed to silica operations requiring respiratory protection and shall be the responsibility of the contractor and/or subcontractor.

#### **45-4. Training**

All workers working with silica containing products shall be trained by the contractor and/or subcontractor in the hazardous effects of being exposed to silica dust.

All workers performing tasks involving sanding, chipping, grinding, scraping, cutting, crushing or drilling are required to be trained in the proper use of such tools, in addition to the proper methods of reducing or eliminating silica dust.

Each individual required to wear respiratory protective equipment will be trained in accordance with the contractor's and/or subcontractors respiratory protection program, which shall meet at a minimum this project's Respirator Program and all OSHA standards. All contractors and/or subcontractors are solely responsible for such training and all costs associated with it.

#### **45-5. Recordkeeping**

All training that takes place involving silica needs to be documented with the type of training and the signatures of all that attended the training. Contractor and/or subcontractor training needs are to be updated on an annual basis.

## 46.0 Substance Abuse and Drug Testing Program

### 46-1. Purpose

To help insure a safe, healthy, and productive work environment for all workers, RTD has adopted a policy of maintaining a workplace free of drugs and alcohol. This policy restricts certain items and substances from being brought onto, or being present on the premises, or projects. Workers are prohibited from reporting to work, or working under the influence of illegal drugs, alcohol, and other controlled substances which may affect their ability to perform work safely.

Workers under the influence of drugs or alcohol on the job pose serious safety and health risks not only to themselves, but also to all those who surround or come in contact with them. Therefore, RTD asks for your full cooperation and support in abiding by this policy.

Any current worker who feels that he or she has a drug or alcohol related problem is encouraged to seek professional help. A workers employer will refer any worker voluntarily seeking such help to professional assistance and any such action by a worker shall be kept strictly confidential.

All workers or agents of subcontractors hired to perform any of the work under any of the contracts or who participate in any fashion under any of the contracts, or who work in any facility will be required to participate in a drug test administered by an RTD designated representative prior to commencing any type of work, unless an approved alternative substance abuse testing program is accepted by Management.

We will accept the substance abuse testing cards provided by the respective worker's company, trade union, or associations pending our review and acceptance of the worker's company or trade union substance abuse program in lieu of these guidelines. Acceptance of such cards will not preclude workers from RTD's Random testing program.

This policy is nondiscriminatory and applies equally to all workers, management personnel, hourly craft, or temporary personnel working on RTD jobsites.

### 46-2. Scope and Application

The scope and application applies to subcontractors, consultants, construction managers, and their respective worker's, or others, to whom RTD is obligated to apply this policy. Application includes working on a RTD project where RTD holds the subcontracts and/or RTD is contractually obligated to implement said program, or on RTD property including but not limited to subcontractor personnel, management personnel, temporary

personnel, or consultants. This program does not apply to projects whereby RTD does not hold subcontracts and/or there is no contractual obligation to do so.

All persons or entities covered by this policy understand and agree that alternative substance abuse policies may be utilized as required by law, contract, or insurance agreement and they will comply with such other policies where applicable.

This policy includes pre-employment, post-incident, reasonable suspicion, re-employment, medical examination, annual, random testing, searches and investigations to the extent permissible by law.

#### **46-3. Rules**

Possessing, soliciting, manufacturing, distributing, dispensing, and/or the use of illegal drugs, drug paraphernalia, unauthorized controlled substances, illegal use of legal drugs, and other intoxicants on or in any project or at any facility is prohibited and may result in disciplinary action up to and including suspension or termination.

Reporting to and being at work under the influence of illegal drugs or unauthorized controlled substances is prohibited. Reporting to and being under the influence of alcohol or other legal intoxicant that can adversely affect the worker's performance or the safety of the worker or those surrounding the worker is also prohibited. Violation of this rule may result in disciplinary action up to and including suspension, and/or termination.

Legally prescribed drugs may be permitted on or in any project or at any facility provided that the drugs are prescribed to the worker by an authorized medical practitioner for current use by the worker. Reporting to and being at work under the influence of prescribed or over-the-counter drug, where such use prevents a worker from performing the duties of the job, or poses a safety risk to the worker and/or other workers or property is prohibited. Workers taking a prescription or over-the-counter drug are personally responsible for confirming with their physician that they may safely perform any job duties while taking such items. Workers taking a legal substance that could impair their safe work must advise their immediate supervisor, who may assign the worker to non-hazardous duties or send them home. A worker's failure to notify their supervisor at the start of their work shift may result in disciplinary actions up to and possibly including termination and/or barring as described below:

- A. Any worker who is found to be in violation of this policy may be subject to discipline up to and including termination.

- B. Unusual behavior constituting grounds for drug testing may also subject the worker to discipline up to and including termination.
- C. The possession or use of alcohol in or on RTD property, or projects is prohibited.

Nothing set forth in this policy shall be construed as a limitation upon the right to terminate a worker at any time and upon any reason and the right of the worker to resign at any time for any reason.

#### **46-4. Testing Requirements**

All employees will be required to undergo a screening test for the use of illegal and nonprescription drugs, alcohol or other substances under any of the following or other circumstances which may be determined by RTD management under this policy:

- A. Pre-employment--After a conditional offer of employment, or prior to admission to a project, an initial drug test will be required. All potential employees of all contractors at all tiers who work at RTD FasTrack Project and who are non eligible with this policy shall submit to an initial drug test. The initial drug test will test for the presence of illegal/controlled drugs and substances. The drug test categories and related levels to determine a positive test result may be found in this section. This test will not include an alcohol test. Any potential employee refusing to submit to this test will not be permitted to work on the Project until the requirements of this policy are satisfied.

Existing employees transferred from another location to work on a project covered by this policy or upon reemployment: All employees in this classification must become eligible with the Policy. Any employee who is not current with the policy will not be permitted to work on the RTD FasTracks Project.

- B. Post Accident/ Incident- If involved in a chargeable workplace incident. This would include the following; resulting in personal injury to the worker, others working in the area, damage to property, or workplace, circumstances which could have resulted in personal injury, or damage to property, or when there is reasonable suspicion to believe that the incident has occurred due to drug or alcohol use.
- C. Return-to-Duty Testing: Employees or potential employees who have tested positive for drugs or alcohol will not be eligible for employment until they pass a return-to-duty test. The return-to-duty test need only be for the substance whose misuse caused the employee to be removed from service, but a return-to-duty test may be performed for both drugs

and alcohol if there is reasonable suspicion of other untested drug or alcohol misuse at the time of the return-to-duty testing.

- D. Random Testing: A minimum annual random selection rate of twenty-five percent (25%) or as permitted by law of the workforce employed on covered jobs shall be tested. Random testing shall be site-specific. The frequency of random selections shall be monthly. The selection of employees for random testing shall be determined exclusively by Kroll through its computer-generated, random-number generating program. Selection of employees for random testing shall not be conducted by any contractors or employers. Random testing shall test for illegal/controlled drugs and substances.

An employee selected for random drug testing may obtain a deferral of testing if a compelling need necessitates a deferral on the grounds that the employee is:

1. on a leave status (sick, annual, administrative, or leave without pay);  
or
2. on official travel status away from the test site or is about to embark on official travel scheduled prior to testing notification.

An employee whose random drug test is deferred will be subject to an unannounced test within the following 60 days.

1. Reasonable Suspicion - may be tested for cause for illegal/controlled drugs and substances as well as alcohol when a reasonable suspicion exists that the employee appears to be under the influence of illegal/controlled drugs or substances and/or alcohol Reasonable Suspicion would apply when it is believed a worker has reported to work and/or is under the influence of illegal drugs, unauthorized controlled substances, alcohol, other intoxicants while on any project during work hours which could affect the safety of the worker and/or others.
2. Annual Testing: All employees will be tested at a minimum of once every twelve months to maintain their status as current with the Policy. An initial test, random test, for cause test, post accident test, return-to-duty test, or follow-up test will be counted in determining whether an employee has been tested within the previous twelve months. Employees who have not been tested within the previous twelve months will submit to a test when directed to do so. Annual testing shall include testing for illegal/controlled drugs and substances. This test will not include an alcohol test.

3. Follow-Up Testing: After a confirmed positive test, employees are subject to unannounced testing for illegal/controlled drugs and substances as well as alcohol as directed by the discretion of an approved, qualified professional in the substance abuse field. Such employees will be subject, at minimum, to six unannounced follow-up tests in the first 12 months following the employee's return to duty.
4. Additional testing maybe required by contractor-Owner contract agreements, other applicable agreements, existing contractual obligations or applicable government regulations.

**46-5. ILLEGAL/CONTROLLED DRUGS AND SUBSTANCES**

Testing under the this Policy includes tests for alcohol and:

- A. Amphetamines
- B. Barbiturates
- C. Benzodiazepines
- D. Cocaine
- E. Opiates
- F. Phencyclidine
- G. Propoxyphene (Darvon)
- H. THC (Marijuana)
- I. Methadone

Testing and cutoff levels are contained in the Drug Information Chart at the end of this section.

**46-6. Procedure For Initial, Random, Annual, Return-To-Duty, And Follow-Up Drug Testing**

Specimen collection may occur on-site or at an off-site clinic provided no loss of wages results. Wages will be the responsibility of the employee's employer.

Each individual will, upon request, read and sign the certification statement on a Drug Testing Chain of Custody (COC) and provide date of birth, printed name, and day and evening contact telephone numbers.

Specimens shall be collected in accordance with the procedures set forth in DOT Urine Specimen Collection Guidelines for the U.S. Department of Transportation Workplace Drug Testing Programs including, but not limited

to, those procedures governing the use of split samples and those establishing a formal chain of custody.

A portion of the sample from the primary specimen will be screened using the EMIT test and if nonnegative, another portion from the primary specimen will be tested for verification using the GC/MS test.

A laboratory testing the primary specimen must retain a specimen that was reported with positive, adulterated, substituted, or invalid results for a minimum of one year. Within the one-year period, the MRO, the employee, or the employer, may request in writing that the laboratory retain a specimen for an additional period of time (e.g., for the purpose of preserving evidence for litigation or a safety investigation). The laboratory must comply with such a request. In the absence of such a request, the specimen may be discarded at the end of the year. If the split specimen has not been sent to another laboratory for testing, the laboratory must retain the split specimen for an employee's test for the same period of time that it must retain the primary specimen and under the same storage conditions.

Any employee who refuses to take a drug test within the meaning of this Policy will be considered to have tested positive and will be classified as non eligible.

The results of a positive test will be communicated to the contractor's designated representative and by the MRO. If the individual has tested positive or has otherwise become non eligible with this Policy, he/she will be removed from the Project immediately and paid for all hours worked. The individual will not be eligible for employment with any employer on Projects covered by this Policy, contingent on a negative drug test.

Upon request, the MRO will provide a copy of the positive test result to the individual.

Testing the Split Specimen: If any individual who has tested positive wishes to dispute the results of the GC/MS test, he/she may do so at his/her option by having a GC/MS test performed on the split specimen at a laboratory certified by SAMHSA (Substance Abuse and Mental Health Services Administration) of his/her choice. The MRO will have available a current list of SAMHSA certified screening facilities. The specimen will be shipped directly from the Policy administrator's laboratory to the laboratory of the employee's choice.

The cost of this test will be borne by the employee. If the results of this test are negative, the employer will reinstate the individual with full loss wages and benefits and will reimburse the individual for the cost of the test. The individual must exercise the option of a second GC/MS test within 72 hours



of being notified of the positive test results. The request to the MRO may be oral, but must be followed by a written request.

The written request must be sent by the individual who tested positive to the MRO. The letter must request the MRO to have the split specimen sent to a different SAMHSA laboratory for testing. Include the name, address and phone number of the laboratory. Also include a money order in the amount specified by the MRO. If the results are negative this amount will be reimbursed by the employer. The employer will also reinstate the individual with full loss wages and benefits.

**Return-to-Duty and Follow-up Testing Procedures.** Individuals identified through breath or urinalysis testing as being positive for alcohol or controlled substance use, or who refuse to be tested must:

- A. Be removed from all projects.
- B. Undergo a comprehensive assessment and clinical evaluation with an approved, qualified professional in the substance abuse field to determine what level of assistance the individual needs in resolving problems associated with alcohol use or prohibited drug use.
- C. Successfully complete and/or actively participate in any recommended course of education and/or treatment prior to returning to duty. Treatment recommendations can include, but are not limited to: in-patient treatment, partial in-patient treatment, out-patient treatment, education programs, and aftercare. Education recommendations can include, but are not limited to, bona fide drug and alcohol education courses, self-help groups, and community lectures.
- D. If recommended by the qualified professional, undergo a follow-up evaluation to determine if the individual has demonstrated successful compliance with recommendations of the initial evaluation.
- E. Receive a return-to-duty release from the qualified professional following the period of suspension.
- F. Submit to and pass all required follow-up tests. The individual is responsible for all specified costs for follow-up testing.

**46-7. Prerequisites for a Drug/Alcohol test for Reasonable Suspicion**

Existing employees working at the RTD FasTrack project may be tested for illegal/controlled drugs, substances and alcohol if there exists a reasonable suspicion that the employee is under the influence of alcohol or illegal/controlled drugs.

For the purpose of this policy, the term “reasonable suspicion” shall be defined as aberrant or unusual on-duty behavior of an employee who:

- A. Is observed on-duty by either the employee’s immediate supervisor, higher ranking employee, or other managerial personnel of the contractor who has been trained to recognize the symptoms of drug abuse, impairment or intoxication, which observations shall be documented by the observers;
- B. Exhibits the type of behavior which shows accepted symptoms of intoxication or impairment caused by controlled substances or alcohol or addiction to or dependence upon said controlled substances or alcohol; and
- C. Exhibits conduct that cannot reasonably be explained as resulting from other causes, such as fatigue, lack of sleep, side effect of prescription or over-the-counter medications, illness, reaction to noxious fumes or smoke.

Drug testing of this type will not be conducted without the written approval of the contractor’s job superintendent or designated manager who has been trained in identifying conduct constituting reasonable suspicion for testing.

A job superintendent or designated manager must document in writing who is to be tested and why the test was ordered, including the specific objective facts constituting reasonable suspicion leading to the test being ordered, and the name of any sources of this information.

One copy of this document shall be given to the employee before he/she is required to be tested, if requested by the employee. After being given a copy of the document, the affected employee shall be allowed enough time to be able to read the entire document.

Failure to follow any of these procedures shall result in the elimination of the test results as if no test had been administered. The test results shall be destroyed, and no disciplinary action shall be taken against the employee.

When a supervisor, higher ranking employee or other managerial personnel has reasonable suspicion to believe that an employee is using, consuming, or under the influence of an alcoholic beverage, non-prescribed controlled substance (other than over-the-counter medication), and/or non-prescribed narcotic drug while on duty, that person will notify the job superintendent or designated manager for the purpose of observation and confirmation of the employee’s condition.

The employee will be offered an opportunity to give an explanation of his condition, such as reaction to a prescribed drug, fatigue, lack of sleep,

exposure to noxious fumes, reaction to over-the-counter medication or illness.

If after this explanation the job superintendent or designated manager, after observing the employee, has reasonable suspicion to believe that the employee is using, consuming and/or under the influence of an alcoholic beverage, non-prescribed controlled substances, or non-prescribed narcotic while on duty, then, by a written order signed by the job superintendent or designated manager, the employee may be ordered to submit to a drug and alcohol test. Refusal to submit to this testing after being ordered to do so will be considered to have tested positive and will result in the employee being categorized as non eligible” and ineligible for employment by any contractor on the project.

If the project owner has an existing reasonable suspicion testing policy that meets or exceeds the standards set forth herein, the policy may be implemented by the project owner.

#### **46-8. Prerequisites for Post- Accident Testing**

Post Accident: An employee with a chargeable accident or who was involved in a chargeable accident whether or not they were injured, shall be required to submit to post-accident testing for the use of illegal/controlled drugs, or substances and alcohol. The tested employee must be escorted by an employer representative to the testing site. Post-accident alcohol testing should be administered within 2 hours of the accident, and must be administered within 8 hours. Post-accident drug testing must be performed within 32 hours of the accident. In situations where post-accident testing is necessary, the employee is prohibited from consuming alcohol for 8 hours following the accident, or until tested.

A chargeable accident is defined as:

- A. An incident resulting in personal injury to the worker, others working in the area, damage to property, or workplace, circumstances which could have resulted in personal injury, or damage to property.
- B. An accident involving death.
- C. An accident that results from the employee’s negligence and results in the property or vehicular damage of one thousand dollars (\$1,000.00) or more.
- D. An accident requiring any offsite medical treatment.

If it reasonably appears that an employee was injured solely as a result of another employee’s action, testing will not be required.

If an employee involved in an accident is not injured, no test will be required unless reasonable suspicion, as defined in this policy, exists.

An employee who is seriously injured and cannot provide a specimen at the time of the accident shall consent to a blood test or provide the medical review officer the necessary authorization for obtaining hospital reports and other documents that would indicate whether there were illegal/controlled drugs or substances and/or alcohol in their system. If an employee refuses to comply with this provision, the MRO shall note such refusal and such refusal shall be considered a positive result.

#### **46-9. Procedures for Reasonable Suspicion and Post-Accident Testing**

Employee drug tests for post-accident will include testing for the same drugs but also will include testing for alcohol.

Employee drug tests for reasonable suspicion will include testing for the same drugs and for alcohol if reasonable suspicion exist.

For cause/ post-accident testing shall be performed at the appropriate jobsite trailer or at a designated off-site clinic. The individual will be accompanied to an off-site clinic by a contractor representative. Specimens shall be collected and tested.

#### **46-10. Testing For Alcohol**

- A. Equipment. Only approved evidential breath testing devices (EBT) and non-evidential devices for conducting alcohol testing shall be used. These devices are listed on NHTSA's Conforming Products List (CPL). All equipment shall have a quality assurance plan approved by the NHTSA and shall not be used in the event that the device does not meet the specified quality controls.
  - 1. Screening Devices. Either non-evidential devices or EBTs listed on the CPL may be used for screening tests.
  - 2. Confirmation Devices. Only EBTs listed on the CPL may be used for confirmation testing. The EBT shall be able to distinguish alcohol from acetone; be capable of testing an air blank prior to each collection of breath, and performing an external calibration. The EBT shall also be:
    - a. Capable of being attached independently or by direct link to a separate printer, print a result in triplicate (or three consecutive identical copies) of each breath test;
    - b. Capable of assigning a unique and sequential number to each completed test so that the number can be read by the Breath

Analyzer Technician (BAT) and the employee before each test and be printed out on each copy of the result;

- c. Capable of printing out the manufacturer's name of the device, serial number and time of the test.

**B. Procedures**

1. The alcohol testing procedures shall be complied with by the designated alcohol testing sites.

**C. Provisions Governing Tested Employees**

1. Alcohol Concentration. An employee or potential employee shall be prohibited from reporting for duty or remaining on duty requiring the performance of covered functions while having an alcohol concentration of 0.04 or greater. If a covered employee has an alcohol concentration of 0.02 or greater, the employee shall be removed from the job and will be permitted back to work when passing a negative alcohol test.
2. This does not prohibit the employer from taking any disciplinary action otherwise consistent with local, state, or federal law.
3. If an employee's confirmed test results indicate that he/she exceeded the policy's 0.04 blood alcohol limitation.
4. An employee who tests positive will be removed from the project immediately and paid for all hours worked. If the employee has exceeded the policy limit, the individual will be removed from the job.
5. Any individual who refuses to take an alcohol test within the meaning of this policy will be considered to have tested positive.

**46-11. Medical Review Officer and Policy Administrator Responsibilities**

The MRO's duties under this Policy include, but are not limited to:

- A. Evaluation of drug laboratory reports in a timely fashion.
- B. Assessment of the collection process through careful review of custody and control documents, and verification of appropriate documentation through a uniform and systematic set of procedures. The MRO assesses such critical information as name, signature, social security number/identification number, and specimen identification number. The MRO assesses whether the custody and control documents have proper collection site signatures. When applicable, the MRO assesses laboratory results for documentation of suspicious results or adulteration (abnormal

pH, GC/MS interference, specific gravity and creatinine levels), as required under different testing programs.

- C. Reviewing positive tests to determine on a case-by-case basis whether there could be an alternative medical explanation for the presence of a drug or class of drugs.
- D. Determination of a legal/valid medical explanation for a positive result, or determination that errors in the collection process occurred.
- E. Discussion with the employee of test results, focusing on specific medications, drugs, or drug-taking experiences. If the employee denies inappropriate use, the MRO seeks to verify, using current medical knowledge, any claim that the drug was medically prescribed or administered, or to document that there was, in fact, inappropriate use.
- F. Assesses the employee's medical history and current medical status by interviewing the employee by phone, face-to-face, or as required by company policy. In a face-to-face interview, the MRO observes for drug-taking indications. Where required, a clinical examination should occur. Where necessary, the MRO contacts the employee's physician, dentist, pharmacist, or other health care professional to verify prescriptions for medical purposes, medications recently administered, or to request patient approved release of medical records. The MRO responds to the employee's request for repeat laboratory analysis by following the Policy with respect to the original specimen or split specimens.
- G. Recommending to the employee to contact an approved, qualified professional in the substance abuse field.
- H. Maintaining complete and detailed records which are secure and maintained with confidentiality.

#### **46-12. Consequences of a Positive Drug or Alcohol Test**

If test is positive, the individual will be removed from the project immediately and paid for all hours worked. The individual will not be eligible for employment as provided in this policy.

- A. **First Violation of Policy:** An employee who tests positive for the first time will be ineligible for employment on all projects covered by this policy for 90 days from the date that he/she was notified by the MRO, contingent on a review of an approved, qualified professional in the substance abuse field, approval by the MRO and a negative drug/alcohol test.

- B. Second Violation of Policy: An employee who tests positive for the second time will no longer be eligible for employment on RTD FasTracks Projects.

The fees of the approved, qualified professional in the substance abuse field are the responsibility of the employee.

#### **46-13. Tampering With A Test/ Diluted Test Results**

- A. Tampering with a Test.

Any employee who attempts to introduce a substituted or altered specimen shall be classified as non eligible with the Policy, as if the test were positive. Test that are invalid will require a second sample to be collected. The determination whether a specimen is dilute, substituted, invalid or adulterated shall be made by the laboratory and reported to the MRO.

- B. Dilute Test Results

1. Positive Dilute Test Results: The MRO will treat a positive-dilute result as a positive test. The MRO must not direct the employee/applicant to take another test based on the fact that the specimen was dilute.
2. Negative Dilute Test Results: A drug test issued as negative-dilute will require a retest. The MRO Service will contact the contractor of the employee/applicant to report the dilute test result and provide written instructions for retesting the employee/applicant. The employer will be responsible to direct the employee/applicant to retest the following day after being contacted by the MRO Service. The employee/applicant will be given instructions by their employer, provided by the MRO Services, to limit their fluid intake prior to the retest. The employee/applicant should refrain from consumption of fluids after 9:00 p.m. the night before recollection and limit fluid intake to a minimum the day of and up to collection time. Any deviation from retesting the day after notification must be approved by the MRO Service to retest at a later date. If a retest is not completed within the time allowed by the MRO Service, the employee/applicant's status will be made non-current. A second consecutive dilute test will be considered a violation and will carry the same consequences as a positive test unless a verified medical condition exists. If the employer directs the employee/applicant to take another test and the employee/applicant declines to do so, the employee has refused to test for purpose of this Policy.

#### **46-14. Voluntary Disclosure**

Employees are encouraged to seek help for a drug or alcohol problem before it deteriorates into a disciplinary matter. If an employee voluntarily notifies supervision that he or she may have a substance abuse problem, the company and/or union will assist in locating a suitable employee assistance program for treatment, and will counsel the employee regarding medical benefits available under the company or union health and welfare insurance program.

If treatment necessitates time away from work, the company shall, if the project or work permits, provide the employee with an unpaid leave of absence for purposes of participation in an agreed upon treatment program. An employee who successfully completes a rehabilitation program and provides a negative substance abuse test shall be reinstated to his/her former employment status, if the project is ongoing and work for which he/she is qualified is available.

Since the key to this provision's effectiveness is an employee's willingness to admit his or her problem, this provision is not available to an employee who requests protection under this provision after:

- A. being asked to submit to a drug or alcohol test in accordance with this plan; or
- B. having been found to have violated any of the provisions of the policy.

#### **46-15. Testing Procedures**

At a minimum, urine specimens will be analyzed utilizing a 9 panel test.

In general, donors will be permitted to give a urine specimen in privacy and without being observed by collection site personnel. However, a donor forfeits this right whenever there is a reason to believe that he/she may alter or substitute a specimen.

If the donor does not provide a sufficient amount of urine for a drug test he/she must drink up to 40 ounces of fluid, distributed reasonably through a period of up to three hours, or until the donor has provided a sufficient urine specimen. If the donor refuses to make the attempt to provide a new urine specimen or leaves the area where the collections are being done this will be considered a refusal to test.

If the donor has not provided a sufficient specimen within three hours of the first attempt the collector will discontinue the collection and notify the designated RTD contact. After consulting with the MRO, the donor will be directed to obtain, within five business days, an evaluation from a licensed



physician. If the donor proves that he or she has a medical condition that has, or with a high degree of probability could have, precluded the donor from providing a sufficient amount of urine, the MRO will mark the test as "Cancelled". The Company will take no further action. A medical condition includes an ascertainable physiological condition (e.g., a urinary system dysfunction) or a medically documented preexisting psychological disorder, but does not include unsupported assertions of "situational anxiety" or dehydration.

If there is not an adequate basis for determining that a medical condition has, or with a high degree of probability could have, precluded the donor from providing a sufficient amount of urine, the MRO will mark the test as "Refusal to Test".

Urine substance abuse screens and saliva or alcohol screen collections or their equivalent and preliminary testing may be performed on site. A Kroll approved laboratory will confirm on-site screens that test nonnegative. It could take up to 72 hours, but usually 24-48 hours or less, for the specimen to finish the GC/MS confirmation process. A final determination will be made only after the confirmation process is complete and the Medical Review Office has provided an adjudicated result. Since the substance abuse screening program is first and foremost a safety program, the "pending" worker will not be allowed on-site until this process is complete.

No worker search, drug test, or alcohol test will be conducted without the worker's consent. The worker shall be required to sign a consent form. Refusal to give consent shall be cause for termination.

A DOT approved saliva testing device or "hand held" Breathalyzer unit or equivalent device, similar to those used by law enforcement for field sobriety tests, will be used for the alcohol screen.

A. **Diluted samples** occur when an applicant drinks large amounts of fluids before the drug test, or adds water to their specimen so that it is harder to detect drug abuse. Applicants may innocently drink too many fluids before the drug test in order to be able to give a sample. This can be avoided by telling the donor not to drink more than 24 ounces within three (3) hours of the drug test. It is the responsibility of the donor to provide with an undiluted sample that can be tested.

1. A result that is reported from the medical review officer (MRO) back to RTD as "Negative Dilute" means that the creatinine and specific gravity values are lower than expected for human urine. This type of test result will always be sent with MRO comments stating, "Recollection suggested no fluids three hours prior to test."

2. RTD's policy on diluted specimens is to retest the donor one additional time. Ideally, they should be retested within 24 hours of receiving the results from the MRO, but no later than 48 hours. If the donor has provided a second dilute sample, the MRO will conduct a medical interview with the donor. During the interview process, if it is determined that there is no legitimate medical reason; the donor's test will be treated as positive.
- B. A **“positive” substance abuse screen** shall mean that the verified results are above standard cut-off levels and that there is not a medically valid reason for the result. A “positive” alcohol test result shall mean alcohol levels are officially recognized as demonstrating alcohol intoxication at or in excess of 0.02 (DOT Standard).
1. Before a donor's test result will be confirmed positive for drugs, the donor will be given the opportunity to speak with RTD's MRO and bear the burden of proof that there was a legitimate medical explanation for the positive test result. If the MRO determines that a legitimate medical reason does exist, the test result will be reported as “negative”. If the MRO determines that a legitimate medical reason does not exist, the test result will be reported as a “confirmed positive”.
  2. Hemp Oil Products – Donors should avoid the use of hemp oil and ingestion of hemp products that may be contaminated with levels of THC. The use of any of these products is not an explanation that a MRO can or will verify if a donor tests positive for THC.
  3. Any worker who tests positive for drugs or alcohol, and who believe the test results are incorrect, may request a retest of the original specimen at his/her own cost within (24) hours. An equally qualified laboratory shall perform the retest. If the retest is negative, a third test of the original split specimen shall be completed by a third laboratory to confirm or deny the previous test results. A toxicologist and MRO will review all data for a final determination. If it is determined that the initial confirmation screen was incorrect, the worker shall be allowed to resume work.
  4. Only the RTD approved substance abuse screening testing results shall be accepted, unless otherwise stated in this policy.
  5. Any worker that has a pending “Non Negative” result will not work on any project until the results have been confirmed as a “Negative” or a “Confirmed Positive”.

6. Workers who are terminated from working with/ or at an RTD project, or facility, subsequent to a positive test may be returned to work only if the following criteria are met. In all cases, there is no guarantee of reemployment.
  - a. The worker successfully completes a Substance Abuse Rehabilitation Program at their own expense or at the expense of their employer if such employer has an accepted program in place and proof of completion of such program is provided to RTD's Medical Review Officer and;
  - b. The employer submits a written request to the RTD safety manager for approval prior to his/her return to work. A copy of the certificates of completion must be attached and;
  - c. The worker tests negatively for drugs and/or alcohol before returning to the work site;
  - d. The MRO reopens a verification that previously closed without an interview with the donor, or because the donor provides new information demonstrating that there was a legitimate medical explanation for his/her positive result.
- C. An **"Adulterated or Substituted Test"** will be considered a refusal to test. There will be no split sample testing or rehabilitation if the result is adulterated or substituted, and the individual shall be subject to disciplinary actions up to and including immediate termination. Under no circumstances shall the individual be permitted to work.

#### **46-16. Searches**

RTD reserves the right to search any person entering any project or any facility and to search any property equipment and storage areas for illegal drugs, drug paraphernalia, unauthorized controlled substances, alcohol or other intoxicants. RTD may have the contractor complete the search of the worker or their property. This shall include, but is not limited to, clothing, personal effects, vehicles, buildings, plant facilities, offices, parking lots, desks, cabinets, lockers, closets, lunch and toolboxes, and equipment.

#### **46-17. Refusal**

Any worker who refuses to submit to a drug or alcohol screening test, or if their sample was adulterated or substituted, may be subject to disciplinary action up to and including suspension or termination. Any worker refusing to submit to a search may be denied access to, barred, or be asked to, immediately leave any work site or company property, and his or her employer shall be notified of such action.

**46-18. Cost of Testing**

If a worker is requested to submit to a substance abuse test, the cost of all testing and the confirmatory test of the same specimen will be paid by the workers employer. This does not apply to the retest of the original specimen if the donor feels that his or her specimen was tested in error. Such costs for retesting of the donor's original split sample will be borne by the donor.

**46-19. Notification of Authorities**

RTD may report information concerning possession, or distribution of any illegal drugs or unauthorized controlled substances to law enforcement officials, and will turn over to the custody of law enforcement officials any such substances found during a search. RTD will cooperate fully in the prosecution and/or conviction of any violators of the law.

**46-20. Workers Convicted of Drug Offenses**

In accordance with federal law H.R. 5210, "The Drug Free Workplace Act Of 1988" each worker must, as a condition of continued employment on a federal contract or grant notify his or her employer of any conviction of a criminal drug offense within five (5) days after said conviction. If an employer is notified, then that employer shall notify the RTD safety manager immediately. RTD will notify the Federal Contracting Agency of criminal drug convictions within 30 days after RTD has received notice. Any worker so convicted must satisfactorily complete an approved drug rehabilitation program and agree to periodic testing any time thereafter, before reemployment or barring is lifted and will be considered. Failure to report such a conviction and/or participate in a drug rehabilitation program may result in disciplinary action up to and including suspension, barring, and/or termination.

**46-21. Cooperation with RTD**

All workers, as a condition of continued employment on an RTD project, have an obligation to cooperate with any RTD and/ or CM/GC investigation, concerning compliance or enforcement of this policy. Failure to cooperate with any such investigation may result in disciplinary action up to and including suspension, barring, and/or termination.

**46-22. Penalties**

- A. Possession of illegal drugs, unauthorized controlled substances, or drug paraphernalia on RTD property or work site, as set forth in the Substance Abuse policy:
  - 1. First Offense: Termination

- B. Distribution of illegal drugs, unauthorized controlled substances or drug paraphernalia as set forth in the Substance Abuse policy on company property or work site:
  - 1. First Offense: Termination
- C. Use of illegal drugs or unauthorized controlled substances or alcohol:
  - 1. If a worker voluntarily asks for help: the worker will be asked to submit to a drug or alcohol screen to assure safety on the project. If this test is positive his or her subcontractor in accordance with this policy shall remove the worker from the project.
  - 2. If discovered by actions and/or testing:
    - a. First Offense: Immediate removal from the work site.
    - b. Worker of subcontractors, suppliers, etc. will be barred from entering RTD property with notice being sent to their employer.
  - 3. A worker who enters a formal inpatient rehabilitation facility, completes the program under the direction of the MRO, becomes drug and/or alcohol free and agrees to periodic Random testing to confirm this, may be eligible for rehire. No guarantees are given or implied.
  - 4. Notwithstanding the stated penalty, RTD reserves the right to discipline up to and including termination of a worker at will.

#### **46-23. Confidentiality**

All substance abuse testing will be performed with concern for each worker's personal privacy, dignity, and confidentiality. Each worker will be required to sign a consent and chain of custody form, assuring proper documentation and accuracy. Records may be kept at the project level for that particular project. Worker's shall have the right to a copy of their screen results within the reasonable amount of time it takes to retrieve them. All actions taken under this policy and program will be confidential and disclosed to only those with a need to know.

#### **46-24. Applicable Definitions and Appendices**

- A. Adulteration - A sample that has been tampered and clearly obstructs the testing process.

Adulterated Test - A urine sample that contains a substance that is not expected to be present in human urine, or contains a substance expected to be present but is at a concentration so high that it is not consistent with

human urine. This type of verified result is reported as a refusal to test, which is treated the same way as a positive result.

- B. Alcohol Test- A test conducted by a Breath Alcohol Technician using an Evidential Breath Testing device listed on the National Highway Traffic Safety Administration's (NHTSA)
- C. Conforming Products List (CPL) to measure the amount of alcohol concentration in a volume of breath.
- D. Cancelled Invalid Test

The result of a drug test for a urine specimen that contains an unidentified adulterant or an unidentified interfering substance, has abnormal physical characteristics, or has an endogenous substance at an abnormal concentration that prevents the laboratory from completing or obtaining a valid drug test. This type of test will always be sent with MRO comments stating "An immediate observed recollection is suggested."

- E. Chain of Custody

Handling samples in a way that supports legal testimony to prove that the sample integrity and identification of the sample have not been violated, as well as documentation describing the procedures.

- F. Confidentiality

Knowledge that a specific individual is to be or has been screened for alcohol/substance abuse shall be limited to the Medical Review Officer, personnel of the testing facility, the contractor's designated Policy administrator, the employee and, if the employee chooses, a representative of the union. To the extent that statistical data regarding the workforce and/or a portion of the workforce are collected, details of the test may be included as long as the identity of the employee is protected.

- G. Medical Review Officer (MRO)

A licensed physician responsible for receiving laboratory results generated by a substance abuse screening program who has knowledge of substance abuse disorders and who received appropriate medical training to interpret and evaluate a worker's medical history and other relevant biomedical information. Either the American Association of Medical Review Officers (AAMRO) or the American College of Occupational and Environmental Medicine (ACOEM) certifies the MRO.

- H. Negative Test

A negative result is obtained if: (1) the initial screen test indicated the absence of legal or illegal substances below the screen limit, or (2) the initial screen test indicates the presence of legal or illegal substances in excess of the screen limit but the confirming test (GC/MS) indicates the absence of illegal substances below the confirming limits, or the donor has a valid and verifiable prescription or medical explanation for the presence of legal substances above the confirming limits.

I. Negative Dilute

A specimen with creatinine and specific gravity values that is lower than expected for human urine. This type of test will always be sent with MRO comments stating, "Recollection suggested". No fluids three hours prior to test."

J. Positive Test (Alcohol)

A positive test result is obtained if substance abuse tests indicate the presence of alcohol at or in excess of the test limit of 0.02% blood alcohol content (DOT Standard).

1. Positive Test- A positive test result is obtained if the Medical Review Officer has verified that the test result contains prohibited substances above cut-off levels for which there is no valid medical explanation.
2. Positive Test (9-Panel Screen) - A positive test result is obtained if the Medical Review Officer has verified that the test result contains prohibited substances above cut-off levels for which there is no valid medical explanation.
3. Preemployment - means prior to admission to work on a Project or Facility.

K. Eligible

Employees with Eligible status have submitted to testing, have tested negative, and are eligible to work on projects requiring compliance with this Policy.

L. Drug Testing

A method for determining the presence of controlled substances in a urine sample using a scientifically reliable method performed in accordance with procedures specified herein.

M. Not Eligible

Employees who are not in compliance with this Policy due to missing a random test, diluted test result, unsuitable test result and/or a positive

test result or has not taken negative drug test in the last 12 months. Employees with a non eligible status shall either submit to a drug test or complete rehabilitation and provide a negative return to duty test, if they wish to be eligible to work on projects requiring compliance with this Policy.

N. Notice of Policy and Consent

Notifies employee to be tested that there is a substance abuse policy that the employee understands the substance abuse policy and the employee is consenting to be tested with the related consequences of a positive test result or refusal to be tested.

O. Random - Random, unannounced substance abuse screens will be required of any worker on any RTD project or at any facility. Every worker will have an equal chance of being selected every time those selections are made.

P. Reasonable Suspicion - Reasonable Suspicion shall be defined as those circumstances, based on objective evidence about the worker's conduct in the workplace that would cause a reasonable person to believe that the worker is demonstrating signs of impairment. In most cases, the objective evidence-giving rise to Reasonable Suspicion will be observed by at least two workers, but recognizing that in certain circumstances the observation may be made by only one worker. Examples of objective evidence include, but are not limited to:

1. When a worker shows signs of impairment such as difficulty in maintaining balance, slurred speech, and erratic or atypical behavior.
2. Observable phenomena, such as direct observation of drug or alcohol use or the physical symptoms or manifestations of being impaired by, or under the influence of, a drug or alcohol.
3. A report of on-duty or sufficiently recent off-duty drug or alcohol use provided by a credible source.
4. Evidence that an individual has tampered with a drug test or alcohol test during employment.
5. Evidence that an employee is involved in the use, possession, sale, solicitation, or transfer of drugs or alcohol while on duty, while on the employer's premises, or while operating the employer's vehicle, machinery, or equipment.
  - a. Substituted Test - A urine sample with creatinine and specific gravity values that are so diminished that they are not consistent



with human urine. This type of verified result is reported as a refusal to test, which is treated the same way as a positive result.

- b. Substance Abuse and Mental Health Services Administration (SAMHSA) A federal government agency, which certifies substance abuse testing laboratories.
- c. Termination - Banned from working at or on a Project or Facility in any capacity to which this policy applies.
- d. Worker – A person employed on an RTD project, a subcontractor, construction manager, consultant, or others, to whom this policy applies.

#### Q. Refusal to Test

An employee or potential employee has refused to take a drug test if he/she:

- 1. Fails to appear for any test within a reasonable time, after being directed to do so by the employer or Policy Administrator.
- 2. Fails to remain at the testing site until the testing process is complete;
- 3. Fails to provide a urine specimen for any drug test;
- 4. In the case of a directly observed or monitored collection in a drug test, fails to permit the observation or monitoring of his/her provision of a specimen;
- 5. Fails to provide a sufficient amount of urine when directed, and it has been determined, through a required medical evaluation, that there was no adequate medical explanation for the failure;
- 6. Fails or declines to take an additional drug test the MRO has directed the employee to take;
- 7. Fails to undergo a medical examination or evaluation, as directed by the MRO as part of the verification process; or
- 8. Fails to cooperate with any part of the testing process (e.g., refuses to empty pockets when so directed by the collector, behaves in a confrontational way that disrupts the collection process);
- 9. Fails to sign a Notice and Acknowledgement of RTD FasTracks testing requirements form.

#### 46-25. Testing Levels

Drug Group	Initial Test Level ng/ml	GC/MS Test Level Confirmatory ng/ml
Amphetamines*	1000	500
Barbiturates	300	200
Benzodiazepine	300	300
Cannabinoids*	50	15
Cocaine*	300	150
Methadone	300	300
Opiates*	2000	2000
Phencyclidine*	25	25
Propoxyphene	300	300

\* Cut-off values shall meet or exceed those established by SAMHSA's Mandatory Guidelines for Federal Workplace Drug Testing Programs.

## 47.0 Crisis Management

### 47-1. Crisis Communication Work Plan

Crisis communication will be conducted by the RTD crisis communication team. Contractors and contractor representatives are not authorized to provide media communication statements except where specifically outlined by this plan. Situations that may necessitate a call to the crisis communication team include but are not limited to the following:

- Death/injury/accident
- Health and human safety crisis
- Natural disaster
- Terrorism
- Violence
- Weather-related crisis
- Utility breaks

RTD FasTracks On-site Procedure for Emergency Communications:

- A. Recognizing that the media may arrive at any given site during an incident or crisis situation before a designated Public Information Officer (PIO) or spokesperson, procedures have been established to guide immediate on-site communication actions. This procedure is to be followed when media personnel are on site during an incident or crisis in advance of a Public Information Officer or spokesperson.
- B. First Call Made: Crew Supervisor (or applicable title):
  1. Assign someone to carry out media control (procedure outlined below) until a PIO arrives.
  2. Call/notify the following immediately:
    - a. Brian Rome, RTD Loss Control-Safety Manager, 303-910-1970
    - b. George Brathwaite, DTCG Safety Manager at TBD, 303-238-2240
    - c. Kathy Berumen, Project Public Information Office, 720-838-5437
  3. Provide the following information:
    - a. What happened
    - b. Specific location (exit #, cross streets, mile marker, etc.)
    - c. Your name

- d. Your immediate contact number that will remain open for incoming calls
  - e. General activity involved or how it happened
  - f. Current status of people/situation
  - g. Is the media on site? If yes, give clear directions to location.
- C. Staff Assigned to Media Control:
1. If media is on site.
    - a. Use tape, cones, traffic control equipment or other means to mark off a secure area for the media. Look for an area that is:
      - Safely away from any hazards in a “safe zone”
      - Big enough for 20+ people
      - Accessible via car from a public street
      - Direct all media to the “safe zone. “If already on site, escort them to this area
      - Keep other staff completely separate from the media “safe zone”
  2. **STAY WITH THIS GROUP.** Do not, under any circumstances, leave the media personnel alone.
  3. **DO NOT COMMENT.** The media will ask questions and attempt to get you to talk about what is happening, the people, your job, etc. They may flatter you or try to upset you. Try to be as polite and courteous as you can, but do not answer any questions. They are just trying to get a story. In this situation, you don’t have a story. Your only statement is:
    - a. **“I’M SORRY, I AM NOT A SPOKESPERSON. I AM HERE TO KEEP YOU SAFE DURING THIS INCIDENT. AS SOON AS ACCURATE INFORMATION IS AVAILABLE, A SPOKESPERSON WILL PROVIDE IT TO YOU.”**
      - Be aware that media scanners monitor radio traffic. Be careful not to transmit information that can be used by the media to substantiate a story or identify accident/incident victims.
- D. Staff Assigned to Public Information Area:
1. Keep the public in a contained area, safely away from the incident scene AND away from the media safe zone.

2. Provide information/updates on status of people/situation to any public present. This information should be obtained only from the designated spokesperson onsite.
3. Manager:
  - a. If there are several media people present and a Manager is available before a PIO/spokesperson arrives, the following statement should be read:
    - "My name is \_\_\_\_\_ and I'm a \_\_\_\_\_ title \_\_\_\_\_ WITH RTD FASTRACKS. At approximately \_\_\_\_\_ time \_\_\_\_\_ we experienced a(N) (accident, fire, explosion, [or describe situation]) near \_\_\_\_\_ approximate street address \_\_\_\_\_. We are working with \_\_\_\_\_ name agencies \_\_\_\_\_ to address the situation. This is all I can confirm at this time. I'm sure you understand we're very busy trying to deal with the situation and to gather as much information as possible. Please remain in this safe area and either a SPOKESPERSON or I will be back in \_\_\_# of minutes\_\_\_ with any additional information that can be verified. Sorry. No questions."
  - b. If possible, wait for a PIO/spokesperson to arrive before making any more statements to the media. If, for some reason, one cannot arrive in a timely manner, further directions and approved statements will be provided over the phone.
  - c. If the incident is resolved fairly quickly, the media will probably leave to do their story, but may still have questions that need to be answered. In that event, please take down the following information:
    - Name of Media Outlet (publication/radio/TV station)
    - Reporter's Name
    - Phone #
    - Fax #
    - Date/Time of Inquiry
    - Reporter's Deadline
    - Reporter's Questions
    - Facts Given (this should consist only of the facts released through the approved statement above)
4. Once you have all of the information, forward your written documentation of the media inquiries to the Public Information Office immediately.

### 47-2. **Wallet Cards**

Wallet cards should be prepared for all prime and subcontractor crewmembers working in the field. As shown in the sample below, the wallet cards should include internal notification procedures and contact information, as well as brief instructions on how to respond to on-site media and a statement to clarify that they are not spokespersons.

<p style="text-align: center;"><b>Communication Contact Procedure</b></p> <p>Potential Media Crisis Situation: <b>Major utility strike, major injury, vehicle accident, spill, fatality, any incident likely to have adverse public relations</b></p> <p>1 Contact your superintendent.</p> <p><b>Crisis Situation – Media On-site:</b> If media has already arrived on-site during a crisis situation as described above:</p> <p>1 Contact your superintendent, <u>and</u>:</p> <p>2 Call Kathy Berumen Project Public Information Office, <b>720-838-5437</b> and leave the information requested on reverse side.</p> <p>4. Call George Brathwaite, DTCG Safety Manager <b>303-238-2240</b></p> <p>3 Call Brian Rome, Loss Control-Safety Manager, <b>303-910-1970</b></p> <p><b>Non-Crisis Situation – Media On-site:</b> Media personnel arrive on-site during normal operations, requesting information or an interview</p> <p>1 Call Public Information Office immediately at <b>720-838-5437</b> and leave the information requested on reverse side.</p> <p style="text-align: center;">— Instructions on other side of card —</p>	<p><b>When calling in, please provide the following:</b></p> <ul style="list-style-type: none"> <li>▪ What happened</li> <li>▪ Specific location (exit #, cross-streets, mile marker, etc.)</li> <li>▪ Your name</li> <li>▪ Your cell phone number</li> <li>▪ General activity involved/how it happened</li> <li>▪ Current status of people/project</li> <li>▪ Is the media onsite? If yes, give clear directions</li> </ul> <p><b>If Media is onsite:</b></p> <p>1. Secure a "safe zone" away from site and direct media to it. Have someone stay with this group.</p> <p>2. Be as polite and courteous as you can, but <b>DO NOT COMMENT OR ANSWER ANY QUESTIONS FROM THE PRESS.</b> It is ok to write down their questions and contact person to pass on to the Superintendent or Public Information Office.</p> <p>3. <b>APPROVED STATEMENTS:</b> "I am not a spokesperson. I am here to keep you safe during this incident. As soon as accurate information is available, a spokesperson will provide it to you."</p> <p><b>General Media Inquiries:</b> <b>Refer all media inquiries to the Public Information Office. Make sure you have approval from the Public Information Office before allowing the media access to your work site.</b></p>
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### 47-3. **Toolbox Briefing Sheet Sample**

Create simple briefing sheets (example below) that outline two or three key points for superintendents to share with crews periodically during the morning safety briefings. This will help ensure that workers in the field understand the procedures and their specific role during an incident or crisis.

#### **Media/Emergency Communications Toolbox Briefing Sheet**

Please share the following information during morning toolbox meetings once a week. Cover each point and distribute wallet cards as needed. Contact your Superintendent or the Public Information Office when wallet card supply runs low.

#### A. Media Inquiries

If a member of the media comes onsite, escort them to the onsite supervisor, explain that you are not a spokesperson for the project and are not authorized to answer any questions and refer them to the Public Information Office phone number on your wallet card. Take down their name, the station or publication they work for and their phone number. Then, call the Public Information Office with the information. They will follow up and schedule a visit if necessary. All media visits must be approved through the Public Information Office.

Remember: unauthorized individuals can not come on-site without proper personal protective equipment (hard hat, safety vest, safety glasses).

#### B. Review Information on Wallet Cards

Make sure all employees understand the procedure to follow outlined on the Wallet Cards. Review the approved statements printed on the Wallet Card and ensure that all appropriate employees have cards on them when they are working.

#### C. On-site Emergency Communication Procedures

In the event of an on-site emergency that draws media attention, an on-site employee will need to be assigned to Media Control. The responsibility of this person is to:

Secure an area to be used as a "safe zone" for media that arrive

Stay with the media group at all times

Not comment on the incident, just keep the media separate from the incident site and other staff working to deal with the emergency

Remember: the Superintendent or the Project Spokesperson will be the first person to make a statement to the media during an emergency situation, unless the crew supervisor is notified otherwise by the Public Information Office.

## **48.0 Appendices**

- 48-1. Utilities Contact Information***
- 48-2. Formal Modified Duty Process***
- 48-3. Visitor Waiver Of Liability & General Release Form***
- 48-4. Pre-Construction Meeting***
- 48-5. RTD FasTracks Project Safety Orientation***



## 48.1 Utilities Contact List

Company	Contact Person	Address	Phone	Email
360 Networks/ Touch America	Bill Bland	815 Harrison Avenue, Leadville, CO 80461	719-486-2526	bill.bland@360.net
Abovenet (MFN)	Vic Peterson	7905 S. 196th Street, Kent, WA 98032	206-988-8663	vpeterson@above.net
Adesta Communications	Duke Horan	12742 E. Caley Ave., #2B, Centennial 80111	303-858-8087, 303-472-9027cell	dhoran @adestagroup.com
Anadarko Petroleum Group (formerly Kerr McGee Gathering)	Erik Smith	Anadarko Petroleum Group, Attn Erik Smith- 635 N. 7th Ave. Brighton, CO 80601	303-655-4359	erik.smith @anadarko.com
AT&T	Ian Wetteland	5225 Zuni St., Denver, CO	303-324-6001	wettland@att.com
Buckeye (BP Pipeline of America)	Anthony Wells		303-261-0452; 303-913-7620 cell	awells@buckeye.com
City of Aurora	Nicole Johnston	15151 E. Alameda Pkwy, 3rd Flr, Aurora 80012	303-739-7499	jwingert@auroragov.org
Colorado Rockies Baseball	Oly Olsen	2001 Blake Street Denver, CO 80205	303-312-2017	Carlillr @coloradorockies.com
Colorado Interstate Gas/El Paso Company	Steve Bacon	2 N. Nevada, Colorado Springs, CO 80903	719-520-7413	steve.bacon @elpaso.com
Comcast	Bob Pyle	6850 S. Tucson Way Englewood, CO 80012	303-603-5039	bob_pile @cable.comcast.com
Conoco/Phillips	Wayne McCreesh		303-376-4363	r-wayne.mccreesh @conocophillips.com
Denver International Airport	Donald Smith	8500 Pena Blvd, Denver, CO 80249-6340	303-342-2200 x 2604	donald.smith @diadenver.net
Denver Traffic Operations	Matt Wager	5540 Roslyn Street Bldg. E , Denver 80216	720-865-4001	matthew.wager @ci.denver.co.us
Denver Wastewater	Frank Kemme	2000 W 3rd Ave., Denver 80223	720-865-3039	frank.kemme @ci.denver.co.us
Denver Water	Don Wyman	1600 W 12th Ave., Denver, CO 80204	303-628-6628	don.wyman @denverwater.org
E470 Highway Authority	Kenneth Frantz	22470 E 6th Ave Pkwy, Suite 100 Aurora, CO 80018	303-537-3724	kfrantz@e-470.com
East Cherry Creek Valley Water and Sanitation District	Rebecca Mullenix		303-693-3800	rmullenix@eccv.org
Kanab Pipeline (Plains ?)	Tom Swallow		303-877-5071	-
Level 3	Rick Miller	1025 Eldorado Blvd. Broomfield, 80222	303-888-7568	<a href="mailto:rick.miller@level3.com">rick.miller@level3.com</a>
Level 3 (ICG)	Peter Smith		303-414-5056	<a href="mailto:peter.smith@level3.com">peter.smith@level3.com</a>
Level 3 (Wiltel)	Lantz Duffield	Network Relocations Dept. Level 3 Comm LLC, 1025 Eldorado Blvd. Broomfield 80022	303-809-4436	<a href="mailto:lantz.duffield@level3.com">lantz.duffield@level3.com</a>
Level 3 (Broadwing)	Haitham Ali	23901 East 6th Ave., Aurora, CO 80018	720-859-1495	<a href="mailto:haitham.ali@broadwing.com">haitham.ali@broadwing.com</a>
Magellan Pipeline (formerly Shell)	Cole Ballard	15000 E Smith Rd Aurora, CO 80011	303-344-1511 x115	

Company	Contact Person	Address	Phone	Email
MCI-Worldcom	Pete Phillips	24055 E. 6th Ave., Aurora, CO 80018	303-214-7101	pete.phillips@mci.com
McLoed USA	Mike Baumbach	2975 Walnut St., Denver, CO 80205	303-994-8016	<a href="mailto:mibaumbach@mcloedusa.com">mibaumbach@mcloedusa.com</a>
Metro Wastewater Reclamation	Craig Simmonds	6450 York St., Denver, CO 80229	303-286-3338	<a href="mailto:Csimmonds@mwrddst.co.us">Csimmonds@mwrddst.co.us</a>
North Pecos Water/Sanitation	Russel Traska	6900 Pecos Denver, CO 80221	303-429-5770	<a href="mailto:rtraska@qwest.net">rtraska@qwest.net</a>
On Fiber Communications (recently aquired by Qwest)	Andy Munn	6300 S Syracuse Way, Suite 350, Centennial, CO 80111	303-729-3121	<a href="mailto:amunn@onfiber.com">amunn@onfiber.com</a>
Qwest Communications	Shayne Bracken	909 Telluride St., Aurora, CO 80111	303-885-8867	<a href="mailto:shayne.bracken@qwest.com">shayne.bracken@qwest.com</a>
Qwest Local Network	Adrienne Morrow	5325 Zuni St., Denver, CO 80221	303-451-3240	<a href="mailto:adrienne.morrow@qwest.com">adrienne.morrow@qwest.com</a>
Sand Creek Metro/ Gateway	Mike Serra	3855 Lewiston St Suite 100 Aurora, CO 80111	303-371-9000	<a href="mailto:mikes@paulscorp.com">mikes@paulscorp.com</a>
Sinclair Pipeline	Tony Johnson	15000 E Smith Rd Aurora, CO 80011	720-353-0267	<a href="mailto:tjohnson@qwest.net">tjohnson@qwest.net</a>
South Adams Co. Water/Sanitation	Russell Pennington	6595 E 70th Ave Commerce City, CO 80022	720-206-0590 cell:303-809-4822	
Suncor Energy	Daryl Vanhooser	5801 Brighton Blvd. Commerce City 80022	303-549-8002	<a href="mailto:Dvanhooser@suncor.com">Dvanhooser@suncor.com</a>
Time Warner Telecom	Guido Aguillard	14200 E. Jewell Ave., Aurora, CO 80012	303-566-6045	<a href="mailto:guido.aguillard@twtelecom.com">guido.aguillard@twtelecom.com</a>
United Power (Union Rural Elctric)	Bill Meier	PO Box 929 or 18551 E. 160th Ave., Brighton, 80601	303-637-1254	<a href="mailto:bmeier@unitedpower.com">bmeier@unitedpower.com</a>

## 48.2 Formal Modified Duty Process

### ***Modification, Termination or Suspension of Temporary Disability Benefits Process – Rule 6***

The Colorado Workers Compensation Act, Rules of Procedure, allows a claims representative to terminate/modify temporary disability benefits without a hearing for employees who do not voluntarily return to work. The claims representative files an Admission of Liability Form together with the following information:

“A certified letter to the claimant or copy of a written offer delivered to the claimant with a signed certificate of service, containing both an offer of modified employment, setting forth duties, wages and hours and a statement from an authorized treating physician that the employment offered is within the claimant’s physical restrictions. A copy of the written inquiry to the treating physician shall be provided to the claimant by the insurer at the time the authorized treating physician is asked to provide a statement on the claimant’s capacity to perform the offered modified duty. The claimant is allowed a period of three business days to return to work in response to an offer of modified duty. The three business days run from the date of receipt of the job offer.”

### ***Workers Compensation Rules of Procedure, Rule 6(6-1(A)(4))***

To comply with this rule, complete the following steps:

1. Type the Letter to Treating Provider (see sample letter on page 3) on your company letterhead. Under the Job tasks, list the hours per day and days per week you want your injured employee to work. Then list the actual job tasks the injured worker will perform at your company.
2. Fax or e-mail the above letter to your adjuster. The adjuster will forward it to the treating provider for signature, mail a copy to the injured worker, and fax a copy to the injured worker’s attorney if he/she has one. If you do not receive a timely response, you may contact the treating provider.
3. Note: The signature must be from a licensed treating physician. The licensed physician must cosign signatures from a physician’s assistant or nurse practitioner.
4. Once you receive the treating physician’s approval, type the Certificate of Service Letter (see sample letter on page 5) on your letterhead. Complete all the blanks.
5. Note: Certificate of Service must be signed and dated at least three business days before the injured employee’s start date.
6. Hand-deliver the Certificate of Service Letter to your injured employee and a copy of the Letter to Treating Provider with the physician’s approval of modified duty work. Fax

copies of both letters to your adjuster on the same day. The adjuster will fax a copy to the injured worker's attorney.

7. If you are unable to hand-deliver the Certificate of Service Letter, you must type a Certified Job Offer Letter on your company letter head (see sample letter on page 4). Complete all the blanks.
8. You must send the Certified Job Offer Letter via Certified Mail to your injured worker and request a return receipt from the U.S. Postal Service. Also, you must send a copy by regular mail to the worker. Include the certified mailing number on the letter. Include a copy of the Letter to Treating Provider with the physician's approval of modified duty work. If the injured worker has an attorney, send a copy of the Letter to Treating Provider with the physician's approval of modified duty work and a copy of the Certified Job Offer by certified mail. If the worker is in Colorado, allow him/her a minimum of 7 business days from the date of certified mailing to report to work. If the injured worker is out-of-state, allow him/her 10 business days from the date of certified mailing to report to work.
9. Remember to make two copies of all mailings - one for your records and one for your adjuster – including a copy of the receipt for purchase of the certified letter and the green return receipt card you will receive from the postal service.

**Your adjuster can assist you during this process.**

**Sample Letter to Treating Provider (Task Letter)**

#1

<b>TIME SENSITIVE URGENT RESPONSE REQUIRED</b>	
Date:	_____
Dr.'s Name:	_____
Facility:	_____
Address:	_____
Fax Number:	_____
Re:	_____
Claim #:	_____
FAX to:	_____
Attn:	_____
Phone:	_____

Dear Dr. \_\_\_\_\_, (Insert Physician's Last Name):

Our employee, \_\_\_\_\_, (Insert injured worker's name), is currently unable to perform the work required of **(his/her)** regular job. We do have a temporary position that I have outlined for your reference.

#2

Job Tasks _____	<b>List maximum available hours for modified duty:</b> _____
Work Shift: 8:00 a.m. – 5:00 p.m., Monday - Friday	

Please check the activities that \_\_\_\_\_ (Insert injured worker's name) is released to perform.

#3

<input type="checkbox"/>	Purchase parts. Call vendors on the phone to purchase supplies or parts.
<input type="checkbox"/>	Troubleshoot. Provide verbal instructions and advice regarding repair procedures to mechanic and others. May alternate sitting and standing.
<input type="checkbox"/>	Maintain files. Assist with maintaining equipment files and records for each vehicle and piece of equipment. May alternate sitting and standing. Lifting no more than five pounds.
<input type="checkbox"/>	Organize paperwork. Assist with organizing and distributing of daily paperwork, making photocopies of work orders, using a magic marker to cross out various items on orders. May alternate sitting, standing, and walking.
<input type="checkbox"/>	Run errands. Operate automatic transmission vehicle once or twice daily to pick up parts. This job task would require driving for a maximum of 20 minutes at one time and lifting 15 pounds frequently.

**Patient is able to perform the tasks checked above.**

COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
 Doctor's Signature \_\_\_\_\_  
 Date

#4

cc: Injured worker:	_____
	(Include Injured Workers name and address)
cc: Attorney if appropriate:	_____
	(Include Attorney's name and fax number)

## Sample Certified Job Offer Letter (Mailed)

#1

Date: _____	<b>Certified Mail</b>
Name of Employee: _____	<b>Return Receipt Requested:</b>
Employee Address: _____	<b>Proof of Certified Mailing</b>
Claim #: _____	<b>Certified Mail#:</b>
Date of Injury: _____	

Dear \_\_\_\_\_ (Insert injured worker's name):

Your treating physician, Dr. \_\_\_\_\_ (Insert Physician's Name), has released you to modified work. We have identified a temporary position for you, which your physician states you will be able to perform. Please refer to the attached job task list.

#2

The job is: _____ (see attached).
You will receive \$ _____ per hour ( <b>specify dollar amount</b> ).
This modified duty job will begin at _____ on _____. Please report for work on this date and time: <b>7 business days from date mailed; 10 business days if out of state.</b>

Your work schedule is as follows:

#3

<b>Work shift as approved by treating physician:</b>	
Number of hours per day: _____	Report Time: _____
Number of days per week: _____	
Report to: _____	Phone: _____
Location: _____	

We look forward to seeing you and wish you a continued speedy recovery.

Sincerely,

\_\_\_\_\_  
Employer Signature

\_\_\_\_\_  
Date

#4

Enc.: Signed copy of Letter to Treating Provider with signature dated <b>(date physician signed task letter)</b>	
Regular Mail: <input type="checkbox"/>	Certified Mail: <input type="checkbox"/> Certified Mail #: _____
cc: Injured worker:	_____ (Include Injured Workers name and address)
cc: Attorney if appropriate:	_____ (Include Attorney's name and fax number)
cc: Return to Work Specialist	_____

**Sample Certified of Service Letter (Hand Delivered)**

**#1**

Date:	_____
Name of Employee:	_____
Employee Address:	_____
Claim #:	_____
Date of Injury:	_____

Dear \_\_\_\_\_ (Insert injured worker's name):

Your treating physician, Dr. \_\_\_\_\_ (Insert Physician's Name), has released you to modified work. We have identified a temporary position for you, which your physician states you will be able to perform. Please refer to the attached job task list.

**#2**

The job is: _____ (see attached).
You will receive \$_____ per hour ( <b>specify dollar amount</b> ).
This modified duty job will begin at _____ on _____. Please report for work on this date and time: <b>3 business days from hand delivery.</b>

Your work schedule is as follows:

**#3**

<b>Work shift as approved by treating physician:</b>	
Number of hours per day: _____	Report Time: _____
Number of days per week: _____	
Report to: _____	Phone: _____
Location: _____	

We look forward to seeing you and wish you a continued speedy recovery.

Sincerely,

\_\_\_\_\_  
Employer Signature

\_\_\_\_\_  
Date

**#4**

Enc.: Signed copy of Letter to Treating Provider with signature dated <b>(date physician signed task letter)</b>	
<b>Certificate of Service</b>	
I, _____ (Employer or a representative) hereby certify that I hand-delivered the above job offer to _____, on _____ 3 days prior to start date.	
_____ Employer's Signature (Must be the same Person listed above)	_____ Date

## Letter to Treating Provider (Task Letter)

<b>TIME SENSITIVE URGENT RESPONSE REQUIRED</b>	
Date:	_____
Dr.'s Name:	_____
Facility:	_____
Address:	_____
Fax Number:	_____
Re:	_____
Claim #:	_____
FAX to:	_____
Attn:	_____
Phone:	_____

Dear Dr. \_\_\_\_\_, (Insert Physician's Last Name):

Our employee, \_\_\_\_\_, (Insert injured worker's name), is currently unable to perform the work required of **(his/her)** regular job. We do have a temporary position that I have outlined for your reference.

**Job Tasks** \_\_\_\_\_ **List maximum available hours**  
**Work Shift:** \_\_\_\_\_ **for modified duty:** \_\_\_\_\_

Please check the activities that \_\_\_\_\_ (Insert injured worker's name) is released to perform.

_____
_____
_____
_____
_____

**Patient is able to perform the tasks checked above.**

COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
Doctor's Signature

\_\_\_\_\_  
Date

cc: Injured worker:  
cc: Attorney if appropriate:



## Certified Job Offer Letter (Mailed)

Date: _____	<b>Certified Mail</b>
Name of Employee: _____	<b>Return Receipt Requested:</b>
Employee Address: _____	<b>Proof of Certified Mailing</b>
Claim #: _____	<b>Certified Mail#:</b>
Date of Injury: _____	

Dear \_\_\_\_\_ (Insert injured worker's name):

Your treating physician, Dr. \_\_\_\_\_ (Insert Physician's Name), has released you to modified work. We have identified a temporary position for you, which your physician states you will be able to perform. Please refer to the attached job task list.

The job is: _____ (see attached).
You will receive \$ _____ per hour ( <b>specify dollar amount</b> ).
This modified duty job will begin at _____ on _____. Please report for work on this date and time: <b>7 business days from date mailed; 10 business days if out of state.</b>

Your work schedule is as follows:

<b>Work shift as approved by treating physician:</b>	
Number of hours per day: _____	Report Time: _____
Number of days per week: _____	
Report to: _____	Phone: _____
Location: _____	

We look forward to seeing you and wish you a continued speedy recovery.

Sincerely,

\_\_\_\_\_  
Employer Signature

\_\_\_\_\_  
Date

Enc.: Signed copy of Letter to Treating Provider with signature dated **(date physician signed task letter)**

Regular Mail:  Certified Mail:  Certified Mail #: \_\_\_\_\_

cc: Injured worker:  
cc: Attorney if appropriate:  
cc: Return to Work Specialist

## Certified of Service Letter (Hand Delivered)

Date: \_\_\_\_\_  
 Name of Employee: \_\_\_\_\_  
 Employee Address: \_\_\_\_\_  
 Claim #: \_\_\_\_\_  
 Date of Injury: \_\_\_\_\_

Dear \_\_\_\_\_ (Insert injured worker's name):

Your treating physician, Dr. \_\_\_\_\_ (Insert Physician's Name), has released you to modified work. We have identified a temporary position for you, which your physician states you will be able to perform. Please refer to the attached job task list.

The job is: \_\_\_\_\_ (see attached).  
 You will receive \$\_\_\_\_\_ per hour (**specify dollar amount**).  
 This modified duty job will begin at \_\_\_\_\_ on \_\_\_\_\_. Please report for work on this date and time: **3 business days from hand delivery.**

Your work schedule is as follows:

<b>Work shift as approved by treating physician:</b>	
Number of hours per day: _____	Report Time: _____
Number of days per week: _____	
Report to: _____	Phone: _____
Location: _____	

We look forward to seeing you and wish you a continued speedy recovery.

Sincerely,

\_\_\_\_\_  
 Employer Signature

\_\_\_\_\_  
 Date

Enc.: Signed copy of Letter to Treating Provider with signature dated **(date physician signed task letter)**

<b>Certificate of Service</b>	
I, _____ (Employer or a representative) hereby certify that I hand-delivered the above job offer to _____, on _____ 3 days prior to start date.	
_____ Employer's Signature	_____ Date



### 48.3 Visitor Waiver Of Liability & General Release Form

In consideration for being granted permission to enter the **RTD FasTracks** construction site (the "Premises"), I, on behalf of myself, my spouse my children, my parents, my heirs, representatives, executors and/or assigns (the "Releasing Parties"), release, covenant not to sue, forever discharge, and agree to indemnify and defend **RTD** and its, directors, officers, independent contractors, agents, employees, successors, and assigns (the "Released Parties"), from any and all claims, liabilities, liens, causes of action, losses, judgments, costs, expenses, attorneys' fees, demands, obligations, or damages, whether known or unknown, of any nature whatsoever, arising from or related to any loss or injury (including death) to the Releasing Parties regardless of the cause of such loss or injury.

Il have been advised of and fully understand the risks and dangers associated with entering the Premises. I voluntarily assume all risks of injury to my person (including death) and property that may be sustained by entering.

This Liability Waiver/Release ("Release") shall be governed by and construed in accordance with the laws of the State of Colorado, and is intended to be interpreted in the broadest possible manner in favor of the Released Parties. I (a) have read this Release, (b) understand its content, (c) am over the age of 18, (d) sign this Release voluntarily and intend for it to be legally binding, and (e) acknowledge that I have had an opportunity and was advised to seek guidance from counsel regarding this Release.

Name (Print) \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Company \_\_\_\_\_

## 48.4 Pre-Construction Meeting

### Project Safety/Insurance Requirements

Project: _____ Date: _____									
Contractor: _____ Trade(s): _____									
Attendees: _____ _____ _____									
A.	<p>All prime contractors must enroll lower-tiered subcontractors (all tiers) into the ROCIP, and shall submit the following insurance information <b>direct to Marsh</b>:</p> <table border="0"> <tr> <td>1. Enrollment Form A (2 pages)</td> <td>List Subcontractors: _____</td> </tr> <tr> <td>2. Bid Deduction Worksheet Form B (2 pages)</td> <td>_____</td> </tr> <tr> <td>3. WC/GL/EL Rating Sheets</td> <td>_____</td> </tr> <tr> <td>4. Offsite Certificate of Insurance</td> <td>_____</td> </tr> </table> <p><b>Note:</b> All prime contractors are <b>responsible</b> and <b>accountable</b> for ensuring that their lower tiered subcontractors (all tiers) are enrolled in the Rolling Owner Controlled Insurance Program (ROCIP) <b>prior to their start of work.</b></p>	1. Enrollment Form A (2 pages)	List Subcontractors: _____	2. Bid Deduction Worksheet Form B (2 pages)	_____	3. WC/GL/EL Rating Sheets	_____	4. Offsite Certificate of Insurance	_____
1. Enrollment Form A (2 pages)	List Subcontractors: _____								
2. Bid Deduction Worksheet Form B (2 pages)	_____								
3. WC/GL/EL Rating Sheets	_____								
4. Offsite Certificate of Insurance	_____								
B.	<p>All contractors with “excluded parties” subcontractors (all tiers), vendors, suppliers, haulers, etc. shall submit the following insurance information:</p> <p>1. Onsite Certificate of Insurance – Direct to CM/GC List Excluded Parties: _____ _____ _____</p> <p><b>Note:</b> All prime contractors are <b>responsible</b> and <b>accountable</b> for ensuring that all “excluded parties” have submitted a <b>compliance</b> (Additional Insured, Waiver of Subrogation, and Limits) “Onsite Certificate of Insurance” <b>prior to their start of work.</b></p>								
C.	<p>All prime contractors are responsible and accountable for communicating the requirements of this meeting, insurance requirements and safety requirements to their lower-tiered subcontractors (enrolled and /or excluded parties).</p>								
D.	<p>As a prime contractor, have you received the following manuals and provided copies to your subcontractors:</p> <ol style="list-style-type: none"> <li>Rolling Owner Controlled Insurance Program Manual</li> <li>Project Safety Program – Project Specific Program</li> </ol>								
E.	<p>All <b>prime</b> contractors and lower-tiered subcontractors shall submit the following information by the 10th of the following month:</p> <ol style="list-style-type: none"> <li>On Site Payroll Report Form – Direct to Marsh, or online</li> </ol>								

	Project: _____ Date: _____
	Contractor: _____ Trade(s): _____
F.	<p>All prime contractors and lower-tiered subcontractors shall submit directly to project safety manager the following safety information, prior to the start of work. For assistance, a Pre-Construction Safety Checklist form can be found in Site Specific Safety Program.</p> <ol style="list-style-type: none"> <li>1. Corporate Safety Program</li> <li>2. Hazard Communication Program and Jobsite Specific MSDS's</li> <li>3. Site Specific Fall Protection and Rescue Program</li> <li>4. Name and email address of onsite &amp; offsite manager responsible for implementation and enforcement of this safety program.</li> <li>5. Name of the designated safety coordinator</li> <li>6. Name &amp; qualifications of the competent person(s)</li> <li>7. OSHA 10 and/ or 30 hour certified workers</li> <li>8. Emergency contacts and phone numbers</li> <li>9. Certified First Aid / CPR Personnel</li> <li>10. Name of WC Claims Coordinator</li> <li>11. Contractor Safety Agreement</li> <li>12. Completion of the state safety &amp; health consultation program form (Submit to the project – Do <u>not</u> submit to the state)</li> <li>13. The process for safety preplanning all work task (Daily Pre-task)</li> <li>14. How visitors will sign "General Release – Visitors' forms</li> <li>15. Cranes: Annual Inspection Certification and operator's qualifications</li> <li>16. Subcontractor Safety Pre-Qualification Form</li> </ol> <p>Attachments: NNCI EMF Worksheets, Letter from the broker Insurance Company Workers Compensation Claims Summary OSHA 300 Logs and OSHA Violations</p>
G.	<p>All prime contractors and lower-tier subcontractors will designate a "project safety coordinator" for the duration of their work being performed on the project. If a subcontractor has less than 5 workers, then the prime contractors "project safety coordinator" can be substituted.</p>
H.	<p>All prime contractors and lower-tier subcontractors shall conduct/attend the following meetings, training sessions, and /or safety meetings:</p> <ol style="list-style-type: none"> <li>1. Jobsite Safety Orientation – All Workers</li> <li>2. Attend Superintendents Weekly Coordination Meetings</li> <li>3. Attend Weekly Safety/Training Meetings – safety coordinators (Wed. @ 10:00am)</li> <li>4. Conduct and document Weekly Toolbox Safety Meetings</li> <li>5. Conduct and document Daily Safety Pre-Task Planning Meetings</li> <li>6. Conduct and document Safety Pre-Planning Meetings</li> <li>7. Attend monthly Claims Review Meetings</li> <li>8. Attend Incident Review Meetings</li> </ol>
I.	<p>All prime contractors and lower-tier subcontractors project safety coordinator shall collect and provide to the project safety manager, the following reports:</p> <ol style="list-style-type: none"> <li>1. Weekly Toolbox Safety Talks – weekly</li> <li>2. Incident/Near-miss investigation reports – 24 hours</li> <li>3. Daily Safety Pre-Task Planning Meetings Reports (JHA's) – Daily or Weekly</li> <li>4. Industrial Hygiene monitoring results (i.e.: Noise, Air Quality, etc.) – Upon receipt</li> <li>5. Daily Crane Inspection Reports – Weekly</li> <li>6. Insurance, safety consultant, and company safety reports – <b><i>Upon request</i></b></li> </ol>

	Project: _____ Date: _____																								
	Contractor: _____ Trade(s): _____																								
J.	<p>Safety and insurance enforcement on the project will consist of:</p> <ol style="list-style-type: none"> <li>1. Workers: <b>“ZERO TOLERANCE – Removal of the worker(s)”</b> for fall violations, serious violations, or as warranted by <b>RTD</b>.</li> <li>2. Workers: Oral warnings, written warnings, 3 day suspensions, removal from the jobsite.</li> <li>3. All contractors and subcontractors: Re-Orientation, additional training (OSHA10 hour, OSHA 30 hour or other as appropriate, or mandatory purchase of additional safety equipment).</li> <li>4. Prime contractor and their subcontractors responsible for any OSHA multi-employer citations and fines will be responsible for paying all fines and cost associated with the citation and fine.</li> <li>5. Non-compliance with the RTD FasTracks Construction Safety Guidelines and/or ROCIP Insurance Manual, will be considered a Breach of Contract.</li> </ol>																								
K.	<p>All prime contractors and lower-tier subcontractors are responsible for enforcing the following safety programs, policies, and procedures on this project:</p> <ol style="list-style-type: none"> <li>1. ROCIP and contractors Safety Programs, Hazard Communication Programs, etc.</li> <li>2. Federal OSHA, state, and local regulations</li> <li>3. Return to Work Program</li> <li>4. Workers attending the safety orientation and completing a pre-hire drug screen prior to working onsite</li> <li>5. Fall protection: <b>100%</b> 6-foot fall protection policy for all trades</li> <li>6. Personal Protective Equipment: <b>100%</b> hard-hat, eye protection, footwear, clothing, and high visibility vest policy</li> <li>7. Lifting/Material Handling (maximum lift: 50#, proper lifting techniques, mechanical equipment)</li> <li>8. Housekeeping – Daily clean up</li> <li>9. Daily inspections by the competent person: fall protection, trenching, scaffolding, cranes, etc.</li> <li>10. Conduction pre-planning meetings for all hazardous operations</li> <li>11. Conducting daily safety pre-task planning meetings</li> <li>12. Conducting weekly toolbox safety meetings</li> <li>13. Reporting all accidents and incidences within one hour</li> </ol>																								
L.	<p>OSHA Inspection procedures: Data reviewed with the prime contractor and subcontractors. <i>(Attach OSHA data to this report)</i></p>																								
M.	<p>Please check if operations include any of the following exposures:</p> <table style="width: 100%; border: none;"> <tr> <td><input type="checkbox"/> Lifting/Material Handling</td> <td><input type="checkbox"/> Pre-cast Panels</td> <td><input type="checkbox"/> Visitors</td> <td><input type="checkbox"/> Falls</td> </tr> <tr> <td><input type="checkbox"/> Trenching</td> <td><input type="checkbox"/> Scaffolding</td> <td><input type="checkbox"/> Cranes</td> <td><input type="checkbox"/> Aerial Lifts</td> </tr> <tr> <td><input type="checkbox"/> Demolition</td> <td><input type="checkbox"/> Concrete Noise</td> <td><input type="checkbox"/> Welding/Torching</td> <td><input type="checkbox"/> Dusts/Vapors</td> </tr> <tr> <td><input type="checkbox"/> Electrical</td> <td><input type="checkbox"/> Blasting</td> <td><input type="checkbox"/> Traffic Control</td> <td><input type="checkbox"/> Equipment/Vehicles</td> </tr> <tr> <td><input type="checkbox"/> Masonry</td> <td><input type="checkbox"/> Steel Erection</td> <td><input type="checkbox"/> Storage Tanks</td> <td><input type="checkbox"/> Confine Spaces</td> </tr> <tr> <td><input type="checkbox"/> Painting/Sealing</td> <td><input type="checkbox"/> Overhead/Underground Utilities</td> <td colspan="2">Other: _____</td> </tr> </table> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<input type="checkbox"/> Lifting/Material Handling	<input type="checkbox"/> Pre-cast Panels	<input type="checkbox"/> Visitors	<input type="checkbox"/> Falls	<input type="checkbox"/> Trenching	<input type="checkbox"/> Scaffolding	<input type="checkbox"/> Cranes	<input type="checkbox"/> Aerial Lifts	<input type="checkbox"/> Demolition	<input type="checkbox"/> Concrete Noise	<input type="checkbox"/> Welding/Torching	<input type="checkbox"/> Dusts/Vapors	<input type="checkbox"/> Electrical	<input type="checkbox"/> Blasting	<input type="checkbox"/> Traffic Control	<input type="checkbox"/> Equipment/Vehicles	<input type="checkbox"/> Masonry	<input type="checkbox"/> Steel Erection	<input type="checkbox"/> Storage Tanks	<input type="checkbox"/> Confine Spaces	<input type="checkbox"/> Painting/Sealing	<input type="checkbox"/> Overhead/Underground Utilities	Other: _____	
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<input type="checkbox"/> Painting/Sealing	<input type="checkbox"/> Overhead/Underground Utilities	Other: _____																							

	Project: _____ Date: _____
	Contractor: _____ Trade(s): _____
	Note: <b>Safety pre-planning meetings</b> will be conducted with all contractors and subcontractors prior to the start of all work activities involving the above exposures. Prime contractors are responsible and accountable for contacting the Project Safety Director, arranging a date and time for the meeting, etc.
N.	Monthly or Weekly (DBO2) reports will be submitted to management for review.
O.	<p>All prime contractors and lower-tier subcontractors are responsible for complying with the following ROCIP Claims Procedures.</p> <ol style="list-style-type: none"> <li>1. All WC/GL claims/incidences must be reported immediately (&lt;1 hour) to the CM/GC (Superintendent, Site Safety Manager, etc.)</li> <li>2. Prime contractor and subcontractors must submit incident investigation paperwork within 24 hours of the accident/incident</li> <li>3. Attend Incident Review Meetings with 3 days of the accident/incident</li> <li>4. Injured workers will seek medical treatment at RTD designated medical clinics and hospital</li> <li>5. Full compliance with the Return to Work Program</li> </ol> <p>Note: All claims cost will be charged to the subcontractors Experience Modification Factor (EMF).</p>
P.	Safety Award – Under development
Q.	<p>Other Issues/Comments:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

\_\_\_\_\_  
Principals Printed Name:

\_\_\_\_\_  
Principals Signature

\_\_\_\_\_  
Date





**RTD FASTTRACKS PROJECT SAFETY ORIENTATION (Cont'd)**

<p style="text-align: center;"><b>100% 6-Foot Fall Protection  (Regardless of Trade)</b></p> <hr/> <p style="text-align: center;">Initials</p>	<ol style="list-style-type: none"> <li>1. <b>100% FALL PROTECTION</b> - all fall exposure's 6-foot or more for <u>all</u> workers regardless of trade.             <ol style="list-style-type: none"> <li>A. Building perimeter / Leading Edges – roof's, floors, balconies, atrium's, wall openings, etc.</li> <li>B. Floor Openings / Holes – Elevator shafts, stairways, pipe runways, cutting holes, etc.</li> <li>C. Steel Erection / Scaffolding / Ladders / Aerial Baskets / Trenches / Excavations, etc.</li> </ol> </li> <li>2. Fall Violations: <b>ZERO TOLERANCE – REMOVAL FROM THE PROJECT!</b></li> <li>3. Components: Full body harnesses, double and/or single lanyards with double locking snap hook, retractable lanyards, sufficient tie off points.             <ol style="list-style-type: none"> <li>A. Components are to be <u>inspected</u> daily/prior to every use. <b>DO NOT USE DAMAGED or WORN OUT COMPONENTS.</b></li> <li>B. Tie off point must hold 5,000 LBS or 2x SF as engineered anchorage point.</li> <li>C. Do <u>not</u> tie back into the lanyard – A tie off strap should be utilized.</li> <li>D. Full body harnesses must be worn properly at all times.</li> </ol> </li> <li>4. Do <u>not</u> cross beyond Warning Lines without 100% tie off.</li> <li>5. Avoid pendulum swings when setting up fall protection.</li> <li>6. As a worker, you must be trained in fall protection by your employing contactor.</li> <li>7. Extending / Articulating Boom Aerial Lifts - 100% tie off.</li> <li>8. Scissor Lifts:             <ol style="list-style-type: none"> <li>A. Mid-rail chains must be secured and gates closed at all times.</li> <li>B. Do not stand on mid rails, boxes, mid rail planks, etc.</li> </ol> </li> <li>9. Scaffolding:             <ol style="list-style-type: none"> <li>A. No work will be permitted on any scaffolding without obtaining a "Scaffolding" permit from CM/GC.</li> <li>B. Must be built under supervision of Competent Person and inspected daily by the Competent Person.</li> <li>C. 100% Fall Protection must be maintained while erecting / dismantling scaffolding, loading / unloading material.</li> </ol> </li> <li>10. Standard Railing – Wood and/or wire rope:             <ol style="list-style-type: none"> <li>A. Top edge height of top rail must be 42" ± 3" above the walking/working level, mid rail 22".</li> <li>B. Do <u>not</u> remove any guardrails without CMGC authorization – Permit is required.</li> <li>C. Guardrails will <u>not</u> be used as a tie off point for personal fall arrest equipment.</li> </ol> </li> <li>11. Ladders:             <ol style="list-style-type: none"> <li>A. Where applicable, workers must tie off while working above 6' while on ladders.</li> <li>B. No aluminum or painted wood ladders.</li> <li>C. Inspect all ladders before each use – Remove damaged ladders from service.</li> <li>D. Never use the top two (2) steps of a step ladder.</li> <li>E. Worker must maintain their body within the ladder rails – NO leaning or outstretching to the left or right.</li> <li>F. Use 3-point contact at all times: 2 hands and a foot or visa versa to be in contact with ladder at all times.                 <ol style="list-style-type: none"> <li>a. Do <u>not</u> carry material/tools/etc by hand up ladders. A tool rope must be used to maintain 3-point contact.</li> </ol> </li> </ol> </li> </ol>
<p style="text-align: center;"><b>Trenching &amp; Excavating</b></p> <hr/> <p style="text-align: center;">Initials</p>	<ol style="list-style-type: none"> <li>1. No entry without obtaining a "Trenching/Excavating" permit from CM/GC.</li> <li>2. Do not enter trenches / excavations &gt; 4' without proper shoring, benching, sloping, or trench boxes for protection.</li> <li>3. Ladders must be used for access/egress for trenches 5' + and be within 25' of all workers.</li> <li>4. All trenches and excavations must be inspected daily by the competent person.</li> </ol>

**RTD FASTTRACKS PROJECT SAFETY ORIENTATION (Cont'd)**

<p><b>Confine Spaces</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. No entry by any worker(s) without obtaining a "Confine Space Entry" permit from CM/GC.</li> <li>2. All confine spaces must be tested for air quality.</li> <li>3. A secondary worker must be present at all times at the entry to the confine space.</li> <li>4. Emergency rescue equipment must be available/set up/in use at confined space location.</li> </ol>
<p><b>Hazard Comm.</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. All contractors will maintain Material Safety Data Sheets on site – Copies will be available in the CM/GC Jobsite Trailer for review.</li> <li>2. Workers working with material are to read MSDS's, warning/caution labels on cans, bags, etc. prior to using the product(s).</li> </ol> <p>Appropriate PPE will be worn by workers while working with hazardous material(s).</p>
<p><b>Electrical</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. 100% Ground Fault Circuit Interrupter (GFCI) Protection on the project at all times for temporary and permanent power.</li> <li>2. Industrial heavy weight cords with proper grounds are to be used at all times.</li> <li>3. Inspect all cords and welding leads daily before each use.             <ul style="list-style-type: none"> <li>G. Damaged items must be repaired or removed from the job site.</li> <li>H. All cords and leads are to be elevated above all main walkways where feasible.</li> </ul> </li> <li>4. <b>ALL</b> electrical and mechanical systems are to be considered <b>LIVE</b> and <b>ENERGIZED</b>.             <ul style="list-style-type: none"> <li>A. Systems / panels must be Locked Out / Tagged Out prior to any work</li> </ul> </li> <li>5. <b>NEVER</b> work on <b>LIVE / ENERGIZED</b> panels and/or systems without obtaining a "Hot Work" Permit from CM/GC.             <ul style="list-style-type: none"> <li>A. Safety meeting must be conducted with CM/GC, (NFPA 70E Standards reviewed) and written permit issued by CM/GC.</li> </ul> </li> </ol>
<p><b>Lifting &amp; Mat. Handling</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. Weight should be limited to 50# per worker when lifting and handling material.</li> <li>2. Proper lifting and material handling procedures:             <ul style="list-style-type: none"> <li>A. Squat Down – Do <u>not</u> bend over.</li> <li>B. Keep back in proper alignment while tucking in the load.</li> <li>C. Lift straight up and avoid twisting of lower back.</li> </ul> </li> </ol>
<p><b>Cranes</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. Be aware of overhead loads and <b>NEVER</b> stand, walk, or work under an overhead load.</li> <li>2. Be aware of crane swing radius – Do <u>not</u> cross over into flagged off areas.</li> <li>3. Walk 10' around the back side of all cranes and moving equipment to avoid being struck.</li> <li>4. Know the weight being lifted. Any loads exceeding 75% of the crane's picking capacity mandates a "Critical Lift" meeting.</li> </ol>
<p><b>Equipment</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. Proper training and proof of certification is required prior to operating any equipment.</li> <li>2. Complete stops must be observed at all intersections.</li> <li>3. Speed limit on site is 5 mph or a safe operating speed - whichever is slower.</li> <li>4. Seatbelts are to be worn by operators/workers.</li> <li>5. A spotter is mandatory when view is obstructed by load.</li> <li>6. Backup alarms must be present and working on all equipment and vehicles.</li> <li>7. Always follow the manufacturers operating instructions for all equipment and tools used on this project.</li> </ol>

**RTD FASTTRACKS PROJECT SAFETY ORIENTATION (Cont'd)**

<p><b>Welding/Torching</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. No welding/torch cutting permitted by any worker(s) without obtaining a "Hot Work" permit from CMGC.</li> <li>2. A portable fire extinguisher (20# ABC) must be present within 25' of work.</li> <li>3. Welding curtains are to be provided for welding operations.</li> </ol>
<p><b>Personal Protective Equipment</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. Hardhat Protection <u>REQUIRED AT ALL TIMES.</u></li> <li>2. Eye Protection (ANSI Z87.1) <u>REQUIRED AT ALL TIMES.</u></li> <li>3. Reflective vest/tee shirts <u>REQUIRED AT ALL TIMES.</u></li> <li>4. Steel toe/ hard sole work boots/shoes are required - No sneakers or soft shoes are allowed <u>REQUIRED AT ALL TIMES.</u></li> <li>5. Long pants in good condition - No shorts allowed <u>REQUIRED AT ALL TIMES.</u></li> <li>6. Shirts must have 3" to 4" sleeves – no tank tops, open sided shirts, or cutoff shirts <u>REQUIRED AT ALL TIMES.</u></li> <li>7. Gloves are to be worn for specific activities – i.e.: cut resistant gloves for handling metal studs, cutting drywall, any sharp edges exposure.</li> <li>8. Ear protection as required – Rule of thumb: If you must raise your voice to speak to someone 3' away, protection is required.</li> <li>9. Respirators as required – must be NIOSH approved (i.e.: 2 rubber straps).</li> <li>10. Face-shields required when cutting / grinding / chipping / etc.</li> </ol>
<p><b>Accident/Incident Reporting</b></p> <hr/> <p>Initials</p>	<p>Any injuries/illness/near misses on site must report to their supervisor within 15 minutes after the event, <u>if physically possible.</u></p> <p style="padding-left: 40px;">A First Report of Injury" form must be filed with CM/GC Safety Office within (24) hours after an accident.</p> <p>If sent to a doctor for treatment all follow-up appointments must be kept. The worker must strictly follow any and all work restrictions issued by doctor.</p> <p style="padding-left: 40px;">A. Failure to report immediately could result in denial of the claim.</p> <p>Only RTD <u>authorized</u> medical clinics and hospitals will be utilized for medical treatment. Worker/contractor will be responsible for any unauthorized medical treatment. Foremen will transport and remain with <u>all</u> injured workers to the clinic/hospital. Injured workers are prohibited from driving themselves.</p> <p>A Temporary Modified Duty policy (Return to Work) policy is in place and will be implemented by all contractors.</p>
<p><b>Safety Non-Compliance</b></p> <hr/> <p>Initials</p>	<ol style="list-style-type: none"> <li>1. As a worker, you are <b><u>RESPONSIBLE &amp; ACCOUNTABLE</u></b> for your actions on this project.</li> <li>2. Disciplinary Procedures:             <ol style="list-style-type: none"> <li>a. Verbal Warning = <b>Orientation</b></li> <li>b. Written Warning</li> <li>c. Suspension and/or Termination from the project</li> </ol> <p><b>ZERO TOLERANCE</b> – RTD and CM/GC also retain the right to remove any worker from the project at any time, for any fall violation, safety violation, or as warranted by RTD or CM/GC.</p> </li> <li>3. Foremen are <b><u>RESPONSIBLE and ACCOUNTABLE</u></b> for assigning job task, safety preplanning of job tasks, assuring proper training and use of PPE, worker accidents, retraining/discipline or dismissal of workers who fail to work safely, etc.</li> <li>4. Prime contractor and their subcontractors responsible for any OSHA Inspections and/or CM/GC OSHA multi-employer citations and fines will be responsible for paying all fines and cost associated with the inspection, citation, and/or fine.</li> <li>5. As a result of unsafe actions re-orientation, additional training or other actions deemed appropriate by the RTD safety manager may be taken.</li> </ol>

**RTD FASTTRACKS PROJECT SAFETY ORIENTATION (Cont'd)**

<p><b>Emergency Procedures</b></p>	<ol style="list-style-type: none"> <li>1. In the event of an emergency:             <ol style="list-style-type: none"> <li>A. Notify job foreman and CM/GC <b>immediately</b>.</li> <li>B. Provide the exact location and nature of the emergency (i.e. broken leg, fire, general public, etc).</li> <li>C. Stay on the phone until Safety/911 has confirmed that you have provided accurate information.</li> <li>D. If an evacuation is <u>not</u> required, stay on the scene to brief emergency personnel upon their arrival.</li> </ol> </li> <li>2. Building Evacuation Procedures:             <ol style="list-style-type: none"> <li>A. 3 horn blasts or other designated means will indicate site is to be evacuated – i.e.: Bomb, Collapse, Toxic Release, Fire, etc.</li> <li>B. Proceed in a calm, orderly manner to the designated Safety Zone designated by your employing contractor.                 <ol style="list-style-type: none"> <li>a. Report directly to your foreman/superintendent in the safety zone for head count and do not leave until instructed.</li> </ol> </li> </ol> </li> <li>3. Tornado – Evacuate immediately to the storm shelter designated by your employing contractor.</li> </ol>
<p>Initials</p>	

I fully understand the topics discussed during the Safety Orientation and accept responsibility for safety on this project. **Safety is a condition of employment.** Failure to comply, can and will result in suspension and/or termination. The signatures below document and acknowledge that the appropriate topics have been discussed to the satisfaction of all parties, and that both supervisor and employee accept responsibility for maintaining a safe and healthful work environment.

Company Name: \_\_\_\_\_

Sign Name: \_\_\_\_\_

Print Name: \_\_\_\_\_

Date: \_\_\_\_\_

Supervisor Acknowledgement: \_\_\_\_\_