CITY OF SAN ANTONIO

CREATING A CULTURE OF SAFETY

CITY SAFETY MANUAL

FINANCE DEPARTMENT
RISK MANAGEMENT DIVISION

COREValues
Teamwork • Integrity • Innovation • Professionalism
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INTRODUCTION

PURPOSE

The purpose of this manual is to provide the City of San Antonio (COSA) employees with a uniform set of safety guidelines to assist in the administration of our safety program and to provide means and methods to aid in the performance of all assignments in a safe and efficient manner.

It is intended to complement existing Administrative Directives, and to establish and clarify general procedures, and best management practices into one document for easy reference.

Although this manual provides the overall general guidelines for all COSA departments, it is the responsibility of each department and each employee to become familiar with and follow procedures of this manual and conduct all tasks in a safe and efficient manner.

Although most safety regulations are consistent throughout each department and program, it is the responsibility of the department management to establish policies and procedures and designated forms that address all safety concerns specific to their departmental activities.

SCOPE

All COSA employees are subject to the standards set forth in this manual. COSA executive leadership shall provide the necessary support to managers and supervisors responsible for implementation and enforcement. COSA employees are expected to set the example for others to follow. Failure to comply with the provisions of this plan and its procedures may result in disciplinary action.

IMPLEMENATION

In order to effectively implement this Safety Manual, the following key elements must be followed:

- Executive leadership sets safety and environmental policy and associated metrics/goals with which to measure performance;
- All employees are held accountable for achieving these goals;
- Standardized COSA Policies and Procedures are established and serve as the basis for COSA Safety processes;
- All COSA departments, locations and employees follow COSA Safety Policies, Procedures and requirements;

- Hazard and risk assessments are performed to identify existing and potential hazardous situations and to eliminate the hazards;
- Employees must be trained in program and site-specific requirements and instructed of their role in the SAFETY program associated with their job duties;

- Metrics must be tracked to document the success or need for improvement;

- All work related accidents, injuries, illnesses, near misses, incidents and hazardous substance spills must be reported and investigated in order for corrective measures to be implemented;

- Compliance audits must be performed at program start and periodically thereafter. Corrective actions must be implemented and tracked to determine effectiveness; and

- Continual improvement is achieved by continuous program review and modifications along with commitment to SAFETY excellence.

SECTION 1 – MANAGER'S AND SUPERVISOR'S SAFETY GUIDELINES

1) GENERAL

A) This section contains general safety guidelines for managers and supervisors.

B) Managers and supervisors are in unique positions of trust and have direct oversight of employees, their activities and to provide for the safety of those supervised. They are in key positions in the organizational structure to carry out the department's safety policies and procedures and to prevent injuries to their employees while accomplishing program objectives. Each has the obligation to:

i) Safeguard the well-being of employees in their section.

ii) Ensure employees are protected against unsafe working conditions where possible.

iii) Ensure that unsafe hazards are corrected or reported.

iv) Ensure employees receive adequate safety training.

v) Investigate accidents and injuries in a timely manner.

C) On the job accidents adversely affect the physical well-being and decrease the productivity of COSA employees. Accident prevention requires constant attention. Managers and supervisors must:

i) Employee safety is one of managers' and supervisors' greatest responsibilities.

ii) Know the safety rules which apply to your work group and activities.

iii) Anticipate the risks that may arise from changes in equipment or procedures. Make use of any expert safety advice that is available to help guard against new hazards.

iv) Take necessary actions to eliminate hazards and unsafe practices within your control. Prohibit employees from engaging in activities in which they have not been provided adequate protection or training. No job will proceed where a reasonable question of safety remains.

v) Encourage employees to discuss the hazards of their work. Employees performing day-to-day job duties are a source of first-hand knowledge that will help prevent needless injury.

vi) Ensure employees receive continuous training in accident prevention and on the job safety.

vii) Monitor employees use of safeguards and personal protective equipment provided. If necessary, enforce safety rules by disciplinary action.

viii) Set a good example. Each manager and supervisor must adhere to safety guidelines in their own work habits and personal conduct.

ix) Investigate, analyze, and report all injuries and accident. When minor injuries are ignored, serious accidents may later develop.

x) Cooperate fully with those in the organization or contracted by CoSA who are actively involved in employee safety.

xi) Conduct regular safety meetings and training sessions.

xii) Promote safety consciousness by ensuring employees receive safety communication timely and that employees attend safety meetings and training on a regular basis.

xiii) Monitor work areas, equipment and tools to ensure safety inspections are conducted frequently and that safe work practices are followed.

D) This section contains a Safety Program Assessment Checklist to be used to determine the effectiveness of your department's safety initiatives.

2). SAFETY AND HEALTH PROGRAM ASSESSMENT CHECKLIST

MANAGEMENT LEADERSHIP AND EMPLOYEE INVOLVEMENT	Yes	No
Do you have clear written safety procedures?		
Have clear goals and objectives been set and communicated to all employees?		
Are employees involved in developing safety and health goals and objectives?		
Do managers and supervisors always follow safety rules?		
Do they regularly observe employees and always provide feedback on safety behavior, commending safe behavior and correcting unsafe behavior?		
Do all employees know what is expected of them?		
Do managers, supervisors, and employees believe they have the necessary authority and resources to meet their safety and health responsibilities?		
Are managers, supervisors, and employees held accountable for safety and health performance?		
Are appropriate consequences applied in cases of inadequate performance?		
Is your safety and health program comprehensively reviewed on a regular basis?		
Do you have a review process in place that drives continuous improvement?		
WORKSITE ANALYSIS		
Are comprehensive expert safety and health inspections conducted regularly in your facility?		
Do you take immediate action to correct problems which are uncovered as a result of inspections?		
Do you update your hazard inventories when experts discover new or previously unidentified hazards?		
Is every planned or new facility, process, material, or equipment fully reviewed by a competent team that includes affected workers?		
Does a current job hazard analysis exist for every job, process, and material in your workplace?		
Is this analysis understood by all employees?		
Do employees have input into the job hazard analysis for their job?		
Do supervisors and employees conduct routine inspections of their work area?		
Are safety or health problems found on these inspections reported and corrected right away?		
Do you have a reporting protocol for identified hazards?		
Have all employees been trained on the hazard reporting protocol?		

WORKSITE ANALYSIS CONTINUED…		
Is corrective action based on investigation findings?		
Are workplace injury and illness data routinely reviewed with Safety?		
Of the work group/type, are common causes of injury and illness communicated to all employees?		
HAZARD PREVENTION AND CONTROL		
Is there a preventive maintenance program which either performs or request necessary maintenance and repairs?		
Are equipment operators trained to recognize maintenance needs and either perform or request necessary maintenance and repairs?		
Is malfunctioning equipment removed from service immediately and properly repaired before being returned to service?		
Do you have an effective, written emergency response plan?		
Do employees understand the plan and know how to respond in case of emergency?		
Are regular emergency evacuation drills conducted?		
Do designated personnel know how to use emergency equipment?		
Do all employees know how to communicate during an emergency?		
Do you have access to a First Aid Kit?		
Are employees trained on the use of these Kits?		
SAFETY AND HEALTH TRAINING		
Have all managers received formal training in safety and health management responsibilities?		
Are supervisors trained to meet their safety and health responsibilities?		
Do supervisors know how to conduct a job hazard analysis for each job they supervise?		
Do supervisors fully understand safety and health regulations, policies, and procedures?		
Do supervisors know which personal protective equipment their employees need, and do they know how to train employees to use it safely?		
Are supervisors provided with effective training materials to assist in employee training?		
Does your safety and health training adequately teach employees to recognize and protect themselves from all workplace hazards?		
Has Safety Training been included in employees' performance plans?		
Do you update training on a regular basis and whenever changes in processes, equipment, etc., introduce new hazards into your facility? (Inform the Safety Team.)		
Have you documented employees' proficiency in areas covered by your training?		

The more "yes" answers, the stronger your safety and health program.

SECTION 2 – SAFETY TRAINING

Workplace safety and health training needs will be identified by Risk Management Safety (RM) based on work procedures, supervisor and/or employee input, accident data, and regulatory requirements. RM will develop and offer training courses periodically throughout the year. There are also monthly safety topics that will be required. The monthly training may either be in the form of supervisor Safety Talks, computer based courses, or classroom training.

1) SAFETY TRAINING PROGRAM GUIDELINES

A) Safety Orientation:

i) Workplace safety and health orientation begins on the first day of initial employment or job transfer.

ii) Each employee has access to a copy of this Manual, through his or her supervisor, for review and future reference, and has access, via the COSA intranet, to the safety rules, policies, and procedures pertaining to his or her job.

iii) Supervisors will ask questions of employees and answer employees' questions to ensure knowledge and understanding of safety rules, policies, and job-specific procedures described in this section.

iv) RM will, as part of new employee orientation, provide employees with the Globally Harmonized System and general safety practices.

B) Job Specific Training: (Training will be conducted by a Supervisor or designee with experience and competency in the subject matter.)

i) Supervisors will initially train employees on how to perform assigned job tasks safely.

ii) Supervisors will carefully review with each employee the specific safety rules, policies, and procedures that are applicable and described in this section.

iii) Supervisors will give employees verbal instructions and specific directions on how to perform the work safely.

iv) Supervisors will observe employees performing the work. If necessary, the supervisor will provide a demonstration using safe work practices or remedial instruction to correct training deficiencies before an employee is permitted to do the work without supervision.

v) All employees will receive safe operating instructions on seldom-used or new equipment before using the equipment.

vi) Supervisors will review safe work practices with employees before permitting the performance of new, non-routine, or specialized procedures. Supervisors are responsible for documenting the training and maintaining training records.

C) Training Outlines: The following training outlines are provided to assist supervisors and employees in understanding the training requirements for job duties and how to obtain the training.

i) New Employee Orientation (NEO)/Basic Safety Training: (Emergency Action and Fire Prevention Plans; Fire Extinguishers (Portable); Globally Harmonized System; Ladder Safety; Personal Protective Equipment; Hazards/Hazard Reporting; Accident Prevention Signs and Tags; and Accident and Injury Reporting.)

(a) Required for all employees.

(b) Frequency:
- Initially and annually
- Refresher training (required annually) may be completed either on-line or in the classroom and may be scheduled for specific groups upon request (usually 10 or more persons).
- Safety Topics:
  - ◊ Emergency Action and Fire Prevention Plans
  - ◊ Globally Harmonized System
  - ◊ Personal Protective Equipment (PPE)
  - ◊ Accident Prevention Signs and Tags
  - Fire Extinguishers
  - Ladder Safety
  - Hazard Reporting
  - Accident Reporting
- Contact RM for more information.

ii) Division Safety Training:

(a) Required for all employees.

(b) Frequency:
- Annually
- Daily shift start up meetings, monthly meetings, monthly classroom training or online training
- Safety Topics:
  - ◊ CoSA Safety Manual
  - ◊ Job Hazards
  - ◊ Equipment safe operation
  - ◊ Office safety
  - ◊ Machinery safety
  - ◊ Housekeeping
  - ◊ Ergonomics
  - ◊ Fire Prevention and Safety
  - ◊ Fall Protection
  - ◊ Bloodborne Pathogens
  - Work place hazards
  - Emergency procedures
  - Employee reporting requirements
  - Driving safety
  - Back injury prevention
  - Lock out / Tag out
  - Emergency Evacuations
  - Electrical Safety
  - Confined Space
  - Respiratory Protection

- ◊ Personal Protective Equipment
- ◊ Fire Prevention
- ◊ Hearing Conservation
- ◊ Toxic and Hazardous Substances
- ◊ Contractor safety requirements
- ◊ Globally Harmonized System
- ◊ Ladder Safety
- Contact RM for more information

(c) RM will facilitate formal training and post a training calendar on the Finance web-site under Risk Management.

iii) Defensive Driving Course (DDC):

(a) Required by all employees who drive COSA vehicles or personal vehicles on COSA business.

(b) Frequency
- Within 30 days of initial hire
- Every 3 years
- Contact RM for more information.

(c) The Risk Management Division will post the DDC schedule on the Finance Department, web site, calendar of events.

2). RESPONSIBILITIES

A) Division managers and supervisors are responsible for distributing information relative to the courses offered and scheduling employees to attend those courses or arranging to have on-site training.

B) Department management should accurately project expenditures to allow for the most beneficial use of available training funds.

C) RM will periodically conduct an audit of training records to ensure training is being conducted on a regular basis. When a Division is found not to be in compliance, a corrective action plan will be issued from the Risk Management Office.

SECTION 3 – ALCOHOL AND DRUG TESTING

1) GENERAL

A) In accordance with Administrative Directive 4.3, Alcohol and Controlled Substances Testing, COSA has a zero-tolerance policy for which termination of employment will result for positive or refused drug or alcohol tests. Employees will be tested for alcohol, controlled substances and illegal drugs. Declining a test results in the same consequence (termination) as positive alcohol and drug test results.

B) Commercial Drivers License (*CDL*) and *primary drivers* shall be tested for *alcohol*, *controlled substanc*es and *illegal drugs*. *CDL* drivers will be tested in accordance with the Department of Transportation (DOT) regulations and requirements. A non-*DOT Drug* Test will be administered to all other employees when appropriate.

C) This section applies to all COSA employees, excluding uniformed employees.

D) This section covers potential new hires and employee transfers, random, reasonable suspicion and post accident drug and alcohol testing for CDL drivers, primary drivers and all other COSA employees not excluded under item C above.

E) In accordance with DOT regulations, positive results for CDL drivers will be reported to DOT.

F) The actions required under DOT regulations blood alcohol concentration above .02 but less than .04 is considered a positive test but is not required to be reported to DOT.

G) At no time will non-CDL employees be added to or included in any CDL random testing database or testing event. The CDL random testing process will remain separate in all aspects from any other random testing pool.

H) DOT alcohol and drug testing will be utilized for all CDL drivers.

I) Non-DOT alcohol and drug testing will always be utilized for all employees not possessing a CDL.

J) Employees may be escorted by a supervisor/manager to the COSA Occupational Health Clinic. (Transportation to their home will be secured for any employee testing positive for alcohol or shows any signs of impairment.)

K) Employees will remain in a non-driving status until lab results are reported to Risk Management and the employee's manager or supervisor.

L) No civilian employee shall be on duty or operate a COSA vehicle or personal vehicle on COSA business while in the possession of alcohol or a controlled substance.

M) No employee will perform job functions while under the influence of a controlled substance, except when the use is pursuant to the instructions of a physician who has advised the employee that the effects of the substance do not adversely affect the employee's ability to safely perform their job duties.

N) The testing facility to be utilized during normal business hours is the COSA Occupational Health Clinic. Information and instructions may be found on Finance Department (Risk Management) Website.

2) PRE-EMPLOYMENT AND TRANSFER EMPLOYEES

A) All potential new hires and current employees being considered for a position must first pass a drug test. Candidates being considered for a position requiring a CDL will be given a DOT drug test, whereas, non-CDL required positions will be given a non-DOT drug test.

B) HR will ensure that the candidates are notified of the drug testing requirements and will have the candidate immediately report for the testing upon notification.

C) Positive or refused test results, as defined by DOT, for CDL holders will be reported to Risk Management and processed in accordance with DOT regulations and Administrative Directive 4.3 Alcohol and Controlled Substances Testing.

D) Candidates and current employees being considered for a transfer into a position but testing positive will be terminated. Employees refusing to test when applying for a transfer or promotion position, will have the refusal deemed a positive test result.

3) RANDOM ALCOHOL AND DRUG TESTING

A) All CDL drivers and primary drivers are subject to random drug and alcohol testing.

B) Randomly during each fiscal year Risk Management electronically generates a random list of CDL drivers and primary drivers for testing. The CDL list will be in compliance with DOT. The frequency and number of primary drivers will be determined in accordance with budgetary allowance each year. The CDL and primary drivers random pools shall not be comingled.

C) Risk Management will provide the random testing list to departments for employees selected to be tested.

D) Risk Management will provide packets to the departments. Confidentiality of packets to the department are essential and the packets are not given to the departments prior to testing week. Points of contact for each department will provide the testing roster to supervisors of selected employees.

E) Employees may be escorted by their supervisor/manager to the Occupational Health clinic with a valid license for identification for purposes of conducting the test.

F) Supervisor is to ensure employees are given minimum possible advance notice that he/she must go to the collection site; therefore, employees must report for random testing within 2 hours of notification.

G) A refusal is considered a positive test and will be treated as such.

H) All COSA departments will ensure that the listing of CDL and primary drivers are kept current. Each department will provide current listings and report any changes to their designated HR representative immediately, facilitating immediate updates to SAP.

4) REASONABLE SUSPICION ALCOHOL AND DRUG TESTING

A) Reasonable suspicion testing will comply with and follow the elements below:

i. While DOT regulations will be followed for all CDL drivers, any COSA employee may be tested for reasonable suspicion;

ii. Only management and supervisory employees trained in alcohol and drug awareness may request that an employee be tested under reasonable suspicion. Therefore, all COSA management and supervisory employees should be trained, as required, in one hour of alcohol and drug awareness at a minimum; and

iii. Drug and alcohol awareness training must be approved by Risk Management, presented by only qualified individuals, and will contain as a minimum:

a. The identity of the person(s) in COSA organization designated to answer questions and provide information regarding reasonable suspicion testing;

b. Information about functions performed by employees making clear what part of the work day the employee must be in compliance;

c. Specific information to inform the employee what conduct is prohibited;

d. The circumstances under which an employee may be tested for alcohol, a controlled substance, or both;

e. An explanation of the procedures used to test for alcohol and controlled substances, to protect employee privacy and the integrity of the testing process, to safeguard the validity of the test results, and see that the results are attributed to the right person;

f. The signs and symptoms of alcohol and drug use and abuse;

g. The effects of alcohol and drugs;

h. Information to be provided to the employee regarding assistance programs;

i. How and what forms must be completed, as well as, where to archive such forms; and

j. The process to be followed.

B) Once a trained supervisor or managerial employee has identified an employee meeting the reasonable suspicion criteria and upon verification by a second alcohol and drug awareness trained supervisor or managerial employee, the appropriate HR representative and Risk Management will be notified. The employee will be escorted to the appropriate testing facility if he or she agrees to test. Refusal to test will be treated as a positive test result. Agreement is not needed for CDL drivers.

C) The manager or supervisor escorting the employee for testing will inform the testing facility to perform a DOT alcohol and drug test for a CDL driver or a non-DOT alcohol and drug test for all other employees.

D) The manager or supervisor having identified the employee for reasonable suspicion testing will immediately complete the COSA Reasonable Suspicion/Belief Form (located at the end of this section) and forward it to the appropriate HR representative and Risk Management.

E) An employee having been drug tested will not be allowed to return to work until the following scheduled work day. Breath Alcohol Test (BAT) results are immediate, therefore, an employee having only been tested for alcohol with a negative result will be referred to the appropriate HR and department representative for return to work approval. Transportation home will be secured for the employee.

F) In the event of a positive result, the testing facility will notify the employee first for justification of the positive result. If the positive result is not justifiable, the Medical Review Officer will notify Risk Management and for CDL drivers only, report results to DOT. Risk Management, in turn, will immediately notify the affected HR representative. HR shall ensure the employee is immediately removed from all duties and will begin the employment termination process. BAT results are immediately known. Drug test results take approximately 7 days but may vary**.**

5) POST ACCIDENT DRUG AND ALCOHOL TESTING

A) Any COSA employee who is involved in a vehicle accident in a COSA-owned or personal vehicle conducting COSA business, regardless if the employee is on COSA paid time or not, must notify their supervisor of the accident and remain at the scene of the accident until the supervisor arrives or provides other instructions.

B) The manager or supervisor will report the testing event to the appropriate HR representative and Risk Management immediately.

C) COSA employees shall be tested for alcohol and drugs when there is reasonable suspicion or, at a minimum, when any of the following apply:

i) The vehicle collision/accident involved bodily injury to any person who, as a result of the injury, immediately receives medical treatment away from the scene;

ii) If one or more vehicles incurred disabling damage as a result of the collision/accident, requiring the vehicle to be transported away from the scene by a tow truck or other vehicle;

iii) If the collision/accident involved the striking of a pedestrian;

iv) If the collision/accident involved the loss of human life;

v) A citation is issued to the COSA employee;

D) All employees involved in a collision/accident as described above will be escorted by a department supervisor or designee for alcohol and drug testing within two (2) hours of the collision/accident being reported. If a test is not administered within two (2) hours, the affected department must prepare a statement as to why the test was not promptly administered. The supervisor or designee will advise the testing facility of the need for a DOT or non-DOT alcohol and drug test.

E) If a collision/accident occurs after COSA's designated testing facility's hours, on a COSA-approved holiday, the employee(s) is transported to a hospital, or on-site testing is required, the supervisor notified of the accident should contact the City designated alternative drug and alcohol testing contact. Information and instructions may be found in attachment A of this section.

F) An employee subject to post-accident testing who unnecessarily leaves the scene of an accident before a required test is administered or fails to remain readily available for testing is considered to have refused to submit to testing.

CITY OF SAN ANTONIO

REASONABLE SUSPICION/BELIEF FORM

Department Submitting Form:	**Division:**
Contact Name/Title:	**Phone No.:**
Employee's Name:	**Employee SAP No.:**
Job Class Title:	
Witness Names/Titles: (If witnesses were not gathered, document steps taken in an attempt to gather witnesses.)	
Date/Time of Observation:	

Check all that apply

Observation by Supervisor	Observation by Witness	Behavior(s) Observed
☐	☐	Possessing, using, or dispensing a prohibited substance
☐	☐	Abnormal or erratic behavior
☐	☐	Verbal abusiveness
☐	☐	Physical abusiveness
☐	☐	Extreme aggressiveness or agitation
☐	☐	Withdrawal, depression, mood changes, or unresponsiveness
☐	☐	Inappropriate verbal response to questioning or instructions
☐	☐	Slurred or incoherent speech
☐	☐	Unsteady gait or other loss of physical control; poor coordination
☐	☐	Dilated or constricted pupils or unusual eye movement
☐	☐	Bloodshot or watery eyes
☐	☐	Extreme fatigue or sleeping on the job
☐	☐	Excessive sweating or clamminess of the skin
☐	☐	Flushed or very pale face
☐	☐	Highly excited or nervous
☐	☐	Nausea or vomiting
☐	☐	Odor of alcohol
☐	☐	Odor of marijuana
☐	☐	Dry mouth (frequent swallowing/lip wetting)
☐	☐	Dizziness or fainting
☐	☐	Shaking hands or body tremors/twitching
☐	☐	Irregular or difficult breathing
☐	☐	Runny sores or sores around nostrils
☐	☐	Inappropriate wearing of sunglasses
☐	☐	Puncture marks or tracks
☐	☐	Other erratic or inappropriate behavior (e.g. hallucinations, disorientation, excessive euphoria, confusion) (Please specify below)

Other erratic or inappropriate behavior:

REASONABLE SUSPICION/BELIEF OBSERVATION NARRATIVE (This detailed description must be completed at time of observation)	
Please summarize the facts (include dates and time of day) and circumstances of the incident, employee response, supervisor actions, including if the employee was escorted home, and any other pertinent information not previously noted. Please state the facts in narrative form that gave rise to your reasonable suspicion. Attach additional sheets as needed.	
Employee declined to take drug/alcohol test: YES_____ NO_____	
Signature of Supervisor:	**Date:**
Signature of Witness:	**Date:**
Signature of Witness:	**Date:**
Department Director's Signature*:*	**Date:**
HUMAN RESOURCES DEPARTMENT USE ONLY	
Reviewed By (Print):	**Date:**
Signature:	
Supervisors should secure witness signatures at the time of the incident, if witnesses are used to make the reasonable suspicion determination. The Department Director's signature must be secured at the earliest possible time and the Human Resources Department must review this documentation before filing the form in the employee's personnel file, providing a copy to the employee or issuing discipline. The supervisor may proceed with securing the safety of the employee and/or drug and alcohol testing prior to obtaining the Director's signature and Human Resources review.	
AD 4.3 Alcohol and Controlled Substances Testing	

SECTION 4 – DRIVER SAFETY

1) GENERAL

A) COSA employees operating vehicles on COSA business are covered by Administrative Directive 4.8, Driver Safety Program, and shall adhere to all rules, regulations and standards of COSA's driver safety program. COSA employees shall also adhere to any departmental, division and section rules and regulations related to driver safety.

B) Defensive driving practices are those that are legally correct and consistent with safety to all users of the streets and highways. All COSA drivers, with the exception of non-primary drivers, will take defensive driving prior to operating COSA vehicles or personal vehicles on COSA business, and every three (3) years thereafter. Non-primary drivers will attend a driver safety course as deemed necessary by their department. Drivers shall operate COSA vehicles in a safe and prudent manner. Employees shall drive defensively at all times, and take reasonable action to avoid accidents and mishaps.

C) COSA vehicles are defined as any motor-driven or self-propelled vehicle with two or more wheels used on streets, highways or COSA property, whether or not required to be registered under the laws of Texas.

D) Employees who drive COSA vehicles shall have a valid Texas driver's license, or commercial driver's license (CDL) as required in their possession while driving. COSA does not recognize an Occupational License or any other restrictive license to be a valid driver's license. Individuals with these types of licenses shall not be authorized to drive for COSA. The driver must be aware of his/her driver's license status at all times.

E) Employees are required to obey all traffic regulations. Violations of traffic laws, COSA administrative directives, COSA Safety Manual regulations, or departmental procedures may lead to disciplinary action. Fines and penalties for violations of traffic laws and parking restrictions are the responsibility of the employee.

F) Improper use of a COSA vehicle shall be subject to disciplinary action up to and including termination.

G) Employees are NOT permitted to:

i) Exit or enter a moving vehicle;

ii) Ride with arms or legs outside any vehicle. Exceptions are firefighters and refuse collectors who ride only in areas specifically designed for that use. These employees shall also use provided handrails and other safety equipment;

iii) Ride in any manner other than seated in the vehicle's seat with the exception of firefighters and refuse collectors;

iv) Ride in a trailer or in the bed of pickup trucks;

v) Operate any vehicle that they have not been trained and authorized to use;

vi) Modify vehicles or perform repairs unless such duties are within the realm of their job description and duties for which they are qualified;

vii) Operate any vehicle that does not pass an inspection of any type, i.e. pre-use, daily, annual, etc. A vehicle failing an inspection is to be taken out of service for repairs by the applicable fleet or repair service; or

viii) For vehicles with dual steering positions, drive from the left-side position of a vehicle unless actively performing tasks requiring operating from the right side, or as outlined in departmental policies or procedures.

H) Employees must not exceed the listed vehicles carrying capacity. Under no circumstances shall more than three persons be carried in the front seat of any vehicle nor any seat be used for more persons than which it was designed.

I) Warning flashers, strobe lights, safety cones, warning signs, etc., shall be used as necessary when stopped along roadways.

J) Loads that extend to the rear 4 feet beyond the the bed or body of the vehicle shall display on the extreme end of the load red flags by day and reflectors and red lights by night or conform to any current City ordinance regarding extended loads carried by vehicles

K) All trailers shall be coupled with safety chains, and an appropriate hitch.

L) Employees shall wear seat belts when driving or riding in any COSA owned vehicle or personal vehicle being utilized for COSA business if equipped with such.

M) Tobacco use is not permitted in or on any COSA vehicle.

N) Never use a vehicle for any purpose other than the purpose for which is was intended and designed.

O) The use of GPS units is permitted, provided the unit is only programmed while the vehicle is legally parked and the unit is configured to prevent adjusting while the vehicle is moving.

P) Only COSA vehicles that are properly licensed may be driven on public roads.

Q) Employees shall not permit unauthorized persons to drive, operate or ride in or on CoSA vehicles (See Administrative Directive 1.8, Vehicle Use). COSA does not allow individuals other than authorized employees to operate COSA vehicles, with exception of the following:

i) Employees from other municipalities being trained by COSA employees provided a qualified and authorized COSA operator is present at all times during operational training;

ii) Non-COSA personnel training COSA employees to operate new or specific types of equipment provided non-COSA personnel provide indemnification to COSA and its employees during the training;

iii) Non-COSA personnel contracted by COSA to provide repair, installation and maintenance services on COSA-owned equipment and vehicles; and

iv) Reserve Police Officers provided all the driver eligibility requirements of COSA are met.

R) Directors must notify Risk Management of services involving the transport of non-COSA employees and coordinate with the City Attorney for appropriate indemnification or approval.

S) Departments will ensure Emergency Service Agreements are in place as necessary and provide copies of such agreements to Risk Management.

T) All accidents and collisions will be reported to supervisors immediately. Do not leave the scene of an accident or make any statements of liability to anyone. Refer to Section 5, Accident and Injury Procedures, for accident reporting procedures.

2) DRIVER'S EVALUATION

A) In accordance with AD 4.8, Driver Safety Program, all COSA employees and new applicants must pass the driver evaluation criteria prior to operating COSA vehicles or personal vehicles on COSA business. COSA drivers having a change in driving status will not be eligible to drive until written proof acceptable to Risk Management is provided that the adverse information has been cleared.

i) Risk Management will conduct drivers' evaluations prior to hiring, annually, upon notification of a moving citation/convection/arrest, change in driving status, or an accident, and at any interval deemed necessary to ensure driver eligibility.

ii) All departments will maintain a list of COSA drivers and will submit annually or as requested to Risk management, a Driver's Evaluation Request spreadsheet to include driver names, SAP numbers and driver license numbers.

iii) Each Department, through whatever means deemed appropriate, shall ensure that each driver has a valid Texas Driver's License appropriate for the type of vehicle to be operated.

iv) Each Department shall be responsible for the training required of any employee the department wishes to assign or promote to a driving status requiring a higher class driver's license; i.e., from Class "C" to "B" or "A" or Class "B" to "A". In either case, the driver trainee (while in training status) must be accompanied by a driver licensed in the Class in which the trainee is being trained.

B) A COSA employee, new applicant, or other affected individual will be eligible to drive unless a condition listed below exists:

i) Has operated or driven, or is found operating or driving a COSA-owned vehicle while intoxicated or under the influence of any alcohol or any illegal substance;

ii) License is suspended or revoked or has a state-issued occupational or temporary driver's license prohibiting an employee from performing essential job functions;

iii) Is the subject of a traffic-related arrest warrant;

iv) Is under court-mandated restrictions such as a vehicle breathalyzer lock Safety Responsibility (SR) 22, log book, etc.;

v) Receives citations for three (3) or more moving violations, including seatbelts, over a one (1) year period regardless of disposition, including dismissal pursuant to completion of probation or a plea bargain, except when adjudicated 'not guilty';

vi) Has a driving under the influence/driving while intoxicated (DUI/DWI) or controlled substance act offense conviction within the past three (3) years;

vii) Has three (3) or more "at fault" accidents in the past two (2) years;

viii) Has any combination of moving violations or "at fault" accidents that equals seven (7) or more in the previous three (3) years;

ix) A physical or mental limitation which may interfere with the ability to safely operate COSA vehicles; or

x) Has a failed or refused alcohol or drug test.

3) DRIVER ELIGIBILITY AND AUTHORIZATION

A) A driver will only be eligible and authorized to drive after clearance has been given by Risk Management, which requires completion of COSA's Defensive Driving course within 30 days of hire and every three years thereafter, and satisfactory completion of any and all training deemed necessary by COSA Departments.

B) At a minimum, driver eligibility and authorization is determined prior to hiring and annually thereafter. Eligibility and authorization may change due to an accident, arrest, change in license status, habitual un-safe behavior, or as outlined in the policy guidelines of AD 4.8, Driver Safety Program.

4) WARRANT AND ARRESTS

A) Risk Management receives periodic reports from the police department identifying COSA employees with outstanding warrants or who have been arrested. Any current or prospective COSA driver having an outstanding traffic-related arrest warrant will not be eligible to drive for COSA. Upon notification by the Risk Management Division, the department shall immediately remove any such current employee from all driving duties. Upon signed receipt by the employee, the employee must respond to the court as ordered. The Risk Management Division must receive a copy of documented proof that the warrant has been cleared or is in the process of being cleared through arrangements with the court having jurisdiction. Negotiations with attorneys, personal letters, or similar documentation do not constitute clearance. The Risk Management Division will issue a letter of clearance depending on arrangements with the court and a completion of a satisfactory driver's evaluation.

B) Prospective COSA driver listed as having been arrested for a drug or alcohol related offense within 3 (three) years after the effective date of the revised AD 4.8, Driver Safety Program, will not be eligible to drive for COSA. (Current employees are grandfathered) Upon notification by Risk Management, the department shall immediately remove a current employee from all driving duties. The employee may request driver eligibility and authorization only after he or she produces verifiable evidence that his or her driver's license and all associated driving privileges have been reinstated; and Risk Management conducts a driver's evaluation with satisfactory results.

5) TRAFFIC REGULATIONS

All persons operating any COSA vehicle shall obey all federal, state, and local traffic control laws, regulations and ordinances. Any failure to obey these regulations may be subject to disciplinary action.

6) TRAFFIC SAFETY CONES

A) Traffic safety cones are used to guide vehicular traffic around temporary work areas and to establish a "circle of safety" around parked vehicles.

B) Placement of safety cones for temporary traffic control is described in the Texas Manual on Uniformed Traffic Control Devices (TMUCD) by the Texas Department of Transportation (TxDOT).

C) The following types of safety cones are approved for use by COSA employees:

i) 18-inch fluorescent cone (*for passenger cars, station wagons, pickup trucks passenger vans and similar vehicles only*);

ii) 28-inch fluorescent cone.

7) FOLLOWING VEHICLE AHEAD

Always remain at a safe distance behind the vehicle in front. At a minimum, maintain a 4 (four) second following distance from the vehicle immediately in front of you.

8) SIGNALING

The proper turn signal shall be given in accordance with state law. A good rule of thumb is to give the proper signal at least 150 feet in advance of the turn.

9) PEDESTRIANS, BICYCLES AND ANIMALS

Pay particular attention when approaching pedestrians, small children, persons stranded in the middle of the roadway, persons riding bicycles, or animals in or near the road. In this situation, adjust speed, steer as far away from them as possible and be ready to come to a stop if necessary.

10) INTERSECTIONS

When approaching intersections and side streets, always scan left-right-left for oncoming vehicles. Be prepared for a sudden stop by a driver ahead approaching a green light. Many drivers apply the brakes abruptly if the amber light flashes just as they reach the signal. Also, many drivers brake on the green light because of a last minute decision to turn at the corner.

11) SIDE STREETS

Be aware of "unmarked" or "uncontrolled" intersections; street corners having no traffic control signals on either roadway. This is the most dangerous of all intersections in terms of accidents in relation to traffic volume. Many drivers never slow down unless they see a stop sign or a red traffic light. One-third of all accidents happen at intersections.

12) BACKING, Remember the following backing tips:

i) Avoid backing whenever possible-park where you can pull through

ii) Back in when you first arrive at your destination-scan the area, including overhead, as you prepare to back

iii) Use a spotter

iv) If no spotter is available, get out and assess the situation prior to backing

v) Back slowly

13) SAFEGUARDS FOR PARKING

A) Whenever possible, park in a manner that will eliminate having to back.

B) Street Parking - When a service vehicle has been parked, two safety cones shall be placed around the vehicle; one placed near the left front bumper, the other near the left rear bumper.

C) Parking in Driveways - Due to the dangers involved in backing, every effort is to be made to avoid parking in a driveway. If parking in a driveway cannot be avoided, at a minimum, two safety cones shall be used. One shall be placed near the center of the front bumper, the other near the center of the rear bumper. Additional cones shall be used as necessary to improve safety.

D) Before a COSA vehicle is moved from any location, the "circle of safety" shall be made beginning at the passenger's door and proceeding all the way around the vehicle in a counterclockwise manner. Check for any obvious safety hazards. When the "circle of safety" is completed, the safety cones shall placed in the vehicle and the operator shall conduct one final scan of the area for any other obstacles and hazards, including on-coming traffic, which may be present.

14) ELECTRONIC DEVICES

A) COSA drivers shall not text while operating any COSA vehicle nor engage in any distracted driving activity that take their physical, visual or cognitive focus away from operating the vehicle in a safe manner. This includes, but is not limited to, City Cell Phone Ordinance, Chapter 19, Section 19-255, pagers, computers, or any other electronic communication device. COSA Police, Fire and EMS will comply with departmental policies, procedures and collective bargaining agreements.

SECTION 5 – VEHICLE ACCIDENT AND WORKPLACE INJURY PROCEDURES

1) GENERAL

A) The purpose of this section is to ensure data is collected for the analysis of vehicle accidents and workplace injuries, for designing accident and injury prevention policies and programs, and for supporting the safety efforts of COSA departments. Risk Management (RM) is responsible for creating and implementing procedures in accordance with federal, state and local regulations, COSA Administrative Directives 4.8 Driver Safety and 4.3 Alcohol and Controlled Substances Testing, and this Safety Manual.

2) DEFINITIONS

A) Accident:

i) A vehicle collision with another vehicle, object or person that usually produces injury, property damage and/or death, whether intended or unintended.

B) Accident and Injury Review Board (ARB):

i) A board comprised of management and non-management employees assigned to reviewing all City vehicle accidents and workplace injuries to determine preventability. ARBs are either dedicated within a single department or City-wide.

C) Driver safety refresher training:

i) Training that focuses on changing driving behavior, improving driving skills or defensive driving techniques.

D) Incident**:**

i) An event in which City equipment makes contact with another person, object or vehicle and results in no bodily injury or property damage.

E) Non-Preventable:

i) Accidents which occur despite the employee or equipment operat**o**r having taken reasonable action to avoid or prevent the occurrence, or which do not meet any part of the definition of preventable.

F) Preventable:

i) An accident or injury is preventable if the employee:

(a) Failed to take reasonable action which would have avoided or prevented the vehicle accident or workplace injury;

(b) Violated one (1) or more COSA or departmental rules, policies, or procedures, which contributed to the preventability of the accident or injury; or

(c) Committed moving traffic violation(s), whether cited or not.

G) Vehicle:

i) Any motor-driven or self-propelled vehicle with two or more wheels used on COSA streets or property, whether or not required to be registered under the laws of Texas.

H) Vehicle collisions:

i) A type of accident involving the intentional or unintentional act of a vehicle striking against another vehicle, person or object.

I) Working Days:

i) All days the employee is regularly scheduled to work.

3) POST VEHICLE COLLISION PROCEDURES

A) If an employee is involved in a vehicle collision, the employee will:

i) Call 911 and identify themselves as a COSA employee on COSA business for the following:

(a) Any accident involving a collision with non-COSA owned property;
(b) Any accident involving injuries;
(c) Any accident involving a fatality; or
(d) Any accident involving a personal vehicle on COSA business.

ii) Immediately notify his/her Supervisor; *(Any COSA employee who is involved in a vehicle accident in a COSA-owned or personal vehicle conducting COSA business must notify their Supervisor of the accident and remain at the scene of the accident until the Supervisor arrives or provides other instructions.)*

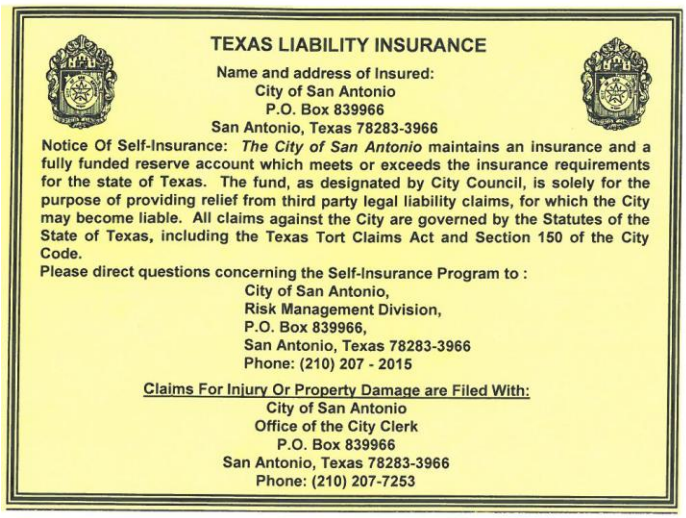
(a) Failure to report a vehicle collision promptly upon its occurrence may result in disciplinary action up to and including termination.

iii) Refrain from making any statements of liability to any party involved in the accident or their representative;

iv) Refrain from signing any statements for anyone except the Law Enforcement Officer and their Supervisor;

v) Be courteous;

vi) Provide the officer with the Texas Liability Insurance Card, which should be kept in all COSA vehicles. The liability cards can be obtained from Risk Management;



TEXAS LIABILITY INSURANCE

Name and address of Insured:
City of San Antonio
P.O. Box 839966
San Antonio, Texas 78283-3966

Notice Of Self-Insurance: *The City of San Antonio* maintains an insurance and a fully funded reserve account which meets or exceeds the insurance requirements for the state of Texas. The fund, as designated by City Council, is solely for the purpose of providing relief from third party legal liability claims, for which the City may become liable. All claims against the City are governed by the Statutes of the State of Texas, including the Texas Tort Claims Act and Section 150 of the City Code.

Please direct questions concerning the Self-Insurance Program to :
City of San Antonio,
Risk Management Division,
P.O. Box 839966,
San Antonio, Texas 78283-3966
Phone: (210) 207 - 2015

Claims For Injury Or Property Damage are Filed With:
City of San Antonio
Office of the City Clerk
P.O. Box 839966
San Antonio, Texas 78283-3966
Phone: (210) 207-7253

vii) Be tested for alcohol and drugs when there is reasonable suspicion or when any of the following apply:

(a) The vehicle collision involved bodily injury to any person who, as a result of the injury, immediately receives medical treatment away from the scene; or

(b) If one or more vehicles incurred disabling damage as a result of the collision requiring the vehicle to be transported away from the scene by a tow truck or other vehicle; or

(c) If the collision involved striking a pedestrian; or

(d) If the collision involved the loss of human life; or

(e) A citation is issued to the COSA employee.

viii) Remain in non-driving status until lab results of the alcohol and drug screenings are reported to employee's Manager/Supervisor.

ix) An employee subject to post-accident testing who unnecessarily leaves the scene of an accident before a required test is administered or fails to remain readily available for testing is considered to have refused to submit to testing. Failure to complete or

submit to a drug or alcohol test is considered the same as a positive test result and will result in termination of employment.

x) Participate in and provide information necessary for a proper investigation;

B) Supervisors will:

i) Provide employee direction on how the employee is to proceed with the testing process within two hours after the accident being reported. If a test is not administered within two hours, the Supervisor must prepare and forward to Risk Management a statement as to why the test was not promptly administered.

(a) Procedures during normal working hours when employee is not transported to a hospital:
- Transport employee to the City Occupational Health Vendor location;
- Remain with the employee; and
- Secure transportation of the employee to their home if employee is impaired;

(b) After hours testing: :
- Contact vendor listed on Human Resource's web site and request mobile alcohol and drug testing to your location;
- For employees not hospitalized, remain with the employee until testing is completed and secure transportation to their home if impaired; and
- For hospitalized employees, remain with the employee until the testing is completed and ensure their emergency contact has been notified; notify all appropriate personnel, e.g. Safety Coordinator, HR representative, Manager, etc.

C) Supervisor, in coordination with the Safety Coordinator, will:

i) Using the Supervisor Report of Vehicle Accident and if injuries have occurred, the Supervisor Report of Injury or Illness, conduct a thorough investigation correctly identifying the root cause and corrective action(s).

ii) Make the determination of whether or not alcohol and drug testing is required for the employee(s); see above Section 3, A, vii,

iii) Obtain all necessary information and facts, including names of witnesses, if any, statements, photos, and sketches;

iv) Submit the Supervisors Report of Vehicle Accident and all other related documents to the departmental Safety Coordinator by shift's end. If it is not possible to complete the report by shift's end, the report must be submitted within two (2) hours of shift start up the next day. The reporting process for injuries remains the same, refer to the Workers' Compensation Manual. If the collision involves an injury, a copy of the

Supervisor Report of Injury or Illness (SRI) is to be included with the accident package; and

D) Supervisor will ensure the involved COSA vehicle, regardless the type or amount of apparent damage, is evaluated by Fleet as soon as possible, but no later than three working days of the vehicle accident.

4) INJURY REPORTING

A) Injury Reporting:

i) Employees are required to report his/her injury to their Supervisor immediately and no later than the end of the work shift.

ii) The affected Supervisor completes Supervisor Report of Injury or Illness (SRII) form and forwards the document to the appropriate Human Resources Specialist (HRS) by shift's end. If it is not possible to complete the report by shift's end, the report must be submitted within two (2) hours of shift start up the next day.

iii) The HRS will utilize the SRII form to create a First Report of Injury (FROI) in the Third Party Administrator's (TPA) system upon receipt of the notice.

iv) The TPA system generates a FROI and the TPA supervisor assigns the claim to a TPA claims adjuster.

5) POST ACCIDENT INVESTIGATIONS

A) It is the policy of the City of San Antonio that fact-finding investigation of all work-related accidents and injuries are to be conducted in a professional manner. Investigations identify probable causes and are used to develop specific management actions for the prevention of future vehicle accidents, harm or property damage. Accident and injury prevention is the result of a well designed and executed safety program. One of the keys to a successful program includes unbiased, prompt and accurate accident and injury fact-finding. The basic purpose of these investigations is to determine measures that can be taken to prevent similar events in the future.

B) Responsibilities

i) Department:

(a) Ensure a liability card is in every vehicle;

(b) Report and ensure all accidents and injuries are properly investigated;

(c) Enter the accident data into SAP;

(d) Ensure immediate and long term corrective actions are taken to prevent reoccurrence;

(e) Maintain accident and injury reports on file; and

(f) Ensure proper entries are made on all accident related documentation.

(g) Forward the file and supporting documentation to the departmental Safety Coordinator;

(h) Collect and preserve all evidence that may be useful in an investigation;

(i) If necessary, conduct secondary interviews of witnesses;

ii) Safety Coordinator:

(a) Ensure a complete file is received from the Supervisor;

(b) Review all accident and injury files for accuracy;

(c) Timely completes, documents and issues the findings of the ARB to all necessary personnel;

(d) Prior to the ARB, check to see if any affected citizen has filed a claim in connection with the accident and determine, if possible, the total cost to repair damages to all vehicles, objects or property;

(e) Prepare an agenda and all accident files for review by the departmental Accident and Injury Review Board. *(For those departments meeting the criteria for not having a dedicated ARB, the Safety Coordinator will forward the accident file to the City-wide ARB Chair to be included on the next scheduled agenda);*

(f) Any crash that results in a death, regardless of the ruling of the Board, is forwarded to the City Attorney's Office.

iii) Employees:

(a) Assist as requested in all vehicle accident or injury investigations

6) ACCIDENT AND INJURY REVIEW BOARDS

A) ACS, Aviation, BESD, CSF, DSD, Parks and Recreation, SWMD and TCI will have their own dedicated Accident and Injury Review Boards to review all vehicle accidents and workplace injuries, and determine preventability. The ARB will assign points based on the severity of vehicle accidents using the vehicle collision point summary sheet.

All other departments shall have their respective vehicle accidents and workplace injuries reviewed at the City-wide ARB, lead and facilitated by Risk Management (See section Dii).
Departments, at their discretion, can elect to review "Incidents" (as defined above) during their ARB deliberations.

B) Findings from the ARB will be submitted to the department director or designee for review, approval and administering.

C) At a minimum, ARBs are to meet monthly to review all cases having occurred since the last review.

D) The ARB shall be comprised of five members; all members except for the safety coordinator and Risk Management Safety Supervisor shall rotate annually.

i) The ARBs for ACS, Aviation, BESD, CSF, DSD, Parks and Recreation, SWMD and TCI shall be comprised of an assistant director (optional; non-voting member), one manager, one supervisor, two non-management employees and the department's safety coordinator. The safety coordinator will serve as the board chair.

ii) The City-wide ARB will be comprised of the Safety Supervisor (the board chair) and two non-management employees. When an accident occurs in a department governed by the City-wide ARB, the director will assign one assistant director (optional; non-voting member) and one manager to sit on the board. The safety coordinator assigned to the employee's home department will also sit on the review board.

iii) Members serving on the ARB may not have had a preventable accident in the past 24 months and must have a satisfactory driver's evaluation as defined in AD 4.8 Driver Safety.

iv) All ARB members will be provided training by Risk Management staff on the ARB process, and member duties and responsibilities.

E) ERBPs are highly encouraged to attend, and will be invited to each ARB. However, their attendance is not mandatory and they will have only an observer and support role for future departmental disciplinary decisions, if required. ERBPs will not have a vote.

F) A quorum consists of at least three (3) voting members.

G) Each member has one (1) vote.

H) Members are excused from voting on any case in which they have involvement, e.g. employee is a direct report.

I) Attendance of all non-members other than association representatives, legal advisors, witnesses, Risk Management and HR, must be cleared by the ARB Chair prior to attendance.

J) Supervisors are to submit all related reports, photos, findings and recommendations to the ARB Chair for review within (7) seven working days of the accident or injury.

K) Affected employees will receive notice of the scheduled ARB from their respective supervisor within (7) seven working days of scheduled ARB. (Supervisors are required to inform their affected employees of the date, time and location of the ARB in a timely manner.) The employee's attendance at the ARB is not mandatory but they may appear to answer questions and present additional information for consideration. The driver may not be present during the ARB's review and the deliberation process.

L) The ARB may schedule a time for the affected employee to appear.

M) For all ARB participants (members, involved employee, and others), attendance at the board meeting during regular work time is paid, off time is not considered paid time.

7) ACCIDENT AND INJURY REVIEW BOARD FINDINGS

A) A vote shall be taken to determine a finding in the case. This finding is to be either preventable or non-preventable. For vehicle accidents only, findings and points are to be documented utilizing the "Vehicle Collision Point Summary Sheet" form.

i) Preventable means the employee:

(a) Failed to take reasonable action which would have avoided or prevented the vehicle accident or workplace injury;

(b) Violated one (1) or more COSA or departmental rules, policies, or procedures, which contributed to the preventability of the accident or injury; or

(c) Committed moving traffic violation(s), whether cited or not.

ii) Non-Preventable means despite the employee or equipment operator having taken reasonable action to avoid or prevent the occurrence, or which do not meet any part of the definition of preventable.

B) A majority vote must determine any finding. If a majority vote cannot be obtained after subsequent discussion and votes, the Chair (Safety Coordinator or Safety Supervisor) will make the final decision.

C) For vehicle accidents only, point assessments following a preventability finding are as follows:

i) Non-preventable (0 points); or

ii) Preventable (1 point)

D) Additional points are added to all Preventable events based on the severity of the event as follows:

i) The accident is a result of unsafe backing (**1 point**);

ii) Violation of City Cell Phone Ordinance, Chapter 19, Section 255 (**1 point**);

iii) The employee receives a citation (**1 point**);

iv) If unsafe operation is determined to be a contributing factor (**1 point**)**;**

v) Total damage to all property over $1,500 but less than $5,000 (**1 point**);

vi) The event resulted in bodily injury beyond First-Aid to any person (**1 point**);

vii) Damage to all property is in excess of $5000, or COSA vehicle is a total loss **(2 points)**

viii) The department director may, at his or her discretion, adjust points based on the particular facts of an accident (e.g. aircraft damaged by ground equipment)

E) Following the point assessment:

i) The ARB shall calculate the points, adding any existing point(s) to the total;

ii) ARB Chair will ensure points are entered into drivers SAP record;

iii) Points remain on an employee's record for twenty four (24) months. Each subsequent preventable event adds to the cumulative point total for vehicle accidents; and

iv) Calculations are based on the accident date, not the Board's ruling.

v) Complete and provide the employee's current point summary for review by the appropriate Accident and Injury Review Board.

F) The Chair shall record the employee's point totals on the Vehicle Collision Point Summary Sheet of the ARB and submits the necessary reports to the appropriate department director and HR representative within (3) three working days after the Board convenes.

G) Based on the employee's cumulative points total for the past 24 months, the department director will develop disciplinary action based on the driver's point total as follows:

Non-Exempt Employees	Exempt Employees
• 1-2 pts: Driver Safety Refresher Training and Employee Discussion Worksheet • 3-4 pts: Written Reprimand • 5-7 pts: 2 day Suspension • 8-9 pts: One Week Suspension • 10+ pts: Termination	• 1-2 pts: Driver Safety Refresher Training and Employee Discussion Worksheet • 3-4 pts: Written Reprimand • 5-7 pts: 2nd Written Reprimand • 8-9 pts: One Week Suspension • 10+ pts: Termination

Accidents resulting in loss of life, gross negligence or property damage exceeding $10,000 may also be subject to termination.

H) The ARB will review workplace injury cases and rule on the preventability of the injury; findings of preventability are to be documented on the Employee Notice of Findings and Appeal Form Memo. The director will follow progressive discipline for injuries based on an employee (non-exempt or exempt) violating the department's and/or City's safety procedures.

I) Should the employee have another vehicle accident or workplace injury before a ruling is made on an existing case, the latter accident or injury will be considered as separate events. For vehicle accidents, any points assessed for the existing case will be a consideration in the latter collision's ruling and discipline.

J) Upon being notified by the ARB chair that their accident or injury has been classified preventable, the employee may request an appeal of the preventability ruling only. The request shall be made to the employee's department director within three (3) full working days using the document listed in H) above. Failure by the employee to file a written notice of appeal within (3) three full working days will result in the board's ruling to stand as preventable, and will communicate to the department director to proceed with his or her review of the ARB's finding.

K) Upon being notified of an appeal, the department director shall review the accident or injury report and other related documents to determine the validity of the employee's request for appeal. Should the director determine the employee's appeal has merit, the director shall review the facts of the accident or injury and the employee's appeal request with the involved supervisor and ARB chair. Should the director determine the vehicle accident or injury's preventability classification is in error, the director will notify the ARB chair, supervisor and ERBP the preventability ruling has been reversed. Upon being notified by the director that they have overruled the ARB's preventable ruling, the ARB chair will prepare and distribute the Employee Notification of Non-Preventable Finding Memo to the involved manager/supervisor, ERPB and employee.

L) For vehicle accident appeals, the department director may, at his or her discretion, adjust points based on the particular facts of the accident (e.g. aircraft damaged by ground equipment) and the driver's appeal request.

M) In the event the director upholds the ARB's preventability ruling, the director will proceed to section 8 below and administer the appropriate discipline.

N) The director's final determination and discipline, as appropriate, should be delivered to the employee within 10 days of receipt of ARB findings.

8) DISCIPLINARY IMPLEMENTATION

A) HR will advise director on appropriate level of discipline. The employee's Manager/Supervisor is responsible for preparing the necessary discipline and having it reviewed by HR.

B) The department director, Risk Management, or a member of the Executive Leadership Team may recommend an employee be restricted from driving, equipment operations or high risk tasks due to safety or liability exposure concerns. It is the department's responsibility to coordinate with HR in such instances.

C) A record of any type of disciplinary action taken against the employee will be placed in the employee's personnel file.

D) The safety coordinator will enter into SAP the accumulated point total within (5) five days of receipt of the director's decision.

9) Confidentiality

All ARB proceedings must be kept confidential. Accident and Injury Review Board members are prohibited from speaking outside of the deliberation process about the details, review, and disposition of any and all cases.

SECTION 6 – GUARDING WORK AREAS

1) GENERAL

A) This practice covers the use of warning devices for guarding work areas. Warning devices shall be used for the purpose of providing maximum protection for employees, equipment, and the public, as well as providing the minimum interference with vehicular and pedestrian traffic.

B) All warning devices shall be placed at the beginning of a construction or maintenance operation and shall remain in place until the work operation has been completed.

C) Employees shall comply with the latest revision of the Texas Manual on Uniformed Traffic Control Devices and any applicable CoSA Addendums pertaining to traffic control. For work involving minor or major traffic dislocation, the Police Department shall be notified. In addition, when major traffic dislocation such as blocking a traffic lane or highway or a main traffic artery occurs, the Police Department shall also be specifically notified before the work begins.

D) It will be impossible to include a group of illustrations to cover every situation which will require work area protection. CoSA departments shall follow the latest revision of the Texas Manual on Uniformed Traffic Control Devices (TMUCD) published by the Texas Department of Transportation.

E) Weeds, shrubbery, construction materials or equipment, etc., shall not be allowed to obscure any traffic control device.

F) Signs shall be placed in positions where they shall convey their messages most effectively, and placement shall, therefore, be according to highway design and alignment. Signs shall be placed so that drivers have adequate time for response.

2) LOCATION OF MOTOR VEHICLES TO GUARD WORK AREAS

A) A motor vehicle equipped with a strobe light and flashers is an effective barrier for vehicular traffic. These lights shall be used day and night while the vehicle is used as a barrier.

B) The vehicle shall be placed between the work area and the oncoming traffic and shall have the parking brake set and the transmission engaged in gear on manual transmissions and in park on automatic transmissions.

C) When using a motor vehicle to guard a work area, it shall be considered supplemental to all other warning devices.

D) The following factors shall be considered in determining which direction the vehicle shall face:

i) Requirements of local laws and regulations;

ii) Location of the work area to be protected with respect to traffic flow;

iii) When the work requires materials which must be unloaded from the bed and side boxes of the truck;

iv) Safety considerations and difficulty in turning the truck around to face oncoming traffic; and

v) Trailers shall be placed where they will not interfere with traffic and shall provide a safe place to work.

E) Be alert to changing traffic flow;

i) Inbound traffic during morning hours; and

ii) Outbound traffic during evening hours.

3) LOCATION OF SIGNS, CONES, AND BARRICADES

A) The following table gives recommended distances for placing initial warning signs ahead of work operations for various speed limits (Size and color of cones are specified in the TMUCD manual).

Normal Traffic Speed (Mph)	Initial Speed Speed (feet)	Distance Cone Spacing (feet)
15 or below	50 – 90	10
25	90 – 150	20 – 25
35	150 – 240	30 – 40
45	240 – 360	40 – 50
55	360 – 550	50 – 60

4) SIGNS AND SIGNALS

A) The shape, size, and coloring of signs shall conform to the specifications set forth in the TMUCD Manual.

B) Signs and painted displays intended for night use shall be of the reflecting type and be illuminated.

C) Signs shall be removed or covered during lunch periods and at the end of the work day only if the work site is free from hazards at that time. All signs shall be removed as soon as the work is finished and no hazards remain.

D) On extended one-way traffic blocks, there shall be one employee with a sign paddle in front of the work area. On extended two-way traffic blocks, there shall be one employee with a sign paddle at each end of the working area.

E) Employees using sign paddles shall be trained in the proper method of giving non-conflicting signals.

F) All employees used to direct traffic flow shall be equipped with a fluorescent vest, white hard hat and sign paddle.

G) Sign paddles shall have a minimum width of 24 inches and be mounted on a rigid handle. On one side the word STOP shall be painted in white letters on a red background with a white border. The reverse side shall have the word SLOW painted in black on a yellow background with a black border. Letters shall be Series C, (six inch).

H) Employees directing traffic flow are responsible for human safety. They also make a great number of public contacts. It is important that only conscientious qualified personnel be selected for this task.

I) Traffic control employees are provided at work sites to protect both work crew members and the public. To perform these functions, they must be visible to approaching traffic sufficiently in advance of the work site to permit the proper response to be made. In positioning such employees, consideration shall be given to maintaining color contrasts between the protective garments and the background of the worker. The correct position to be taken is on the shoulder or in the barricaded lanes adjacent to the lane being controlled and facing the traffic. The employees shall never stand in the traffic lane.

J) During night operations, employees controlling traffic shall be equipped with red lanterns or flashlights, they shall wear orange, yellow, or light colored clothing with reflectorized surfaces and white or orange Sam Brown type belts with red reflector buttons.

K) With a lantern or flashlight, only one signal is used and that may mean either stop or slow. It is given by waving the red lantern or flashlight across the lane of traffic. "Proceed" signals are to be given only by hand, never with the lantern or flashlight.

L) Traffic control workers and operators of construction machinery shall understand that every reasonable effort shall be made to allow the driving public the right-of way and prevent excessive delays.

5) PRECAUTIONS

A) To ensure maximum safety, continued alertness is required.

B) Carefully observe all moving traffic and exercise extreme caution when placing warning devices.

C) Place warning devices before positioning the work vehicle or starting work. Warning devices are employed to direct the motorist around the work area.

D) Make every effort to minimize the exposure time of the employees to traffic hazards and other possible danger. All discussions and planning shall take place off the street or highway not in traffic lanes.

E) Inspect all displayed warning devices at frequent intervals to be sure they remain clearly visible.

6) JOB PRE-SURVEY

A) A suitable plan for guarding the work area shall be developed before work in the area is begun. The supervisor shall pre-survey the work location and then discuss the protection plan with the employees before the work starts.

B) After planning for the setup of warning devices for a particular location, analyze the plan from the point of view of the motorist.

C) The following checklist shall be used for guarding work areas before starting work:

i) Speed of traffic;

ii) Width of lane;

iii) Light or heavy traffic;

iv) Nature of the traffic change while work is being done;

v) Are barricades required?;

vi) Will a traffic control employee be required when setting up and removing warning devices? During the work operation?;

vii) Will the established plan comply with state and local laws or regulations?;

viii) Is a permit required?;

ix) Have the police or any COSA personnel/department deemed necessary been contacted?;

x) On routes to or near special events such as ball games, etc., can the job be scheduled on days or hours with the least traffic?; and

xi) Where will required tools, materials, and equipment be kept during work operations? After working hours?

7) LOCAL ROAD OR STREET PLANS

A) On a two lane road or street where the work is located near the edge of the pavement, the following items shall be considered:

i) Speed;

ii) Do not park equipment in the way of signs and cones where it may obstruct vision;

iii) Does the sign terminology agree with the work being performed? For example: "FLAGMAN AHEAD" when one is used or "UTILITY WORK 2000 FEET";

iv) Does flashing strobe(s) on truck used as part of the protection work properly?;

v) If several vehicles are involved and some are not currently being used, are they parked away from the work area?;

vi) If a lane is partially or completely blocked, is traffic control provided? If so, is the proper protective gear and sign(s) used?; and

vii) Are signs mounted in such a manner to prevent being blown over?

8) SIGN TERMINOLOGY

A) Sign or barricade terminology shall comply with state or local regulations.

B) All signs shall conform to the standards established by the TMUCD Manual.

SECTION 7 – BUILDING AND OFFICE SAFETY

1) GENERAL

A) This section covers safety precautions for all buildings. In order to provide employees a safer working environment, supervisors shall ensure the following safety items identified in this section are in place. Risk Management Safety Coordinator(s) are available to assist departments with identifying hazardous conditions and recommend appropriate safeguards where hazards exist.

2) EXITS, AISLES, STAIRS, AND FLOORS

A) All building doors shall open outward.

B) All exit doors shall be marked and exit signs should be illuminated.

C) Glass doors shall have some conspicuous painting, decaled design or other clearly visible indicator approximately 4-1/2 feet above the floor and centered on the door.

D) Doorways and exits shall not be obstructed within a 48 inch radius. If any doorway must be obstructed for maintenance, blocked doors shall be marked on the opposite side with a sign indicating, "Door Blocked," and with an alternate exit noted.

E) Offices located in basements shall have at least two exits.

F) Exit doors and aisles shall be continually unobstructed and unlocked in the direction of exit.

G) Aisle ways shall be a minimum of 36" in width for light traffic areas and 48" in width for moderate traffic areas.

H) Stairs and aisles shall be kept clean and free of obstacles or slippery surfaces and shall be well lighted.

I) Posters, bulletin boards and other distracting objects are prohibited on stairways, landings and stairwells.

J) Slippery or worn treads on stairs shall be repaired or made safe by coating them with nonskid surfacing material.

K) Handrails shall be installed on stairs having more than four risers.

L) Handrails and stair rails shall have smooth surfaces and must be located 34 inches above the stairway treads.

M) Employees shall not congregate on stairs, landings, at the end of outside doors or foot of stairways.

N) Stairs and risers shall be uniform in size.

O) Tripping hazards such as defective floors, rugs, floor mats, etc., shall be repaired or replaced immediately.

3) ELECTRICAL SYSTEMS

A) Electrical equipment not used at least monthly shall be disconnected from power sources.

B) All circuit breaker and fuse panel circuits shall be labeled.

C) Breaker and fuse panels, motor controls and electrical enclosures shall have a minimum forward clear working space of three feet. The minimum width of a work area shall be 2- ½ feet.

D) Fuse boxes and circuit breaker boxes shall be equipped with lockout/tagout capabilities. (See Section 24, Lockout/Tagout)

E) Flexible cords and cables shall only be used for:

i) Pendants;

ii) Wiring of fixtures;

iii) Connection of portable lamps or appliances;

iv) Elevator;

v) Wiring cranes and hoists; and/or

vi) Connection of equipment to facilitate frequent interchange.

F) Flexible cords and cables shall not be:

i) Used as substitute for fixed wiring;

ii) Run through holes in walls, ceilings and floors;

iii) Run through doorways, window, etc.;

iv) Attached to building surface; or

v) Concealed behind building walls, ceilings or floors.

G) Unused openings of electrical enclosures shall be effectively closed.

H) All light switches and receptacles shall have a protective cover.

I) All electrical receptacles shall be the three wire grounding type.

J) Electrical receptacles near sinks or other sources of water shall have a ground fault circuit interrupter (GFCI).

K) Drinking fountains, vending machines and other equipment shall be properly grounded.

L) Extension cords shall be used in accordance with Section 25, Extension Cords, of this manual.

4) FIRE SAFETY

A) Fire evacuation plans shall be posted throughout all buildings in common areas.

B) Fire extinguishers shall be placed in buildings and checked as specified in Section 11, Fire Extinguishers, of this manual.

C) All employees authorized to use fire extinguishers shall be trained in the safe and proper use of extinguishers.

D) All buildings shall have a sufficient number of trash cans.

E) All trash containers shall be made of nonflammable materials and emptied daily.

F) Smoking is prohibited in all COSA buildings and within 25 feet of entrances or operable windows.

G) Mechanical rooms shall not be used as storage areas and shall be locked with only authorized personnel having the means to unlock the room. Mechanical rooms are to be free of any and all flammable and combustible material.

H) Storing anything above or within 18 inches of a sprinkler head is forbidden.

I) Do not store combustible material near ignition sources.

J) Heat dissipating areas of equipment shall be free of all obstructions.

K) Candles are prohibited from use in office areas.

L) All chemicals shall be stored in accordance with their compatibility and hazardous nature.

M) Batteries shall never be stored with steel wool.

N) Personal space heaters are not to be used.

O) Hot plates and electric warmers are not to be used in personal cubicles or offices. Use of hot plates and electric warmers may only be used in areas for designated one day dining events, i.e. conference room or break room.

5) FALLS

A) Falls are the most common accident and account for the most disabling injuries.

B) Common causes of falls are:

i) Leaning back or tilting a chair;

ii) Tripping over or catching a heel on stairs or a doorsill;

iii) Defective floor surfaces;

iv) Tripping over loose telephone wire or electric cord;

v) Tripping over open drawers; and

vi) Slippery surfaces.

C) Some tips for avoiding falls are:

i) Never lean or tilt chairs back;

ii) Never stand on chairs or furniture;

iii) Always use a ladder or step stool to reach high places, see Section 31, Ladders of this manual;

iv) Wipe up spilled liquids immediately; place “Wet Floor” signage if needed, or mark wet area when warranted.

v) Pick up paper, paper clips, rubber bands, pencils and other loose objects;

vi) Always use handrail when ascending or descending stairs;

vii) Never carry objects in a position that impedes vision;

viii) Close drawers when not in use;

ix) Keep aisles clear of obstructions; and

x) Wear appropriate footwear for the task or walking surface.

6) DESKS, STORAGE AND FILING CABINETS

A) Filing cabinets are responsible for many injuries in the office.

B) The following precautions will prevent injuries from improper use of desks, storage and filing cabinet:

i) Never bump file drawers closed with any part of the body;

ii) Close drawers immediately after use and do not leave them open;

iii) Open only one drawer at a time to prevent the cabinet from tipping over;

iv) Bolt or secure file cabinets whenever possible;

v) Climbing on drawers, desktops or cabinets is prohibited;

vi) Stacking materials on top of the file cabinets is strongly discouraged;

vii) Step stools used in filing areas are tripping hazards. Store them in a safe location;

viii) Razor blades, thumb tacks and other sharp objects shall not be thrown loosely into drawers;

ix) Card index files, dictionaries and other heavy objects shall be kept off the top of office cabinets and other high furniture; and

x) Do not leave breakable objects on the edge of desks, file cabinets, storage cabinets or tables where they can easily be pushed off.

7) MISCELLANEOUS

A) Illumination levels shall be adequate for the job being performed.

B) A first aid kit shall be available in all buildings. See Section 9, First Aid Kits.

C) All buildings designated as primary work areas must have restrooms or wash rooms. (A primary work area is a building where one or more employees spend eight or more hours per day.)

D) Each restroom or wash room shall be equipped with the following as a minimum requirement:

i) Sink with hot and cold water;

ii) Soap or similar cleansing agent;

iii) Paper towels or hot air hand dryers; and

iv) Toilet facility.

E) Running in buildings is prohibited.

F) Horseplay is prohibited.

G) Fans shall not be handled until the power is turned off and the blades stop turning.

H) Fans must have all guards in place.

I) Never hand knives or scissors to someone with the point (blade) toward them.

J) Paper cutters shall be stored with the blade secured and shall be equipped with a guard that affords maximum protection.

SECTION 8 – WORKPLACE VIOLENCE

1) GENERAL

A) It is the policy of COSA to provide all employees a work environment that is safe and free from violence (see Administrative Directive 4.80 Violence in the Workplace). Violent outbursts, intimidation, threats, harassment, bullying, or other forms of abusive, aggressive or disruptive behavior will not be tolerated or excused. To ensure a policy of zero-tolerance of workplace violence within the COSA organization, COSA, including its employees, supervisors, managers, and executives, must firmly and unequivocally commit to providing a safe workplace and preventing any incident of work-related violence.

B) Recognize signs that may precede violence in your co-workers or customers and report them to your supervisor. Be cautious when you deal with a person who:

i) Makes verbal threats on the job about getting "even" with co-workers or with your employer for disciplinary action or dismissal;

ii) Regularly threatens or intimidates others;

iii) Claims people are out to get him or her;

iv) Begins to have excessive tardiness or absences;

v) Talks a lot about weapons-and may own them;

vi) Holds grudges and blames others for problems or setbacks;

vii) Gets angry very easily and often;

viii) Is defensive when criticized;

ix) Needs increased supervision;

x) Reduces their productivity;

xi) Strains workplace relations;

xii) Concentration levels decrease;

xiii) Begins to change their work habits

xiv) Begins to have unusual behavior;

xv) Shows signs of substance abuse;

xvi) Increases their stress level;

xvii) Shows signs of depression;

xviii) Tends to distance themselves from others; and/or

xix) Violates safety procedures

It should be understood that this is not a complete list of signs but rather indicators of a person with potential violence in the workplace tendencies.

C) Report the following behavior to your supervisor:

i) A customer that becomes unusually angry with you because of perceived slow service, perceived poor product quality or lack of information;

ii) A customer who talks abusively when making a telephone complaint; or

iii) A customer who threatens you or co-workers;

D) Respond effectively to a threatening or violent situation by:

i) Taking all threats seriously;

ii) Call 911;

iii) Staying calm to prevent situation from escalating;

iv) Obeying all instructions of violent person and do not become confrontational;

v) Speaking in a low tone of voice to prevent person from becoming angrier or increase their stress level.

E) Departments shall establish the following:

i) A Duress Code for person working the front reception area or an area where employee is alone or separated from other employees;

ii) A written policy of how to handle a violent situation;

iii) Ensure all employees receive training on Violence in the Workplace through an outside source or the City's Risk Management Safety office.

SECTION 9 – FIRST AID KITS

1) GENERAL

A) This section describes first aid kits and the recommended assortment of supplies for COSA employees.

B) Description of Unit Type First Aid Kits

i) Unit first aid material is packaged primarily in single disposable packages. This type of packaging eliminates the problem of bottled antiseptic liquids or large tubes of cream which can break, leak, or evaporate, promote cross contamination, and cause damage to other items in the kit.

ii) Typical unit type first aid kits contain adequate emergency first aid instruction and a more functional assortment of individually sealed packages than those usually found in other type kits.

iii) Unit first aid kit manufacturers seal individual units in see-through protective wrapping keeping the contents free from dust and other contamination during transportation and storage. The unit wrapping also facilitates kit inspection since unwrapped or damaged units are easy to locate and replace.

C) Acceptable unit type first aid kits shall be required as standard equipment in all vehicles or equipment operated by COSA employees.

D) Unit first aid kits are made in five standard sizes: 6, 10, 16, 24, and 36 unit. No kit smaller than 16 units shall be approved for use by COSA employees.

E) The contents of the first aid kits shall be inspected each month and expended items replaced by supervisors. Personal medication shall not be kept in first aid kits.

F) First aid kits shall be conspicuously located where they will be readily accessible and all staff should be made aware of kit locations.

G) First aid kits shall not be obstructed or obscured from view. An exception is allowed only for large rooms and certain locations where visible obstructions cannot be completely avoided, if some means is provided to indicate the location. If the first aid kit is mounted or stored in a vehicle or bin, it must be readily accessible and have a “First Aid Kit Inside” sign mounted on the outside bin door.

H) First aid kits shall be properly and completely filled. First aid kits, supplies and replacement kits shall be the responsibility of each individual department.

Supervisors are responsible for ensuring first aid kits are inspected on a regular basis; to ensure that they are properly and completely filled, do not contain expired materials, and to detect any damage to the kit or its contents. The inspection will normally be performed by the supervisor or a designated representative.

2) FIRST AID KIT SIZE REQUIREMENTS

A) First aid metal kit sizes for vehicles and equipment as follows:

i) Passenger car – 16 Unit;

ii) Trucks and vans – 16 Unit;

iii) Crew cab trucks – 24 Unit; and

iv) Trenching Equipment – 16 Unit

B) First Aid kit sizes for buildings should either be a 16 unit or 24 unit.

i) Items not specifically noted are optional and may be included at the Department Director's direction.

DESCRIPTION	**16 UNIT**	**24 UNIT**
Latex Gloves	2-4 pair	2-4 pair
Adhesive Bandages	2	3
Compress Dressing	1	1
Triangular Bandage	1	1
Oval Eye Pads	2	2
Adhesive Tape ½"	1	1
Gauze (Roll) 2	1	1
Sterile Gauze (Pad) 3"x3"	1 box	1
Antiseptic Towelette	1 box	1
Cold Pack	1	1
Eye Wash 4 oz.	1	1
Abdominal Pad 9"		
Tweezers	1	1
Scissors	1	1
First Aid Handbook	1	1
Antibiotic Ointment 1 oz.	1 tube	
Sting Swabs	-	1
Q Tips	-	1
Adhesive Bandages – Knuckle	-	1
Poison Ivy Ointment	-	1
Rescue Blanket	-	1
CPR Microshield Pocket Mask with Case	1	1

FIRST-AID SUPPLY KIT INVENTORY

ITEM DESCRIPTION	NEEDED	ON HAND	ORDER
Latex Gloves			
Adhesive Bandages			
Compress Dressing			
Triangular Bandage			
Oval Eye Pads			
Adhesive Tape ½”			
Gauze (Roll) 2			
Sterile Gauze (Pad) 3”x3”			
Antiseptic Towelette			
Cold Pack			
Eye Wash 4 oz.			
Abdominal Pad 9”			
Tweezers			
Scissors			
First Aid Handbook			
Antibiotic Ointment 1 oz.			
Sting Swabs			
Q Tips			
Adhesive Bandages – Knuckle			
Poison Ivy Ointment			
Rescue Blanket			
CPR Microshield Pocket Mask with Case			

IMPORTANT: ** Please observe all expiration dates

_____
Location

_____
Inspector Signature

_____
Date

SECTION 10 – BLOODBORNE PATHOGENS PROGRAM

1) GENERAL

A) An infection control plan must be prepared for all persons who handle, store, use, process, or disposes of infectious medical wastes. This infection control plan complies with OSHA requirement, 29 CFR 1910.1030, Bloodborne Pathogens (BBP). The plan includes requirements for personal protective equipment, housekeeping, training, and a procedure for reporting exposures.

B) This program is applicable to the attached list of positions identified as being at risk of exposure to infectious diseases and herein referred to as BBP Positions.

2) RESPONSIBILITIES

A) Risk Management will provide oversight of the Bloodborne Pathogen (BBP) Program and conduct inspections for this program.

B) Departments will ensure management of the program through inspections, record keeping and periodic audits.

3) DEFINITIONS

A) Biological Hazard: The term biological hazard or biohazard is taken to mean any viable infectious agent that presents a risk, or a potential risk, to the well being of humans.

B) Medical Wastes/Infectious Wastes: All waste emanating from human or animal tissues, blood or blood products or fluids. This includes used first aid bandages, syringes, needles, sharps, material used in spill cleanup and contaminated PPE or clothing.

C) Universal Precautions: Refers to a system of infectious disease control that assumes that every direct contact with body fluids is infectious and requires every employee exposed to be protected as though such body fluids were infected with blood-borne pathogens. All infectious/medical material must be handled according to Universal Precautions.

D) Occupational Exposure: Blood or body fluid contact from an injured or ill employee to the affected employee or injury by a contaminated sharp object.

E) Hazards: Unprotected exposure to body fluids presents the possible risk of infection from a number of Bloodborne pathogens notably Hepatitis and HIV.

F) Hazard Controls:

i) Engineering Controls - prevention of exposure to bloodborne pathogens engineering controls include proper storage facilities and containers, syringes designed to prevent accidental needle sticks, autoclaves and disinfectant equipment.

ii) Administrative Controls - prevention of exposure to bloodborne pathogen administrative controls include universal precautions, assignment of PPE, employee training, use of spill kits specifically designed for blood and body fluids, restricted access to waste collection points and waste disposal procedures.

4) REPORTING AND RECORD KEEPING

A) Any records such as medical, training records and the OSHA 300 log will be maintained by HR. All reports (Training Certificates, Notice of HBV Vaccinations, exposure reports) will be maintained for 30 years.

5) TRAINING

A) All personnel assigned to BBP Positions will receive training by a qualified trainer on Bloodborne Pathogen Program.

B) The content of the training program will include:

i) COSA Policy;

ii) Types and Transmission of bloodborne pathogens;

iii) General Safety Rules;

iv) Universal Precautions;

v) Use of Personal Protective Equipment;

vi) Medical Waste Disposal Procedures;

vii) Post Exposure Treatment and Procedures; and

viii) HBV Vaccinations (optional).

C) All Employees not affected by this Program will receive an overview of the program requirements during scheduled department safety meetings.

6) HEPATITIS-B VIRUS (HBV) VACCINATIONS

A) Occupational Health Professionals, (those required to provide first aid or emergency response duties or medical care, and laboratory duties), plumbers, mechanics having to repair solid waste handling vehicles, and solid waste collectors on a routine basis will be offered Hepatitis-B Virus (HBV) Vaccinations at COSA's expense. Employees that transfer to a job which includes exposure to blood-borne pathogens will be offered HBV Vaccinations within 10 working days of the transfer or reclassification.

B) The HBV vaccination is not mandatory. If an affected employee chooses not to have the vaccination at the initial offering, they will have the opportunity to be vaccinated when they are ready. COSA will document the offer, acceptance or declination, and vaccination dates. The request is not mandatory and if refused will not effect that employee's future employment.

7) POST EXPOSURE TREATMENT AND NOTIFICATION PROCEDURES

A) Should any employee be occupationally exposed to a BBP, the employee will report the exposure to their supervisor and subsequently to the workers' compensation section of Risk Management. COSA will provide for the employee to be tested for human immunodeficiency virus (HIV), hepatitis A virus (HAV) and hepatitis B virus (HBV) at COSA's expense. Following the initial blood test at the time of exposure, seronegative employees will be retested at 6 weeks, 12 weeks and 6 months to determine if transmission has occurred. During this period, the employee will follow the recommendations provided by the physician or the U. S. Public Health Service.

B) During all phases of post exposure, the confidentiality of the affected employee will be maintained on a "need to know" basis.

8) GENERAL PROCEDURES

A) The following procedures must be followed by personnel when in medical rooms or laboratories.

B) All supervisors must ensure that their staff is trained in proper work practices, the concept of universal precautions, personal protective equipment, and in proper cleanup and disposal techniques.

C) Resuscitation equipment, pocket masks, resuscitation bags, or other ventilation equipment must be provided to eliminate the need for direct mouth to mouth contact in groups where resuscitation is a part of their responsibilities.

D) Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a potential for exposure to any health hazard. Refrigerators that store biohazard waste should be labeled with a Biohazard symbol on the door to ensure that personal food or drink are not stored together with contaminated items.

E) According to the level of risk, wearing laboratory or protective clothing may be required for persons entering infectious disease laboratories. Likewise, showers with a germicidal soap may be required before exit.

F) Gowns, aprons, or lab coats must be worn whenever there is a possibility that body fluids could splash on skin or clothing.

G) Gloves must be made of appropriate disposable material, usually intact latex or vinyl; however, nitrile gloves are recommended. They must be used in the following circumstances:

i) When the employee has cuts, abraded skin, chapped hands, dermatitis, or similar conditions;

ii) When examining abraded or non-intact skin of a patient with active bleeding; and

iii) While handling blood or blood products or other body secretions during routine laboratory procedures.

H) Employees must wash their hands immediately, or as soon as possible, after removal of gloves or other personal protective equipment and after hand contact with blood or other potentially infectious materials.

I) All personal protective equipment must be removed immediately upon leaving the work area, and if this equipment is overtly contaminated, it must be placed in an appropriate area or container for storage, washing, decontamination, or disposal.

J) Contaminated clothing must not be worn in clean areas or outside the building.

K) All procedures involving blood or other potentially infectious agents must be performed in a manner that will minimize splashing, spraying, and aerosolization.

9) MEDICAL WASTE

A) Medical/infectious waste must be segregated from other waste at the point of origin.

B) Medical/infectious waste, except for sharps (i.e., razor blades, broken glass, needles, etc.) capable of puncturing or cutting, must be contained in double disposable red bags conspicuously labeled with the words "INFECTIOUS WASTE" and "BIOHAZARD."

C) Used needles or other sharps (razor blades, broken glass, scalpels, etc.) must not be sheared, bent, broken, recapped, or re-sheathed.

D) Infectious sharps must be contained for disposal in leak-proof, rigid puncture-resistant containers. Infectious waste contained as described above must be placed in reusable or disposable leak-proof bins or barrels that are conspicuously labeled with the words "INFECTIOUS WASTE" and "BIOHAZARD." These waste barrels are picked up regularly by an outside company licensed to handle infectious wastes.

E) All infectious agents, equipment, or apparatus must be disinfected in an autoclave or otherwise disinfected before being washed or disposed of properly. Each individual working with infectious bio-hazardous agents is responsible for disinfection and disposal of these agents.

F) Biological wastes that do not contain radioactive or hazardous substances may be disinfected by steam sterilization (autoclave) then disposed of in the regular trash.

G) Liquid bio-hazardous waste may be disposed of in the sewage system following chemical decontamination.

H) Reusable glassware must be decontaminated in sodium hypochlorite (household bleach) solution (1:10) prior to rinsing and acid washing. The glassware must then be sterilized in an autoclave.

I) To minimize the hazard to firefighters or emergency response personnel, at the close of each work day and before the building is closed, all infectious or toxic material must be placed in a refrigerator, placed in an incubator, or autoclaved or otherwise disinfected.

J) Infectious agents must not be placed in an autoclave and left overnight in anticipation of autoclaving the next day.

K) Floors, laboratory benches, and other surfaces in buildings where infectious agents are handled must be disinfected with a suitable germicide, such as 1:10 sodium hypochlorite solution (household bleach) as often as necessary as determined by the supervisor.

L) The surroundings must be disinfected after completion of operations involving planting, pipetting, centrifuging, and similar procedures with infectious agents.

M) Infectious agents must not be dumped into the building drainage system without prior disinfection.

N) Cuts - If an employee has a needle stick, cut, or mucous membrane exposure to another person's body fluids he/she must report and document the incident immediately.

O) All infectious/medical material must be handled according to Universal Precautions. The following universal precautions must be taken:

i) Gloves must be made of appropriate disposable material, usually intact latex or vinyl and used, however nitrile gloves are recommended:

(a) When the employee has cuts, abraded skin, chapped hands, dermatitis, or the like;

(b) When examining abraded or non-intact skin of a patient with active bleeding; and

(c) While handling blood or blood products or other body secretions during routine procedures.

ii) Mask and eye protection are required when contact of mucosal membranes (eyes, mouth or nose) with body fluids is likely to occur (e.g. splashes or aerosolization).

iii) Resuscitation equipment, pocket masks, resuscitation bags, or other ventilation equipment must be provided to eliminate the need for direct mouth to mouth contact.

P) Waste Disposal Plan

i) Medical/Infectious waste must be segregated from other waste at the point of origin.

ii) Medical/Infectious waste, except for sharps (e.g. razor blades, broken glass, needles, etc.) capable of puncturing or cutting must be contained in double disposable red bags conspicuously labeled with the words, "INFECTIOUS WASTE -- BIOHAZARD."

iii) Infectious sharps must be contained for disposal in leak-proof, rigid puncture resistant containers.

iv) Infectious waste thus contained as described above must be placed in reusable or disposable leak-proof bins or barrels which must be conspicuously labeled with the words, "INFECTIOUS WASTE - BIOHAZARD." These waste barrels are be picked up regularly by an outside contractor licensed to handle infectious wastes.

v) Spills/Disinfectants: a solution of sodium hypochlorite (household bleach) diluted 1:10 with water must be used to disinfect, following initial cleanup of a spill with a chemical germicide approved as a hospital disinfectant. Spills must be cleaned up immediately.

vi) After removing gloves, and/or after contact with body fluids, hands and other skin surfaces must be washed thoroughly and immediately with soap or other disinfectant in hot water.

vii) Other biological wastes that do not contain radioactive or hazardous substances may be disinfected by steam sterilization (autoclave) and then disposed of in the regular trash.

viii) Liquid biohazard waste may be disposed of in the sewage system following chemical decontamination.

ix) Reusable glassware must be decontaminated in sodium hypochlorite (household bleach) solution (1:10) prior to rinsing and acid washing. Then the glassware must be sterilized in an autoclave.

Personal Protective Equipment for Bloodborne Pathogens

TASK	GLOVES	APRON	MASK	EYEWEAR
Control of Bleeding w/ spurting blood	X	X	X	X
Bleeding control with minimal bleeding	X			X
Emergency Child Birth	X	X	X	X
Blood Drawing	X			X
Handling & Cleaning Instruments	X			X
Cleaning Bio Spills	X			X
Taking Temperature				
Giving Injection	X			
Measuring Blood Pressure				

The examples provided in this table are based on application of universal precautions. Universal precautions are intended to supplement rather than replace recommendation for routine infection control, such as hand washing and using gloves to prevent gross microbial contamination of hands (e.g., contact with urine or feces).

SECTION 11 – FIRE EXTINGUISHERS

1) GENERAL

A) This section describes portable fire extinguishing equipment which is approved for use at COSA facilities and work sites. It also describes the class of fires and hazard classification requirements, and use and maintenance of portable extinguishers.

B) Portable extinguishers are intended as a first line of defense to cope with fires of limited size. The Fire department shall be notified as soon as a fire is discovered. The alarm must not be delayed while attempting to extinguish the fire by use of portable fire extinguishers.

C) Fire extinguishers shall be selected for the specific class or classes of hazard:

i) "Class A" – Used for fires of ordinary combustible materials such as wood, cloth, paper, plastics, and rubber;

ii) "Class B" – Used for fires in flammable liquids, gases, and grease;

iii) "Class C" – Used for fires which involve energized electrical equipment;

iv) "Class D – Used for metal fires; and

v) "Class ABC" – May be used on combustibles, flammable liquids and electrical fires.

2) GENERAL REQUIRMENTS

A) Portable extinguishers shall be maintained in a fully charged and operable condition and kept in their designated places at all times when they are not being used.

B) Extinguishers shall be conspicuously located where they will be readily accessible and immediately available in the event of fire. They shall be located along normal paths of travel, including exits.

C) Extinguishers shall not be obstructed or obscured from view. In areas involving visual obstructions which cannot be completely avoided, alternate means shall be provided to indicate the location of extinguishers.

D) Extinguishers shall be installed on hangers or in brackets, mounted in cabinets or set on shelves. Larger extinguishers shall be mounted on wheeled carriers.

E) The operating instructions on the extinguisher name plate shall be legible and face outward.

F) Extinguishers shall be visually inspected monthly by supervisors to ensure that they are in their designated places, they have not been actuated or tampered with, and to detect any obvious physical damage. Inspections shall also check the pointer on the pressure gauge is in the charged area.

G) Extinguishers shall be inspected annually by a certified entity. Extinguishers whose actual gross weight does not fall within the guidelines listed on the extinguisher maintenance plate shall be removed from service until inspected and recertified by service entity.

H) Monthly and annual inspections will be recorded on appropriate extinguisher inspection tags. The inspection tag shall be attached to the extinguisher. Monthly inspected tags may be acquired through the Risk Management Safety office.

I) During inspections, dry chemical extinguishers shall be turned upside down for a short period of time to ensure that the chemical does not become packed.

J) Any extinguisher showing dents, cuts, or burns shall be removed from service until it has been hydrostatically tested.

K) Each department, agency or facility shall maintain spare extinguishers. Extinguishers out of service for maintenance or recharge shall be replaced by spare extinguishers having the same classification and at least equal rating.

L) All extinguishers 5 lbs. or larger in size shall be equipped with a discharge hose.

M) Extinguishers used by the COSA shall have Underwriters' Laboratory and Factory Mutual approval.

N) At no time shall ALL extinguishers be removed from any building leaving a facility with no fire protection. Extinguishers should be serviced at their location unless spare extinguishers are used to replace those being inspected.

3) USE OF EXTINGUISHERS

A) On discovery of a fire CALL THE FIRE DEPARTMENT (Dial 9-1-1) and evacuate all personnel from the area.

B) If the fire cannot be controlled with fire extinguishers, DO NOT ATTEMPT TO FIGHT THE FIRE.

C) To activate the extinguisher remove the "pull pin" from the top lever of the valve assembly handle.

D) Plan a retreat in case the extinguisher does not succeed in putting out the fire.

E) The contents are discharged by pressure – DO NOT DISCHARGE AT A PERSON'S FACE.

F) Hold the extinguisher firmly in an upright position.

G) Stay low to avoid inhalation of smoke and aim discharge just under the flames using a side to side motion sweeping the entire width of the fire. For wall fires, start at the bottom, sweep from side to side and progress upward. For floor fires, sweep from side to side and move forward as fire diminishes to reach far edge of the fire.

H) The acronym P.A.S.S can be remembered when operating an extinguisher:

P – Pull pin to unlock handle
A – Aim to base of the fire
S – Squeeze handle to discharge chemical
S – Sweep in a side to side motion

I) NEVER USE EXTINGUISHERS AT DISTANCES OF LESS THAN 6 FEET.

J) Never move into an area where a fire was burning even though it appears to have been extinguished.

K) Use the appropriate class extinguisher for the type of fire. A multi-purpose "ABC" fire extinguisher will extinguish most types of fire.

4) EXTINGUISHER REQUIREMENTS FOR BUILDINGS

A) Extinguishers for use in a computer center shall be of an approved extinguishing agent.

B) Extinguishers for all other applications shall be multipurpose dry chemical A:B:C.

C) Extinguishers shall be mounted to ensure a maximum travel distance of 75 feet.

D) Extinguishers shall be mounted as directed in paragraphs 2A through 2F of this section.

E) The location of fire extinguishers must be marked conspicuously.

5) EXTINGUISHER REQUIREMENTS FOR VEHICLES

Vehicle Type	Quantity	Minimum Requirements
Passenger Car	1	5 lb. with A:B:C or B:C rating
Half of ¾ ton pickup trucks and vans (w/o hydraulic equipment)	1	5 lb with A:B:C or B:C rating
1 ton or larger trucks (w/o hydraulic equipment)	1	10 lb with A:B:C rating
Trucks or vans with hydraulic equipment	1	10 lb. with A:B:C rating

A) Any COSA vehicle used to transport flammable materials or explosives will be equipped with two 10 lb. fire extinguishers with A:B:C: rating.

B) Extinguishers shall be securely mounted and conspicuously located where they are readily accessible and immediately available in the event of fire.

C) Extinguishers that are mounted in a compartment or bin shall be readily accessible with a "Fire Extinguisher: sign mounted on the outside bin door.

6) FIRE EXTINGUISHER INSPECTION LOG

A) Extinguishers are to be inspected when initially placed into service and monthly thereafter. The monthly periodic inspections of fire extinguishers are to include a check of the following items:

Inspection Date: _____	Yes	No
Located in designated place		
No obstruction to access or visibility		
Operating instructions on the extinguisher nameplate is legible and facing outwards		
Seals and tamper indicators are not broken or missing		
Pressure gauge reading or indicator in the operating range or charged position		
Determine fullness by weighting or "hefting"		
Examine unit for obvious physical damage, corrosion, leakage, clogged nozzle, or missing parts		
Department: _____ Inspector: _____		

B) Any extinguisher not in compliance with the above inspection criteria is to be taken out of service immediately and replaced with an extinguisher from the reserve supply that meets compliance.

C) Any extinguisher removed from service is to be sent to a fire extinguisher service company for applicable repairs and maintenance procedures. If the extinguisher cannot be repaired, it is to be removed from service and inventory.

D) If the defective extinguisher is a halogenated agent type, it is to be removed from service, not discharged, and returned either to the manufacturer or to fire equipment dealer permitted to recovery of the halon.

7) RECORDKEEPING

A) Records are to be kept on those extinguishers requiring corrective action. This information will be noted on the Fire Extinguisher Inspection Log.

B) Personnel making the extinguisher inspections are to record the date of the inspection and put their initials on the tag attached to the extinguisher. If any extinguisher is found without a tag, this should be noted on the log, the extinguisher removed from service, inspected by the fire equipment company, and a new tag placed on the extinguisher designating the date of the service company inspection.

Fire Extinguisher Inspection Log

LOCATION	EXTINGUISHER TYPE	DATE INSPECTED

SECTION 12 – FLAMMABLE AND COMBUSTIBLE LIQUIDS

1) GENERAL

A) This section covers the storage and transportation of flammable and combustible liquids.

B) Flammable and combustible liquids shall not be stored in:

i) Office areas;

ii) Utility rooms or mechanical rooms;

iii) Hallways or next to emergency exits;

iv) Rest rooms; or

v) Near heat or ignition sources.

C) Flammable and combustible liquids shall not be dispensed in portable containers unless the container is Factory Mutual or U.L. approval.

D) Flammable liquids shall never be dispensed into open containers.

E) Fire extinguishers shall be readily available during all fuel dispensing operations.

2) FUEL STORAGE TANKS (FIXED)

A) All permanent Class I, II, and III (gasoline/diesel or alternative fuels) storage tanks shall be installed in accordance with governmental federal, state and local regulations.

i) Vent outlets shall be equipped with a device to minimize the possibility of blockage from weather, dirt, insect nests, etc.

ii) Piping valves and fittings shall be installed as directed by American National Standard Series B31 "American National Standard Code for Pressure Piping" and National Fire Protection Association Code 30 "Flammable and Combustible Liquids."

iii) A clearly marked emergency shutoff shall be easily accessible and at least 20 feet but not more than 100 feet from the dispenser.

iv) A fire extinguisher shall be mounted within 30 feet of the dispenser.

v) All fuel product signs shall be color coded.

B) The following information shall be posted on or near the dispenser:

i) Dispenser operating instructions;

ii) Sign - "Shut Off Engine Before Fueling";

iii) Sign - "No Smoking within 50 Feet"; and

iv) Product label with correct material safety information.

3) PORTABLE FUEL TANKS

A) A portable fuel tank is a tank with a fuel capacity of not less than 60 U.S. gallons and not more than 66 U.S. gallons. Portable tanks are designed to move from job site to job site.

B) Portable tanks shall meet all specifications outlined in National Fire Protection Association Code 30 "Flammable and Combustible Liquids Code."

C) The following information shall be posted on portable tanks:

i) Dispenser operation instructions;

ii) Sign - "Shut Off Engine Before Fueling";

iii) Sign - "No Smoking within 50 Feet"; and

iv) Product label with correct material safety information

D) Overhead portable tanks shall have a dispensing hose nozzle that is of the automatic closing type without a latch open device.

E) A fire extinguisher shall be located within 30 feet of the portable tank.

4) CONTAINERS

A) Containers, drums, or safety cans shall be used to transport or store quantities of less than 60 gallons of flammable or combustible liquid.

B) Containers shall meet the following requirements:

i) Constructed of steel or other materials as outlined in the National Fire Protection Code 30 "Flammable and Combustible Liquids.";

ii) Have a maximum capacity of 60 gallons;

iii) One or more venting devices to limit internal pressure under fire exposure conditions;

iv) Equipped with transfer pump approved by Factory Mutual or U.L.;

v) The tank shall have the following signs on all four sides: "NO SMOKING WITHIN 50 FEET," "SHUT OFF ENGINE BEFORE FUELING," TYPE FUEL ("GASOLINE" OR "DIESEL."); and

vi) Product label with correct material safety information;

C) All containers shall be secured to the vehicle during transportation.

D) Drums containing flammable or combustible liquids may be used in a vertical or horizontal position. The following precautions shall be taken:

i) Drums used in the horizontal position shall be placed on a drum cradle. The drum shall be equipped with a Factory Mutual or U.L. approved self-closing faucet, drum vent, and antistatic (bonding) wire. A safety drip pan shall be placed on the floor under the faucet;

ii) Drums used in the vertical position shall have Factory Mutual or U.L. approved transfer pump, drum vent, and antistatic (bonding) wire; and

iii) The contents of the drum shall be clearly marked in a visible location on the drum, and contain all hazardous warning statements.

E) A safety can shall be used to store and transport small quantities of flammable or combustible liquids. A safety can shall:

i) Not exceed five gallon capacity;

ii) Have a spring closing lid and spout cover that acts as a safety relief vent; and

iii) Have product label with correct material safety information.

F) Only Type I and II safety cans are approved for use by the COSA.

Type 1 - A Type I can has only one opening. The opening is used for both filling of and dispensing from the container.

Type II - A Type II can has two openings, one that is used for filling the container and the other for dispensing.

SECTION 13 – MATERIAL STORAGE

1) GENERAL

A) This section covers material storage.

B) Flammable liquids and combustibles are covered in Section 12, Flammable and Combustible Liquids.

2) MATERIAL STORAGE

A) Stored materials shall be neatly stacked and easily accessible.

B) Materials shall have a minimum of 18" air space between the top of the stack and the ceiling.

C) Cardboard boxes, cartons, bags, etc., shall be stacked on pallets or platforms.

D) Stacked or stored materials shall not project into aisles.

E) Stacked materials shall be cross-stacked by placing one layer of material at right angles to the layer below.

F) When stacking bagged materials, the mouths of the bags shall be oriented toward the inside of the pile. Bags shall be cross-stacked to a maximum height of 5 feet.

3) HAND TRUCKS, DOLLIES, AND WHEELBARROWS

A) Types of hand trucks, dollies, and wheelbarrows include: two wheeled, flat, platform, refrigerator and appliance.

B) To decrease hazards to toes and feet, wheels shall be as far under the load being moved as practical.

C) Equipment shall be inspected before each use and kept in good repair. Axles shall be kept greased according to manufacturer's recommendations.

D) The type of truck most suitable for the work at hand shall be used.

E) Two wheel truck safety procedures that shall be followed:

i) Tip the load to be lifted forward slightly so that the tongue of the truck goes under the load;

ii) Push the truck all the way under the load to be moved;

iii) Keep the center of gravity of the load as low as possible. Place heavy objects below lighter objects. When loading trucks, loaders shall keep their feet clear of the wheels;

iv) Place the load so it will not slip, shift, or fall. Load only to a height that will allow a clear view ahead;

v) Place the load so it will not slip, shift, or fall. Load only to a height that will allow a clear view ahead;

vi) When a two wheel truck or wheelbarrow is loaded in a horizontal position, raise it to traveling position by lifting with the leg muscles and keeping the back straight. Observe the same principle in setting a loaded truck or wheelbarrow down. (See Lifting Section);

vii) Walk upstairs by facing the load and walking up backwards – get assistance for heavy loads;

viii) Walk downstairs by facing the load and walking forward – get assistance for heavy loads;

ix) Other than climbing upstairs, never walk backwards with a hand truck;

x) For extremely bulky items or pressurized items such as gas cylinders, strap or chain the item to the hand truck;

xi) When going down an incline, keep truck ahead, when going up an incline keep hand truck behind. (This applies to four –wheeled trucks.); and

xii) Move trucks at a safe speed. Do not run. Keep hand truck constantly under control.

F) Four wheel truck operations follows rules similar to those for a two wheel truck. Extra emphasis must be placed on proper loading. Four wheel trucks shall be evenly loaded to prevent tipping. Four wheel trucks must be pushed rather than pulled except for a truck that has a fifth wheel and a handle for pulling.

G) Trucks shall never be loaded so high that operators cannot see where they are going. If there are high backs on the truck, two employees shall move the vehicle, one guiding the front end, the other guiding the back end. Handles shall be placed at protected places on the racks or truck body so that passing traffic, walls, and other objects will not crush or scrape the operator's hands.

H) Truck contents shall be arranged so that they will not fall if the truck or the load is bumped.

SECTION 14 – PERSONAL PROTECTIVE EQUIPMENT

4) GENERAL

A) All employees shall wear clothing suitable for their particular type of work. Loose clothing shall not be worn while working around or near moving machinery or equipment.

B) All departmental approved special protective clothing or protective devices shall be used by employees when departmental supervisors or Risk Management require their use. Documentation of issue of PPE shall be completed and signed by supervisor and employee.

C) Clothing that is soiled by oil or chemicals should be avoided to prevent skin irritations.

D) When work is performed in the vicinity of exposed energized parts of equipment, employees shall remove all exposed conductive articles, such as key or watch chains, ring, wrist watches or bands, if such articles increase the hazards associated with inadvertent contact with the energized parts.

E) Rings or jewelry shall not be worn while climbing on or off structures or vehicles while performing any task where the ring might get caught under or snagged by a projecting item. In addition, rings and wristwatches with metal case and watchbands shall not be worn while working on or near energized equipment or lines.

F) Department approved gloves shall be provided to and worn by all employees when work-site operations could cause injury to the hands.

G) Gloves and long sleeves shall be provided to and worn by all employees when work site operation could cause injury to the hands or arms.

H) Department approved head protection shall be provided to and worn by employees when working in areas where possible danger or head injury exists, such as, contact impact, falling or flying objects, or from electrical shock and burns.

I) Employees shall wear department approved eye and face protection where injury exists from flying objects, glare, liquid splashes, weed eaters, edgers, chemicals, grinding, sandblasting, and welding. Eye protection shall be kept in a sanitary and usable condition and shall be replaced when it becomes warped, scratched, or pitted.

J) Department approved hearing conservation devices shall be provided to and worn by all employees working in areas where a danger of noise exposure exceeds acceptable levels.

K) Employees shall wear footwear suitable to the type of work being performed. Safety boots or shoes shall be worn when required. Wearing of sandals, thongs, tennis shoes,

loafers or similar footwear shall not be acceptable during working hours for employees serving in labor, maintenance, construction, or inspection positions.

L) Department approved life jackets or buoyant work vest shall be worn by all employees when working over or near where the danger of drowning exists.

M) Department approved respiratory protection shall be worn in areas where dangerous air contamination, chlorine, gasses, vapors, fumes, dust, or other hazardous contaminants exist.

N) Employees required to work in or near the roadway shall wear high visibility clothing, garments, or reflective vests.

O) Department approved fall protection devices, such as harnesses, lanyards, etc., is required to protect employees that need to work or accomplish tasks in elevated locations. Fall protection is also required to guard floor and wall openings and open-sided floors or platforms.

i) General Industry: In general industry fall protection is required at 4 feet. The 4 foot rule applies to walking and working surfaces and requires every open-sided floor or platform 4 feet or more above adjacent floor or ground level to be guarded. This requirement also applies to wall openings, window wall openings at a stairway landing, floor, platform, or balcony, from which there is a drop of more than 4 feet, and where the bottom of the opening is less than 3 feet above the platform or landing. Every chute wall opening from which there is a drop of more than 4 feet shall also be guarded.

ii) Construction: In the construction industry fall protection is required at 6 feet. The 6 foot rule applies to any situation where an employee could fall or contact dangerous equipment. Walking and working surfaces with unprotected sides or edges (horizontal or vertical) where an employee is working 6 feet or more above lower levels will be guarded or the employee otherwise protected from falling. This also applies to employees constructing a leading edge; working in a hoist area; working near an open hole in a floor (including skylights); and when working at the edge of an excavation, well, pit, or shaft. Employees working less than 6 feet from dangerous equipment must also be protected.

iii) Reinforcing Steel. An employee which could fall into protruding reinforcing steel (rebar) shall be protected to eliminate the hazard of impalement.

P) Protective clothing and equipment shall be used and maintained in accordance with manufacturer’s recommendations.

SECTION 15 – WORK GLOVES AND SAFETY SHOES PROGRAM

1) GENERAL

A) Personal protective equipment (PPE) shall be provided by COSA whenever the tasks employees are to perform have the potential for arm and hand injuries.

B) Employees must wear protective arm and hand apparel whenever arms or hand can be irritated/injured due to rough surfaces, sharp edges, toxic or corrosive chemicals, heat, cold, oils, particulate matter, power tools, and electrical hazards.

C) Arm and hand apparel that is torn, ruptured, swelled, cracked, or worn through shall be deemed as unserviceable and not be used and must be replaced immediately.

D) Gloves are not a substitute for engineering controls such as machine guards, proximity detectors or other perimeter guards.

E) Gloves should not be worn when working near moving equipment and machinery parts due to the possibility that the glove could get caught in the equipment and drag an employee's hand and arm into the moving machinery.

F) Barrier Creams may be used to protect skin against many irritants when the use of arm or hand apparel is not practical. Barrier creams may also be utilized to supplement arm and hand protection.

G) Example of glove and arm protection by task and hazard to be potentially encountered are:

i) Welders must wear protective flame resistant (leather) gloves for hand protection and leather sleeve guards, in order to protect hands, arms, and clothing from welding spatter, sparks, and hot metal contact;

ii) Employees performing abrasive blasting tasks shall wear heavy canvas or leather gloves; and

iii) Employees handling or using hazardous chemicals (toxic or corrosives) shall wear nitrile or neoprene rubber gloves that are impervious to the chemical being handled or used.

H) Arm protection (sleeve guards) apparel, if utilized, must be impervious to the chemical being handled or used.

I) Painters shall use rubber, nitrile, or disposable nitrile gloves.

J) Employees collecting samples of non-potable or potentially contaminated water shall wear disposable nitrile gloves.

K) Employees (electrical workers) that work on live electrical lines or equipment (Only when such lines or equipment can't be de-energized) shall:

i) Wear insulated rubber gloves conforming to ANSI Standard J6.6 and rubber insulating sleeve guards conforming to ANSI Standard J6.5; and

ii) Should wear (when practical) leather gloves over insulated rubber gloves in order to prevent the insulated gloves from being punctured or abraded when handling tools or rough objects.

L) Employees who do not handle hazardous chemical, shall wear leather gloves (may be of canvas and leather or cotton and leather) for handling sharp or rough objects.

M) When leather gloves are worn in performing tasks that will result in the gloves being saturated with fluids or sludge, then such employees shall wear disposable nitrile gloves (or their equivalent) inside the leather gloves.

N) Employees involved in the above mentioned tasks, whose arms may be immersed in the above named substances shall have arm protective apparel provided to them and these employees shall be required to wear the arm protection.

O) Employees who perform tasks such as mechanical, carpentry, custodial, warehousing, and plumbing will require gloves when fingers or hands have the potential to be cut, scratched, abraded, pinched, punctured, or burned. The type of glove selected shall afford protection from the potential hazards to be encountered.

P) Employees performing such tasks as auto mechanics shall be provided with, and shall use gloves, such as soft nitrile disposables or their equivalent, in order to protect their hands from used motor oil, greases, hydraulic fluids, solvents, freon and antifreeze.

Q) Whenever hand or arm protection apparel is selected for or provided to employees factors such as grip, dexterity, size and permeation must be considered.

R) Latex gloves should not be used due to potential allergic reactions.

2) SAFETY SHOES PROGRAM

A) This applies to all COSA employees who are engaged in such work that the wearing of safety shoes is required in the course of performing their job to prevent foot injuries.

B) Safety shoes are required for employees in certain classifications.

C) Each Division will be responsible for budgeting for and providing one (1) pair of safety shoes per year for their employees. Employees must wear proper safety shoes to ensure adequate foot protection in the workplace as directed by guidelines established in each work group.

D) Employees are responsible for the proper maintenance of their safety shoes. Lost or stolen safety shoes will not be replaced until the regularly scheduled issue period. If safety shoes are lost or stolen, employees' will be required to replace safety shoes at their own expense.

E) Manager and supervisors are responsible for ensuring that their employees comply with the safety shoe guidelines.

SECTION 16 – FALL PROTECTION AND PREVENTION

1) GENERAL

A) Personal protection equipment (PPE) shall be provided by COSA for employees performing elevated work assignments requiring the use of fall protection equipment.

B) Employees who are required to perform elevated work assignments may be required to wear appropriate fall protection/restraint equipment. When working at any level above ground level or when accessing work areas below ground, supervisors shall determine whether or not fall protection is required and the type. Specific requirements for the many types of fall protection systems are contained in 29 CFR 1926.500-503. The Risk Management Safety office should be contacted for assistance in determining which jobs require fall protection and what type.

C) Passive fall protection consists of components and systems that do not require any action on the worker's part. Passive fall protection systems include:

i) General all-purpose nets;

ii) Personnel nets; and

iii) Debris nets.

D) These devices have a wide range of applications. Once properly installed, passive fall protection can protect the individual 100% of the time. Criteria for the design, construction, testing and certification of such systems are presented in 29 CFR 1926.502(c).

E) Active fall protection is made up of components and systems that require some manipulation by the worker to make the protection effective. These systems include:

i) Body belts (The use of a body belt for fall arrest is prohibited. However, a body belt in a positioning device system is acceptable.);

ii) Harnesses;

iii) 6-foot lanyards and their attachments;

iv) Component parts;

v) Lifelines; and

vi) Fall arresters and shock absorbers.

F) Many different kinds of passive and active fall protection systems are available. Choosing the one best suited to a particular task requires planning, forethought and an understanding of the systems available. A complete analysis is required to determine the fall protection system needed.

G) The first factor to consider in selecting a fall protection system is the height at which the worker will be performing the task. Ensure that the length of the lanyard does not exceed the height of the fall.

H) Analyze the job site and specific task to be done. If the job requires working vertically, a different configuration or even a different system will be needed than if the worker must move laterally.

I) Other factors, including rescue methods, back-up systems, length of time at workstations, dryness or wetness of conditions, number of workers needed on the job site, and environmental factors needed to be taken into account.

J) Requirements relating to fall protection for employees varies depending on the walking/working surface. Some general rules and practices are:

i) Anchor/anchorage points – the anchorage point is the position on an independent structure to which the lanyard is securely attached. Supervisors and workers must analyze all hazards below and to the side of the anchoring point to ensure that a falling worker does not strike or swing into any obstacles. The strength, location, and design must allow the worker enough mobility to perform the job. Anchorage points for positioning devices shall be capable of supporting at least twice the potential impact load of an employee's fall or 3000 lbs., whichever is greater. Anchorage points for lanyards and lifelines shall be capable of a sustained load of 5000 lbs. per person;

ii) Each employee who might be exposed to fall hazards shall be trained to recognize the hazards of falling and the procedures to be followed to minimize these hazards. The OSHA Construction Standard, 29 CFR 1926.503, is very specific about the training program elements and training certification for employees who might be exposed to fall hazards in construction activities; and

iii) Personal fall arrest systems (belts, harnesses, and lanyards) shall be inspected prior to each use. Look for wear, abrasions, cuts or frays, heat damage, stitching damage in sewn seams, soiled with petroleum based liquid, deformed D-rings or hooks, etc. If any of these items are found, the fall arrest system should be deemed unserviceable and replaced.

K) "Roof" means the exterior surface on the top of a building. This does not include floors or form work, which because a building has not been completed, temporarily becoming the top surface of a building. "Roofing work" means the hoisting, storage, application,

and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.

L) Specific design requirements for fall protection systems employed in roofing work are presented in 29 CFR 1926.500-503. These design requirements not only specify the materials to be used in building the fall protection systems, but also how the systems are to be erected and secured. Some of the general requirements are presented below.

i) Roofing work on low-slope roofs. "Low-slope roof" means a roof having a slope less than or equal to 4 in 12 (vertical to horizontal). Each employee engaged in roofing activities on low-slope roofs with unprotected sides and edges 6 feet or more above lower levels shall be protected from falling by one or more of the following:

(a) Guardrail systems;

(b) Safety net systems;

(c) Personal fall arrest systems;

(d) A combination of warning line system and guardrail system;

(e) Warning line system and safety net system;

(f) Warning line system and personal fall arrest system; and

(g) Warning line system and safety monitoring system.

M) On roofs 50 feet or less in width, the use of a safety monitoring system alone (i.e., without the warning line system) is permitted.

2) STEEP ROOF WORK

A) "Steep roof" means a roof having a slope greater than 4 in 12 (vertical to horizontal). Each employee on a steep roof with unprotected sides and edges 6 feet or more above lower levels shall be protected from falling by:

i) Guardrail systems with toe boards;

ii) Safety net systems; or

iii) Personal fall arrest systems.

B) Warning Line Systems shall be erected around all sides of the roof work area.

i) When mechanical equipment is not being used, the warning line shall be erected not less than 6 feet from the roof edge.

ii) When mechanical equipment is being used, the warning line shall be erected not less than 6 feet from the roof edge that is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge, which is perpendicular to the direction of mechanical equipment operation.

C) Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines.

D) When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line shall be placed across the path at the point where the path intersects the warning line erected around the work area, or the path shall be offset such that a person cannot walk directly into the work area.

E) No employee shall be allowed in the area between a roof edge and a warning line, unless the employee is performing roofing work in that area.

F) Warning lines shall consist of ropes, wires, or chains, and supporting stanchions erected as follows:

i) The rope, wire, or chain shall be flagged at not more than 6-foot intervals with high visibility material;

ii) The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is more than 39 inches from the walking/working surface;

iii) After being erected, with the rope, wire or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge;

iv) The rope, wire or chain shall have a minimum tensile strength of 500 pounds, and, after being attached to the stanchions, shall be capable of supporting, without breaking, the loads applied to the stanchions as specified above; and

v) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

3) SAFETY MONITORING SYSTEMS

A) A competent person shall be designated to monitor the safety of other employees.

B) The safety monitor shall be competent to recognize fall hazards.

C) The safety monitor shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.

D) The safety monitor shall be on the same walking/working surface and within visual sighting distance of the employee being monitored.

E) The safety monitor shall be close enough to communicate orally with the employee.

F) The safety monitor shall not have other responsibilities that could take the monitor's attention away from the monitoring function.

G) Mechanical equipment shall not be used or stored in areas where safety-monitoring systems are being used to monitor employees engaged in roofing operations on low-slope roofs.

H) No employee, other than an employee engaged in roofing work (on low-sloped roofs) or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

4) MATERIAL AND EQUIPMENT

A) Material and equipment shall not be stored within 6 feet of a roof edge, unless guardrails are erected at the edge.

SECTION 17 – HEAD GEAR

1) GENERAL

A) Personal protective equipment (PPE) shall be provided by COSA for employees requiring the use of head protective gear.

B) This section covers the description, use and care of safety headgear.

C) Headgear will be issued by supervision on an as needed basis.

D) Safety headgear is designed to act as both a shield and a shock absorber to protect against head injuries. Headgear is also designed to provide protection against electrically energized objects.

E) The use of safety headgear in no way reduces the need for good job planning or the requirements for observing the precautions outlined in other sections of this manual.

F) Never alter or modify the shell or suspension of safety headgear.

G) Safety headgear is designed to give dependable service, provided it is properly cared for. Regardless of how often it is used, the employee shall check for cuts, cracks, frayed straps, and other signs of deterioration. If wear is detected, it shall be reported to supervisor. The suspension or shell shall be replaced immediately and the defective part removed from service.

2) DESCRIPTION

A) Head protection must be certified as meeting the requirements of ANSI Z89.2-1971 Safety Requirements for Industrial Protective Helmets for Electrical Workers Class.

B) This headgear consists of a molded high impact plastic shell equipped with detachable suspensions which are adjustable to different head sizes.

C) The following decals are authorized for use on safety headgear:

i) COSA logo centered on the front of the cap;

ii) Name tag, employee name may be placed below the COSA logo; and

iii) Special purpose decals approved by COSA for special recognition or identification purposes.

D) The suspension for the safety headgear consists of a detachable sweat band and strap cradle assembly. The strap cradle assembly is a double strap arrangement that allows

adjustment and ensures proper clearance between the top of the head and the inside of the cap crown.

E) Winter liners for the safety headgear are available as an accessory item. The winter liner shall be worn only with the suspension over or above the liner.

3) USE

A) Safety headgear shall be worn by all personnel engaged or observing construction, outside maintenance, or repair work where head injuries could result.

B) The following are common work operations and conditions under which safety headgear shall be worn:

i) Performing installation or repair work from aerial lifts or truck mounted ladders or buckets;

ii) Working in the vicinity of construction apparatus and equipment such as, earth boring machines, tractors, and trenchers;

iii) When working in any area or enclosure where head room is insufficient such as crawl space, cellars, and excavations;

iv) When standing below work that is being done aloft or when performing overhead work from the ground such as pruning trees;

v) Entering, leaving, and working in manholes or catch basins;

vi) Working in trenches, pits, or other excavations of three foot or more in depth;

vii) When in or near buildings under construction or demolition;

viii) When on any premises where the wearing of head protection is mandatory;

ix) Working on glass crushing, balers, shredders, and tub grinders; and

x) Any other work situation deemed suitable by the supervisor.

4) CARE

A) Safety headgear shall be stored where it will not be damaged by other tools.

B) Do not store headgear or anything else on the rear shelf of a vehicle in case of a collision or a sudden stop. The headgear could cause serious injuries to the driver or passengers.

C) Safety headgear shall be cleaned by washing with soap or mild detergent and water. To clean, remove the suspension and dip the crown in clear warm water and wipe dry. The suspension shall be washed with regular soap and water.

D) Safety headgear shall be replaced when:

i) Cap receives a severe blow;

ii) Becomes cracked (to include hairline cracks), punctured, or otherwise damaged; or

iii) When deemed unsuitable to use by the supervisor.

E) Do not use paints, solvents, chemicals, adhesives, gasoline, or similar substances on safety headgear. If such substances are applied or come in contact with the helmet, the impact resistance and other safety properties of the helmet may be destroyed. Report any such use to the supervisor.

F) No holes or accessories shall be added to the headgear.

G) When chin straps or liners are used, the straps shall not be drawn over the brim or peaks as this will reduce the electrical protection provided by the headgear.

SECTION 18 – EYE PROTECTION

1) GENERAL

A) This section covers the description of nonprescription industrial eye protection used in the performance of any work operation involving hazards to the eyes.

B) All eye protective devices must be certified as meeting requirements of the American National Standards Institute (ANSI) Z87.1-1968.

C) Personal protective equipment (PPE), protective eyeglasses shall be provided by COSA for employee requiring eye protection..

D) Each employee will be responsible for the care of the safety eye protection assigned to him/her. The glasses will be stored in a suitable manner when not in use.

2) EYE PROTECTION – DEFINED

A) "General" protection consists of frontal eye protection against flying or moving objects.

B) "Special" protection consists of side as well as frontal eye protection against flying or moving objects. This classification does not include protection against irritating solutions.

C) "Splash proof" protection consists of indirect ventilated goggles or a face shield providing frontal and side protection against flying objects and irritating solutions.

D) "Protection from injurious light radiation" consists of tinted lenses such as required by welders.

E) "Chemical goggles" protect from dry chemicals and chemicals dusts from entering the eyes.

3) USE OF EYE PROTECTION

A) Eye protection must be worn by all personnel when they are performing, observing, or supervising a work operation, and there is any possibility of injury to the eyes that could be prevented by such protection.

B) Eye protection is required when performing or observing at close range the following work operations:

i) Drilling or chipping stone, brick, or masonry, breaking concrete or pavement, etc, by heavy hand tools (sledgehammer, etc.) or power tools such as pneumatic drills or hammers;

ii) Working on or around grinding wheels;

iii) Cutting or chipping ducts, tiles, or galvanized bolts;

iv) Working on or under motor vehicles;

v) Cleaning operations using compressed air, steam, or sandblast;

vi) Welding or similar operations where harmful radiation is emitted or sparks are thrown off;

vii) Using powder activated stud drivers;

viii) Any operation involving cutting or handling wires and cables, or cutting bolts or other small metal objects;

ix) Tree pruning or working among tree branches or underbrush, including hauling and burning of tree limbs or brush;

x) Using circular saws, chain saws, lawnmowers, and weed eaters;

xi) Using glass crushers, balers, shredders, and tub grinders;

xii) When drilling in stone, brick, concrete, etc., with hand or power tools;

xiii) Working or observing near workmen who are driving nails, lags screws, or other hardware;

xiv) Inspecting or repairing faulty electrical circuits;

xv) Chipping metal with small tools;

xvi) When handling scrap wire or materials;

xvii) During the use of compressed gases;

xviii) In any circumstance where there is a potential for objects or debris to be propelled or ejected from a tool or work area;

xix) In environments where there is potential exposure to injurious light radiation;

xx) In environments where there is potential exposure to liquid chemicals, acid and/or caustic liquids, chemical gases or vapors;

xxi) Employees, who wear prescription lenses while engaged in tasks that involve eye hazards, shall be provided eye protection that can be worn over their prescription lenses without disturbing the proper position of the prescription lenses; and

xxii) When performing any operation deemed to require eye protection by supervisor.

C) Splash proof eye protection: a face shield is required when performing or observing the following work operations:

i) Handling batteries containing acid;

ii) Handling battery cell liquid solutions;

iii) Handling any liquid caustic chemical; or

iv) Handling hazardous liquids.

4) CARE AND REPLACEMENT

A) Safety eye protection shall be stored in the appropriate manner protecting the glasses from damage.

B) Dirty lenses shall be cleaned by washing with soap and water.

C) Replacement glasses shall be obtained from supervisors.

SECTION 19 – EYE WASH AND EMERGENCY SHOWERS

1) GENERAL

A) This section describes COSA policy for eye wash stations and emergency showers for use in areas where the eye or body may be exposed to injurious materials.

B) Placement of eye wash stations and emergency showers is critical. They must be easily accessible and near the area where exposure is likely.

C) Do not delay irrigation of the eyes, chemical burns to the eye must be treated promptly. Repeated flooding of the eye with water within seconds after contact with a chemical is the most effective way of preventing permanent damage. If the victim can reach an eye wash station within 10 to 15 seconds, chances of recovery with no permanent damage to the eyes are excellent. If victim is using another source of water to rinse eye, such as a water bottle, ensure the eye affected is facing down when water is poured over it to avoid contaminating the other eye.

D) It is impossible to use too much water. Generally, the recommended MINIMUM irrigation time for the eyes is 15 to 30 minutes. If the presence of a chemical is uncertain, it is better to irrigate longer than might be necessary rather than irrigate inadequately and risk permanent damage.

E) Seek medical attention.

2) EYE WASH FOUNTAINS

A) Eye wash fountains and emergency showers shall be installed and functional in all facilities where caustic, corrosive or hazardous materials are stored or used.

B) Eye wash fountains and emergency showers shall be installed and functional in all areas used for battery charging or storage.

C) Eye wash fountains shall:

i) Have nozzles located 33 to 45 inches above the floor;

ii) Have a manual “stay open” push bar or foot operated control;

iii) Have incoming water line that is at least ¾ inch IPS and carry at least 30 psi but no more than 90 psi during operation;

iv) Be connected to a drain by code approved method to facilitate easy testing;

v) Be easily accessible within 10 seconds from the potential hazard area;

vi) Provide equivalent water pressure and water volume from each nozzle;

vii) Be identified with a highly visible sign; and

viii) Have a dust cover to protect the nozzles from contamination.

D) Eye wash fountains shall be inspected by a supervisor/competent personnel or designated representative weekly or at more frequent intervals when circumstances require to ensure that they are working properly and to detect any physical damage corrosion or other impairments. Check to see that:

i) There are no defective or leaking valves or clogged orifices or other defects;

ii) The flushing streams rise to approximately equal heights and that the water will wash the eyes and face at a velocity low enough not to be injurious to the user;

iii) Control valve shall easily open and remain open without requiring the operator to hold it open;

iv) The drain works properly;

v) The eye wash is clean; and

vi) Date and results of inspections shall be recorded.

3) EMERGENCY SHOWERS

A) Overhead deluge or multiple emergency showers may be installed in conjunction with permanent eye wash fountains.

B) The installation of emergency showers does not eliminate the need for eyewash fountains.

C) Emergency showers shall:

i) Have the highest head located 82 to 92 inches above the floor;

ii) Have a manual stay open valve with easily locatable pull rod triangular handle;

iii) Have incoming water line that is at least 1 – ¼ inch IPS and carry at least 30 gallons per minute at 30 psi during operation;

iv) Be connected to a drain by code approved method;

v) Be easily accessible within 10 seconds from the potential hazard area; and

vi) Be identified with a highly visible sign.

D) Emergency showers shall be inspected by a supervisor/competent personnel or designated representative weekly or at more frequent intervals when circumstances require to ensure they are working properly and to detect any obvious physical damage, corrosion or other impairment. Check to see that:

i) There are no defective or leaking valves or clogged orifices or other defects;

ii) The shower steam shall form a 20 inch diameter pattern 60 inches above the floor;

iii) The control valve shall easily open and remain open without requiring the operator to hold it open;

iv) The drain works properly;

v) The emergency shower is clean; and

vi) Date and results of inspection shall be recorded.

4) EYEWASH BOTTLE

A) When a normal potable water source is not available, portable eyewash bottles containing one of the following agents may be used:

i) Sealed unexpired water rinse;

ii) Sealed unexpired neutralizing rinse; and

iii) Sealed distilled water.

B) Eye wash bottles shall be easily accessible within 10 seconds from the potential hazard area.

C) Eye wash bottles shall be inspected by a supervisor or designated representative monthly, to ensure:

i) The bottle is full;

ii) The bottle and contents are free of defects and contaminants;

iii) The bottle is not due for refill or replacement; and

iv) The solution is not expired.

D) Sealed eye wash bottles shall be replaced in accordance with manufacturer's recommendations.

5) PORTABLE EYEWASH FOUNTAINS

A) Portable eye wash fountains are approved only for use in facilities that do not have normal potable water sources.

B) The approved portable eye wash fountain is a 16 gallon polyethylene gravity fed type.

C) Portable eye wash fountains shall:

i) Have nozzles located 33 to 45 inches above the floor;

ii) Be connected to a drain by code approved method or connected to a noncorrosive container having a capacity of least 16 gallons;

iii) Be easily accessible from the potential hazard area;

iv) Provide equivalent water pressure and water volume from each nozzle;

v) Be identified by a highly visible sign;

vi) Have a dust cover to protect the nozzle heads from contamination; and

vii) Shall be filled with water mixed with nontoxic methyplarabin additive to prevent the formation of bacteria in the water.

D) Portable eye wash fountains shall be empty, cleaned, and refilled annually.

E) Portable eye wash fountains shall be inspected by a supervisor/ competent personnel or designated representative monthly for obvious defects or damage and to ensure the unit is full check to see that:

i) There are no defective or leaking valves or clogged orifices or other defects;

ii) The unit is clean;

iii) The retainer strap easily removes to activate the unit; and

iv) The drain works properly;

F) Date, initials of inspector, and results of inspection shall be recorded.

SECTION 20 – HEARING PROTECTION AND CONSERVATION

1) GENERAL

A) Employees who are exposed to an 8-hour time-weighted average (TWA) of 85 decibels (dB) or greater shall wear hearing protection provided by COSA. The following are acceptable types of personal protection equipment for hearing protection:

i) Reusable pre-shaped ear plugs with cord;

ii) Pre-shaped foam ear plugs with cord;

iii) Reusable air pocket ear plugs with cord;

iv) Ear canal block pads with head band; or

v) Vinyl cushion ear muff with head band

B) Excessive noise can be a problem. Whenever the 8 hour time-weighted average of 85 decibels is exceeded or is expected to exceed, a hearing conservation program should be implemented.

C) Objectives of the Hearing Conservation Program are:

i) Evaluation of noise exposures and classification of operations as to level of exposure and degree of hazard;

ii) Control hazardous noise exposures by engineering measures where feasible;

iii) Consideration of elimination or reduction of noise exposure in the planning of new operations and the purchase of new equipment or machinery; and

iv) Use of personal hearing protective devices such as earplugs or muffs wherever the noise cannot be adequately controlled by administrative or engineering measures.

D) The wearing of approved ear protection is mandatory in certain areas, while operating power tools and mobile equipment. Your supervisor and Risk Management staff will assist in identifying high noise areas and insuring that the proper hearing protection is provided.

E) CoSA also recommends that employees wear proper hearing protection when they are exposed to excessive sound levels away from work, such as when operating power tools, electric edgers, blowers, lawn mowers, or any other machinery or equipment that may exceed the 85 decibel level.

F) Read and follow the instructions! They could help save your hearing:

i) Approved ear plugs and ear muffs are designed to limit unwanted and harmful noise from your eardrum and inner ear. You should still hear another person talking if they are close by, or the muffled sounds of equipment and machinery;

ii) To insert an ear plug, reach over the head and pull your ear lobe up and out to straighten the ear canal;

iii) If the plug is manufactured of a foam like material, simply roll it to a small crease free cylinder shape then push the plug gently into the ear canal and hold it until the plug expands to the shape of your ear canal;

iv) Other plug designs allow them to be held by their stems or cord. Push and twist the plug carefully into the ear canal until a seal is obtained. The connecting plug cord may be worn under the chin or behind the neck;

v) After each day's use, clean your ear plugs with soap and water, rinse well and dry; and

vi) Store your ear plugs in the plastic case provided or in a clean "zip lock" style bag.

2) MONITIORING

A) The Safety Team will assist department directors and supervisors in determining if any employee's exposure equals the recommended noise levels. This determination shall be based on all information, observations, or calculations which indicate that employee noise exposure may be at or above that level.

B) When information provided by the supervisor or through other information or observation indicates that an employee's exposure may equal the recommended levels, the Safety Team shall assist in obtaining noise abatement measures as described in 1. C above.

SECTION 21 – EXTREME CLIMATE EXPOSURES

1) GENERAL – COLD ENVIRONMENTS

A) This section describes hazards of working in cold environments, measures to prevent over exposure and first aid for frostbite and hypothermia.

B) Under certain conditions, frostbite and hypothermia can occur at any time. Both of these injuries are a result of over exposure to cold. The effects and symptoms are not obvious until a danger point has been reached.

C) Hypothermia develops outdoors in air temperatures between 30 degrees and 55 degrees Fahrenheit, but Hypothermia also can occur in room temperatures up to 65 degrees Fahrenheit.

2) PREVENTING HYPOTHERMIA

A) Avoid prolonged exposure to cold without suitable protective clothes.

B) Wear adequate clothing protecting critical body areas such as the head, neck, sides of the chest, and groin. Several layers of clothing give an insulating effect. Clothing made of wool, sheepskin or fluffy wool down increases insulation.

C) Get the victim to medical help immediately. If medical help is not available, first get the victim out of the cold area which may include wind, snow, or rain; keep energy use to a minimum, keep the person awake.

D) Remove all wet clothing. Warm the victim enough to cause them to adjust to the warmer environment. Put the person into dry clothes and a blanket. If possible, increase the room temperature.

E) It is important for all victims of hypothermia to be checked by a physician as soon as possible, the effects of the cold may cause other injuries.

F) Give the victim a warm, non-alcoholic drink. Alcohol dilates the blood vessels near the skin surface which increases heat loss and lowers body temperature.

3) PREVENTING FROSTBITE

A) Wear several layers of loose fitting clothing. Layers of clothing allow air in between layers to warm keeping the body warmer longer. Do not wear tight clothing which may cause sweating. Sweating will begin to cool and make the body colder lowering body temperature.

B) If the outdoor temperature is freezing, protect the feet with two pairs of wool stockings or one pair of wool and one pair of cotton.

C) Wear lined gloves.

D) Replace wet garments immediately.

E) Do not use alcohol as internal antifreeze. Alcohol hastens the loss of body heat.

F) Cigarette smoking constricts the blood vessels and limits the blood supply to arms and legs, increasing susceptibility to frostbite.

4) TREATING FROSTBITE

A) Protect the affected area from further injury, warm it quickly, and maintain respiration.

B) Bring the victim indoors as soon as possible and cover with blankets or extra clothing.

C) Give the victim a warm nonalcoholic drink. Alcohol dilates the blood vessels near the skin surface which increases heat loss and lowers body temperature.

D) Place the frostbitten area in lukewarm (never hot) water. Water shall be slightly above normal body temperature (100 degrees to 105 degrees F). If warm water is not available or practical to use, warm the affected area gently in a sheet or warm blanket. Never apply a heat lamp or hot water bottle.

E) Never rub the affected areas, rubbing further damages the injured tissues.

F) Once the affected area is warm again, stop the warming process and have the victim exercise the area. If the feet are involved, do not allow the victim to walk after the affected part thaws.

G) If fingers or toes are involved, place dry sterile gauze between them to keep them apart.

H) Give fluids. Add one level teaspoon of salt and one-half teaspoon of baking soda to each quart of lukewarm water or mix two pinches of salt and one pinch of baking soda in glass of water.

I) Obtain medical assistance as soon as possible.

5) GENERAL - HOT ENVIRONMENTS

A) This section describes the hazards faced when working in hot environments, measures to take to prevent over exposure and first aid for heat related problems.

B) Heat loss from increased skin blood circulation is the usual method of maintaining a constant body temperature. As environmental temperatures approach normal skin

temperature, the job of cooling the body becomes more difficult. However, if this is not adequate, the brain continues to sense overheating and signals the sweat glands in the skin to shift large quantities of fluid in the form of perspiration.

C) An employee's ability to perform is affected by working in hot environments. Strength declines and the onset of fatigue sooner than it would otherwise. Employees who must perform delicate or detailed work may find their accuracy suffering. Those who must gather and process information may experience a decrease in their comprehension and retention skills..

6) HEAT STROKE

A) Heat stroke is the most serious health problem caused by working in hot environments. It occurs when the human heat regulation system simply breaks down under the stress and sweating stops. There may be little warning to the victim that a crisis stage has been reached.

B) A heat stroke victim's skin is hot, dry, and usually red or spotted. Body temperature is 105 degrees F. or higher and rising. The victim is mentally confused, sometimes delirious, and may experience convulsions, or become unconscious. Unless the victim receives quick and adequate treatment, death can occur.

C) An ambulance and medical assistance shall be summoned IMMEDIATELY. Remove the victim to a cool area, thoroughly soak clothes with water, and fan the body vigorously to increase cooling. Early recognition and treatment of heatstroke is the only means of preventing permanent brain damage or death.

7) HEAT EXHAUSTION

A) Heat exhaustion includes several clinical disorders all of which have similar symptoms. The worker with heat exhaustion still sweats but experiences extreme weakness or fatigue, giddiness, nausea, or headache. In most serious cases, the victim may vomit or lose consciousness. The skin is clammy and moist, complexion is pale or flushed, and body temperature is normal or slightly higher than normal.

B) In most cases, treatment is simple. Have the victim rest in a cool place and give plenty of lightly salted liquids. Mild cases may result in spontaneous recovery with this treatment. Severe cases may require care for several days. There are no known permanent effects. CAUTION – PERSONS WITH HEART PROBLEMS OR THOSE ON A "LOW SODIUM DIET" – CONSULT A PHYSICIAN ON TREATMENT UNDER THESE CONDITIONS.

8) HEAT CRAMPS

A) Heat cramps are painful spasms of working muscles. Loss of fluids and salts may produce these painful muscle cramps. The affected muscles could be part of the arm, leg,

or abdomen; but tired muscles are usually the ones most susceptible to cramps. This condition can be prevented by adequate intake of fluids and salts in the diet. CAUTION – PERSONS WITH HEART PROBLEMS OR THOSE ON A "LOW SODIUM DIET" SHOULD CONSULT A PHYSICAIAN ON WHAT TO DO UNDER THESES CONDITIONS.

9) HEAT RASH

A) Heat rash, also known as prickly heat, is likely to occur in hot and humid environments where sweat is not easily removed from the surface of the skin by evaporation. The sweat ducts become plugged, the sweat glands become inflamed and a rash appears. This condition can be prevented by occasionally resting in a cool place.

10) PREPARING FOR THE HEAT

A) Generally, humans are capable of adjusting to the heat. This adjustment to heat under normal circumstances will take about a week. During this time, the body will undergo a series of changes that make further heat exposure more endurable.

B) Gradual exposure gives the body time to adjust to higher environmental temperatures. On the first day of work in a hot environment, body temperature, pulse rate, and general discomfort and stress will be higher. With each succeeding daily exposure, these will gradually decrease to normal levels.

C) Employees shall take care and be aware of the causes, symptoms, and treatment for heat related disorders. The affects of heat exposure depend on how well the individual is conditioned for hot environments.

11) HYDRATING

A) In the course of a day's work in the heat, a worker may sweat away as much as three gallons of fluid. Because heat disorders are caused mainly by dehydration, it is essential that water intake during the workday be about equal to the amount of sweat produced.

B) Most workers drink less fluid than they should because thirst is an inadequate drive to stimulate the proper intake. Employees shall not depend on thirst to signal when and how much to drink, instead the employees shall drink fluids every 15 to 20 minutes (more often if necessary to satisfy thirst).

C) There is no ideal temperature for drinking water, but most people tend not to drink warm fluids as readily as they will cool ones. Whatever the temperature of the water, it must be palatable and convenient to the work area.

D) Though many people think that dehydration only occurs during hot months, this is a myth. Dehydration also occurs during cold months and hydration should be practiced during these months as well.

E) When practicing hydration, water is the best liquid to replace fluids your body has lost. Though there are other liquids that may help you replace electrolytes like Gatorade and other sports drinks, they are still no substitute for water. Gatorade and sports drinks are good as long as you drink them in moderation. However, if all you drink is sports drinks, it becomes counter-productive due to the fact that it becomes a diuretic. Sodas and other drinks with caffeine should be avoided as they only make you thirstier and have no hydration value. Water is the best fluid to drink for hydration.

F) All employees lose salt in their sweat. In extreme cases, loss of salt can cause additional health problems for employees exposed to hot environments for long periods of time.

12) SPECIAL CONSIDERATIONS DURING PROLONGED HEAT SPELLS

A) As with any safety or health hazard, the key to preventing excessive heat stress is the employer's and the employee's awareness that the hazard exists and that the implementation of proper safety measures can serve to prevent injuries and illnesses on the job. COSA departments shall give employees the opportunity to allow their bodies to adjust to the heat and to drink sufficient water to cope with the stress.

B) The most stressful tasks shall be performed during the cooler parts of the day (early morning or at night). Rest periods should be extended in accordance with the increase of heat. If a stressful task must be performed during the heat of the day, it should be shared with co-workers in a rotating fashion (shifts) to allow rest and hydration every 10 to 15 minutes. Co-workers should keep an eye on each other to ensure that sweating is occurring during these periods.

SECTION 22 – ERGONOMICS

1) GENERAL

A) Ergonomics is the science of fitting workplace conditions and job demands to the capabilities of the working population. Ergonomic considerations include improper arrangement of office furniture and equipment, repetitive activities, poor work postures, lighting, ventilation, fatigue and stress. These factors unaddressed can lead to short and long term health problems such as lower back strain, carpal tunnel syndrome, neck ache/strain, and eyestrain.

B) A number of elements can be included in an effective ergonomics program:

i) An ergonomics team consisting of employees and management to provide feedback on problem areas and to work on ergonomic projects;

ii) A Job Safety Analysis (JSA) or Job Hazard Analysis (JHA), a technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between the worker, the task, the tools, and the work environment. Ideally, after you identify uncontrolled hazards, you will take steps to eliminate or reduce them to an acceptable risk level;

iii) Redesign of the job;

iv) Periodic workplace surveys;

v) Training affected personnel to recognize and report symptoms;

vi) Monitoring/feedback and revisions;

vii) On-site exercise programs; and

viii) Budget necessary to complete team recommendations and redesigns.

2) WORK STATIONS

A) Chairs should be easily adjustable and provide good lumbar support. If feet cannot rest firmly on the ground, a footrest may be provided. Chairs with a five-point base are recommended due to the stability that is provided.

B) Sufficient leg room must be allowed for seated operators.

C) Position the monitor directly in front of the operator. The operator's eyes should be level with the top of the screen. The viewing distance between the user's eyes and the screen

should be approximately 16 to 22 inches. The operators' shoulders should always be square to the keyboard and monitor.

D) The equipment or sources of light should be positioned so that glare or bright reflections on the display screen are minimized or a glare screen may be used

E) Adjust the height of the chair and /or keyboard so that the shoulder-elbow-arm angle is approximately 70-90 degrees.

F) Keyboard heights and placement should be adjustable. Operators' wrist should be level with no deviation when typing and no part of the wrist or arm should be making contact with any surface.

G) Work surface heights should range from 23 to 28 inches for seated work station. In addition, your work area should be well organized with routine operations within easy reach and easily accessible. When reaching for any item on desktop the arm should never be fully extended. It should have a bend at the elbow reducing strain to the shoulder.

H) Document holders should be placed adjacent to and at the same height as the display screen.

I) Operators should adjust positions frequently and get up and move around to help avoid fatigue. Micro-breaks should be taken at least once every 30 minutes to maintain proper circulation to extremities.

J) Display on screen should use a foreground and background that has a good contrast. This will help reduce eyestrain and make screen easier to read.

K) When answering the phone, you should never cradle the phone between your shoulder and chin.

3) LIGHTING, NOISE AND HEAT

A) Adequate but not excessive heat should be provided. It should be noted that space heaters should not be utilized under a desk. A three foot clearance should be surrounding space heaters when used.

B) Windows should be equipped with adjustable blinds.

C) Use task lighting where extra illumination is required.

D) Noise above 85 to 90 decibels (dB) for a prolonged period of time may be harmful to workers. When exposed to high noise levels, employees shall utilize hearing protection.

E) Whenever possible, isolate noisy machines and equipment in a remote location.

F) Tailor work practices to prevent heat/cold-related disorders. Employees exposed to extreme environments must know the appropriate medical steps to counteract potentially life threatening situations such as hypothermia, heat stroke, heat exhaustion, and heat cramps.

4) SITTING / STANDING

A) Sitting can be twice as hard on your back as standing. Good sitting requires good support to your lumbar region as well as good posture

B) You should never sit on your legs as it decreases blood circulation.

C) When sitting do not lean your forearms or elbows on armrest or any hard surface.

D) If standing for long periods of time on a hard surface such as cement, a (bubbled) rubber mat or some type of cushion should be placed on floor to stand on to decrease pressure to feet and legs.

5) TWISTING

A) The biggest danger to your back is twisting. Instead of twisting, use your feet to pivot. This will turn your whole body and not twist your back.

B) When lifting or carrying a heavy item, be sure to turn your feet and face direction you will be traveling before walking in that direction.

SECTION 23 – BACK SAFETY AND PROPER LIFTING

1) GENERAL

A) The Occupational Safety and Health Administration (OSHA) has called back injuries the nation's number one workplace safety problem. Many back injuries are extremely painful and can result in long-term disability or loss of work. Medical bills incurred by back injuries can be very expensive. Fortunately, many spinal injuries are avoidable.

B) This section will help you prevent back injury by showing you:

i) How your back works;

ii) How to lift and carry materials safely;

iii) Lifting incorrectly is a major cause of both office and industrial injuries. This section covers how to lift objects without injury; and

iv) Physical differences that make it impractical to set up safe lifting limits for all employees.

2) HOW YOUR BACK WORKS

A) Parts of the spine are as follows:

i) Spinal Cord;

ii) Vertebrae, which support the body and protect the spinal cord;

iii) Discs act as shock absorbers between each pair of vertebrae; and

iv) Muscles, ligaments and tendons help strengthen the body's core.

3) LIFTING – THE "NINE RULES"

A) Planning your lift should include the following:

i) Don't lift until you ask yourself: "Can I lift this load safely by myself?" Check for a clear path and test the load to determine about how heavy it is;

ii) Ask for Help, if deemed necessary;

iii) If the load it too heavy, bulky or awkward for you to lift alone, ask for help. Divide the load and make several trips if required;

iv) Get a Firm Footing;

v) Place your feet apart (approximately shoulder width) with one foot slightly ahead of the other to create a firm base. Point your toes slightly outward;

vi) Bend Your Knees; while keeping your back in an upright position;

vii) Keep leverage in mind. Don't bend at your waist;

viii) Tighten Your Stomach Muscles; and

ix) Allow Intra-abdominal pressure to help support the spine when you lift and lower the load.

B) Allow your leg muscles to do most of the work of the lift. Use your legs, not your back. The lifting motion should be smooth and steady.

C) Hold the load close to your body. The closer the load is to your spine, the less force it exerts on your back. If the load feels too heavy, it probably is.

D) Don't twist your body. If you must change directions while lifting, carrying or lowering, do not twist at the waist. Turn your body by changing foot position and face the direction in which you are wanting to go before you begin to walk in that direction.

E) Keep your back upright. This position helps whether lifting or lowering the load. Lifting with your legs, not your back will help keep excess strain off your back.

F) Feet shall be comfortably spread (giving greater stability) with one foot alongside the object being lifted and one foot behind the object being lifted. The foot alongside the object shall be pointing in the direction of travel. The foot positioned behind the object assists with both balance and thrust.

G) A straight back is not necessarily a vertical back. When lifting weights from the ground, the inclination of the back shall be from the hips so that the normal curvatures are maintained. With "straight back lifting," the spine is straight and the pressure on the lumbar inter-vertical discs is evenly distributed. When lifting with the back bent, the spine forms an arc with the result that the lower muscles are subject to strain and there is uneven pressure on the discs.

H) When lifting and carrying weights, the arms shall be close to the body and remain straight whenever possible. Carrying involves a static posture of the arms, and particularly in the case of long distances, and assistance given to the body in supporting the weight will lessen tension in the muscles. Carrying with the arms straight enables the weight to rest against the thighs.

I) The palm grip is one of the most important elements of correct lifting. The fingers and the hand are extended around the object to be lifted. An insecure grip may be due to taking the load on the fingertips, thus creating undue pressure at the ends of fingers and strain to muscles and tendons of the arm. Greasy surfaces often prevent a secure hold. Whenever possible, such surfaces shall be wiped clean before lifting.

J) Raising the head up, and tucking the chin in straightens the whole spine not merely the neck. This automatically raises the chest and conditions the shoulders for more efficient action.

K) Position the body so that its weight is centered over the feet. This provides a more powerful line of thrust and ensures better balance. Start the lift with a thrust of the rear foot combined with the extension of the knee joints. This will move the body forward and upward and for a brief period it will be off balance. This is immediately countered by bringing the back leg forward as in walking.

4) TEAM LIFTING AND CARRYING

A) When two or more persons carry a single object, they shall adjust the load so that it rides level and so that each carries an equal part of the load. Test lifts should be made before proceeding.

B) When two persons carry long sections of pipe or lumber, they shall carry them on the same shoulder and walk in step.

C) When a crew of several people carries a heavy object, the supervisor shall direct the work and special tools such as tongs shall be used when necessary.

D) When two persons are carrying a load, always make sure that you do not cross each other in different directions causing twisting of the body trunk and putting additional stress to a persons' back. Both people should be facing square to each other to avoid twisting.

SECTION 24 – LOCKOUT/TAGOUT

1) GENERAL - HAZARDOUS ENERGY LO/TO PROCEDURES

A) Lockout/Tagout procedures are designed to prevent accidents and injuries caused by the accidental release of energy. The use of these procedures prevents employees from accidentally being exposed to injuries and even life threatening situations involving electrical, mechanical, pneumatic, fluid, gas, hydraulic, thermal, water under pressure and gravity flow, or energized systems or equipment.

B) Lockout/Tagout procedures shall only be performed by authorized employees.

C) This Lockout/Tagout procedure covers the following:

i) How to perform a shutdown;

ii) How to isolate equipment;

iii) How to apply and remove lockout devices;

iv) How to safety release stored energy in order to assure that a zero energy state exists; and

v) How to install isolating devices.

2) PERFORMING A SHUTDOWN AND ISOLATING EQUIPMENT

A) Notify all affected employees that you are about to start a Lockout procedure.

B) Locate all the energy sources that power the piece of equipment you will be servicing.

C) Always look for hidden energy sources. Some equipment or machines may have more than one source of power, so you must make sure you are familiar with the equipment and all the power sources involved.

3) APPLYING AND REMOVING LOCKOUT DEVICES

A) Every power source has its own procedure for lockout. Lockout may be accomplished by pulling a plug, opening a disconnect switch, removing a fuse, closing a valve, bleeding a line, or placing a block/lock on the equipment.

B) Generally, follow this sequence of events when applying and removing lockout devices:

i) Shutdown the equipment or machine by following the normal method for shutdown;
ii) Turn off the energy at the main power source;

iii) Turn the equipment or machine back on to confirm that the power source has been deactivated;

iv) Attempt to restart the equipment or machine to guarantee that the power is shut off, then return the switch or control to the "Off" position;

v) Using your own issued and separately keyed lock, lockout all of the energy sources involved;

vi) With your lock in place, test the switch or control to make sure the equipment or machine cannot be turned on. Make absolutely sure that the power or energy source cannot be supplied unless you know about it;

vii) If several employees are required to perform services on the same equipment or machinery, then each employee must apply their own separately keyed lock. This will help prevent any accidental start up that could endanger other employees; Using different colored locks or tags will help determine how many lockouts there are.

viii) Never use another employee's lock and never lend yours to someone else; and

ix) Any person who may be affected by the de-energizing or re-energizing of equipment or machinery must be notified prior to taking the above actions.

C) Tagouts will only be used to supplement lockouts or in the following situations:

i) If the energy isolating device is not capable of being locked out or when used in conjunction with isolating devices on piping.

D) Remove lockouts/tagouts only when all affected employees are notified prior to doing so. Make sure that all affected employees are clear of the equipment or machinery.

4) SAFE RELEASE OF STORED ENERGY

A) Equipment must be at a zero energy state before servicing or maintenance can begin. To attain this zero energy state you must do the following:

i) Drain all required valves;

ii) Bleed off air from a system;

iii) Eliminate stored hydraulic, thermal or chemical pressure;

iv) Utilize any approved method of safely releasing stored energy; and

v) Block stored mechanical energy.

5) INSTALLING ISOLATING DEVICES

A) Equipment and/or piping isolating devices shall be used in conjunction with tagouts. Isolating devices shall only be installed by authorized employees. Isolating devices, such as skillet blinds, shall be of a material that is compatible with the liquid, vapor, gas, chemical, or pressure they will have to suppress or come in contact with. The material used shall also have sufficient strength to withstand the maximum operating pressure, including surges, which can build up in the piping system.

B) The piping between the isolating device/valve and the point at which the piping or flange is to be disassembled may contain hazardous pressure or chemicals.

C) As a result, the appropriate supervisor must insure that the hazardous pressure is safely bled off and that the piping involved is purged of any hazardous chemical or substance prior to disassembly.

D) Isolating devices that are used to control energy, gas, or chemical flow, through piping, shall be tagged. Whenever possible, isolating devices or valves can further be locked and tagged out.

E) Both ends of piping shall be blanked out or capped (whenever possible) during the maintenance procedure.

F) The procedure for notifying affected persons prior to installing/removing isolating devices shall be the same as previously stated in the Hazardous Energy Lockout/Tagout Procedures.

6) NON-ROUTINE ENERGY PROCEDURES

A) The lockout, tagout, blocking and installing equipment and/or piping isolating devices procedures previously stated do not apply in the following situations:

i) While servicing or maintaining cord and plug connected electrical equipment, the energy hazards must be controlled by unplugging the equipment from the energy source. The plug must be under the exclusive control of the employee performing the servicing and/or maintenance; and

ii) Hot tap operations on transmission and distribution systems for gas, steam, water, or petroleum products, can be performed when continuity of service is essential or shut down of the system is impractical, provided that an equally effective means of employee protection is utilized.

B) The procedures contained herein provide only general guidelines that must be adhered to by all employees.

SECTION 25 – EXTENSION CORDS

1) GENERAL

A) This section covers the selection, care, and use of low voltage electric extension cords.

B) An extension cord is an electrical cord equipped with an attachment plug at one end and cord connector body at the other end. The cord connector may have one or multiple outlets.

C) Extension cords may be used to provide a temporary power source for power tools, machines, equipment, etc.

D) Permanent receptacle outlets shall be installed at convenient locations to eliminate the necessity of using extension cords for other than limited periods of time.

E) The permanent use of extension cords utilizing a surge protector for office type machines are acceptable.

F) Where different voltages, frequencies, or types of current (A.C. or D.C.) are to be supplied by portable cords, receptacles shall be of such design that attachment plugs used on circuits are not interchangeable.

G) Extension cords used with portable electric tools and appliances shall be three-wire type.

2) CARE AND USE

A) Extension cords shall be used only in continuous lengths. Spliced cords shall not be used.

B) Worn, frayed, or damaged extension cords shall be removed from service and replaced.

C) Extension cords shall be protected against accidental damage. Damage may be caused by traffic, sharp corners, pulling or dragging over sharp objects and pinching in doors.

D) Extension cords shall not be permanently attached to building surfaces; they shall not be run through holes in walls, ceilings, on walls, through doorways or windows, or concealed behind building walls, ceilings, or floors.

E) Extension cords, plugs, and connectors shall be inspected frequently. Inspection shall include visual wear check, ground continuity, and object polarity.

F) Extension cords shall be disconnected before making inspection, adjustment, or repair. Repair of extension cord or fittings shall be done only by qualified personnel.

G) To disconnect an extension cord, grasp the plug and pull. Do not pull the cord.

H) Always disconnect an extension cord prior to cleaning. Clean extension cord with a dry cloth. If this method does not clean satisfactorily, use a mild detergent and water. Do not use solvents to clean extension cords.

I) Extension cords used outdoors or in wet areas shall have the attachment plug and cord connector molded to the cord.

J) Never use multiple cords joined together to extend the distance from an electrical connection. Piggy backing of extension cords is considered to be unsafe and should not be used in this manner.

3) SELECTION

A) The wire size required varies depending on cord length and ampere load.

B) For most applications, the following sizes of extension cords are recommended:

i) LENGTH:	25 Feet	50 Feet	100 Feet
WIRE SIZE:	16 Gauge	14 Gauge	12 Gauge

The lower the gauge number the more current load it can carry.

MINIMUM GAUGE (WIRE SIZE FOR EXTENSION CORD)

AMP RATING RANGE AT 120 VOLTS	25 FEET Gauge Size Min	50 FEET Gauge Size Min	100 FEET Gauge Size Min	150 FEET Gauge Size Min
0-2	18	18	18	16
2-3	18	18	16	14
3-4	18	18	16	14
4-5	18	18	14	12
5-6	18	16	14	12
6-8	18	16	12	10
8-10	18	14	12	10
10-12	16	14	10	8
12-14	16	12	10	8
14-16	16	12	10	8
16-18	14	12	8	8
18-20	14	12	8	6

SECTION 26 – PORTABLE HAND TOOLS

1) GENERAL

A) Hand tools shall be inspected before use.

B) The most commonly used manual tools can be divided into categories: striking and struck tools such as hammers and chisels; torsion tools such as wrenches and locking pliers; sharp tools such as knives, picks, awls, saws, and screwdrivers. Incorrectly used, hand tools can do serious damage.

C) Some general guidelines for avoiding injury while using hand tools (manual or power driven) are:

i) Use the right tool for the job;

ii) Only use tools in good condition – worn, dirty, or broken tools shall be repaired, cleaned, or discarded;

iii) Use tools properly – cut away from the body when using knives or other sharp cutting instruments;

iv) Wear the proper personal protective equipment;

v) Store and carry tools safely – falling tools or tools carried in pockets or tool boxes with sharp edges exposed, can cause serious injury;

vi) Employees report hazards to supervisor; if not satisfied with response report to Safety or Risk Management;

vii) Remove defective equipment from service; and

viii) Safety staff may make recommendations to remove defective tools from service.

D) Unsafe use of manual hand tools includes using tools that are worn or broken.

E) Supervisors shall not issue or permit the use of unsafe hand tools.

F) Wrenches including adjustable, pipe end or socket wrenches shall not be used when jaws are sprung to the point that slippage occurs.

G) Impacts such as drift pins, wedges, and chisels shall be kept free of splayed ends.

H) Wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight on the tool.

2) STRIKING TOOLS

A) Commonly used striking tools are hammers, sledges, mauls, axes, and hatchets.

B) Supervisors are responsible to ensure employees are aware of the right tools to use for each job.

C) General rules for hammers of all types are as follows:

i) Never strike one hammer with another hammer;

ii) Never use a hammer for a purpose for which it was not designed;

iii) Never use a hammer that has a loose or damaged handle, cracks, chips, or excessive wear;

iv) Always wear safety goggles when hammering, striking, or chipping;

v) Always check in the rear before swinging a striking tool;

vi) Keep eyes on the tool or surface to be struck; and

vii) Strike blow squarely – glancing blows increase the chance of striking a finger or shearing a chip off the hammerhead.

D) Nail hammers – These devices are used to drive unhardened, common and finishing nails, and nail sets using the hammer face. The claws are designed to pull unhardened nails and to rip woodwork. Neither heads nor claws shall be struck against hardened metal.

E) Ball peen hammers –These hammers are designed for riveting; shaping and straightening soft metal; striking chisels and punches of the proper size.

F) When striking chisels and punches with a Ballpeen hammer, the hammer face shall be a minimum 3/8" greater than the head of the struck tool to minimize the chance of a glancing blow.

G) Riveting and setting hammers – Such hammers come in several varieties and are used by machinists, tinners, and glaziers for riveting, shaping, and sheet metal work, and for inserting glazier points.

H) Scaling and chipping hammers – These tools are designed for chipping welds and scales.

I) Bricklayer's hammer – Bricklayer's hammers are a specialized tool. They are designed for setting and splitting bricks, masonry, tile, and concrete blocks. They may also be used to chip mortar from bricks. Bricklayer's hammers shall never be used to strike metal. Use Ballpeen hammers which have rounded striking faces for striking brick sets and chisels.

J) Soft face and non-ferrous hammers and mallets –Soft face hammers and mallets shall be used where a harder hammer would mar the struck surface.

K) Use wooden mallets for striking wood and plastic handled chisels, gouges, wood pins and small stakes, and to work with sheet metal. Use rubber and plastic hammers for setting stone. Use non-ferrous materials in hazardous atmospheres where sparks would be dangerous. Soft face tools shall never be used to strike nails, screws or sharp metal objects.

L) Magnetic hammers – These tools are for light duty and used only to drive common tacks and upholstery nails. One end of these hammers is magnetized. The magnetized end is used to start the tack or upholstery nail.

M) Body and fender hammers – These tools are used on sheet metal in the repair of automotive bodies and fenders. They shall not be used for any other purpose.

N) Blacksmith's/engineer's hammers and sledges – This type is a double faced, they are used to strike wood, metal, concrete, stone, spikes, cold chisels, rock drills, and hard nails and to drift heavy timbers.

O) Blacksmith's striking tools - Blacksmiths use a variety of hand hammers and sledges with straight or cross beams for shaping and bending unhardened metal.

P) Stone sledges/spalling hammers – Stone sledges are designed to break up stone and concrete and spalling hammers to cut and shape stone and concrete. Never use these sledges hammers to strike metal or other striking tools.

Q) Hand drilling or mash hammers – These heavy short handled hammers shall be used for striking punches, star drills, and hardened nails. Never use these tools on stone work.

R) Woodchopper's mauls – These tools have a splitting edge and a striking face and are used to split wood. The splitting edge is used to cut a notch in a log, and then a wedge is placed in a notch and driven with the striking face of the maul. Never use these tools to strike concrete or another striking tool.

S) Axes and hatchets – Such tools are used in many industries and come in many configurations. The double bit ax is used to fell, trim, or prune trees and to split or cut wood. The single bit ax has a striking face on the opposite end which is used to drive stakes of wood, plastic, or soft material. Hatchets are used for cutting, splitting, trimming, and hewing wood. The striking face of a hatchet is designed for striking unhardened nails.

T) Never use the cutting edge of axes and hatchets to strike metal, stone, or concrete. The striking faces of hatchets shall never be used to strike chisels, punches, rock drills, or other struck tools of hardened metal.

U) Never use an ax as a wedge or a maul.

3) STRUCK TOOLS

A) Struck tools such as chisels, punches, etc., are designed to direct the force of the blow toward the center of the tool.

B) Off center blows are not directed toward the center of the tool but down the side. Instead of a cushioning action, a shearing force is achieved. This shearing effect is what causes small chips to fly – a hazardous condition. Cutting edges have precisely determined angles and thicknesses. The angle and thickness allow maximum cutting ability and durability. A dull cutting edge results in less cutting ability and drastically reduces durability.

C) General guidelines for the safe use of struck tools include:

i) Wear safety goggles;

ii) Use a hammer or mallet with a striking face sufficiently larger than the struck tool. The hammer shall be a minimum 3/8" larger than the struck face;

iii) Use only struck tools that are in good condition - redress, repair, or discard damaged tools;

iv) Do not use struck tools that have loose or damaged handles;

v) Strike blows squarely;

vi) Strike away from yourself;

vii) Never strike steel chisels with a nail hammer;

viii) Do not use a grinder to redress heat treated tools; and

ix) Redress mushroomed heads with a whetstone or file.

D) <u>Cold chisels</u> –Cold chisels have a cutting edge at one end that is used for working with metals softer than the chisel such as cast iron, wrought iron, steel, bronze, copper, etc. The opposite end is usually a struck face. Some tools such as blacksmith's cold chisel have a handle. Never use a cold chisel to work with stone or concrete. Never use one that is damaged, has a dull cutting edge, a mushroomed striking face, or a broken or loose handle. Redress the edge or replace the handle. Discard any chisel that is bent or shows dents, cracks, chips, or excessive mushrooming or wear.

E) <u>Hot chisels</u> –These chisels are used for cutting hot steel. Safety precautions are the same as for cold chisels.

F) All steel wood chisels – These struck tools are wood cutting chisels designed for rough work. They are made of one piece of steel. For use on wood only, never on metal or stone.

G) Punches –Hand punches are made in various patterns and used to mark metal and other materials that are softer than the point end, to drive and remove pins and rivets and to align holes in different sections of materials. Use punches only for the purpose for which they are designed.

H) Blacksmith's punches – These punches are equipped with a handle and are made of a single piece of steel with a strike face and a point end. Blacksmith's round punches are used for drifting holes and aligning and driving pins. Blacksmith's backing out punches are used to back out bolts, rivets, and pins.

I) Drift pins – These tools are designed for aligning holes in metal and shall never be used as a punch. Never strike a drift pin if either end is chipped or mushroomed.

J) Star drills – These drills resemble four chisels joined at the cutting edges to form a cross and are designed to drill holes in masonry.

K) Brick chisels, sets -– These tools are formed from a single piece of steel and are used to score, cut, adjust, and strip bricks and blocks. Never strike brick chisels or sets with a bricklayer's hammer.

L) Wood splitting wedges –These wedges are made from a solid piece of steel and are designed to split logs, firewood, staves, and other wood products. They shall be struck only with sledges or woodchopper's mauls with a striking face larger than the struck face of the wedge.

M) Nail puller bars – This type of bar is used to extract deeply embedded nails. Never use a nail hammer to strike the bar. Discard any nail puller that is bent or has a chip or broken claw or rounded or dull bevel.

N) Nail sets – Nail sets are used to counter seat nails in wood. Do not use as punches or drift pins or to drive pins or rivets. Do not redress. Discard sets that are bent, dented, cracked, chipped, mushroomed, or excessively worn.

4) TORSION TOOLS

A) The most commonly used types of torsion tools are wrenches and pliers.

B) Wrenches shall be used to hold and turn bolts, nuts, cap screws, etc.

C) Guidelines for the safe use of wrenches include:

i) Always use the tool designed for the job at hand;

ii) Never strike a wrench with a hammer;

iii) Never use a hollow pipe or "cheater" to increase leverage;

iv) Use a wrench with an opening that fits the nut exactly. Use wrenches with inch designations for nuts with inch designations, and metric wrenches for metric nuts;

v) Pull on the wrench handle. DO NOT PUSH;

vi) Use box or socket end wrenches where possible;

vii) Use a wrench with a straight handle rather than offset handle whenever possible;

viii) To free a "frozen" nut, apply penetrating oil and use a box end or socket wrench;

ix) Never expose a wrench to excessive heat;

x) Inspect periodically, repair, or discard damaged wrenches;

xi) Do not change the shape of wrenches by grinding; and

xii) Discard any wrench with damaged or spread jaws.

D) Socket wrenches – Hand socket wrenches are available in a wide range of sizes.

E) They are used to loosen and tighten nuts and other fasteners with the aid of a ratchet apparatus. Safety guidelines for their use include:

i) Never use hand sockets on power or impact wrenches;

ii) Always stay within safe torque limits when using an adapter; and

iii) Sockets with cracked walls, breaks, or battered points shall be discarded.

F) Combination wrenches – These wrenches are available with a box opening at one end and an open end at the other. Use the box opening where possible.

G) Box end wrenches –This type tool has box openings at both ends each a difference size.

H) Open end wrenches – These tools are made with different size openings at either end. Safe use guidelines include:

i) Never use an extension or "cheater" on the handle; and

ii) Discard when jaws are nicked, spread or battered, or when the handle is bent.

I) Adjustable wrenches – Adjustable wrenches have a wide range of capabilities and are convenient for service repair and electrical line work. They shall not replace fixed opening wrenches in production or general service work. Safety guidelines include:

i) For electrical work use dielectric tools, plastic dipped handles are for comfort not insulation;

ii) Adjust the jaws tightly to the nut;

iii) Work so that the force or torque is applied to the fixed jaw; and

iv) Do not use an adjustable wrench on a "frozen" nut.

J) Repair according to manufacturer's instructions.

K) Torque wrenches – These devices measure torque and allow the operator to apply the correct amount for the job. Safety guidelines include:

i) Make sure the proper torque is being applied;

ii) Check the torque calibration periodically to avoid dangerous slips; and

iii) Check manufacturer for repair or replacement standards.

L) Locking wrench/clamps – These wrenches are combination tools that function as pliers, wrenches, or clamps. Safe use rules include:

i) Do not expose to heat from welding torches or to contact with welding electrodes;

ii) Lubricate frequently; and

iii) Discard, do not repair a damaged tool.

M) Pliers - Pliers are another very common tool in many industries. There are many varieties. Care shall be taken to use the right pliers for the job. The following basic safety rules apply to all types of pliers:

i) Do not use pliers for cutting hardened wire unless they are specifically made for that purpose;

ii) Do not expose to excessive heat;

iii) Always cut wire at right angles, never rock tool from side to side or bend the wire back and forth against the blades;

iv) Don't bend stiff wire with light pliers, use a sturdier tool;

v) Never use pliers as a striking or struck tool;

vi) Wear safety eye wear when cutting wire; and

vii) When working with electricity, shut off the power and use dielectric pliers.

5) SCREWDRIVERS

A) Although there are many types, a screwdriver has one function - driving and withdrawing threaded fasteners. Tips for the safe use of screwdrivers include:

i) Use the right screwdriver for the job – a bit that is the wrong size or shape for a screw slot can slip and cause injury;

ii) Check the tool before use for a broken handle, bent blade, or damaged tip and repair or replace as necessary. Do not use screwdrivers as pliers, punches, wedges, or pinch bars;

iii) Use cross slot fasteners and drivers when possible;

iv) Place the work piece on a flat surface or in a vise;

v) Disconnect power and use only insulated tools when doing electrical work;

vi) Do not expose blades to excessive heat;

vii) Do not use pliers or a wrench on the screwdriver for more leverage; and

viii) Keep handles free of grease.

6) SAWS

A) Guidelines for the safe use of saws include:

i) Hand saws and hacksaws shall be kept sharp;

ii) Always wear safety goggles;

iii) Install hacksaw blades with the teeth pointed away from the handle; and ensure that the blade is kept taut when installing a new blade to avoid binding.

iv) Hot saw blades can break – prevent heat buildup with light machine oil.

7) SHARP TOOLS

A) Knives, picks, and awls are a constant source of puncture and cut wounds. Safety guidelines for using pointed tools include:

i) Wear the proper protective equipment;

ii) Use tools with a shaft to prevent hands from slipping down onto the blade;

iii) Cutting strokes shall be made away from the body;

iv) The work material shall be in a vise or similar holder;

v) Knives shall be carried in a sheath;

vi) Store pointed tools safely so that the points or cutting edges are covered;

vii) Lay ice on a flat surface when chipping with an ice pick;

viii) Use the right tool for the job;

ix) Handles shall have at least one flat surface to prevent tools from rolling off the work surface; and

x) Awls shall be held at right angles to work piece to prevent slipping.

SECTION 27 – ELECTRICAL TOOLS

1) GENERAL

A) Portable electric tools shall be inspected before use.

B) Report all defects immediately to the supervisor.

C) Besides cuts and bruises, there is a danger of electrical shock. Shock can come from a tool with faulty insulation or from an improperly grounded tool. Always disconnect tool before adjusting, servicing, or cleaning.

D) Flying debris from electric tools can cause injury. The magnitude of the power involved can make broken bits, teeth, blades, etc., lethal missiles.

E) Avoid using electric motors in areas with combustible fumes.

F) Power tools shall be properly stored.

G) General guidelines for using any electrically powered tools safely include:

i) Avoid dangerous environments, such as wet, damp, or gaseous workplaces;

ii) Know the tools so that its work action can be anticipated;

iii) Use the right tool for the job;

iv) Do not force the tool. The job shall be done safer at the rate for which the tool was designed;

v) Wear personal protective equipment. Always use safety eye wear; dust masks, hearing protection, and other protective equipment when appropriate;

vi) Dress safely. Do not wear loose clothing or jewelry. Long hair shall be tied back. Nonconductive clothing shall be worn in wet locations;

vii) Disconnect the tool before changing bits, blades, etc.;

viii) Protect the cord, disconnect by pulling the plug, not the wire. Never carry the tool by the cord or otherwise abuse the cord;

ix) Remove chuck keys, wrenches, etc., before connecting the tool to the power source;

x) Use only outdoor extension cords when working outdoors;

xi) Make sure switch is in the off position when plugging in the tool. Keep the finger off the ON switch when carrying the tool;

xii) Keep tools sharp, clean, and lubricated per instructions. Only trained personnel shall do repairs;

xiii) When using unfamiliar tools, read the instructions. Talk to a supervisor familiar with it and practice before starting the job;

xiv) Use the guards on the tool. Do not try to bypass or circumvent them;

xv) All electrical tools shall be grounded;

xvi) Planning ahead includes getting all the necessary tools and materials, anticipating hazards, and avoiding possible distractions;

xvii) The work piece shall be secured whenever possible;

xviii) The work area shall be clean, well lighted, and have appropriate fire extinguishers; and

xix) Tools shall be stored in clean, safe, dry areas.

2) DRILLS

A) General guidelines for safe drilling include:

i) Use only bits that are sharp and true;

ii) Bits shall be the right size for the job;

iii) Keep the drill perpendicular to the drill hole to avoid kickback rotation of the drill;

iv) Clean the bit frequently;

v) Allow the bit to cool before changing or adjusting;

vi) Disconnect power before changing bit;

vii) Secure the work piece;

viii) Operators shall have sufficient space with balanced footing;

ix) Never use fingers to check the alignment of holes in the work material;

x) Prevent whip action by using a firm grip on the handles;

xi) Allow the drill to do the cutting, do not apply excessive force;

xii) Wear appropriate personal protective equipment;

xiii) Never touch any moving parts of the drill when in use;

xiv) As with all electrical tools, disconnect before cleaning, making changes or adjustments;

xv) Keep the cord clear of the bit; and

xvi) Tools shall be connected to properly rated power sources.

B) Cordless drills – These drills are used outdoors far from an electrical outlet and to reach overhead or other hard to reach drilling sites. They are battery powered. Such tools are always "plugged in." The trigger shall always be locked in the OFF position when not in use. In addition:

i) The tools shall never be charged where temperatures are less than 40 degrees F. or more than 104 degrees F. or in damp locations;

ii) Never place batteries near flame or heat; and

iii) Discontinue use and report to supervisor any batteries leaking liquid. This liquid is caustic and will cause burns.

3) SAWS

A) Safety guidelines specific to saws include:

i) Saws shall not be jammed or forced into the work piece;

ii) Supervisors ensure saws shall have "dead man's" trigger switch;

iii) Operators shall stay out of the line of cut;

iv) Start and stop saws outside of the work piece;

v) Never clean electric saws (or any electrically powered tool) with toxic or flammable solvent;

vi) As with all electrical tools, saws shall be disconnected before cleaning or making changes or adjustments;

vii) Store saws that are not being used as recommended by the manufacturer;

viii) Saws shall never be laid directly on damp ground;

ix) Respirators shall be worn if the work area is enclosed;

x) Never stop saw in mid cut to allow momentum to finish the job; and

xi) The work piece shall be well secured to prevent movement caused by blade action.

B) Circular saws – This type saw has a circular blade that rotates and is used extensively for heavy ripping jobs, etc. Some specific safety guidelines include:

i) As with all electrical tools, disconnect from power source before making adjustments;

ii) Disconnect the power source, if the lower guard must be retracted manually;

iii) Move the lower guard with the retracting handle or safety guard lift lever only;

iv) Never clamp or tie the lower guard in the open position;

v) Check the lower guard to make sure it is not bent or touching the blade – do not operate the saw if the guard is not working properly;

vi) Keep the finger off the operating button and do not run the saw while carrying it;

vii) When guiding the saw with two hands, place the second hand on the housing auxiliary handle. Keep one hand on the handle;

viii) Tighten depth and bevel and adjusting nuts before sawing;

ix) Make sure the cord is not in the line of cut both above and below the work piece;

x) If it is necessary to stop the saw in the middle of a long rip, the operator shall have a firm grip on the handle – and shall not resume the cut until the blade is rotating at normal speed; and

xi) Do not invert a circular saw for cutoffs or ripping.

C) Reciprocating saws – reciprocating saws have a long blade that moves rapidly back and forth. It is used to shape and strip many materials particularly in close places. Specific safety rules include:

i) Never operate the saw unless the insulating boot is in its proper place; and

ii) As with all saws, keep hands away from the blade when operating this tool and wear safety goggles.

D) Jigsaws - these saws are used for fine and intricate cuts on various types of materials. Safety guidelines include:

i) Secure bevel adjusting screw before operating the saw;

ii) The blade shall be moving at full speed before it touches the work piece; and

iii) Be particularly careful to secure the work piece, keep hands away from the blade, and wear safety goggles.

4) MAINTENANCE

A) Proper and regular maintenance of electrically powered hand tools is vital to the Tool Safety Program. Guidelines include:

i) Examine cords for damage;

ii) Check plugs for damage and missing ground terminals. If the terminal is missing from a three-prong plug, replace the plug;

iii) Check switches with the tool unplugged. Switches shall be free of excessive drag, binding, loose mounting, and obvious defects;

iv) Check chucks, collets, etc., for proper operating condition and see that the right keys and wrenches are available;

v) Visually check housing for defects and damage;

vi) Guards shall be installed properly, function smoothly, and always be used;

vii) Replace missing hardware and tighten all loose bolts;

viii) Make adjustments according to the manufacturer's recommendation; and

ix) Re-sharpen blades, bits, etc., and reinstall according to manufacturer's instructions.

B) Supervisors are responsible for instructing employees on how recognizing defects in tools.

SECTION 28 – AIR POWERED AND HYDRAULICALLY OPERATED TOOLS

1) GENERAL

A) Air, powder, and gasoline are used to power a variety of industrial tools. Many of them do the same jobs as similar electrical or hand powered tools.

2) AIR POWERED

A) Air powered tools can be classified as fasteners, abrasives, percussion, wrenches, twists, saws, routers, and shearers.

B) Although hazards may vary with functions of the tool, there are general safety guidelines for use with air powered tools.

i) Use the right tool for the job and within designated capacity;

ii) Supervisor ensure operators shall be thoroughly trained in power operation, inspection, and maintenance of the tool;

iii) Safety requirements of the particular tools shall be followed;

iv) Hands and clothing shall be kept from the operating end of the tool;

v) Operators shall be familiar with the job to be done and the action of the tool on the material being worked;

vi) Employees shall be required to inspect and test the tool, air hose, and coupling before use and be trained to readily detect defects and malfunctions;

vii) Defective tools shall not be used until repaired by qualified personnel;

viii) Guards and safety devices shall be in place and used according to the manufacturer's recommendations;

ix) Air hoses and lines must be bled of compressed air before being separated;

x) Warning signs shall be used when chips, dust, or excessive noise would affect other persons;

xi) When work is to be done in a combustible atmosphere, purging or ventilation shall be provided and spark resistant bits shall be used;

xii) Personal protective equipment including safety goggles, hearing protection, and respirators shall be used; and

xiii) Safety clips shall be used for all connections involving compressed air hoses.

3) PERCUSSION TOOLS

A) Air driven and hydraulic percussion tools include jackhammers and tampers.

B) General safety rules for such tools include:

i) The tool shall not be operated unless bit, chisel, rivet set, scaling, or other accessory is in position on the tool and in contact with the work piece; and

ii) Bits and other accessories shall be removed when not in use.

C) A hand held self-rotating hammer drill is also known as a sinker or block hole drill.

D) Guidelines for its safe use include:

i) Handles shall be gripped firmly;

ii) Manufacturer's instructions for tempering steel shall be closely followed;

iii) Holes shall be collared at low speed to prevent drills jumping;

iv) The operator shall spread legs for a firm stance and keep clear of the hole;

v) Do not guide the drill with feet or throw a leg over the handle;

vi) Use special adaptations (drifter, stopper, jack leg drill) for drilling horizontal or overhead holes to avoid fatigue; and

vii) A wet drilling dust collecting system shall be used when silica dust is present.

E) Tampers -- These tools are used to compact earth or paving materials. Single butt tampers are used for average work. Double or triple butt tampers combine two or three single tampers for heavy work. Enough people shall be on hand to lift and lower the heavier double or triple butt tampers. Operators of single butt tampers shall keep a firm but light grip and maintain a widespread but firm stance.

4) TWIST TOOLS AND SAWS

A) Twist tools include air driven drills, screwdrivers, nut setters, etc.

B) General safety rules for twist tools include:

i) Use variable speed tools whenever practical so that it is possible to start on a work piece with controlled speed and power;

ii) Use attachments that are sharp to prevent breakage;

iii) When holes are drilled beyond the flutes of the drill, the bits shall be removed from the hole, the drill stopped, and the flutes cleared to prevent jamming or breaking;

iv) Select the right tool or attachment for the job; and

v) Personal protective equipment shall be used including safety goggles in all cases and hearing protectors and respirators as appropriate.

C) Air powered saws include circular saws and reciprocating saws.

D) Safety precautions for air powered saws are the same as for electrically powered saws. When changing blades or making adjustments, the saw must be disconnected from the air line or the air line must be shut off and drained.

5) POWDER ACTUATED TOOLS

A) Powder actuated tools are used to fasten hard materials together (such as wood to steel, steel to concrete, etc.).

B) The tool uses an explosive charge to drive a fastener through the materials involved.

C) Some basic rules for operators of powder actuated tools are:

i) Read and follow the manufacturer's instruction manual;

ii) Use the tool for its intended purpose only;

iii) Know the material being fastened and the base material being fastened to;

iv) Operators and coworkers shall <u>always</u> wear safety goggles and hearing protection;

v) Bystanders or spectators shall never be allowed to gather around powder actuated tools while in use;

vi) Maintain good balance, and brace yourself properly at all times;

vii) Never load a tool until ready to make a fastening;

viii) Always keep the tool pointed in a safe direction;

ix) <u>Never</u> carry a loaded tool from job site to job site;

x) All tools shall be cleaned and maintained in accordance with the tool manufacturer's specific instruction;

xi) Always check the tools at the beginning of the shift to see that they are in the proper working condition;

xii) Remove defective tools from service until they are repaired or replaced; and

xiii) Have tools inspected and serviced at regular intervals by the manufacturer's authorized service personnel.

D) Additional operating precautions for powder actuated tools are:

i) Only qualified licensed operators shall use these tools;

ii) Tools shall be unloaded and stored in a locked container when not in use;

iii) Always use a standard or special shield or fixture for the job at hand;

iv) Use only the off center positions of adjustable shields when fastening near obstructions such as walls when the obstruction is being used as a shield;

v) Always operate a tool perpendicular to the work surface;

vi) Always check the carriage chamber and barrel for foreign objects before loading;

vii) Never use a tool in an explosive or flammable atmosphere;

viii) Always check the color of each charge before inserting it into the tool chamber;

ix) Never attempt to force a powder load into a chamber;

x) In the event of misfire, follow the manufacturer's instructions;

xi) Unfired powder loads shall not be thrown into trash containers. Return unfired powder loads to the supervisor;

xii) Never carry metal objects in the same container with powder loads. Powder loads shall not be carried in the pockets of the worker;

xiii) Before fastening into any unidentified material, check it by using the center punch test;

xiv) Always follow the manufacturer's rules for edge distance, fastener spacing and material thickness;

xv) Do not attempt to install a fastener through an existing hole in steel or any other material unless a positive guide is used to assure accurate location;

xvi) Never attempt to fasten in a small or cracked area in masonry;

xvii) Do not attempt to fasten to any area where a previous fastener has failed;

xviii) Never override the fastener;

xix) Do not use the fastener to draw down a steel member;

xx) Never over tighten a nut on a threaded stud; this could cause the fastener to back out;

xxi) Do not attempt to install fasteners in very brittle or hard substances such as tool steel, spring steel, glazed tile, hollow tile, or glass block;

xxii) Never fasten into wood fiberboard or other soft material unless it has base material that will prevent the fastener from passing completely through;

xxiii) Always know the material to be fastened into especially where the base material may be concealed; and

xxiv) Check continually to avoid fastening into unsuitable materials by using the center punch test.

6) HYDRAULIC TOOLS

A) Hydraulic tools utilize oil under pressure. Hoses and connections shall be inspected before each use to determine that the equipment is safe to use. All defective equipment shall be removed from service. Defective hydraulic fuel lines shall be replaced, never patched.

B) Items to be checked for are:

i) Cracked, cut or frayed surfaces on hoses;

ii) Evidence of oil seeping through hose or at couplings;

iii) Dirty oil in the system (dirt particles can abrade the hose and cause failure); and

iv) Hydraulic systems which utilize filters shall incorporate a routine system for changing filters as required following manufacturer's recommendations.

SECTION 29 – CHAIN SAWS

1) GENERAL

A) All chain saws shall be equipped with a working chain break.

B) When transporting a chain saw, set the saw level with the gas cap up. Never carry a saw in the passenger compartment or cab of a vehicle. Secure the saw so it cannot tip over and spill gas during the transportation.

C) Chain saws shall be kept out of reach of all unauthorized personnel.

D) Care and maintenance of chain saws is very important. Supervisors shall ensure that:

i) Chain saws are in good condition and easy to start;

ii) Chain saws are clean and free of oil, gasoline, and sawdust (operators shall not use engine fuel as a cleaning solvent);

iii) Operators shall inspect a saw before use to assure that all handles and guards are in place and tight, that all controls function properly, and that the muffler is operative;

iv) The chain is sharp and tight; and

v) Chain saws are maintained, operated, and adjusted as outlined in the owner's manual.

E) The main hazards of using a chain saw are:

i) Cuts from the chain (while in motion or not in motion, either on or off the saw);

ii) Kick back - an upward jump or jerk of the saw. Kick back commonly is caused by striking a limb with the tip of the moving chain, running engine too slowly at start and during cut, dull or loose chain, cutting above shoulder height, inattention, loose grip, and/or hitting a knot;

iii) Felling trees, rolling logs, and falling limbs;

iv) Strains and sprains and falls while carrying the saw or "escaping" a felled tree;

v) Burns from a hot muffler or cylinder head;

vi) Sawdust in the eyes; and

vii) With an electric saw, shock from defective wiring or improper grounding or from cutting through the power cord.

F) Chain saw operators shall hold the saw with both hands during operation.

G) Chain saw operators shall not use the saw to cut directly overhead or at a distance that would require the operator to relinquish a safe grip on the saw. Always maintain center of balance when cutting.

H) Never use a chain saw while standing on a ladder or in a tree.

I) Chain saw operators shall have two feet firmly on the ground at all times while the saw is in operation.

J) Chain bumpers shall be against tree or limb before starting to cut.

K) Fire is a hazard when fueling a chain saw. Items to remember are:

i) Fire extinguishers shall be readily available;

ii) Use the oil and gasoline mixture recommended by the manufacturer;

iii) Saw shall be kept clean and free of gasoline, oil, and sawdust;

iv) Carry fuel only in safety cans (with a spout or funnel);

v) Let the saw cool before refueling;

vi) Fill the fuel tank in an area of bare ground with engine shut off;

vii) Wipe the spilled fuel off the saw and keep the muffler clean; and

viii) Start the motor at least ten feet away from the area where the saw was fueled.

2) PREPARATION

A) Avoid loose clothing, jewelry, or dangling items that might catch in the saw. No loose sleeves cuffs or scarves, tie long hair back.

B) Wear safety equipment: eye protection (safety goggles), hard hats, ear protection, safety shoes, safety gloves, thigh pads, chaps, as required.

C) When carrying a chain saw, the motor shall be turned off. The chain saw blade shall point to the rear and the muffler shall be away from the body. Chain saw operators shall be instructed to shut off the saw when carrying it for any distance or in hazardous conditions such as slippery surfaces or heavy underbrush. The saw shall be at idle speed when not being used to cut. Always check behind you when turning to ensure no one is behind you.

D) When preparing to cut down a tree:

i) Check the tree and surrounding area for possible danger;

ii) Check the size and shape of the tree;

iii) Check the direction of the wind;

iv) Determine which way the tree is leaning;

v) Prepare a bed for the tree to fall in; and

vi) Establish an escape route

E) Clear the work area of brush, check escape route. Check for tripping obstacles. Warning: Do Not Cut Brush With A Chain Saw -- Brush Will Whip Causing Injuries.

3) PROCEDURES FOR FELLING A TREE AND CLEARING LIMBS WHILE USING CHAIN SAW

A) Start the saw by:

i) Placing the saw on level ground;

ii) Never drop, start, or brace a saw against any part of the body to start;

iii) Get on good footing;

iv) Make sure the chain is not touching anything during starting procedures; and

v) Hold the saw firmly with one hand, pull the starting cord away from the body. (Never wind the cord around hand.) Use manufacturer's instructions.

B) Make the undercut first by:

i) Lining up the first undercut carefully facing the direction the tree will fall;

ii) Undercutting one-third of the diameter of the tree. That assures full control of the tree when it falls; and

iii) The height or opening of the undercut shall be 45 degrees in relation to the first cut.

C) Clear the danger area twice the height of the tree being felled before starting the back cut. Be certain no one is in the danger zone. Make the back cut (or felled cut) 2" above the level of the undercut notch so the tree will not kick back when falling. The cut shall be straight and horizontal. Wedge the cut if the tree is likely to settle on the saw. Use plastic, hardwood or soft metal wedges.

D) Use two cuts if the saw bar is too short or if the tree has a heavy lean in the direction it is to be felled. This prevents splitting up from the stump.

E) Keep the saw in the cut, until the cut opens. Then quickly remove the saw and stop the motor. Do not set a hot saw in dry leaves or grass.

F) Retreat at least 25 feet at a 45 degree angle from the line of fall following the escape route previously checked for tripping hazards or other obstacles. Watch for flying or falling limbs.

G) Removing limbs from a felled tree: For small logs stand on the opposite side of the trunk from the limb being cut. On a hillside, work on the uphill side.

H) When cutting the trunk of a felled tree into sections, the following safety points shall be followed:

i) Clear the work area of brush;

ii) Block the tree so it will not roll;

iii) On a hillside, work on the upgrade side;

iv) Slant the cut so the log will open the cut and prevent the saw from binding; and

v) Slow the motor and hold it away from the body just before the cut is completed.

I) Do not remove supporting limbs flush with the trunk until the log is cut to desired length. Use stubs to keep the log off the ground.

J) If the log rests on the ground, cut from the top. Make sure the chain does not strike the ground.

K) With a log supported at one end, undercut one-third diameter. Complete the cut by cutting from top to prevent binding the saw.

L) With the log supported at both ends, cut about one-third of the log's diameter. Finish with an undercut to meet the first cut.

M) When pruning limbs from trees, under cut about one-third the diameter of the limb. Finish with an over cut to meet the first cut.

SECTION 30 – WELDING, CUTTING AND COMPRESSED GAS SAFETY

1) GENERAL

A) A gas welding process unites metals by heating them with the flame from the combustion of a fuel gas and includes the use of filler metal.

B) An oxygen cutting process severs or removes metal by the chemical reaction of the metal with oxygen at an elevated temperature maintained with heat from the combustion of fuel gases.

C) Oxygen cylinders and fittings shall be kept away from oil and grease. Cylinders, cylinder caps and valves, couplings, regulators, hose, and apparatus shall be kept free from oil or greasy substances and shall not be handled with oily hands or gloves. Oxygen shall not be directed at oily surfaces, greasy clothes, or within a fuel oil or other storage tank or vessel.

2) USE OF FUEL

A) Before connecting a regulator to a cylinder valve, the valve shall be opened slightly and closed immediately. (This action is generally termed "cracking" and is intended to clear the valve of dust or dirt that might otherwise enter the regulator.) The person cracking the valve shall stand to one side of the outlet not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would reach welding work, sparks, flame, or other possible sources of ignition.

B) The cylinder valve shall always be opened slowly to prevent damage to the regulator. For quick closing, valves on fuel gas cylinders shall not be opened more than 1-1/2 turns. When a special wrench is required, it shall be left in position on the stem of the valve while the cylinder is in use so that the fuel gas flow may be shut off quickly in case of an emergency. Never place items on top of a fuel gas cylinder.

C) Fuel gas shall not be used from cylinders through torches or other devices which are equipped with shutoff valves without reducing the pressure through a suitable regulator attached to the cylinder valve or manifold.

D) Before a regulator is removed from a cylinder valve, the cylinder valve shall be closed and the gas released from the regulator.

E) If, when the valve on the fuel gas cylinder is open, there is found to be a leak around the valve stem, the valve shall be closed and the gland nut tightened. If this action does not stop the leak, the use of the cylinder shall be discontinued. The cylinder shall be tagged and removed from the work area.

F) If a leak develops at a fuel plug or other safety device, the cylinder shall be tagged and removed from the work area. Note: Cylinder cap should be screwed on prior to storage.

3) REGULATORS, GAUGES, AND HOSES

A) Regulators shall be used on both oxygen and fuel gas cylinders to maintain a uniform gas supply to the torches at the correct pressure. The oxygen regulator shall be equipped with a safety relief valve.

B) Employees shall stand to one side and away from regulator gauge faces when opening cylinder valves.

C) Oxygen and fuel gas pressure regulators, including their related gauges shall be free of leaks and in proper working order while in use.

D) Oxygen regulators shall be equipped with right hand threads and acetylene regulators shall be equipped with left hand threads. Only regulators listed by Factory Mutual or Underwriters' Laboratories shall be used.

E) Fuel gas hose and oxygen hose shall be easily distinguishable from each other. Oxygen and fuel gas hoses shall not be interchangeable. A single hose having more than one gas passage shall not be used.

F) Flashback arrestors (check valves) shall be connected between the regulators and the gas hose and oxygen hose.

G) All connections shall be tested for leaks before beginning any welding or cutting operation.

H) When parallel sections of oxygen and fuel gas hoses are taped together not more than four inches out of any 12 inch section shall be covered.

I) Inspect all hoses carrying combustible gases before use. Defective hoses shall be tagged and removed from service.

J) Hose couplings shall be of the type which cannot be unlocked or disconnected by means of straight pull without rotary motion.

K) Boxes for the storage of gas hoses shall be ventilated. Store hoses in a cool place.

L) Hoses and other equipment shall be kept clear of passageways, ladders, and stairs.

M) Hoses shall be protected from flying sparks, hot slag, and other hot objects as well as grease and oil.

4) TORCHES

A) Torches are constructed of metal castings, forgings, and tubing. Usually, they are made of brass or bronze. Use only those torches listed or approved by Underwriters Laboratory or Factory Mutual.

B) Gases enter the torch by separate inlets, through valves to the mixing chamber and to the outlet orifice located in the torch tip. Several interchangeable tips are provided with each torch having orifices of various sizes according to the work to be done.

C) The cutting torch unlike the welding torch uses a separate jet of oxygen in addition to the jets of mixed oxygen and fuel gas. The jets of mixed gas are for preheating the metal and the pure oxygen jet is for cutting. The flow of oxygen to the cutting jet is controlled by a separate valve.

D) Observe the following precaution in the use of torches:

i) Select a proper welding head or mixer tip or cutting nozzle (according to charts supplied by the manufacturer) and screw it firmly into the torch;

ii) Before changing torches, shut off the gas at the pressure reducing regulators; and

iii) Never reduce pressure by crimping the hose;

iv) Do not use matches or cigarette lighters to light torches. Use only a friction lighter or stationary pilot flame. When lighting, point the torch tip away from all persons or combustibles;

v) Never put down a torch until the gases have been completely shut off. Do not hang torches from a regulator or other equipment; and

vi) When extinguishing the flame, close the acetylene and oxygen valve in the order recommended by the torch manufacturer.

E) Clogged torch tip openings shall be cleaned with suitable cleaning wires, drills, or other devices designed for that purpose.

F) Torches shall be inspected before use for leaking shutoff valves, hose couplings, and tip connections. Defective torches shall be tagged and removed from service.

5) COMPRESSED GAS SAFETY

A) All compressed gas cylinders shall be handled with care.

B) Cylinders shall be stored in an upright position in racks or chained firmly against the wall, or other solid object.

C) Cylinders containing different kinds of gases shall be separated (flammable or combustible gas cylinders must be separated from oxygen cylinders by a minimum of 20 feet or a 5 foot high non-combustible barrier).

D) Cylinders shall not be stored near highly flammable materials or sources of heat. Cylinders are not designed to withstand temperatures in excess of 130^0 F.

E) Never use cylinders as rollers.

F) When moving a cylinder, use a two wheel hand truck or a gas cylinder sling.

G) When transporting a cylinder on a vehicle, the cylinder shall be secured to the vehicle. All compressed gas cylinders should be secured in an upright position with caps securely tightened. Regulators shall be removed or guarded before a cylinder is transported.

H) Acetylene and liquefied fuel gas shall be stored and transported in the upright position (valve end up).

I) When gauges are not attached, the protective cylinder cap shall be kept securely in place.

6) ARC WELDING AND CUTTING

A) Arc welding is a process for joining metals by heating with an electric arc or arcs with or without the application of pressure and with or without the use of a filler metal. Arc welding is used to fabricate nearly all types of carbon or alloy steels, common, nonferrous metals, and is indispensable in the repair and reclamation of metallic machine parts.

B) Arc cutting is used only for rough cuts or for scrapping because of the unevenness of the cut obtained.

C) For arc welding or cutting, one lead is connected to the work and the other to an electrode holder. The work lead (cable) is the most satisfactory means of providing the return (ground) circuit to the welding machine. Operating conditions may require the use of a grounded steel structure.

7) WELDING CABLES, CONNECTORS, GROUND RETURNS, AND MACHINE GROUNDING

A) All arc welding and cutting cables shall be of the completely insulated and flexible type.

B) Only cable free from repair or from need of repair shall be used. Repaired cables, or cables in need of repair, shall be reported to the supervisor for replacement.

C) If connections are affected by means of cable lugs, they shall be securely fastened together to give good electrical contact and exposed metal parts of the lugs shall be completely insulated.

D) Frames of all arc welding and cutting machines shall be grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current. Grounding circuits shall be checked to ensure that the circuit between the ground and the grounded power conductor has resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the circuit.

E) All ground connections shall be inspected to ensure that they are mechanically strong and electrically adequate for the required current.

8) ELECTRODES AND HOLDERS

A) Arc welding is done with either a metallic or carbon electrode. The carbon electrode is usually a solid carbon or a graphite pencil 1/4 inch in diameter or larger depending on the amount of current used.

B) Electrode holders used for shielded metal arc welding are used to connect the electrode to the welding cable supplying secondary current. Fully insulated holders shall be used.

C) Always use an electrode holder of the correct size for the electrode used. Dipping hot electrode holders in water shall be prohibited.

9) PROTECTION AGAINST ELECTRIC SHOCK

A) The voltage between the electrode holder and the ground during the "off' arc or "no load" period is the open circuit voltage. The operator shall be properly instructed and shall use the equipment provided for personal protection.

B) The employee shall keep his body insulated from both the work and the metal electrode and holder. Never permit the bare metal part of an electrode, the electrode insulation or any metal part of the electrode holder touch the body.

C) Some specific precautions for prevention of electric shock are:

i) In confined spaces, cover or arrange cables to prevent contact with falling sparks;

ii) Never change electrodes with bare hands or wet gloves or when standing on wet floor or grounded surfaces;

iii) Ground the frame of welding units (portable or stationary) in accordance with the National Electrical Code. With a small unit, a primary cable containing an extra conductor one end of which is attached to the frame of the welding unit shall be used.

By means of the proper polarized plug, the ground connection shall be carried back to the permanently grounded connection in the receptacle of the power supply;

iv) If a cable (either work lead or electrode lead) becomes worn exposing bare conductors, it shall be removed from service;

v) Keep welding cables dry and free of grease and oil to prevent premature breakdown of insulation;

vi) Protect cables that must be laid on the floor or ground so that they will not interfere with safe passage or become damaged or entangled; and

vii) Welding cables shall be kept away from power supply cables or high tension wires.

10) ITEMS COMMON TO GAS AND ARC WELDING AND CUTTING

A) Welding, cutting, and heating operations shall have suitable mechanical ventilation or respiratory protective equipment.

B) Ventilation is required when welding, cutting, or heating in or on the following:

i) Confined spaces;

ii) Zinc bearing base or filler metals or metal coated with zinc bearing materials;

iii) Lead base metals; and

iv) Chromium bearing metals or metals coated with chromium bearing materials.

C) Ventilation and air line respirators are required when welding, cutting, or heating of the following metals:

i) Metals containing lead other than as an impurity or metals with lead bearing materials;

ii) Cadmium bearing or cadmium coated base materials;

iii) Metals coated with mercury bearing metals; and
iv) Beryllium containing base or filler metals.

D) Objects to be welded, cut, or heated shall be moved to a designated safe location or if the objects to be welded, cut, or heated cannot be readily moved, all moveable fire hazards in the vicinity shall be taken to a safe place.

E) If the object to be welded, cut, or heated cannot be moved and if all the fire hazards cannot be removed, positive means shall be taken to confine heat sparks and slag and to protect the immovable fire hazards from them.

F) No welding, cutting, or heating shall be done near the application of flammable paints, or the presence of other compounds or heavy dust concentrations.

G) Suitable fire extinguishing equipment shall be immediately available in the work area and shall be maintained in a state of readiness for instant use.

H) When welding, cutting, or heating is performed on walls, floors, or ceilings direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, precautions shall be taken on the opposite side as are taken on the side on which the welding is being performed.

I) Empty containers that have contained flammable equipment shall be removed to a safe area apart from hot work operations or open flames.

J) Drums, containers, or hollow structures which have contained toxic or flammable substances shall be filled with water or thoroughly cleaned of such substances, ventilated and tested, prior to welding, cutting, or heating.

K) Before heat is applied to a drum, container, or hollow structure, a vent or opening shall be provided for the release of any built up pressure during the application of heat.

11) PROTECTIVE EQUIPMENT

A) The following is a list of protective equipment that shall be used:

i) Goggles, helmets, and shields that give maximum eye protection for each welding and cutting process shall be worn by the operators, welders, and their helpers. (These items shall conform to ANSI Z87.1 Practice for Occupational and Educational Eye Protection and Z89.1 Safety Requirements for Industrial Head Protection.) The following table is a guide for selecting the correct filter lenses for various welding and cutting operations;

FILTER LENSES SHADE NUMBERS FOR VARIOUS WELDING AND CUTTING OPERATIONS (WELDERS AND HELPERS)

WELDING OPERATION	SHADE NO.
Torch Soldering	2
Torch Brazing	3 or 4
Light Cutting Up to 1"	3 or 4
Medium Cutting 1" to 6"	4 or 5
Heavy Cutting 1" to 6"	5 or 6
Gas Welding (Light) Up to 1/8"	4 or 5
Gas Welding (Medium) 1/8" to 1/2"	5 or 6
Gas Welding (Heavy) Over 1/2"	6 or 8
Shielded or Metal Arc Welding Up to 5/32" Electrodes	10
Shielded Metal Arc Welding 3/15" to 1/4" Electrodes	12
Shielded Metal Arc Welding Over 1/4" Electrodes	14
Gas Metal Arc Welding (Nonferrous)	11
Gas Metal Arc Welding (Ferrous)	12
Gas Tungsten Arc Welding	12
Atomic Hydrogen Welding	12
Carbon Arc Welding	14

(Note: In gas welding or oxygen cutting where the torch produces a high yellow light, a filter lenses that absorbs the yellow or sodium line in the visible light shall be used.)

i) Flame resistant gauntlet gloves except on very light work;

ii) Apron of leather or other flame resistant material to withstand radiated heat and sparks;

iii) For heavy work, fire resistant leggings, high boots or similar protection;

iv) Safety shoes where heavy objects are handled;

v) High top boots are required during welding operations. Low cut shoes with unprotected tops shall not be worn;

vi) For overhead work, capes or shoulder covers of leather or other suitable material, skull caps of leather or flame resistant fabric shall be worn under helmets to prevent head burns. For overhead welding ear protection (wool or rubber plugs or wire screen protectors) shall be used; and

vii) Safety head gear as specified in Section 17 of this manual shall also be required.

SECTION 31 – LADDERS

1) GENERAL

A) This section covers the precautionary measures necessary for the safe usage of track supported and portable rolling ladders, stepladders, and ladder seats.

B) This section includes the description of the ladder block and its use as a safety measure with track supported rolling ladders.

2) LADDER PRECAUTIONS - GENERAL

A) Do not use defective ladders or ladders supported by defective track.

B) Before moving a ladder, make certain that no employee or equipment is on or below the ladder.

C) Do not leave tools, materials, or apparatus on unattended ladders. When these items are no longer required, they shall be cleared from the work site.

D) Do not throw tools and materials from the floor to an employee on the ladder or drop them from the ladder to an employee on the floor.

E) Do not at any time use nearby equipment, frames, racks, or other structures to assist in ascending, descending, or changing positions on ladders.

F) Do not climb frames or stand on motors, equipment, or other objects that are not designed for that purpose. Use a ladder, bench, or stool, whichever is appropriate. Employee shall not use a chair as a ladder.

G) Do not stand with one foot on the ladder and the other foot resting on equipment, frames, racks, or other structures.

H) Do not step from one ladder to another.

I) Do not use wax on ladder steps or handrails.

J) Painted ladders shall not be used. Paint may hide possible defects. (Ladders may be covered with a clear sealer.)

K) Do not overreach or lean to the side so far that loss of footing or balance may occur.

L) Place ladders so as to gain safe and easy access to the work at hand.

M) Always face the ladder when ascending or descending. Use the handrail or side rail to ascend or descend one step at a time.

N) Rubber soled shoes shall be worn in preference to shoes with leather soles.

O) Never lift the weight of your body from the ladder by grasping any overhead structure.

P) Do not jump or swing on or off a ladder.

Q) When descending, make certain that the last step has been reached before stepping to the floor.

R) Anytime the ladder is used when applying lubricants or other materials of similar nature, inspect the ladder during and after use to make certain that no substance has been spilled on the steps.

S) Perform periodic tests and inspections per manufacturer's instructions.

3) PORTABLE AND STEP LADDERS

A) Do not use any type of portable rolling ladder or stepladder as a straight ladder.

B) Before mounting portable rolling ladder (folding type) or stepladders, check that the spreaders are fully extended and locked.

C) Do not mount or climb from the rear on any portable rolling ladder (non-folding) or any stepladder that is designed to be mounted from one side only.

D) The third step from the top of the ladder is the highest ascent that can be safely maintained (with the exception of the platform type stepladder).

E) Do not place boxes or similar objects on a ladder or ladders on boxes or similar objects in order to gain additional height.

F) Do not attempt to shift the position of a ladder while on it.

G) When folding the ladder, care shall be exercised to avoid pinching the fingers in spreader braces.

H) When it is necessary to place a ladder in a doorway, the door shall be fastened in an open position, barricaded or guarded by another person.

I) When carrying a ladder from one place to another, guard against striking it against the ceiling, light fixtures, equipment, or other objects. When passing through doorways, make certain that no one is coming from the opposite direction. When necessary have other person open doors and assist in going around corners.

J) When ladders are not in use, return them to the correct storage area.

K) On portable rolling ladders, which are equipped with ropes to assist in folding the ladder, face the ladder, grasp the rope just above the spreader and pull toward the body.

L) Use a ladder of proper length to reach the working height you need. Use a ladder according to use and working load-the combined weight of the climber and the load being carried.

TYPE	DUTY RATING	WORKING LOAD
IA	Industrial	extra heavy 300 lbs. maximum
I	Industrial	heavy 250 lbs. maximum
II	Commercial	medium 225 lbs. maximum
III	Household	light 200 lbs. maximum

M) Inspect the ladder

i) Always inspect the ladder before you use it. Never use the ladder if it is damaged, broken or bent.

ii) Don't make a temporary repair of broken or missing parts and then use the ladder. The temporary repair could fail while you're high off the ground. A ladder should be free from grease, oil, mud, snow and other slippery materials before using.

N) Moving the ladder

i) You should carry a single or extension ladder parallel to the ground. Hold the side rail in the middle of the ladder so you can balance the load. You should get help moving a very long ladder.

ii) You should always carry a stepladder in the closed position.

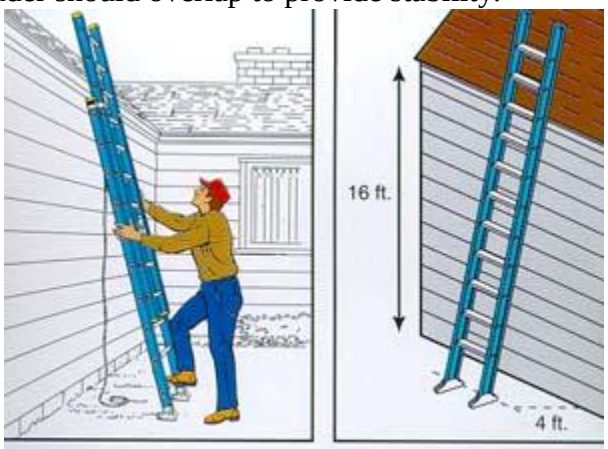
O) Setting up the ladder

i) Before you use a single, extension or stepladder outside the house, make sure it will not hit electrical wires, tree limbs or any other obstructions when it is extended.

ii) To ensure that the ladder is stable, place the feet of the ladder on firm, even ground.

iii) The bottom of the ladder should be 1 foot away from the wall for every 4 feet that the ladder rises. For example, if the ladder touches the wall 16 feet above the ground, the

feet of the ladder should be 4 feet from the wall. If you are going to climb onto a roof, the ladder should extend 3 feet higher than the roof. The upper and lower sections of an extension ladder should overlap to provide stability.



Use the 4-to-1 rule when setting up a ladder.

4) TRACK SUPPORTED LADDERS

A) When moving a ladder, make certain that no employee is on or below the ladder.

B) Move ladder slowly and evenly to avoid ramming the ladder stops on the track.

C) Do not ascend or descend a moving ladder.

D) When ascending a ladder, guard against striking head against ladder track or other overhead metal framework.

E) Do not use the brake rope to ensure stability except when it is necessary to hold the brake rope while moving the ladder.

F) Do not mount a platform type rolling ladder from the rear.

G) A <u>track supported ladder</u> may be moved by the employee while aloft unless:

i) It is necessary to move it across the aisle;

ii) The path is obstructed in any way;

iii) It must be moved a distance of more than five feet;

iv) For any other reason that the ladder cannot be moved safely;

v) Portable rolling ladders shall <u>not</u> be moved by the employee while aloft; and

vi) To move a track supported ladder (not equipped with a brake) while aloft, grasp the handrail with one hand and using the other hand on the superstructure push or pull the ladder slowly and evenly in the desired direction. If the ladder is equipped with a brake, grasp the brake rope instead of the handrail, pull down on the brake rope, hold it so that the brake is released, and then move the ladder as outlined above. While holding the brake rope, the arm shall be braced against the side rail or step of the ladder to ensure stability.

H) When working on a rolling ladder not equipped with a seat, the employee shall work in a well balanced position with both feet securely placed on the same step. If a temporary condition exists which makes it necessary to work in a position other than the one described above, one leg shall be placed over a ladder step to ensure stability.

I) Do not leave unattended ladders in cross aisles.

J) Do not climb from a rolling ladder to the superstructure or other elevated points unless the ladder is held securely by another employee.

K) When working on a ladder which extends partly into an aisle, suitable measures such as blocking off the area shall be used to warn passersby that there is someone aloft.

L) Before descending a rolling ladder, make certain that there is no other person or object on the steps below.

M) When stepping from a ladder to the floor, proper footing with both feet on the floor shall be assured before letting go of the handrail. Do not push the ladder while stepping to the floor.

N) When it is necessary to move a ladder across an aisle intersection, exercise extreme care to prevent striking any passersby.

O) To prevent bending or breaking hanger rods, do not mount or climb a ladder which has been sideways from its normal position more than 12 inches at the wheel.

P) Always use the wood ladder block for track supported rolling ladders not equipped with a brake.

5) LADDER BLOCK

A) The ladder block is a wood block approximately 10 inches long, 3-1/4 inches wide and 1-5/8 inches high. A "V" shaped depression in the top accepts the wheel of a track supported rolling ladder.

B) The block is equipped with a screw eye so that it may be hung from a hook attached to the bottom center rear of the second step of a rolling ladder whenever the block is not in use.

C) This ladder block shall be used when using ladder seats working in one location for extended periods of time or performing heavy work.

D) When operations are performed from a track supported ladder not equipped with brakes, a ladder block shall be placed under one wheel.

E) Maximum braking effect is secured by placing it under the wheel nearest the equipment on which the work is being done.

6) LADDER SEATS

A) Use ladder seats only on track supported ladders.

B) Do not use a defective ladder seat. Inspect wooden seats frequently for loose nuts and screws, cracks and splits.

C) Avoid contact with wiring or equipment while transporting and placing ladder seats.

D) When ascending or descending a ladder and carrying a ladder seat in one hand, place the other hand on the handrail and ascend or descend the ladder one step at a time.

E) Do not stand on ladder seats.

F) Tools, equipment, and materials shall not be left on unattended ladder seats.

G) Remove all tools and equipment from ladder seats and ladder before removing seat.

H) When ladder seats are not in use, they shall be placed in their assigned locations.

I) When placing or removing a wooden ladder seat on the ladder, follow manufacturer's instructions.

7) EXTENSION LADDERS

A) This section describes laminated wood and fiberglass extension ladders to be used by COSA employees and specifies methods of using the ladder safely.

B) Aluminum extension ladders shall NOT be used by CoSA employees.

C) Wooden Ladders

i) Rails: shall be laminated for structural strength and reliability and made of ladder grade wood materials.

ii) Rungs: Full 1-5/32" diameter (minimum).

iii) Rope: 5/16” safety yellow polypropylene with 1-1/4” aluminum pulley; rope clamp attaches rope to bottom rung permanently.

iv) Lock: Automatic spring type with 1/4" flat steel hook.

v) Ladder Stop: Steel 3/16" size double riveted to side rail.

vi) Rung Braces: Heavy-duty 16 gauge steel plated to prevent rust.

vii) Anti-Split Rivets: inserted at tops and bottoms of side rails to minimize side rail end damage.

viii) Wood Preservative Treatment: Wood preservative and water repellent especially formulated for treatment of wood intended for outdoor use.

ix) Swivel Safety Shoes: The safety shoe in the #1 position provides additional protection against slippage. In the #2 position, the shoe becomes a self-sharpening spike. (*Note: All Extension Ladders Must Be Equipped With Swivel Shoes*.)

x) All sizes given are minimum requirements.

D) Fiberglass Ladders

i) Top Caps and Bottom Plug: Durable aluminum castings that protect the top and bottom of both the base and fly sections. The bottom plug on the base of the fly section shall be serrated to reduce slippage of the sections when used separately.

ii) Outside Slide Guides: Four heavy-duty plated steel outside slide guides that allow sections to be easily taken apart.

iii) Rope and Pulley: 1-1/4" laminized steel pulley shall be installed on the top rung of the base with the clevis brackets. All weather polypropylene rope shall be standard on all fiberglass ladders.

iv) Rung to Rail Connection: The rung plate and rung assembly shall be riveted in four places to handrail for maximum strength and durability.

v) Wear Sleeve: Stainless steel wear sleeves shall be placed intermittently on the rungs of the base section near the side rail to reduce friction as the fiberglass side rails of the fly section pass over them when the ladder is raised and lowered.

vi) Rung Locks: Case aluminum spring loaded gravity type shall be attached to side rails with plated steel brackets installed so the ladder has full complement of rungs.

vii) Rung Braces: Plated steel run brackets shall be used at stress points to furnish additional strength and help minimize side sway.

viii) Swivel Safety Shoes: Large case aluminum swivel shoes with thick corded rubber bottom and spiked ends. (Note: All Extension Ladders Must Be Equipped With Swivel Shoes.)

ix) Dimensions given are minimum requirements.

8) SAFETY PRECAUTIONS

A) When working in areas exposed to vehicle traffic, place ladders on the side of the work away from the traffic whenever possible. The ladder shall be placed against the work in the position which provides the most stable footing.

B) If the ladder must be placed in a work location where it may be struck by vehicles or pedestrians, arrangements shall be made for an employee to guard the ladder. In addition, display warning flags, cones or signs to direct traffic around the work site.

C) Defective, unsafe, or damaged ladders shall be removed from service and tagged as UNSAFE. The ladder shall be repaired or replaced before being used. Ladders that cannot be repaired shall be destroyed.

D) Do not place ladders on boxes, barrels, or other objects to obtain additional height; use a ladder of sufficient length for the job at hand.

E) Keep hands and feet off the rungs when raising or lowering the upper section of an extension ladder. Stand clear when the top section is being lowered.

F) Avoid spilling or splattering paraffin, paint, or other materials on a ladder.

G) Make certain that ladder locks are engaged properly and the ladder rope is tied securely to one of the rungs on the bottom section before climbing an extension ladder.

H) Ladders shall be placed so that at least two rungs extend above the top support when the employee is in position on the ladder.

I) Only one employee at a time shall be on a ladder.

J) When a ladder is securely placed, held by an employee, lashed or otherwise secured so it cannot fall, the employee on it may improve their security by passing one leg between the rungs.

K) When on ladders do not allow wire, hand lines, or ladder ropes to dangle to the ground. The hand line when not in use will be tied to the lower portion of the ladder or pulled aloft.

L) Employee shall not slide down an extension ladder

M) Never carry an extension ladder from one location to another while it is extended. First lower the ladder and secure the ladder rope, then extend it again at the new location.

N) Point the ladder feet forward and downward when carrying a ladder on the shoulder.

O) Avoid swinging the ladder into the path of passing vehicles or pedestrians when carrying a ladder or removing it from a motor vehicle.

P) Do not place ladders where they may come in contact with power lines.

Q) Do not use a ladder in a horizontal position as a platform, runway, or scaffold.

9) SELECTING FOOTING

A) Use care in positioning ladders before climbing them. Place the foot of the ladder on the ground or other firm support so that the distance from the ladder to the base of the surface against which the ladder is leaned is approximately 1/4 of the length of the ladder from top support to bottom support. The ladder shall be braced, fastened, or securely held.

B) Set a ladder only on secure footing. Set both feet of the ladder at the same level. If a ladder leans to either the right or left, it is not properly placed. Always place an extension ladder to be climbed with the top section to the front.

10) REFINISHING WOOD AND FIBERGLASS LADDERS

A) After using wood or fiberglass extension ladders for several years, the ladder finish will wear off.

B) When this occurs in fiberglass, the small fibers protrude from the ladder surface. Refinish a fiberglass ladder as follows:

i) Wash the ladder thoroughly with a mild detergent (such as a dishwashing liquid). Make sure all dirt, grease, etc., is removed from the ladder. The ladder surface shall be completely clean;

ii) Any small fibers protruding from the ladder surface must be removed by sanding with sandpaper or steel wool. When the surface is smooth, wash the powder or dust traces from the ladder surface and allow time for the ladder to dry; and

iii) Inspect the ladder surface making sure the surface is dry, smooth, and clean. Cover the fiberglass surface with clear acrylic lacquer. (DO NOT COVER THE RUNGS). The lacquer shall be applied by brush or spaying. Lacquer shall not be used in a closed area. If the refinishing is done indoors, the room shall be well ventilated.

C) Refinish a wood ladder as follows:

i) Wash the ladder thoroughly with a mild detergent (dishwashing liquid). Make sure all dirt, grease, etc., is removed from the ladder. The ladder surface shall be completely clean;

ii) Any splinters protruding from the ladder surface must be removed by sanding the surface with sandpaper; and

iii) Inspect the ladder surface making sure the surface is dry, smooth, and clean. Cover all ladder surfaces (including rungs) with approved wood preservative.

SECTION 32 – POWERED INDUSTRIAL LIFT TRUCKS

1) GENERAL

A) Lift trucks require safeguarding for the operator's protection and for the safety of other trucks.

B) Safe operation of lift trucks reduces injuries, property damage and excessive maintenance.

C) Forklift trucks are compact and highly maneuverable and are designed for handling packaged, boxed, or bagged material or palletized parts that can be stacked. Many specific designs are developed for particular jobs to be done.

D) Rated truck load capacity shall be enough to exceed any expected load to be handled and displayed at all times on the vehicle in such a manner that is readily visible to the operator Attempting to lift more than the forklift is designed to handle may damage the truck, and cause tipping of the unit.

E) Forklift trucks for use on uneven surfaces and on dirt or gravel surfaces shall be equipped with pneumatic tires.

F) Overhead protection is required to protect the operator from falling objects.

G) Lift trucks shall have a means to prevent over travel of hoists and tilt motions. If lifting systems are hydraulically driven, an overload valve shall be installed in the system and suitable stops provided to prevent over travel.

H) Check the vehicle is in safe operating condition. Check oil and water. Look for any leaks or puddles under the vehicle. Check tires, brakes, hoses, connections and the general condition of the vehicle before starting the engine. Never start the engine or operate the vehicle in any position other than from the operator's seat.

I) After starting the engine, check steering, recheck brakes, make sure the transmission and gear box operate properly and check the lights and horn. Make sure all other controls operate smoothly and properly before driving.

J) Seat belt shall be worn by the operator prior to moving vehicle.

K) No Riders are Allowed.

L) Face the direction of travel at all times. Do not exceed the speed limits. Sound the horn at blind corners and when backing. Travel with the forks carried as low as possible.

M) All vehicles which operate in an area that is not well illuminated (less than two lumens per square foot) shall be equipped with lights.

N) All forklift trucks shall be equipped with horns or other audible warning.

O) Forklift trucks shall not be altered or modified in any way without written approval from the manufacturer of the equipment.

P) Keep arms, legs, and other body parts within the dimensions of the operator's compartment. Do not reach between mast arms to turn off the key or to move the forks.

Q) Never stand or pass or permit anyone else to stand or pass under elevated forks.

R) Park the vehicle with forks as close to the ground as possible facing in a downward fashion to make them flush with the ground. Before leaving the vehicle, shut off the power, set the parking brake, and put controls in neutral and remove the key. When parking on an incline chock the wheels.

S) Never leave the vehicle unattended when the engine is running.

2) HAZARDS

A) There are two primary hazards inherent in the operation of lift trucks:

i) Collision or overturning of the truck; and

ii) Movement or collapse of bridge plates, dock boards, or truck beds into which the vehicle has been driven.

B) Additional danger exists during the handling of materials, including bags, cartons, boxes, or other articles that may fall during material handling.

C) Lift trucks shall be equipped with overhead protection.

D) Do not operate gasoline, diesel, or liquefied petroleum gas powered trucks in confined areas due to exhaust and carbon monoxide being expelled.

3) ELECTRIC TRUCKS

A) Handling and charging storage batteries for electric lift trucks involve several hazards. Employees shall wear chemical goggles, rubber gloves, aprons, and rubber boots during filling and handling operations.

B) Battery changing and charging operations shall be performed by trained, authorized personnel.

C) Battery changing and charging operations shall be located in areas designated for that purpose. Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting the changing apparatus against damage by trucks, and for adequate ventilation to disperse gases and fumes from the batteries.

D) When racks are used to support batteries, they shall be made of nonconductive material or be coated or covered by insulating material.

E) When filling batteries with electrolyte, acid shall be poured into water. NEVER pour water into acid. Wash spilled electrolyte off skin or clothing immediately. Clean up all spills.

F) Trucks shall be properly positioned and the brake applied before attempting to change or charge batteries. Reinstalled batteries shall be properly positioned and secured in the truck.

G) When charging batteries, the vent caps shall be kept in place to avoid electrolyte spray. Care shall be taken to assure that vent caps are functioning; the battery cover shall be open to dissipate heat.

H) Smoking shall be prohibited in the charging area. Sulfuric acid used for refilling shall be containerized and disposed of according to current regulations.

I) Precaution shall be taken to prevent open flames, spark, or electric arcs in battery charging areas.

J) Battery terminals shall be clean, connections tight, and the battery securely locked in placed in the truck. Tools or metal parts shall never be laid on a battery.

4) GASOLINE OPERATED TRUCKS

A) Gasoline for trucks shall be handled and stored in accordance with provisions of NFPA 30 Flammable and Combustible Liquids Codes.

B) Fuel tanks on gasoline operated trucks and tractors shall be filled at designated locations with filling hose and equipment properly grounded and bonded.

C) Safety cans used for fuel handling shall be tested and approved by Factory Mutual or Underwriters' Laboratory.

D) Engines shall be stopped and operators shall be off trucks before trucks are refueled. Smoking is not permitted during refueling.

E) Employees shall avoid spilling gasoline or overflowing the gasoline tank during refueling.

F) Gasoline tanks shall be drained into bonded, self-closing cans.

5) LIQUIFIED PETROLEUM GAS OPERATED TRUCKS

A) Only listed fuel containers designed in accordance with "NFPA Standards" shall be used. Permanently mounted fuel containers shall be charged outdoors and storage facilities and charging equipment shall meet the requirements of NFPA 58.

B) For fuel containers used on industrial trucks, a device, such as an excess flow check valve shall be provided in the fuel system to reduce the escape of fuel in the event that a pressure fuel line or fitting breaks. Exchange of removable fuel containers shall be in accordance with NFPA standards.

C) A special building or outside storage area is required for the storage of fuel containers.

D) The person filling the containers shall be trained in the safe handling of LP-gas.

E) The filling area must conform to NFPA 59 and applicable state or local regulations. Trucks themselves must comply with NFPA 505.

F) LP-gas fuel trucks shall be stored in a well ventilated building or fire resistant enclosure. Ventilation shall be provided at floor level. A lift truck shall not be garaged in the same room with stored gas cylinders.

G) A thorough inspection and maintenance procedure for LP-gas fuel trucks shall be followed. No repair work on LP-gas fueled industrial trucks shall be permitted indoors without first removing the fuel container.

H) If the fuel container is permanently mounted, major repairs shall be made outdoors. NFPA standards prevent no more than two LP-gas containers on each industrial truck.

I) When converting a gasoline fuel truck to an LP-gas fuel truck, use only the Underwriters Laboratory or Factory Mutual approved fittings. These fittings and units shall include all safety features that are incorporated in LP-gas fuel truck requirements by the testing agency.

J) The units and fittings shall be installed in strict conformity with the requirements specified in NFPA 58 "Storage and Handling of Liquefied Petroleum Gases" and UL 558.

K) The conversion shall be attempted only by qualified mechanics that are familiar with handling LP-gas equipment.

6) LIFT TRUCK OPERATION

A) Inspect hydraulic cylinders, masts, forks, hoses and lifting chains for any cracks, damage, leaks, or other hazardous conditions.

B) Determine the job to be done and any special instructions concerning possible hazards including the handling of any hazardous or toxic substances.

C) Never exceed five miles per hour when operating a lift truck.

D) Loading the truck:

i) Know the capacity of the vehicle and keep the load within those limits;

ii) Do not move a questionable or unsafe load; inspect for overload, loose materials or poor balance;

iii) Avoid lifting loads with one fork of a forklift truck;

iv) Do not push heavy loads with one corner of the truck;

v) Avoid striking any object with the fork tips;

vi) Position loads evenly on forks for proper balance; and

vii) When lifting, lowering, or carrying loads, keep the mast of the vehicle slightly tilted back, never forward. Lift loads slowly; avoid sudden jerks, stops or turns.

E) Traveling with the load:

i) Start and stop trucks gradually and slowly;

ii) Carry the load as close to the floor as possible;

iii) For better vision, drive backwards with a bulky load; always look in the direction of travel;

iv) Drive in reverse when carrying loads down a ramp or incline and look in the direction of travel;

v) Keep clear of the edge of loading docks and platforms;

vi) Keep the load on a lift against the carriage with the mast of the truck tilted backward to cradle the load; and

vii) Do not raise or lower a load when traveling.

F) Depositing the load or stacking:

i) Tilt an elevated load forward only when it is directly over the unloading place and keep the load as low as possible; and

ii) Use special care and check overhead room when stacking materials near heaters, electrical wiring, pipes, or other fragile or dangerous equipment.

7) AERIAL

A) Each aerial lift operator shall be thoroughly trained in the use of the equipment before it is operated at a job site. The operator shall not only know the particular equipment involved but also the type of work it will do in the field.

B) In addition to precautions necessary in driving a standard truck, the driver shall be constantly aware that the vehicle has exposed equipment above the elevation of the truck cab and must check clearances before driving under overhead obstructions. An automatic warning device such as flag or lights shall be provided to notify the driver when the boom is up.

C) The operator shall be certain that conditions are clear before moving the vehicle. Movement of an aerial basket truck with personnel in the basket except for certain operations under conditions specified in this section is prohibited.

D) Employees shall know the road limits and design capabilities of the equipment.

E) Prior to movement of the basket, the operator shall note the location of all obstructions and hazards and plan movements to avoid them. The operator shall <u>always</u> face the direction in which the aerial lift is to move.

F) Maintaining clearance from energized equipment is equally important when working from a basket. When working 42 feet and above, basket shall be insulated and certified to 69KV. - Per ANSLA92.2 requirements.

G) Power shall be stopped when a leak is detected in the air or hydraulic lines.

8) TYPES OF EQUIPMENT

A) Aerial baskets are designed to move personnel and equipment aloft and to provide a platform so work can be done on elevated structures. Present machines provide working heights of 30 feet or more.

B) There are two types of booms:

i) Articulated arms or "elbows" which operate in a manner similar to a person's arm. If the upper arm is capable of moving more than 180" with respect to the lower arm, it is considered fully articulated. If the capability is less than 180°, it is considered semi-articulated; and

ii) Telescoping booms are those in which upper sections telescope into and out of lower sections.

C) Booms are operated by hydraulic pistons, cables, and pulleys or a combination of both. The basket can be controlled from either of two control stations, one located on the basket and the other at ground level on the vehicle. Controls shall be the "dead man" type, which automatically stop the equipment when released. The lower controls will override the upper controls.

D) The manufacturer's recommendations on loading shall be adhered to at all times.

E) Light duty equipment refers to units which have the ability to lift one employee and a small amount of material and equipment in an insulated basket to a maximum working height of approximately 42 feet. The maximum capacity of a single basket limited by the basket design is usually 300 pounds.

F) Heavy-duty equipment includes units designed to lift two employees to working heights of more than 42 feet. Rated base capacity is usually 500 to 600 pounds. However, capacities of up to 2,000 pounds are available on some equipment. Check manufacturer's rating of equipment to be used prior to loading.

9) HAZARDS

A) Most frequent causes of accidents while using mobile aerial baskets are:

i) Failure to observe proper precautions against electrical hazards to personnel both aloft and on the ground;

ii) Improper positioning of vehicle or outriggers;

iii) Lack of sufficient blocking under outriggers or overloading the boom;

iv) Overreaching from basket or other improper working procedures;

v) Failure to use proper personal protective equipment;

vi) Improper moving of the truck while the boom is raised or moving it where there is inadequate clearance for the boom;

vii) Failures of structural or mechanical parts, or jamming of controls;

viii) Swinging the boom or basket against overhead obstructions or energized equipment; and

ix) Moving the boom into positions that interfere with traffic.

10) INSPECTIONS

A) Equipment shall be inspected prior to start of each shift. An effective daily inspection shall cover the following:

i) Visual inspection of all attachment welds between actuating cylinders and booms or pedestals;

ii) Visual inspection of all pivot pins for security of their locking devices;

iii) Visual inspection of all exposed cables, sheaths, and leveling devices for both wear and security of attachment;

iv) Visual inspection of hydraulic system for leaks and wear;

v) Check of lubrication and fuel levels;

vi) Visual inspection of boom and basket for cracks or abrasions;

vii) Operation of booms from ground controls through one complete cycle noting any unusual noises and deviations from normal operations; and

viii) Defects found shall be reported to a supervisor, and corrected before use of equipment.

B) Before leaving the yard or garage, the driver shall check the operating condition of the brakes, lights, and other automotive operating accessories such as the horn and windshield wipers. Before maneuvering the basket into any space that contains obstructions, the operator shall test basket controls to be sure they are in proper working order. Equipment shall not be used if tests indicate controls are not working properly.

11) BASKET SAFEGUARDS

A) Aerial baskets shall be equipped with a safety belt and lanyard to be worn by all personnel working from the baskets. The lanyard shall be attached to the equipment. Lanyards shall only be long enough to allow movement within the basket and prevent climbing onto the rim.

B) Employees shall only enter or leave the basket when it is resting on the ground or cradle in the traveling position. When the basket is being lowered, personnel on the ground shall stand clear of the path of the basket and boom.

C) When employees are in the basket, ground personnel shall stay away from the area directly below the basket. Tools and materials shall not be thrown to or from the elevated basket. Personnel working aloft shall secure all tools that are not in use.

D) No one shall operate the lowering controls to move the boom unless requested by the person in the basket or in case of emergency.

E) Neither truck boom nor basket shall be considered electrically insulated.

12) SETTING UP

A) Barricades as outlined in this manual shall be set up as required. When establishing work areas, be sure to consider location of overhead conductors and other surrounding conditions and how extended boom movements may interfere with traffic. Movement of vehicles during the job shall be avoided by careful planning and selecting the original position so that all or the majority of work areas can be reached from one setting.

B) Use strobe warning lights on vehicles to alert oncoming traffic.

C) When the vehicle is set up, the brake locks shall be engaged and wheels shall be chocked in both directions front and rear.

D) When the vehicle is situated on a grade, at least two wheels shall be chocked on the downgrade side.

SECTION 33 – CONFINED SPACE ENTRY

1) GENERAL

A) Confined spaces pose special dangers because their internal configurations may hamper efforts to protect entrants from serious hazards such as toxic, explosive and/or asphyxiating atmospheres.

B) A Confined Space is any space that:

i) Is large enough and so configured that an employee can bodily enter and perform assigned work;

ii) Has limited or restricted means for entry or exit (example: tanks, hoppers, storage bins, vaults, pits.); and

iii) Is not designed for continuous human occupancy.

C) A Permit Required Confined Space (or Permit Space) is a space that meets the criteria above and any of the criteria below:

i) The space currently contains or has the potential to contain a hazardous atmosphere;

ii) Contains a material that has the potential for engulfing an entrant;

iii) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or

iv) Contains any other recognized serious health hazard.

D) A trained supervisor designated by the department, shall complete a confined space pre-entry checklist, (these forms may be copied), prior to filling out a confined space entry permit, (these forms may be copied).

i) This permit shall be completed, numbered, and posted at the job site prior to entry of the confined space by any employees, and shall remain posted until the work is complete. Copies of the pre-entry checklist and confined space entry permit shall be forwarded for record filing as per department policy.

2) EMPLOYEE NOTIFICATION AND POSTING

A) All appropriate COSA employees must be advised through training of the presence of both confined spaces and permit spaces on-site.

B) Confined space should be marked and identified.

3) HAZARD DETERMINATION

A permit required confined space requires specific procedures in order to proceed with an entry. These procedures are in the form of a checklist and are located on the entry permit. Prior to entry into a permit space, a confined space permit must be completed and signed off on by all appropriate personnel. This permit shall be posted at the entrance to the permit space.

4) CONTRACTORS

Contractors may enter permit spaces on-site provided that a pre-entry meeting takes place. The discussion should identify any hazards and experiences that make the space in question for a permit. The contractor shall also be informed of any precautions or procedures that COSA has implemented for the protection of employees in or near permit spaces where contractor personnel will be working. Contractors shall also be offered a chance to meet at the conclusion of the entry operations regarding the permit space program followed and any hazards confronted or created in permit spaces during entry operations.

5) ENTRY EQUIPMENT

A) To help ensure the safety of employees who will be entering permit spaces, the following equipment will be used:

i) Atmospheric testing and monitoring equipment;

ii) Ventilating equipment;

iii) Communication equipment, when necessary;

iv) Personal protective equipment for use when feasible engineering and work practice controls do not adequately protect employees;

v) Lighting equipment as needed in order for employees to see well enough to perform work safely and exit the space quickly in an emergency;

vi) Barriers and shields, as needed, to protect permit space entrants from hazards from outside the permit space;

vii) Equipment, such as ladders, needed for safe entry and exit from permit spaces by authorized entrants; and

viii) Lifelines, harnesses and/or approved mechanical lifting systems for use in vertical entries greater than 5 feet.

Employees who enter confined spaces must have the means available to be in continual contact with attendants. This will allow for timely exit of the space in case of emergency.

6) TRAINING

A) Prior to any entrance into a permit space, all parties involved shall be trained on the proper procedures for working in permit spaces. Trained employees, supervisors, managers, and directors shall acquire the understanding, knowledge, and skills necessary for the safe performance of the duties that they will perform.

B) Training shall be provided to all employees involved in permit space entry:

i) Before the employee is first assigned permit space duties;

ii) Before there is a change in permit space assigned duties that will require the employee to perform permit space work;

iii) Whenever there is a change in permit space operations that presents a hazard about which employee has not been previously trained; and

iv) Whenever management, or Risk Management has a reason to believe that proper permit space entry procedures are not being followed or if there are inadequacies in the employee's knowledge or use of permit spaces systems and/or procedures.

C) The training includes objective measures of the employee's knowledge by way of a written course content examination and a practical (hands on) test of skills. Record of attendees and content materials shall be kept on file. Documentation includes the names and signatures of all trained employees, along with the date of the training and the name and signatures of the trainers.

D) Employees who are required to be trained in the proper procedures for working in and around permit spaces include:

i) Authorized Entrants - An individual who is authorized to enter a permit space;

ii) Attendant - An individual who is stationed outside one or more permit spaces and who monitors the authorized entrant(s);

iii) Entry Supervisor – An individual responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.

7) AUTHORIZED ENTRANT TRAINING

A) Training provided to an authorized entrant must ensure that the employee:

i) Knows the hazards that may be faced during entry, including information on the mode, sign or symptoms, and consequences of the exposure;

ii) Properly uses equipment necessary for atmospheric testing and safe entry into permit spaces;

iii) Communicates with the attendant as necessary to enable the attendant to monitor entrant's status and to enable the attendant to alert entrants of the need to evacuate the space;

iv) Alerts the attendant whenever any warning sign or symptom of exposure to a dangerous condition presents itself; and

v) Exits from the permit space as quickly as possible whenever:

(a) An order to evacuate is given by the attendant or the entry supervisor;

(b) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;

(c) The entrant detects a prohibited condition such as a toxic atmosphere, engineering control malfunction, etc.; or

(d) An evacuation signal or alarm is activated.

8) ATTENDANT TRAINING

A) Training provided to attendants must ensure that the employee:

i) Knows the hazards that may be faced during entry, including information on the signs and symptoms and consequences of chemical overexposure;

ii) Is aware of the possible behavioral effects of hazardous chemical overexposure in entrants;

iii) Continuously maintains an accurate account of authorized entrants;

iv) Remains outside the permit space during entry operations until relieved by another authorized attendant;

v) Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space; and

vi) Monitors the activities both inside and outside the space to determine if it is safe for entrants to remain in the space and orders the entrants to evacuate the permit space immediately under any of the following conditions:

(a) If the attendant detects a prohibited condition;

(b) If the attendant detects behavioral effects of hazardous chemical exposure in an entrant;

(c) If the attendant detects a situation outside the permit space that could endanger the entrants; and

(d) If the attendant cannot effectively and safely perform all attendant duties, summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape form permit space hazards.

vii) Takes the following actions when unauthorized persons approach or attempt to enter a permit space while entry is underway:

(a) Warn the unauthorized persons that they must stay away from the space;

(b) Advise the unauthorized persons that they must exit immediately if they have entered the permit space;

(c) Inform the authorized entrants and the entry supervisor of unauthorized persons who have entered the permit space;

(d) Performs non-entry rescues as specified by rescue procedures; and

(e) Performs no duties that might interfere with the attendant's primary duty to monitor and protect the entrants.

9) ENTRY SUPERVISOR TRAINING

A) An entry supervisor may also serve as an attendant or as an authorized entrant provided that that person is trained and equipped as required by the standard for each role that he/she fills. The duties of the entry supervisor may be passed from one trained individual to another during the course of an entry operation.

B) Training provided to entry supervisors must ensure the supervisor :

i) Knows the hazards that may be faced during entry, including information on the signs and symptoms and consequences of chemical overexposure;

ii) Verifies, by checking that the appropriate entries have been made on the permit, that all test specified by the permit have been conducted, and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing for entry to begin;

iii) Terminates the entry and cancels the permit when the entry operations are completed or when a condition that is not allowed under the permit arises in or near the permit space;

iv) Verifies that rescue services are available and that the means for summoning them are operable;

v) Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations; and

vi) Determines whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space that entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.

10) FIRST POINT OF EMERGENCY CONTACT AND RESCUE SERVICES

A) San Antonio Fire Department is the first point of contact for all permit space emergencies.

B) In the event of an emergency, the attendant shall contact 911, evacuate the job site, close off the area and keep the area free of all non-essential personnel.

C) Remove victims with harness and other rescue equipment, and utilize CPR and first aid techniques ONLY if trained to do so.

11) PRECAUTIONS

A) *Never Enter A Confined Space Even Momentarily Until It Has Been Tested For Combustible Gas And Then Power Ventilated (Purged) With The Blower Operating At The Maximum Rated Speed*.

B) The blower shall remain in operation during the entire time anyone is in the confined space. Do not operate the blower in any type of enclosure such as a tent, vehicle, trailer, tool cart, etc. Locate the blower in an unconfined space with the blower intake away from traffic and the blower exhaust away from the manhole opening. The blower shall be located a minimum of five feet from the opening to avoid returning purged air into the manhole.

C) Care shall be taken when setting up the blower hose to prevent unnecessary vents or restrictions. Vents or restrictions shall be kept to a minimum to prevent reducing the air output at the end of the blower hose to below the certified rate. During purging (hose in dropped position), the hosing shall extend into the confined space a minimum of one foot below the ceiling and shall be at least two feet above the floor level.

D) *Under No Circumstances Shall A Cigarette Lighter, Match, Or Other Item That Produces A Hot Spark Be Operated Or Ignited In A Confined Space*.

E) Any tool producing an open flame or sparks shall be kept away from the blower air intake.
F) Only approved explosion proof lighting and heating equipment shall be used. Connections and disconnections of electric lighting, equipment, etc., shall be made outside the confined space.

G) Storage batteries shall not be brought into a confined space.

12) BLOWER CAPACITIES

A) Confined space ventilation with forced air is necessary to expel hazardous gases that may be present and to maintain an adequate supply of oxygen, which is 19.5% to 22%.

B) The effective blower capacity is defined as the actual blower output in cubic feet per minute (CFM) delivered at the end of the standard blower hose. The tests are made with one 90 degree bend (continuous ventilation position) in the blower hose and the results are certified by the testing laboratory.

13) BLOWER MAINTENANCE

A) All blower units shall to be cleaned and checked periodically to be sure they are operating at rated capacity. Improper blower operation can cause a reduction in blower motor speed and a reduction in air delivery.

B) Air delivery of electrically powered blowers generally shall not vary from the norm if line voltage and frequency are held at the value for which the motor is designed and there is no damage to the blower components. Air delivery of blowers powered by internal combustion engines will vary appreciably if the engine is not properly maintained and adjusted to operate at the governed engine speed for the manufacturer's specifications.

C) Blowers shall be in good condition. Hoses with leaks, tears, or other damage shall be repaired or replaced as required.

14) SETUPS FOR TESTING AND PURGING MANHOLES

A) Initially test for combustible gas with the end of the sampling tube at head height in the manhole. If this cannot be accomplished by lowering the tube directly into the manhole, a permanent installation of gas sampling tubing shall be provided. The tubing shall be installed with one end at or near the middle of one side wall and at head height away from the direct output of the blower. The other end shall terminate in the manhole entrance and be accessible from a position outside. The entrance shall be equipped with a capped end fitting for attaching the gas indicator and valve for connecting an air chuck to clear the tubing of any residual gas, dirt, or water.

B) Conventional manholes are rectangular in shape and accessed through the manhole roof and have the collar height short enough so that the standard blower hose is adequate in length for purging and for continuous ventilation. Manholes that are smaller than 1,000 cubic feet are purged by opening the manhole cover and dropping the end of the blower hose into the manhole (one 90 degree bend in the blower hose). Conventional manholes larger than 1,000 cubic feet are purged with two manhole covers removed at opposite ends of the manhole.

C) Irregular shaped manholes often result from enlarging an existing manhole. If the manhole has two floor levels or if it is configured so that air flow is restricted, purge time shall be based on the affected blower capacity with two 90 degree bends in the hose.

D) Deep neck manholes are defined as those manholes with entry through the roof and with a long collar height so that one 15-foot blower hose is not adequate in length for purging and continuous ventilation. Deep neck manholes shall be purged and ventilated by coupling two standard blower hoses or by utilizing a permanent ventilation duct installed either in the collar or adjacent to the manhole.

E) If the collar height is greater than five feet, the volume of the collar shall be added to the volume of the manhole for determining purge times, per manufacturer's instructions.

F) When purging with a coupled hose, purge time shall be based on the effective blower capacity with two 90^0 bends in the standard blower hose to compensate for pressure drop in the longer hose.

G) Where permanent ventilating duct is installed, the effective blower capacity with one 90 degree bend in the blower hose shall be used to determine purge time. Ventilating ducts shall be placed to avoid interference with lines or suction hoses, and to direct the air flow either diagonally across the manhole or along a long dimension of the manhole. A cap or cover shall be provided for the upper end of the ventilating duct when it is not in use. Ventilate by inserting blower hose into the ventilation duct.

15) DETERMINING PURGE TIME

A) For large manhole, purge times may be reduce by using two blowers if the manhole has two access openings. When using two blowers, the sum of the blower capacities is used as the effective blower CAPACOSA on the manufacturer’s alignment chart. Only one blower hose may be placed in any manhole access opening if the opening is to be used for entering and exiting.

B) Each manhole shall have its volume in cubic feet recorded on a permanent plastic or metal tag that is secured in the manhole collar surrounded by a patch of high visibility paint. The tag shall be clearly visible without having to enter the manhole.

C) If a different size cutoff is adopted or blower capacity differs, purge times must be established from the alignment charts.

D) To determine purge times for a manhole that has not been tagged or has the tag missing, obtain the manhole volume from blue prints or other records.

E) Continuous ventilation is required after purging to assure a safe working atmosphere.

16) TESTING FOR COMBUSTIBLE GASES AND VENTILATION OF MANHOLES

A) The person making the gas test shall test in a position that will cause a minimum interference with traffic. Plan the work so a minimum amount of time is spent in the traffic area. Complete the confined space pre-entry checklist.

B) Every manhole opened after having been closed for any period of time shall be tested for the presence of combustible gas and purged. The initial test shall be made immediately after the manhole cover is removed and before the manhole is purged.

C) An approved gas test kit shall be used to test the gas indicator. The gas indicator shall be tested for proper operation each day before the first manhole test is made, at each change of work shift, if dropped or if exposed to a high concentration of gas. Never test the operation of a gas indicator by sampling the fumes from a tank or can containing gasoline because the high concentration of gas could damage the meter.

D) The initial test for combustible gas using a gas or gas/oxygen detector shall be made as directed in the operation manual for the detector.

E) After completing the initial test, purge the manhole for the appropriate time specified in the alignment charts. NOTE: Removal of water from a manhole may permit gas to flow from the ducts into the manhole; therefore, after purging and before entering the manhole, an additional test shall be made after the manhole has been pumped or a minimum water level reached with continuous pumping.

i) IF THE INITIAL TEST INDICATES AN UNSATISFACTORY ATMOSPHERE in the manhole, make a second test after the blower has operated for the specified purge time. Make the test with the sampling hose away from the direct input of the blower. If this test indicates an unsatisfactory atmosphere, operate the blower for an additional ten minutes and repeat the test.

ii) IF ANY GAS IS DETECTED AT THIS TIME, DO NOT ENTER THE MANHOLE. NOTE: BEFORE ENTERING A DEEP NECK MANHOLE OR AN OFFSET MANHOLE EQUIPPED WITH GAS SAMPLING TUBING, TEST THE ATMOSPHERE IN THE COLLAR AREA JUST BELOW THE MANHOLE COVER LOCATION. MAKE THIS TEST WITH THE BLOWER OPERATING. THIS IS REQUIRED IN ADDITION TO THE TEST OF THE MANHOLE ATMOSPHERE AND EVEN THOUGH THE MANHOLE ATMOSPHERE TESTS CLEAR. THE BLOWER MUST BE IN CONTINUOUS OPERATION WHILE ANYONE IS IN THE MANHOLE.

F) Enter the manhole with the gas indicator and where possible, place the blower hose in a horizontal position along the side wall approximately mid way between the floor (or platform) and manhole roof. Direct the blower hose outlet toward an end wall preferably away from the work area.

   i) Next, make tests for gas by probing in the area of all duct entrances in corners, crevices, etc., and then generally throughout the manhole. To purge the gas indicator while in the manhole, detach the sampling hose and hold the gas indicator in the fresh air near the end of the blower hose or ventilating duct.

G) For offset access manholes upon entry into the entrance hole, test for gas in the passageway and finally test for gas at the duct entrances and in the corners.

H) If gas is detected, leave the manhole at once. Purge the manhole for an additional ten minutes. Retest the manhole atmosphere from street level. If gas is detected, do not enter. Notify the attendant. If the atmosphere is clear, reenter the manhole and repeat the test in the manhole. If gas is detected after reentering, leave the manhole at once and notify the attendant. If the atmosphere is clear, complete pre-entry testing and permit requirements.

I) After work in any manhole is begun, additional tests must be made as follows:

   i) If duct plugs are removed, immediately test for combustible gas at the ducts that are opened. If gas is detected, leave the manhole at once. Purge at least ten minutes and retest the manhole from street level. If gas is detected, notify attendant. If the atmosphere is clear, reenter the manhole and repeat test. If the gas is detected, leave manhole at once and notify attendant. If the atmosphere is clear, continue the work operation; and

   ii) When each crew begins work, repeat test at ducts and throughout the manhole. If gas is detected, leave the manhole at once. Report the condition. At intervals of not more than two hours (every hour if gas was detected initially), repeat the test at ducts and through the manhole. Reduce these intervals by 50% if a tent or other cover is in operation over the manhole. If gas is detected, leave manhole at once and report the condition to the attendant.

J) Continuous gas monitors utilize a dual filament gas detector designed to continuously test the working atmosphere. This type of gas detector eliminates the need to make periodic tests when the manhole is occupied. It can provide an extra measure of security in a manhole that has a history of combustible gas occurrences. The monitor is factory set to trigger an audible and a visual alarm when the gas concentration exceeds 10% LEL. After work in the manhole has begun and the monitor is in use, leave the manhole at once if the alarm shall sound.

K) If the blower shall stop, leave the manhole at once. Remove the blower hose from the manhole. The blower hose shall be kept out of the manhole while the blower is not operating. When the blower is again operating, purge the hose. While purging hose, test the manhole atmosphere. If satisfactory, replace the blower hose and reenter the manhole. If the test is not satisfactory, purge the manhole for at least ten minutes and retest the manhole atmosphere from street level. If the atmosphere tests clear, reenter the manhole and repeat the test in the manhole. If the gas is detected, leave the manhole at once and notify the attendant. If the atmosphere tests clear, continue the work operation.

17) ENTRY INTO OTHER CONFINED SPACES

A) The same testing and atmosphere purging requirements shall apply for entry into other confined space situations such as storage tanks.

B) For entry into confined spaces involving hazardous chemicals, each department shall establish procedures for notifying the appropriate supervisory and management personnel and obtaining permission from management before entering the confined space. The supervisor directing an activity involving entry into a confined space where hazardous chemicals may be located shall ensure that proper personal protective equipment is provided to all persons who will enter the confined space and for backup personnel located outside the confined space.

C) That supervisor shall also take steps to ensure that hazardous chemicals are not released into the atmosphere in concentrations greater than those allowed by federal regulations.

SECTION 34 – EXCAVATION AND TRENCHING OPERATIONS

1) GENERAL

A) Proper sheeting and basing (shoring) shall be used to prevent both cave-in and possible soil movement.

B) Excavations and trenches shall be guarded, barricaded, and/or covered.

C) Guarding, barricading, and covering shall be performed in accordance with Section 6 - Guarding Work areas.

D) Attended emergency rescue equipment such as breathing apparatus, safety harness and line and basket stretcher shall be readily available where adverse atmospheric conditions may exist or develop.

E) Utility companies shall be contacted and advised of proposed work prior to the opening of any excavation. Determination must be made as to whether underground utilities will be encountered, and if so, the estimated location of each installation. When the excavation approaches the estimated location, the exact location shall be determined, and the utility uncovered. Proper support shall be provided for each utility installation.

F) When employees are required to be in trenches deeper than four feet, an adequate means of exit, such as ladder or steps, shall be provided.

G) All ladders used on excavation operations shall conform to the requirements of Section 31. Ladder tops will be extended at least three feet above ground level, and be placed to require no more than 25 feet of travel between ladders.

H) Banks more than five feet high shall be shored, braced, laid back to a stable slope, or equivalent means of protection for employees exposed to the potential of moving ground or cave-ins.

I) Trenches less than five feet shall be effectively protected.

J) Excavated or other materials shall not be stored nearer than two feet from the edge of the excavation site.

K) Excavation or other materials shall be stored and retained to prevent them from falling or sliding into the excavation site.

L) Materials used for shoring, bracing or underpinning, shall be in good serviceable condition, free from large or loose knots, and shall be designed and installed to be effective to the bottom of the excavation.

M) Additional precautions by way of shoring shall be taken to prevent slides or cave ins when excavations or trenches are made in locations subjected to vibrations from railroad or highway traffic, the operation of machinery, or any other source.

N) Cross braces or trench jacks shall be placed in true horizontal position, be spaced vertically and be secured to prevent sliding, falling or kick out.

O) In locations where oxygen deficiency or gaseous conditions are possible, air in the excavation shall be tested and ventilated.

P) When flammable gases are present, adequate ventilation shall be provided and all sources of ignition shall be eliminated.

Q) Portable trench boxes or sliding trench shields may be used for the protection of personnel in lieu of a shoring system or sloping. When such trench boxes or shields are used, they shall be designed, constructed and maintained in a manner which will afford protection equal to, or greater than, the shoring required for the trench.

R) Backfilling and removal of trench supports shall progress together from the bottom of the trench, jacks or braces shall be released slowly. In unstable soil, ropes shall be used to pull out the jacks or braces from above AFTER all employees have cleared the trench.

SECTION 35 – CHEMICAL SAFETY AND REPORTING

1) GENERAL

A) CoSA adheres to a policy of providing a safe environment for all employees. This includes providing appropriate training in proper maintenance and operation of equipment; providing accurate information to enable employees to avoid potential health and safety hazard; and maintaining up-to-date lists and information regarding hazardous chemicals to which employees may be exposed.

B) The Texas Hazard Communication Act (THCA), codified as Chapter 502 of the Texas Health and safety Code (HSC), requires all public employers in Texas to provide their employees with information regarding hazardous chemicals to which employees may be exposed to in their workplace. In order to comply with Section 502.009(b) of the THCA and Section 295.7(a) of the THCA Rules (Title 25 of the Texas Administrative Code (TAC), Section 295.1-295.12), the following written Hazard Communication Program has been established for the COSA of San Antonio.

C) The master copy of the written hazard communication program will be maintained in the office of Risk Management. Copies of the written program will be modified as needed for each separate workplace where hazardous chemicals are used or stored and a copy maintained at each workplace. The written program will be available to all interested employees and their representatives upon request.

D) To facilitate administration of and compliance with this Program, the following levels of responsibility have been established:

i) The Department Directors will have overall responsibility for administering and maintaining this program and ensuring that it meets all requirements of the THCA for each department;

ii) Supervisors will be responsible for ensuring that all employees are utilizing and administering their daily activities within the guidelines of the COSA's written hazard communication program;

iii) Individual employees will be responsible for utilizing and making positive use of COSA's written hazard communication program. Employees are to adhere to all rules and regulations within the scope of their duties, in order to ensure safe and secure handing of all chemicals in the workplace; and

iv) Department Directors will insure that a designated representative submits draft Tier Two Reports to Risk Management prior to February 1st of each year. A Tier Two Report is a list of any hazardous chemical on site at any one given time at or over 10,000 pounds or any chemical on the Extremely Hazardous Substance list in quantities greater than their listed reportable quantity.

2) EXEMPTIONS

A) The following chemicals are exempt from the requirements of the THCA and are outside the scope of this written program:

i) Hazardous waste that is subject to regulation by the Texas Natural Resource Conservation Commission and/or the U.S. Environmental Protection Agency;

ii) A chemical in a laboratory under the direct supervision or guidance of a "technically qualified individual" if:

(a) labels on incoming containers of chemicals are not removed or defaced;

(b) The employer complies with Sections 502.006 and 502. 009 of the THCA with respect to laboratory employees; and

(c) The laboratory is not used primarily to produce hazardous chemicals in bulk for commercial purposes.

iii) Tobacco or tobacco products.

iv) Wood or wood products.

v) Articles formed to a specific shape or design during manufacture and that does not release or otherwise result in exposure to a hazardous chemical under normal conditions of use.

vi) Food, drugs, cosmetics or alcoholic beverages.

vii) Consumer products or hazardous substances used in the workplace in the same manner as normal consumer use and if the use results in a duration and frequency of exposure that is not greater than exposures experienced by a consumer.

viii) Radioactive waste.

3) WORKPLACE CHEMICAL LIST

A) COSA departments will develop and maintain a list of hazardous chemicals normally present in the workplace. This Workplace Chemical List will be developed for each workplace where such quantities of hazardous chemicals are used or stored, and this chemical list will be available for review by employees and their designated representatives.

B) Department Directors will be responsible for reviewing and updating the Workplace Chemical List(s) for their Department as necessary, but at least by December 31 of each year. This will also require all Department Directors to issue a copy of each workplace's

chemical list to the Risk Management, Safety Team at least annually, or as chemicals are updated.

C) Risk Management will maintain the Workplace Chemical List for at least 30 years.

D) Further information on each noted chemical can be obtained by reviewing Safety Data Sheets (SDSs) located in each workplace where these hazardous chemicals are used or stored.

4) SAFETY DATA SHEETS

A) Departments will maintain a current and appropriate Safety Data Sheet (SDS) for each Hazardous chemical purchased.

B) Each department will be responsible for managing their SDS program and will ensure that:

i) Incoming SDSs are reviewed for new and significant health/safety information and that any new information is passed on to the affected employees;

ii) Hazardous chemicals received without an SDS are withheld from use until a current SDS is obtained;

iii) Missing SDSs are requested from an appropriate source (e.g., chemical manufacturer, distributor, or electronic database) within 30 days from receipt of the hazardous chemical;

iv) Affected employees are provided a description of any alternative system (such as electronic databases) that is being used in lieu of actual SDSs;

v) Emergency responders are provided SDSs as soon as practical upon request; and

vi) Providing Risk Management Safety with an updated SDS master list annually.

vii) SDSs will be readily available for review by employees or their designated representatives upon request.

5) CHEMICAL CONTAINER LABELS

A) All primary containers of hazardous chemicals are clearly labeled to include:

i) The identity of the chemical as it appears on the SDS;

ii) The appropriate hazard warnings; and

iii) The name and address of the manufacturer;

B) All secondary containers of hazardous chemicals are clearly labeled to include:

i) The identity of the chemical as it appears on the SDS; and

ii) The appropriate hazard warnings.

C) COSA labeling systems will be in accordance with the Globally Harmonized System for Hazard Communication.

D) Every effort will be made to label pipes that carry materials that could be hazardous. Labeling can be specific markings identifying the contents of the pipes. If hazardous chemicals run through the pipes, the potential hazards and necessary safety precautions relative to the chemicals must be obtained and given to the employees working in the area.

E) Empty containers must NOT be considered for re-use and must be disposed of properly.

F) COSA will rely on the chemical manufacturers or distributors to provide labels which meet the above requirements for primary containers of all hazardous chemicals purchased, and will re-label containers only when the label is illegible or otherwise does not meet the above requirements.

6) EMPLOYEE TRAINING PROGRAM

A) The Risk Management Division will ensure an education and training program is available to all employees who routinely use or handle hazardous chemicals in their workplace.

B) Appropriate training is provided to all covered employees and includes:

i) The use of information provided on SDSs and chemical container labels;

ii) The location of hazardous chemicals present in the employees' work areas;

iii) The physical and health effects of exposure;

iv) Proper use of personal protective equipment;

v) Safe handling of hazardous chemicals;

vi) First aid treatment for exposure to hazardous chemicals; and

vii) Safety instruction on clean-up and disposal of hazardous chemicals.

C) Required training records will be maintained by each department and include:

(a) The date and location of the training session;

(b) A legible list of all employees attending the training session;

(c) The subjects covered; and

(d) The name of the instructors.

D) New employees will be trained prior to their being required to use or handle a hazardous chemical.

E) Training is required for new hires and annually thereafter for all CoSA employees. Employees subject to these training requirements will sign an attendance roster for each training session attended, verifying that they received and understood the information.

7) REPORTING EMPLOYEE DEATHS AND INJURIES

A) Risk Management will notify the Texas Department of Health, Hazard Communication Branch, of any employee accident that involves a hazardous chemical exposure or asphyxiation, resulting in a fatality or results in the hospitalization of five or more employees.

B) The Risk Management Division will be responsible for reporting all such accidents to the Texas Department of Health, Hazard Communication Branch, within 48 hours after their occurrence. Notifications will be made either verbally or in writing. If notification is done verbally, ensure documentation of conversation is transcribed to include date and time, who made the call, who answered call, and what was discussed.

C) Employees will be responsible for reporting all accidents involving a hazardous chemical to their supervisor.

D) Supervisors will be responsible for reporting all accidents involving a hazardous chemical to the Risk Management.

8) PERSONAL PROTECTIVE EQUIPMENT

A) Each department will provide appropriate personal protective equipment (PPE) to all employees who use, handle, or are exposed to hazardous chemicals.

B) Departmental safety representatives will assume overall responsibility for the PPE program and will ensure that appropriate equipment and training are provided.

C) Risk Management will assist departments in selecting the proper PPE based on the following:

i) Routes of entry;

ii) Permeability of PPE material;

iii) Duties being performed by the employee;

iv) Hazardous chemicals present; and

v) Proper fit and functionality of PPE as described by the manufacturer's specifications.

9) INFORMING CONTRACTORS

A) Before a contractor commences work in a COSA workplace, the Department Safety Coordinator and/or Supervisor who controls the work area will be responsible for:

i) Informing the contractor of the presence of hazardous chemicals;

ii) The location of the SDSs and the Workplace Chemical List; and

iii) Having the contractor provide SDSs for any hazardous chemicals they will be bringing into the workplace to which COSA employees may have an exposure.

SECTION 36 – EMERGENCY DISASTER PLANNING

1) GENERAL

A) The goal of emergency disaster planning is to:

i) Provide for the safety of employees and visitors;

ii) Minimize damage or loss of COSA property and assets; and

iii) Facilitate returning to normal operations as soon as possible after an emergency.

B) An emergency is defined as a sudden or unexpected occurrence or combination of occurrences which effect the daily operations of the City of San Antonio and demands prompt attention.

C) A disaster is defined as any great misfortune or calamity.

D) Buildings designated as primary work areas shall have an emergency action fact sheet and a written emergency and disaster plan. (A primary work area is a building which one or more employees spend eight or more hours per day.) The emergency action fact sheet shall contain the following:

i) The name of the building and the building address;

ii) Department of assigned work group;

iii) Names of work group members;

iv) Name of emergency planning coordinator and telephone number;

v) Name of deputy emergency planning coordinator and telephone number;

vi) Name of the work group supervisor and telephone number;

vii) Date of verification of the following emergency telephone numbers: Fire Department, Emergency Medical Service, Police, and available medical attention;

viii) If primary and alternate fire exit routes cannot be described in the space provided, attach fire exit plan;

ix) Date fire extinguisher volunteers were appointed, names of three fire extinguisher volunteers and the latest date each volunteer received fire extinguisher training;

x) Worker group rendezvous point(s) and date this point was selected.

xi) Worker group alternate rendezvous point(s) and date this point was selected;

xii) Location of tornado shelter within the building;

xiii) Name of head count appointee, alternate head count appointee and date appointed; and

xiv) Date of latest annual worker group emergency action plan briefing and the initials of the supervisor conducting the group.

E) Emergency and disaster plans shall contain provisions to maintain operations during emergencies or disasters.

F) Supervisors shall review and update emergency action fact sheets and emergency disaster plan annually. This information shall be readily accessible to all employees.

G) Supervisors shall conduct a disaster briefing for all employees annually using the emergency action fact sheet and emergency plan. Attendance at these sessions shall be recorded. New employees shall be briefed on emergency and disaster plans within first 30 days of employment.

H) Following a disaster or emergency, the supervisor shall account for personnel. An assembly area shall be designated for this purpose.

I) The supervisor shall ensure that first aid is available and administered to injured personnel and that medical assistance is secured as soon as possible.

J) During emergency or disaster situations the highest level supervisor shall coordinate action with fire, law enforcement, civil defense, or other emergency action agencies.

2) MEDICAL EMERGENCIES

A) The first line of defense when injuries or illnesses occur is to have employees trained in first aid.

B) First aid is defined as the immediate care given to a person who has been injured or has been suddenly taken ill.

C) When an injury or sudden illness occurs and a stricken employee needs assistance, contact a first aid trained employee and the Emergency Planning Coordinator or Deputy Coordinator designated by each Director.

D) Injured or ill employees requiring more than basic first aid shall be taken for emergency medical treatment as soon as possible.

E) In the event of a disaster, the response time for emergency medical personnel shall increase. In all cases, first aid trained employees will provide first aid care until professional medical personnel arrive to take charge.

3) FIRE

A) Any person discovering or suspecting a fire shall immediately transmit an alarm by tripping the nearest fire alarm box on the interior fire alarm system and call the Fire Department.

B) Only one thing may come ahead of reporting a fire, if lives are endangered by being in the area of the fire, evacuate to a place of safety. Then report the fire by dialing 911. Evacuation is extremely important and must be done immediately by the person discovering the fire or who has reason to think there is a fire developing due to smoke, fumes, overheating, or unusual odor.

C) Personnel are required to know how to operate the fire alarm system, the location and operation of fire extinguishers and procedures for handling an incident in their area.

D) Fire exit plans shall be posted on bulletin boards throughout the building.

E) On discovery of a fire which is minor in nature (confined to a wastebasket or trash receptacle) and where no lives are endangered, extinguish the fire with the equipment at hand; keep in mind all fires are a threat and are dangerous and shall be reported immediately. Never, open doors or windows as oxygen fuels the fire and creates a draft that spreads and intensifies the fire.

F) All fires regardless of size or scope shall be reported.

G) In case of fire or explosion, the supervisor shall meet the first fire unit arriving on the scene giving information on the location of the fire, type of fire, and scope of the fire.

H) When a fire alarm is sounded, all personnel shall immediately evacuate the building by closest stairwell or fire tower. Never in any fire situation shall anyone use an elevator as a means of evacuation. All personnel will proceed to a designated area or parking lot. An accurate count of employees in each department shall be made by the supervisor. If any person is not accounted for, the Fire Department shall be notified immediately.

I) All areas shall be checked when evacuating the buildings (closets, clothes rooms, rest rooms) to insure no one has been left in the building. No one shall be allowed to re-enter the building until a Fire Department official gives permission to re-enter.

4) NATURAL DISASTER/WEATHER WARNINGS

A) It is critically important that COSA employees respond to natural disaster warnings and take appropriate precautions.

B) The National Weather Service is responsible for issuing weather watches and warnings to the public. Weather watches and warnings are issued using the following terms:

i) Severe thunderstorm watch – Indicates the possibilities of thunderstorms, frequent lighting, hail and high wind gust in a defined area;

ii) Severe thunderstorm warning – Indicates storms in the area that have frequent lighting, damaging winds of greater than 58 mph, hail 3/4 inch or more in diameter, and heavy rain;

iii) Flash flood watch – Issued to indicate current or developing weather conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain or imminent.

iv) Flash flood warning – Issued to inform the public, emergency management, and other cooperating agencies that flash flooding is in progress, imminent, or highly likely due to heavy rains falling within less than a six hour period.

v) Tornado watch – Means that storms in the area are expected to develop and have the potential for tornadic activity (tornadoes and/or funnel clouds);

vi) Tornado warning – Issued when there is likelihood of a tornado within the given area based on radar or actual sighting. It is usually accompanied by conditions indicated for Severe Thunderstorm Warning.

C) Supervisors are responsible for being aware of weather conditions which may produce hazardous situations. When weather or other disaster warnings are issued, supervisors shall notify personnel of the hazardous situation and steps to be taken to protect employees.

5) TORNADOES

A) Upon receiving notification a tornado warning has been issued covering the location, the supervisor in charge shall:

i) Secure loose materials outside and in work areas;

ii) Direct employees performing duties outside to proceed to designated indoor work stations;

iii) Move all employees to designated shelter areas when circumstances dictate; and

B) Monitor the situation until danger has passed. Direct employees back to normal duties when the hazard is removed.

C) Tornadoes are violent local storms with whirling winds of tremendous speed that can reach wind speeds well over 100 mph. The individual tornado appears as a rotating funnel shaped cloud which extends toward the ground from the base of a thundercloud. It varies from gray to black in color. The tornado spins like a top and may sound like the roaring of an airplane or locomotive. These storms are the most violent of all atmospheric phenomenons and over a small area are the most destructive.

D) The width of a tornado path ranges from 100 yards to one mile wide or greater. They travel 5 to 200 miles along the ground at speeds of 30 to 75 mph. Tornadoes sometimes double back or move in circles; some may remain motionless before moving on. They have struck in every state, but the principal areas of frequency are in the middle plains and southeastern states. Locally the remnants of dissipating hurricanes have been known to spawn tornadoes when moving through the area.

E) When a tornado strike is imminent, take the following action:

i) In open country – Seek inside shelter if it is close by and time permits. If there is not time to escape, lie flat in the nearest depression such as a ditch or ravine. A parked car is unsafe as a shelter during a tornado or severe windstorm. However, as a last resort if no ravine or ditch is nearby, a car may provide some shelter from flying debris by crawling under it. Do not remain inside the car as the tornado approaches;

ii) In office buildings – The basement or an interior hallway on a lower floor of an office building is safest. Upper stories are unsafe. If there is not time to descend, a closet or small room with stout walls (such as bathrooms) or an inside hallway will give some protection against flying debris. Otherwise, getting under a heavy object must suffice. Select and mark shelter areas in office buildings, train building employees to direct the occupants to them. For offices facing outward with windows, close all doors to help contain flying glass and debris;

iii) In factories, auditoriums, and other large buildings with wide free span roofs – Buildings of this type are particularly vulnerable to tornado wind damage due to the large roof expanse upon which the wind force may act and also the relatively large area between roof supporting walls. Basements of these buildings offer reasonably good protection as do smaller interior rooms at ground level or nearby sturdy buildings;

iv) In homes without basements – Take cover in the smallest room with stout walls or under heavy furniture or a tipped over upholstered couch or chair in the center part of the house; closets and bathrooms in center of home also serve as good protection. When choosing the bathroom, lay in bathtub with a mattress as a cover to protect you from falling or flying debris.

v) STAY AWAY FROM WINDOWS, DOORS, AND OUTSIDE WALLS! AND PROTECT YOUR HEAD!

6) EARTHQUAKES

A) Earthquakes are unpredictable and strike without warning. They may range in intensity from slight tremors to great shocks; and may last from a few seconds to as much as five minutes. Earthquakes can occur in a series over a period of several days. The actual movement of the ground in the earthquake is seldom the direct cause of injury or death. Most casualties result from falling debris. Quakes can disrupt power and telephone lines as well as gas, sewer, or water mains. They may also trigger landslides and generate tidal waves.

B) If an earthquake occurs:

i) <u>During the tremor,</u> employees shall be warned to stay indoors if already there; take cover under sturdy furniture such as work tables, desks or even a doorway; stay near the center of the building; stay away from glass windows and doors; do not run through or near buildings where there is a danger of falling debris. If employees are outside, they shall stay in the open away from buildings and utility wires; and

ii) <u>After the tremor,</u> employees shall stay out of damaged buildings; an aftershock can cause these to fall. The supervisors shall check utilities. If water pipes are damaged or electrical wires are shorted, they shall be turned off at the primary control point. If gas leakage is detected, the main valve shall be shut off, windows opened, and the building cleared until officials say it is safe. Supervisors should ONLY do this if it is safe to stay in the building, otherwise evacuate building as soon as possible.

7) FLOODS

A) Except in the case of flash flooding, the onset of most floods is a relatively slow process with adequate warning. The buildup usually takes several days. Progressive situation reports are available from National Oceanic and Atmospheric Administration (NOAA) through its weather service river forecast centers and river district offices.

B) Flash flood warnings are the most urgent type of flood warning issued. These are transmitted over the public radio and television systems. They are also transmitted to law enforcement and civil defense personnel.

C) When possible, try to protect buildings by erecting temporary sandbag levees.

D) Flash flood safety rules are as follows:

i) Keep alert for signs of heavy rain both where you are and upstream;

ii) Be especially cautious at night. It is hard to recognize the danger then;

iii) Know where high ground is and how to get there quickly;

iv) Evacuate when flooding is imminent;

v) Don't try to out run a flood on foot. If you see or hear it coming, move to higher ground as fast as you can; and

vi) Never try to drive or walk across flooded areas or where water is moving rapidly.

8) BOMB THREATS

A) Compared with other emergencies, the covert and criminal nature of bombing incidents makes bomb threats a highly complex problem for management and emergency service personnel.

B) Experience shows that over 95% of all written or telephone bomb threats are hoaxes. However, there is always a chance that a threat may be authentic. Appropriate action shall be taken in each case to provide for safety of employees, the public, and CoSA property; and to locate the suspected explosive device so it can be neutralized.

C) If a bomb threat is received by phone, every effort shall be made to copy the exact words of the callers. Special attention shall be paid to background noises, any accent, or some clue as to the identity of the individual.

D) No argument is to be conducted on the telephone. The employee receiving the call shall take the exact message and give the information to the supervisor in charge. The supervisor shall follow procedures as outlined for decisions regarding the need for evacuation of any facility.

E) Police and Emergency Services personnel immediately shall be notified so that experienced personnel may be dispatched to search and determine the validity of the threat by dialing 911.

F) In-house personnel familiar with the building or office shall, upon request, assist the authorities with the investigation.

G) Law enforcement authorities shall arrange for disposal of objects located and found to be bombs or assumed to be bombs.

SECTION 37 – RED TAG PERMIT

1) GENERAL

A) The purpose of this system is to manage sprinkler system impairments in the event a sprinkler system must be taken out of service. Forgetting to restore an impaired sprinkler or other fire protection system at a facility could result in the loss of lives and significant property damage.

2) DEFINITIONS

A) Customer – Building occupants and their management.

B) Impaired – To change or restrict a building Fire Protection System from its normal mode of operation (auto).

C) Red Tag System – The system utilized to identify and alert that a fire system is impaired.

3) RESPONSIBILITIES

A) BES coordinates all fire system monitoring services and testing through a contracted vendor. In the event of system impairment, the contracted vendor will contact the Fire Department, Risk Management and Building and Equipment Services (BES) via fax or e-mail to inform them of the Red Tag Permit received.

i) Information provided should include: Building name and location, type of Fire Alarm Control Panel (FACP), and type of Fire Sprinkler System (FSS). Also provide specific details of the Red Tag Permit and other items of non-compliance.

B) BES, upon learning of Red Tag Permit placement, will notify the department.

C) BES will generate a work order and issue a PO to have the repairs performed within a two-week timeframe.

D) BES will manage a spreadsheet that identifies the building, lists the specific deficiencies, indicates when the inspection was performed, defines the action taken, provides the date(s) the corrections were performed, and when the follow-up inspection was conducted.

E) BES will notify the department, Risk Management, and Fire Department when the repairs/upgrades have been performed.

F) BES will schedule a follow up inspection with the Fire Department.

4) IMPAIRMENT PROCESS

A) Before initiating the permit, follow these steps:

i) When possible, plan to do the work during non-operational working hours;

ii) Schedule to shut down hazardous processes, if possible;

iii) Plan to use temporary protections during impairment such as extra fire extinguishers, temporary sprinkler protection or charged hose lines;

iv) Preparations should include having parts on hand and personnel available before attempting impairment;

v) Acquire a Red Tag Permit from BES in advance of impairment. In the event the BES supervisor is unavailable, a Risk Management staff person will issue the Red Tag Permit. In the event that this occurs after hours, then contact the BES duty person;

vi) The Red Tag Permit will designate location of the system and reason for impairment. It is authorized by BES's supervisor's signature or the Risk Management Safety Coordinator's signature; and

vii) The BES supervisor will notify Risk Management (207-7330) and the Fire Marshal of the impairment work and estimated time to repair the fire protection system.

B) During impairment the following should be accomplished:

i) The Red Tag Permit should be hung in plain view, preferably in the sprinkler control area;

ii) BES Supervisor should have the fire system contractor make repairs, stand by, be available, and restore the sprinkler system in case of a fire;

iii) Upon completion of repairs, place fire protection system back into normal operating mode (auto);

iv) Immediately, return Red Tag Permit to BES Supervisor and inform the system is back in full operation; and

v) The BES Supervisor will notify Risk Management and the Fire Department that repairs/maintenance are complete and the system is back up in full operational status.

C) If an emergency impairment occurs, staff should stabilize the situation and initiate the following:

i) Shut down hazardous processes;

ii) Prohibit all hot work, including cutting and welding;

iii) Assign personnel to patrol where fire protection is out of service;

iv) Notify the BES Supervisor for emergency Red Tag Permit. (if not available, next level supervisor of Risk Management); and

v) The BES Supervisor will notify Risk Management, Fire Marshal of the impairment work and estimated time to repair the fire protection system. If hot work (welding) is essential to complete emergency impairment, BES Supervisor will discuss in advance with Risk Management.

D) As soon as impairment work has been completed:

i) Promptly restore fire protection equipment to automatic service;

ii) If sprinkler protection was impaired, conduct a 2-inch drain test at the sprinkler riser;

iii) Lock sprinkler control values in the wide-open position;

iv) Reset the alarm system and notify the control room, and Risk Management;

v) Immediately return Red Tag Permit to BES Supervisor (or Risk Management) and inform them that the system is back in full operation; and

vi) BES Supervisor will notify Risk Management and Fire Marshal that repairs/maintenance are complete and the system is back up in full operational status.