

CITY OF COCOA



SAFETY MANUAL

March 2019

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INTRODUCTION

Safety and Environmental considerations are an important part of our daily lives, not only for our individual protection, but also for the protection of others and the environment.

Safety is always high on the agenda at the City of Cocoa and it is true that "an ounce of prevention is worth a pound of cure."

This manual is designed to be a general introduction for establishing and maintaining safe working conditions in regards to safety matters and is written as a general guide for all employees. It does not address every conceivable situation, and for the most part avoids highly technical involvement. Nevertheless, the contents of this manual does incorporate the Occupational Safety and Health Administration Safety and Health rules and regulations covered under Code of Federal Regulations (CFR) 29.1910 – General Industry and CFR 29.1926 – Construction, that employees are expected to follow.

Where there are conflicting guidelines specified by other federal, state, or local agencies, (Florida Department of Law Enforcement (FDLE), National Fire Protection Association (NFPA) etc.), these guidelines shall take precedence over the contents of this manual.

Any employee having further questions or concerns should consult with his or her immediate supervisor before doing anything that may place the employee or others at unreasonable risk.

SAFETY POLICY STATEMENT

The personal safety and welfare of each employee of the City of Cocoa is of primary importance. The prevention of occupationally induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity whenever necessary. To the greatest degree possible, management will provide all mechanical and physical facilities required for personal safety and health in keeping with the highest standards.

We will maintain a safety program that meets and conforms to all Federal (OSHA) and Florida Department of Labor standards and the best practices of municipal government organizations of our size. The program will embody the proper attitudes toward injury and illness prevention on the part of supervisors and employees. We will encourage teamwork in all safety and health matters, not only between supervisor and employee, but also between each employee and his or her co-workers.

Our objective is to establish and preserve, through a united effort, a safety program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. Our goal is zero accidents and injuries.

Our safety program will include:

- Providing mechanical and physical safeguards to the maximum extent possible.
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions and/or practices, to control health hazards, and to comply fully with the safety and health standards for every job.
- Training all employees in good safety and health practices.
- Providing necessary personal protective equipment and instructions for its use and care.
- Developing and enforcing safety and health rules and requiring that employees cooperate with these rules.
- Investigating, promptly and thoroughly, every accident to find out what caused it and to correct the problem so that it won't happen again.

Setting up a system of recognition and awards for outstanding safety service or performance.

Senior management will be actively involved with employees in establishing and maintaining an effective safety program. All staff will participate in ongoing safety program activities, which will include:

- Actively promoting and supporting safety
- Promoting safety committee participation
- Providing safety and health education and training

- Reviewing and updating workplace safety rules.

This policy statement and the accompanying Safety Manual serves to express management's commitment to and involvement in providing our employees a safe and healthful workplace.

Chapter 1 PROGRAM ADMINISTRATION

City Manager

The City Manager has the ultimate responsibility for the safety and loss control program.

Safety/Risk Program Manager

The Safety/Risk Program Manager will be responsible for administering the safety program for the City of Cocoa and has been authorized to deal directly with department and division heads on issues of safety. The Safety/Risk Program Manager will develop and maintain a program that meets and/or exceeds federal, state and local guidelines and incorporates best practices and philosophies that are most effective in preventing injuries, occupational diseases, vehicular collisions, and damage to property, equipment and material. The Safety/Risk Program Manager will chair a safety committee that is made up of employee representatives. The Safety/Risk Program Manager will review formal, written means of documentation, such as, accident investigation reports, self- inspection reports, vehicle and equipment maintenance logs, etc.

Department Directors and Division Managers

Department Directors/Division Managers will supplement the safety program by developing practical safety rules and regulations specifically related to the activities conducted by their department/division which are not addressed in the general safety and loss control manual. Such department/division safety rules and regulations will be in writing and kept in a companion binder titled "Department/Division Safety Rules." Department Directors/Division Managers will be responsible for compliance with all components of the safety and loss control program that are applicable to their department/division and will appoint an employee from each major division to represent them on the safety committee and to act as a safety coordinator.

Supervisors

Supervisors will enforce all safety procedures that apply to the work they supervise and conduct routine safety inspections of their designated areas of responsibility. They will investigate accidents, provide adequate basic job training and instruction on safety rules, safety equipment, and protective devices for specific hazardous jobs, and make sure the necessary safety equipment and protective devices for each job are available, used, and maintained properly. Supervisors will meet with their Division Manager on a regular basis to review work conditions, condition of equipment, work procedures and work sites and will conduct site specific safety orientation for all new employees.

Employees

Employees will immediately report to their supervisor all accidents and injuries occurring within the course of their employment, no matter how minor and will cooperate with, and assist in the investigation of accidents to identify causes and corrective measures to prevent their recurrence

Department/Division Safety Coordinators

Department/Division safety coordinators will be appointed by the Department/Division head and will serve as that division's representative to the City's safety committee. Safety Coordinators will attend the City Safety Committee meeting and work with the Safety & Risk Program Manager to transmit safety information to other employees and to address safety and loss control issues specific to their work areas. With the approval of the Department/Division head, safety coordinators will schedule weekly safety meetings of co-workers to address matters of workplace safety and health.

Employee Collective Bargaining Agreements - Conflicts

Wherever a conflict exists between any provision of this manual and any collective bargaining agreement in force between the City of Cocoa and applicable bargaining units, the provision of the collective bargaining agreement shall have precedence.

Chapter 2 SAFETY INCENTIVE PROGRAM

Purpose

To establish a system of rewards and incentives that encourages the employees of the City of Cocoa to become more safety conscious.

General

A system of recognition and awards for outstanding service or performance in promoting workplace safety and health will be developed, implemented, and administered by the Safety committee or a designated sub-committee.

TBD

Chapter 3 SAFETY COMMITTEE

Safety Committee Organization

A safety committee has been established as a management tool to recommend improvements to our workplace safety program and to identify corrective measures needed to eliminate or control recognized safety and health hazards. The safety committee will be chaired by the Safety/Risk Program Manager and its membership will consist of an employee representatives from each department or division.

Responsibilities

The safety committee will be responsible for assisting management in reviewing and updating workplace safety rules based on accident reviews, any inspection findings, employee reports of unsafe conditions or work practices, and accepting and addressing complaints and suggestions from employees.

The safety committee will be responsible for assisting management in updating the workplace safety program by reviewing employee injury and accident records, identifying trends and patterns, and formulating corrective measures to prevent recurrence.

The safety committee will be responsible for assisting management in evaluating employee accident and illness prevention programs, and promoting safety and health awareness and co-worker participation through continuous improvements to the workplace safety program.

Safety committee members will participate in safety training and be responsible for assisting management in workplace safety education and training to ensure that it is in place, that it is effective, and that it is documented.

Meetings

Safety committee meetings are held quarterly and, when needed, at the call of the chairman. Committee members will be compensated at their hourly wage when engaged in authorized safety committee activities.

Chapter 4 EMPLOYEE WELLNESS AND PHYSICAL FITNESS

Purpose

The City of Cocoa supports and encourages all employees to engage in a healthy lifestyle. To support this effort, and to assist employees in achieving work/life balance, the City has established this Employee Wellness and Physical Fitness Program. The purpose of this policy is to establish parameters pertaining to the participation in wellness and physical fitness activities. This policy applies to all City of Cocoa employees. Employees covered under a Collective Bargaining Agreement (CBA) are required to adhere to the parameters set forth in said agreement, in addition to the policies of the City of Cocoa.

Eligibility

The City of Cocoa has facilities on City property designated as on-site Fitness Centers. These facilities are located at the Cocoa Police Department, Fire Station #1, Fire Station #2, Fire Station # 3, Utilites Warehouse, and the Dyal Water Treatment Plant. Due to safety concerns and access restrictions, these fitness centers are reserved for employees of those work areas. Additionally, the City offers wellness program activities at designated work areas throughout the City to encourage team-building and comradery, such as ping-pong tables and basketball court areas.

The use of any on-site Fitness Center, wellness equipment or participation in any City wellness program is on a voluntary basis. Further, use and participation is approved and permitted solely for City of Cocoa employees. Due to the risk involved, family members and friends that are not City employees, are not permitted access.

In order to balance the necessity of maintaining physically fit personnel with the duties and responsibilities of operating and maintaining the City, the City hereby establishes parameters pertaining to the physical fitness privileges afforded to its personnel.

Procedures

Liability

Employees opting to participate in City sponsored Wellness activities, or use the City designated fitness centers, on or off-duty must submit a fully executed Waiver form to Human Resources prior to participating or their first-time use of the facilities.

Human Resources shall maintain all Waiver forms. Additionally, Human Resources shall update and publish a list of all personnel who have been approved to participate in the fitness program. The list shall be updated and published whenever an addition or deletion occurs. The manager in each respective work area shall maintain a copy of the most recent list and ensure that only approved personnel are afforded the use of the fitness center.

Limitations of Use

Use of the City Fitness Centers or the engagement of outdoor physical fitness activities must be done during non-working hours, with the exception of Fire personnel.

Employees may participate during a meal break or by flexing their work schedule (if approved by their manager), in accordance with departmental policy.

Management Rights

The privileges granted herein may be either temporarily or permanently amended or revoked at any time by the City of Cocoa, or any of its' designees.

Definitions

- *Fitness Center*: Facilities located on City property (i.e. Police, Fire Departments, Dyal Water Treatment Plant), commonly referred to as the “gym” or “gymnasium”, and containing exercise equipment designed for the purpose of promoting physical fitness.
- *Regular Working Hours*: An employee’s regular scheduled hours, according to one’s assigned “group” and/or “shift”, not to include hours worked in any other capacity (i.e., callback, detail, overtime, etc.).
- *Indoor Wellness and Physical Fitness Activities*: Activities which are typically recognized as promoting wellness or physical fitness and which are performed at City sponsored events or designated Fitness Centers.
- *Outdoor Physical Fitness Activities*: Activities which typically occur outdoors without the aid of exercise equipment, limited to walking, jogging, or running, when not performed in conjunction with any other game or sport.
- *Meal break*: The time contractually afforded to personnel for the purpose of consuming one meal (i.e., breakfast, lunch, or dinner) during regular work hours.

Chapter 5 SAFETY AND HEALTH TRAINING

General Training Requirements

Personnel shall be sufficiently trained in the work process and equipment they use to safely perform assigned tasks. The type and method of training and or certification may vary but shall always be sufficient to assure understanding and meet any statutory or regulatory requirements. Testing shall be employed to confirm comprehension and understanding.

A department specific training program shall be developed and deployed based on work exposures that assures personnel are properly qualified to perform their duties. The department shall identify initial and recurring training for each employee/job classification and define how the training will be delivered.

City personnel shall not perform tasks that require formal training until the training is complete and/or is current. Management shall assure workers are not assigned to tasks for which they are not qualified or for which their training is not current.

Safety and Health Orientation

Workplace safety and health orientation begins on the first day of initial employment or job transfer. Each employee has access to a copy of this safety manual, available either through their supervisor or on the City's website. for review and future reference. 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 our workplace safety program manual.

All employees will be instructed by their supervisors that compliance with the safety rules described in the workplace safety manual is required as a condition of employment.

All newly hired personnel will attend a New Hire Orientation within thirty days of initial hire date. New personnel shall receive, at a minimum, a job specific safety orientation before they start work.

Job Specific Training

City personnel shall receive job specific safety orientation training covering the specific safety requirements for their job and any unique hazards in their work area.

- Supervisors will train employees on how to perform assigned job task safely prior to their beginning work.
- Supervisors will review with each employee the specific safety rules, policies, and procedures that are applicable to their workplace.
- Supervisors will verbally give employees instructions and specific directions on how to do the work safely.
- Supervisors will periodically observe employees while performing their work. If necessary, the supervisor will provide a demonstration using safe work practices, or remedial instruction to correct training deficiencies.

- All employees will receive safety instructions on seldom-used or new equipment prior to its use.
- Supervisors will review safe work practices with employees prior to their performing new, non-routine, or specialized tasks.

Compliance Training

All safety and health training required by governing standards, laws and regulations shall be conducted and documented. Personnel who perform work that requires specialized training or certification shall receive additional training before accomplishing the task. Hands on training shall be used where required or when appropriate to confirm knowledge and understanding sufficient to safely perform the task. Testing shall be conducted to confirm comprehension and understanding.

Periodic Retraining of Employees

All employees will be retrained periodically on safety rules, policies and procedures, and when changes are made to the workplace safety manual.

Individual employees will be retrained after the occurrence of a work-related injury caused by an unsafe act or work practice, and when a supervisor observes employees displaying unsafe acts, practices, or behaviors

Recordkeeping Requirements

All training shall be documented. Training documentation shall include the course name, person's name and signature, date of training, and name and signature of instructor. If special licensure or certifications apply they shall be documented as required by governing standards.

Chapter 6 ACCIDENT INVESTIGATION

Accident Investigation Procedures

An accident investigation will be performed by the supervisor at the location where the accident occurred. The Safety/Risk Program Manager is responsible for seeing that the employee and supervisor's accident investigation reports are being filled out completely, and that the recommendations are being addressed.

Supervisors will investigate all accidents, injuries, and property damage using the following investigation procedures:

- Immediately implement temporary control measures to prevent any further injuries to employees.
- Review the equipment, operations, and processes to gain an understanding of the accident situation.
- Identify and interview each witness and any other person who might provide clues to the accident's causes.
- Investigate causal conditions and unsafe acts; make conclusions based on existing facts.
- Complete the accident investigation report using the Universal Report Form.
- Identify Causal Factors and make recommendations for Corrective Actions.
- Indicate the need for additional or remedial safety training.

The completed Universal Report Form and all accident investigation and/or supporting documentation must be submitted to the Human Resources office within 24 hours of the accident (NLT the next business day).

Chapter 7 RECORDKEEPING PROCEDURES

Recordkeeping Procedures

The Safety/Risk Program Manager will maintain all on-the-job employee accident and injury records at the Human Resources office. Those records will include accident investigation reports, Workers' Compensation notice of injury reports, and all related documents as required by law.

Chapter 8 GENERAL SAFETY RULES

These safety rules and regulations incorporate the minimum safety requirements to follow for the avoidance of injury, loss of time from work, loss of materials, and property damage.

Every employee of the City of Cocoa must be constantly alert to reporting and correcting unsafe conditions and actions. Employees at all levels should observe the safety rules.

The following rules are based on OSHA requirements and industry best practices.

- Report all work accidents, injuries, or property damage, regardless of severity, to your supervisor immediately.
- Constantly observe work conditions, equipment, and tools for the purpose of preventing accidents.
- Comply with all job safety instructions. Ask for help if you are unsure how to perform a task safely.
- Use all safety equipment required for the job.
- Use proper ventilation if it is needed.
- Correct unsafe acts or conditions within the scope of your immediate work. Report any unsafe acts to your supervisor.
- Notify your supervisor if any equipment or tools is damaged or unsafe.
- Stop work if conditions are such that there is an immediate danger to life, limb, or property.
- The safe way to do a job must always be found before going ahead. Contact your supervisor when in doubt.
- Practice good housekeeping in your work area. Keep work areas clean and aisles clear. Do not block emergency equipment or exits.
- Obey all warning signs.
- Keep focused on what you are doing.
- Report any unsafe conditions to your immediate supervisor at once.
- Fighting or horseplay in the workplace will not be tolerated.
- Illegal substances, alcohol, firearms, weapons of any type, or explosives are not authorized in the workplace or anywhere on City property. Reporting to work under the influence of an illegal substance or alcohol is prohibited and governed by the City's policy in the Personnel Policy Handbook. Inform your supervisor of any medications, prescribed by a medical professional, that may affect your job performance.

- Only qualified and trained Employees may work on or near Exposed Energized Electrical Parts or Electrical Equipment. Follow Electrical Safety Rules when working with electrically powered machinery and equipment.
- Only authorized and trained Employees may enter a posted Confined Space. All confined spaces will be posted Confined Space - Permit Required. Entry is allowed only after permits are properly issued.
- Wear and use the prescribed Personal Protective Safety Equipment. This includes foot protection, head protection, gloves, etc.
- Do not operate machines or equipment until you have been properly instructed and authorized to do so by your supervisor.
- Clean up spilled liquid, oil, or grease immediately.
- Lift properly—use your leg muscles, not your back muscles. For heavier loads, ask for assistance.
- Help to prevent accidents.

Safety is everyone's responsibility.

Unsafe working conditions are not acceptable!

Chapter 9 WEATHER RELATED SAFETY

Purpose

To provide guidance for the safety of all City of Cocoa employees during periods of severe weather e.g. severe thunderstorms, tropical storms, hurricanes, etc.

Wind Events

During severe weather events like hurricanes and tornadoes, winds can reach speeds greater than 100 miles per hour (mph). Even winds at 25 mph can damage homes and property.

The Occupational Safety and Health Administration (OSHA) normally consider winds exceeding 40 mph, or 30 mph if the work involves material handling, as a hazardous condition.

The National Weather Service uses the following guidelines for wind events:

- A **Wind Advisory** means that sustained winds of 30 mph for one hour and/or frequent gusts of at least 45 mph are occurring or expected within the next 36 hours. These winds will make it difficult to drive high profile vehicles. Small, unsecured objects may be blown around by these winds.
- A **High Wind Watch** means that sustained winds of 40 mph for one hour and/or frequent gusts of at least 58 mph are expected within the next 12 to 48 hours. Check to make sure all loose objects outside are secured. Plan to postpone any unnecessary driving during this time since these winds will make driving difficult, especially for high profile vehicles. These winds may damage trees, power-lines, and small structures.
- A **High Wind Warning** means that sustained winds of 40 mph for one hour and/or frequent gusts of at least 58 mph are occurring or expected within the next 36 hours. Ensure that all objects outside are secured. Refrain from any unnecessary driving during this time since these winds will make driving very difficult, especially for high profile vehicles. Winds this strong may damage trees, power-lines, and small structures.

Aerial Lifts - Do Not operate an aerial lift during winds of 20 mph or higher.

Material Handling

Personnel will not perform any duties that require material handling outside when sustained winds exceed 30 mph. Objects such as sheets of plywood can turn into powerful sails if they are caught by a wind gust and you are holding onto them. Do not try to carry heavy or bulky items by yourself, especially if it is windy. Ask for help in moving these materials.

All employees will cease outside operations when sustained winds meet/or exceed 40 mph.

Vehicles

- All vehicle operations (with the exception of First Responders) will cease when sustained winds meet/or exceed 40 mph.
- First Responders will cease vehicle operations when the sustained winds meet/or exceed 50 mph.
 - On a case-by-case basis, exceptions to this policy will be made at the discretion of the Emergency Operations Commander or related Police/Fire Chief or department designee based on current weather conditions and potential risk to public safety.

General Safety Precautions

- Watch weather forecasts in the event of severe weather.
- When stepping outside a protected area into an open one, expect the possibility of a stiff wind.
- Use eye protection to keep dust from blowing into your eyes.
- Never stand between the edge of an elevated surface and an object being carried. If measures to prevent falls are not in place, there is nothing to stop you from plunging to a lower elevation.
- Avoid standing below a wall that is not stable or working near stacks of materials that could blow over onto you.
- Tie down materials that could become airborne.
- Support objects on stands so they cannot fall if struck by a wind gust.
- Secure tarps so they cannot knock materials or workers from an elevated surface.
- Ensure that ladders, scaffolds, etc., are stable in windy conditions.

Lightning

Lightning is a real risk; an average of ten deaths and forty injuries from lightning occur in Florida each year, 100 people killed in United States per year.

The heat of a lightning bolt exceeds 50,000 degrees F (3 times hotter than the surface of the sun); travels at 90,000 miles per second; bolt is 1-2 inches wide.

Very Important - Many lightning casualties occur in the beginning as the storm approaches, or within 30 minutes after the storms have passed.

If you see lightning or hear thunder, do not wait. Head for safety: Get inside a large enclosed structure. Carports, an open garage, even a covered patio provide no protection.

Avoid:

- Open areas such as fields, construction sites, recreation areas, and golf courses
- Water such as ocean, lakes, swimming pools, rivers

- High places
- Trees
- Small open structures such as bus stops, rain shelters, picnic shelters, dugouts, gazebos
- Tall structures such as communications towers, flag or light poles
- Bleachers (metal or wood)
- Metal fences or metal objects such as carts, agricultural or construction equipment, golf carts, telephone lines or power lines, pipelines, or steel fabrications
- Get off of bicycles and motorcycles
- Holding metal objects; such as fishing rods, golf clubs, tennis rackets, tools.

Shelter

Safe shelters include:

- Substantial buildings; Do not touch anything in contact with the outside shell of the building such as metal door or window frames, the electrical wiring of the car or building, cable TV wiring, plumbing, household electrical appliances (including desktop computer), or cord telephone (cell phones pose no risk). Do not use running water such as shower, washing hands, or doing dishes.

As a last resort:

- Fully enclosed metal vehicles with windows up (avoid touching metal parts)
- Low ground -- seek cover in clumps of bushes
- Trees of uniform height, such as a forest.

Unsafe shelters include:

- Outdoor metal objects
- Power poles
- Fences and gates
- Metal bleachers
- Electrical equipment
- Mowers and road machinery.

No Place Outside is Safe Near Thunderstorms.

If you see lightning and/or hear thunder, you are already at risk. Louder or more frequent thunder and lightning activity, means the risk for lightning injury or death is increasing. Lightning can strike within a 10-mile radius even if no rain, sun shining, etc. (some report up to 15 miles) High winds, rainfall, and cloud cover often act as precursors to actual cloud-to-ground strikes but not necessarily.

Lightning's distance: Count the time from the flash to the bang—for each 5 second between, the lightning is 1 mile.

Chapter 10 HAZARD COMMUNICATION PROGRAM

General

The City of Cocoa will comply with OSHA's Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200 and Florida's Right To Know Law by compiling a hazardous chemicals list, by using Safety Data Sheets (SDS's), by ensuring that containers are labeled, and by providing employees with training.

This program applies to all work areas within the City where employees may be exposed to hazardous substances under normal working conditions or during emergency situations.

Under this program, employees will be informed of the contents of the Hazard Communication Standard, the hazardous properties of chemicals with which they work, safe handling procedures, and measures to take to protect themselves from these chemicals. Employees will also be informed of the hazards associated with non-routine tasks.

Hazard Communication Safety Data Sheets

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

- Section 1 - Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
- Section 2 - Hazard(s) identification includes all hazards regarding the chemical; required label elements.
- Section 3 - Composition/information on ingredients includes information on chemical ingredients; trade secret claims.
- Section 4 - First-aid measures includes important symptoms/effects, acute, delayed; required treatment.
- Section 5 - Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.
- Section 6 - Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.
- Section 7 - Handling and storage lists precautions for safe handling and storage, including incompatibilities.
- Section 8 - Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); ACGIH Threshold Limit Values (TLVs); and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the SDS where available as well as appropriate engineering controls; personal protective equipment (PPE).
- Section 9 - Physical and chemical properties lists the chemical's characteristics.

- Section 10 - Stability and reactivity lists chemical stability and possibility of hazardous reactions.
- Section 11 - Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- Section 12 - Ecological information
- Section 13 - Disposal considerations
- Section 14 - Transport information
- Section 15 - Regulatory information
- Section 16 - Other information - includes the date of preparation or last revision.

SDSs must be readily accessible to employees.

Health Hazard  <ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	Flame  <ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	Exclamation Mark  <ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none"> • Gases Under Pressure 	Corrosion  <ul style="list-style-type: none"> • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals 	Exploding Bomb  <ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none"> • Oxidizers 	Environment (Non-Mandatory)  <ul style="list-style-type: none"> • Aquatic Toxicity 	Skull and Crossbones  <ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

Pictograms are graphic symbols used to communicate specific information about the hazards of a chemical. On hazardous chemicals being shipped or transported from a manufacturer, importer or distributor, the required pictograms consist of a red square set at a point with a black hazard symbol white background, sufficiently wide to be visible. A square red frame set at a point without a hazard symbol is not a pictogram

Supervisors will refer to the corresponding to assist employees in verifying label information.

from a
frame
on a
clearly

SDS

If there are a number of stationary containers within a work area that have similar contents and hazards, signs will be posted to convey the hazard information. If employees transfer chemicals from a labeled container to a portable container that is intended only for their immediate use, no labels are required on the portable container.

Training

Everyone who works with or is potentially exposed to hazardous chemicals will receive initial training on the Hazard Communication Standard and the safe use of those hazardous chemicals.

Chapter 11 FIRST AID

Purpose

To establish a first aid program that meets industry standards and assures immediate first aid treatment is available to all City personnel.

First Aid Kits

First-aid kits shall be easily accessible to all workers, protected from the weather, and each item maintained sterile. First-aid kit locations should be clearly marked and distributed throughout the location. To ensure immediate access to first aid supplies, first aid kits shall not be locked.

First aid kits shall conform to the requirements of the ANSI Z308.1-2015.

First Aid Kit Inspections

First aid kits should be inspected monthly by the supervisor to ensure completeness, condition of contents and expiration. Any item beyond its marked expiration date will be removed from the kit and replaced.

Rendering First Aid

All first aid incidents shall be reported to supervisors at the time of occurrence.

Basic First Aid Procedures - Following are some basic first aid procedures for treating shock, bleeding and wounds, burns, choking, electric shock, eye injury, fainting, heat stroke, hypothermia, and unconsciousness. These techniques can be used in the workplace or at home and being prepared will help make the most of a serious situation.

Shock - Shock can be life threatening. Symptoms include cold sweat, weakness, irregular breathing, chills, pale or bluish lips and fingernails, rapid weak pulse and nausea.

- Call 9-1-1 or seek medical help immediately.
- Do not give the victim anything to eat or drink.
- Lay the victim on his/her back, but do not move him/her if there's a back or neck injury. If the victim is unconscious, vomiting or has severe injury to the lower face or jaw, lay him/her on his/her side and be sure the victim is getting adequate air.
- Keep the victim warm (not hot) by use of blankets or clothes.
- Raise the victim's feet and legs with a pillow. (Only do this if it does not cause the victim any pain.)

Bleeding and Wounds

- Place a clean cloth or gauze and gloved hand over the wound; apply firm, steady pressure for at least 5 minutes.
- Call 9-1-1 or other emergency personnel if bleeding is severe.
- Elevate an injured arm or leg above the level of the victim's heart if practical.
- When bleeding stops, secure the cloth with a bandage. Do Not lift the cloth from the wound to check if bleeding has stopped. Be sure the bandage is not too tight—it may cut off circulation.
- Check the victim for shock.

Never use a tourniquet unless you cannot control the bleeding. Tourniquets may result in subsequent medical amputation.

Burns

1. Chemical or Compressed Gas Burns

- Use a drench hose, emergency shower or eyewash for at least 15 minutes to rinse away all traces of chemicals while removing any contaminated clothing from the victim. (See illustration 1.)
- Cover the burn loosely with a clean, dry cloth or special burn dressing.
- Check the victim for shock.
- Call 9-1-1 or seek medical attention as soon as possible.

2. Heat or Electrical Burns

- If necessary, use water to stop actual burning of skin.
- If the skin is not broken, submerge the burned area under cool running water, or gently apply a cool compress until pain is relieved. Bandage with a clean, dry cloth.
- Do not break a blister if one forms.
- Do not apply ointments or creams.
- If skin is broken, or if burns are severe:
 - Call 9-1-1 or other emergency personnel.
 - Do not clean the wound or remove embedded clothing.
 - Cover the burn loosely with a clean, dry cloth.
 - Expect shock and treat accordingly.

Choking

Note: These instructions are for choking victims over one year of age. There are specific guidelines for treatment of infant choking that are not outlined in this document.

If the victim can speak or cough forcibly and is getting sufficient air, do not interfere with his/her attempts to cough the obstruction from the throat. If the victim cannot speak or is not getting sufficient air, have someone call 9-1-1 while you perform abdominal thrusts.

1. Stand directly behind the victim and wrap your arms around the stomach. (See illustration 2.)
2. Make a fist with one hand and place that fist just above the navel and well below the ribs, with the thumb and forefinger side toward you. (See illustration 3.)
3. Grasp this fist with the other hand and pull it quickly toward you with an inward and slightly upward thrust. Repeat if necessary. (See illustration 4.)

If the victim becomes unconscious:

1. Lay the victim on their back.
2. If the object that is blocking the airway is visible, reach a finger into the victim's mouth (along the inside of the cheek) and try to sweep the obstruction out of the victim's throat, being careful not to push the object deeper into the victim's airway.
3. Even if this is not successful, attempt rescue breathing.
4. If the victim is still not breathing or moving, begin chest compressions (CPR).

Electric Shock

1. Do not touch the victim until electrical contact is broken.
2. If possible, unplug or switch off the source of electricity.
3. If victim is not breathing and has no pulse, call 9-1-1 or seek medical attention immediately.

Eye Injury

1. Chemical

- Hold the eyelids apart and flush the eyeball with lukewarm water for at least 15-30 minutes. Be careful not to let runoff water flow into the other eye.
- Place a gauze pad or cloth over both eyes and secure it with a bandage.
- Get to an eye specialist or emergency room immediately.

2. Cut, Scratch or Embedded Object

- Place a gauze pad or cloth over both eyes and secure it with a bandage.
- Do not try to remove an embedded object.
- Get to an eye specialist or emergency room immediately.

Fainting

Note: Fainting victims regain consciousness almost immediately. If this does not happen, the victim could be in serious danger and you should call 9-1-1 as soon as possible.

1. Lay the victim down on their back and make sure they have plenty of fresh air.
2. Reassure the victim and apply a cold compress to the forehead.
3. If the victim vomits, roll the victim on his/her side and keep the windpipe clear.
4. Report the fainting incident to the first responder.

Unconsciousness

1. Determine responsiveness by gently tapping the victim's shoulder and asking, "Are you okay?"
2. If there is no response, shout "Help!" and look for a medical alert tag on the victim's neck or wrist.
3. If victim is not breathing and has no pulse, begin CPR.
4. Call 9-1-1 or seek medical aid as soon as possible.

Chapter 12 Boating Safety

Purpose

Establish requirements for operation of boats that assures protection of City personnel during boating operations.

General Safety Precautions

Check manufacturer's load capacity plate, usually located on the stern. Never exceed these restrictions.

Observe the weather prior to leaving land, listen to the weather channel or contact the Coast Guard / Marine Patrol for a weather update. If you are unable to find out the forecasted weather conditions, or are unsure, then **DO NOT GO**. If lightning is present **anywhere** in the area, **DO NOT GO**.

Ensure that your supervisor is aware of the expected time of departure, route of travel and the expected time of return.

Ensure that there are reliable communications onboard, that they have been checked, and that it is being monitored at all times.

When boarding a small boat step aboard into the center of the boat. Stay low and hold on the sides to keep your balance. Stay low when you move about a small boat to prevent tipping. Do not step on anything that was not meant to be stepped on. Look for wet areas, or equipment that may cause you to lose your footing.

If a person falls overboard, slow the boat while keeping the victim in view. Always stop the motor when close to someone over the side. Throw them a personal flotation device if needed and bring them in over the stern (use a ladder if you have one).

If your boat capsizes, stay with it. Most boats will continue to float and afford basic flotation sufficient to keep the operator and passengers afloat.

Never fuel while smoking or in the presence of open flames and only use containers of the approved type for flammables. Fill portable tanks on the dock. Close hatches and other openings before fueling. Shut off engines and motors before fueling. After fueling, wipe up or wash off any spilled fuel immediately. Open hatches and windows and let the boat air out. NEVER start the engines until traces of fuel vapors have been evacuated.

- Do not stand while operating a boat unless the boat is rigged for that type of operation.
- Keep clear of commercial traffic, especially barges under tow.
- Give fishermen a wide berth. They often have lines out.

The following rules apply:

- Less maneuverable boats such as sailboats, rowboats, and canoes have the right of way over powerboats, except in an overtaking situation.

- Operators must maintain a safe speed at all times. Considerations that must be included when determining a safe speed include visibility, traffic, weather, water depth, and vessel maneuverability.

Safety Equipment

In all cases, City personnel operating or riding in a vessel are required to wear Coast Guard approved life vests at all times.

CG Required Equipment on Vessels Less Than 16 Ft In Length

The following items are the minimum items required on U.S. waters for vessels less than 16 feet in length:

- Life Jackets (PFDs). One life jacket is required for each person.
- Fire Extinguishers. At least one Coast Guard approved type hand portable fire extinguisher
- Whistle, Bell or Horn. Any Device capable of making an "efficient sound signal" audible for 1/2 mile.

Towing, Launching, and Recovery

When you use a trailer to transport a boat, ensure the boat is winched tight and balanced. Use restraining straps and a safety chain. Check to ensure trailer lights work properly (turn signals, brake lights, and rear taillights must be operative before towing).

Before you launch, remove tie down straps, tilt engines up, disengage travel brackets or remove transom saver. Don't forget to check that transom plug/s are in and secure. Unplug wire harness. Unlock vehicle doors and do not put seatbelt on. Have one person act as a lookout and have them ready with chocks if necessary. Back the boat in just until it floats or can easily be pushed off the trailer.

Environmental Concerns

- Never discharge oil or oily waste into or on water.
- Do not litter.
- Stay at least 300 feet away from marine mammals. If a marine mammal approaches, put your engine in neutral and let the animal pass.
- If you get caught in a storm, seek cover.

Training and Certification

City personnel shall not be allowed to operate a powered boat until they have been properly trained and certified.

Chapter 13 VEHICLE SAFETY

Purpose

To define requirements for a City wide vehicle safety program, applicable to all personnel, that meets the requirements of, and ensures compliance with state and federal regulations and standards. Requirements contained in the following sections apply to all of the following:

- City vehicles, which includes those owned, rented or leased by the City.
- Private vehicles being used on City business.

General

City vehicles are easily identified as such and are seen by many Cocoa citizens and the citizens of surrounding cities. The way in which a City vehicle is operated can result in either a negative or positive opinion / perception by the general public. Personnel exhibiting safe and courteous behavior, while operating a City vehicle, have a positive impact on the enhancement of relations between the City and its' citizens.

Operators will ensure that there is a current insurance card and valid registration in the vehicle prior to its use.

Drivers Licensing

Newly hired City personnel shall be screened during the hiring process to ensure they hold the proper class of drivers' licenses for the jobs they are required to perform.

Supervisors shall ensure personnel are properly licensed before they are assigned to operate a vehicle.

City personnel shall immediately inform their supervisor if their driver's license is revoked, suspended, or expired. These personnel shall not operate any vehicle until their license has been reinstated. Supervisors shall inform Human Resources of the situation.

Seatbelt/Shoulder Harness Use

City personnel shall wear installed seatbelt/shoulder harness when operating or riding in any City vehicle. Personnel shall also wear installed seatbelt/shoulder harness when operating or riding in any private vehicle being used on City business. It is the vehicle operator's responsibility to ensure occupants are properly wearing their seatbelt/shoulder harness before placing the vehicle in motion.

Cell Phone and Headset/Earphone Use

City of Cocoa employees are not allowed to operate cell phones (unless hands free equipment is available, i.e. Bluetooth), mobile communication radios, lap-top computers or other communication devices while operating City vehicles unless in the course of an emergency response in accordance with emergency operation policies. Texting while operating a vehicle is **not allowed at any time**. Vehicle operators shall not wear a headset or earphone when operating any type of vehicle. (The only exception to this

rule is personnel operating heavy equipment who may wear an earphone in one ear only.)

Alcohol and Drug Use

Driving under the influence of alcohol or illegal drugs is against the law and is expressly forbidden by the City. If convicted, the person could lose their driving privilege.

DOT Drug Testing

Personnel operating vehicles that require a CDL license must be drug screened at periodic intervals. This includes but is not limited to; pre-employment, post-accident, random, reasonable suspicion, and return to work.

Traffic Violations

City personnel receiving a citation or ticket by a police officer while driving a City vehicle or City provided rental vehicle, or a personal vehicle on City business, are personally liable for fines issued. City personnel are expected to follow federal, state, and local laws while operating a vehicle on City business.

Vehicle Care

City personnel shall conduct a pre-use vehicle inspection before using a vehicle on City business. Personnel shall not operate a vehicle if safety defects are noted during the inspection; and the vehicle must be removed from service until the deficiencies are resolved.

Vehicles will be kept clean and free of trash and other debris. Material / equipment in the vehicle will be kept properly stored and/or secured to avoid hazards in the event of an accident.

Vehicle maintenance will be coordinated with the Fleet Maintenance Division.

All vehicle maintenance records will be maintained by the Fleet Maintenance Division.

Training Requirements

City personnel may operate passenger type vehicles such as sedans and small trucks without formal training if they are properly licensed by the state to operate this classification of vehicle.

City personnel required to operate specialty vehicles; dump trucks, graders, etc., shall receive training sufficient to safely operate the vehicle. However, City personnel shall not drive any vehicle for which they are not properly licensed as outlined by Florida State Statute.

Chapter 14 CONFINED SPACE ENTRY PROGRAM

Purpose

To establish a confined space entry program that meets industry standards and affords protection for City personnel from the hazards associated with confined spaces.

Workplace Evaluation and Entry Decision Documentation

Each department shall evaluate areas where City personnel work to determine if there are any spaces in these areas that meet the definition of a permit required confined space.

Types of Confined Spaces and Common Hazards

Confined Space Definition

- A space is considered a confined space if it meets **ALL THREE** of the following conditions:
 - Is not designed for continuous occupancy
 - Has a limited or restricted means for entry/exit such as a tank, vessel, silo, bin, hopper, or pit
 - Is large enough and configured so that a person can bodily enter and perform work
- A space is a permit-required confined space if it meets the requirements above and has **ANY** of the following characteristics:
 - Contains, or has the potential to contain, a hazardous atmosphere
 - Contains a material that has the potential for engulfing an entrant
 - Has a configuration that could trap or asphyxiate an entrant such as an inwardly converging wall or floor that slopes downward and tapers to a smaller cross-section
 - Contains or has any other recognized serious safety or health hazard

Confined Space Identification

Permit required confined spaces must be identified by placing warning signs near the entry point that state “Permit-Required Confined Space – Entry Permit Required”. If for some reason a sign cannot be placed, an alternative method shall be employed to assure City personnel know not to enter the unmarked spaces without obtaining an entry permit.

Reclassification of Permit-Required Spaces to Non-Permit Spaces

A qualified confined space entry supervisor may temporarily reclassify a permit-required confined space to a non-permit required space for entry without the requirement to follow permit-required procedures so long as **ALL** of the following conditions are met:

- The space does not contain hazards that cannot be eliminated.

- The space does not contain potential atmospheric hazards, or these hazards have been eliminated by removing the source such as disconnecting and blocking a gas line outside the space in such a way that it is impossible for a gas leak to produce a potentially hazardous atmosphere.
- All other safety or health hazards have been eliminated without physically entering the space.
- Work to be performed will not introduce any hazard into the space.

Reclassification should be a very rare occurrence since it is unlikely that all hazards that originally caused a confined space to be classified as a permit-required space can be eliminated without entry.

Entering a Permit-Required Space

Entry Permits

An entry permit, shall be issued by an authorized confined space supervisor PRIOR to entry into a permit required confined space. The completed permit shall be posted at the entrance to the confined space and remain posted throughout the entry. A permit is only valid for the time indicated on the permit and only for the conditions noted on the permit.

- The following minimum actions shall be accomplished before a permit is issued:
 - The location of the confined space and the work performed shall be defined.
 - The potential or known hazards to be encountered shall be determined and confirmed.
 - Isolation measures such as lockout/Tagout shall be considered and completed if required.
 - The needed protective equipment, including rescue equipment shall be defined and secured.

Atmospheric testing utilizing a direct reading air sampler shall be performed. Tests for carbon monoxide, combustible gas, and oxygen volume are required at a minimum. The testing of the space shall always be performed from outside the confined space, and on vertical entries, the testing shall be done at various levels. **Always perform the initial testing when the ventilation system is not running.**

The acceptable atmospheric conditions are:

Oxygen Content: 19.5% to 23.5%

Flammable Gases Content: Less than 10% of lower explosion limit/lower flammability limit (see SDS).

Carbon Monoxide: Less than 35 parts per million.

If there is a possibility of specific airborne toxic chemicals in the space, their presence shall be evaluated by using direct reading air sampling. These results shall be compared with existing exposure limits (PEL and/or TLV).

At a minimum periodic atmospheric monitoring shall be required while the work is performed in the confined space unless the potential hazard warrants continuous monitor. **In the case of sewer system entries, continuous monitoring is required at the working location of each authorized entrant.**

- Atmospheric monitoring shall be conducted with the ventilation system operating to determine its effectiveness (after the initial testing with it off).
- Emergency procedures shall be reviewed with attendants and all authorized entrants.
- Rescue procedures shall be discussed, and annotated on the permit.
- If conditions noted are different than those described on the confined space permit, the permit shall be revoked. Any change in conditions or activity that introduces new hazards into the confined space requires a new permit.

Equipment used to conduct atmospheric testing or monitoring shall be calibrated and maintained as per the manufacturer's instructions.

General Entry Procedures and Safeguards

Conditions and hazards vary widely and is it the responsibility of the entry supervisor, and everyone involved in the entry process, to continually evaluate the hazards associated with both the confined space and the work being performed and apply protection measures necessary to protect each worker from these hazards.

Safety Equipment

The entry permit shall define the minimum necessary equipment required for working in the confined space. The equipment required may include some or all of the following:

- Eye and Face Protection
- Foot Protection
- Head Protection
- Body Protection
- Hearing Protection
- Respiratory Protection
- Life Jackets
- Hand Protection
- Insulated Floor Mats
- Safety Harness and Retrieval Line

Hazard evaluation and atmospheric testing, performed prior to entry, will determine the use and types of protective equipment required.

General Safeguards and Hazards

Some general safeguards for entering any confined space include:

- Always assume a hazard exists. Never enter a confined space unless atmospheric testing has been performed for oxygen volume, airborne toxic chemicals, and flammable or combustible gases.
- Always consider the special hazards that might arise while working in the confined space. Be sure that supplies of hazardous energy and possible contaminants are isolated at the source.
- Always have an attendant at the entrance to the confined space. The attendant should never enter the space. The attendant should maintain some form of communication with the entrant such as a two-way radio, visual contact, or a noise maker, (i.e., air horn).
- Entrants shall wear a harness during entry to facilitate rescue unless the confined space supervisor determines its use would be hazardous to the entrant.
- Oxygen combines with steel to form rust. Extremely rusted components in a confined space may have eliminated the available oxygen.
- General hazards associated with confined spaces include:
 - Mechanical Hazards
 - Communication Hazards
 - Entry and Exit Hazards
 - Physical Hazards: Some hazards cannot be eliminated because of the nature of the work or the nature of the confined space. Some of these include:
 - Temperature
 - Noise
 - Vibration
 - Scaffolding or ladders
 - Presence of surface residues
 - Structural hazards

Specific Permit-Required Entry Procedures

Purging and Ventilating

Control of the atmosphere within a confined space shall be accomplished by purging and ventilating.

- When ventilating/purging a confined space, the blower controls shall be located at a safe distance from the entrance to the space. When a ventilation system is in operation, the air flow shall be checked before each work shift to maintain a safe environmental level. The confined space environment shall be tested prior to initiating any ventilation/purging. Tests shall be conducted from outside the space and, as areas are cleared, the inspector should move forward to test remote areas of the space. The ventilation system shall be designed so that only fresh air is supplied to the confined space. If an exhaust system is installed in the confined space, workers shall be protected from the exhaust at its external point. If flammable concentrations are present (10% or greater of the LEL/LFL) then electrical equipment shall comply with the provisions of the applicable electrical code for hazardous locations, and bonding/grounding requirements. Where continuous ventilation is not part of the operating procedure, the atmosphere within the confined space shall be tested until continuous acceptable levels of oxygen and contaminants are maintained for three tests at five-minute intervals.
- Continuous general ventilation of a confined space shall be maintained where toxic atmospheres are produced as part of the work procedure. General ventilation is an effective means of diluting contaminants by distributing them throughout a work space. Special precautions shall be taken when using a ventilation system that partially blocks an exit opening. Such precautions include a method of providing breathable air to each worker for the time necessary to exit the space and a method of maintaining communications.
- Local exhaust ventilation shall be provided where general ventilation is not effective due to restrictions in the confined space or when high concentrations of contaminants occur in the breathing zone of the worker. Such concentrations may occur during welding, painting, and chemical cleaning activities.

Isolation and Lockout/Tagout of the Space

- All hazards involving potential stored energy should be completely isolated/eliminated through lockout/Tagout where possible.
- Special lockout/Tagout precautions when isolating a confined space from potential hazardous energy include:
 - Listing of the isolation points for energy sources found within the confined space on the entry permit.

Cleaning Confined Spaces

- When cleaning the inside of a confined space, the cleaning method and how it is applied shall be carefully considered to ensure the process removes hazards associated with the cleaning process.
- When cleaning a confined space that has a flammable atmosphere above the upper flammable limit, the space shall be purged with an inert gas before being ventilated with air. If possible, initial cleaning shall be done from outside the tank.

Equipment and Tools for Working in Confined Spaces

Tools shall be carefully inspected prior to confined space entry. Tools must meet the following requirements before they are used in a confined space:

- Portable electric tools, equipment, and lighting, shall be grounded or double insulated and plugged into ground fault circuit interrupters.
- Heavy duty electrical cords shall be used and shall be free of nicks and defects.
- Use air-driven power tools when flammable liquids are present. This reduces the risk of explosion. Explosion hazards are still present from overheating (drilling), sparks from striking, grinding or discharge of accumulated electrostatic charges developed from the flow of compressed air.
- Ensure that lights used in confined spaces are explosion-proof in design and equipped with guards.
- Never take cylinders of compressed gas into a confined space. As an exception, cylinders used by self-contained breathing apparatus or resuscitation equipment are allowed in confined spaces.
- Secure and place ladders at an angle so that the distance that the bottom of the ladder is from the wall is approximately one-fourth the distance that the top of the ladder is from the floor. Built in ladders in manholes and vaults should not be used unless they have been inspected to ensure they have not rusted or deteriorated.
- Scaffolding must meet applicable regulatory standards.
- Ensure that equipment used in a flammable atmosphere is approved as either explosion-proof or intrinsically safe.
- Barricades shall be placed around manholes before the cover is removed. Barricades shall remain in-place until the cover is replaced.

Sewer System Entry

Sewer system entry differs in two vital respects from other permit entries. First, there is rarely any way to completely isolate the space (a section of a continuous system) to be entered. Second, because isolation is not complete, the atmosphere may suddenly and unpredictably become lethally hazardous (toxic, flammable or explosive) from causes beyond the control of the entrant the City. Due to these unique hazards, personnel involved with sewer system entries should be personnel who are routinely involved in sewer system operations.

Entrants should be trained in the use of, and equipped with, atmospheric monitoring equipment that sounds an audible alarm in addition to its readout whenever one of the following conditions are encountered:

- Oxygen concentration less than 19.5 percent.
- Flammable gas or vapor at 10 percent or more of the LEL.

- Hydrogen sulfide or carbon monoxide at or above 10 ppm or 35 ppm, respectively, measured as an 8-hour time weighted average.
- Any other identified atmospheric hazard at or above its PEL.

Sewer lines are continually at risk from flooding due to rain or fire suppression activities (either practice or real). They are also easily flooded with flammable or other hazardous materials during emergencies by industrial or transportation accidents.

City personnel are prohibited from entering manholes or other confined spaces that contain High Voltage hazards that cannot be de-energized.

Functions of Assigned Personnel

Confined Space Supervisor Responsibilities

The confined space supervisor is the key player in making an entry into a confined space both safe and compliant with the standards (The Confined Space Supervisor need not be an actual supervisor – It is a designation of the individual in overall charge of the confined space entry). Their responsibilities and duties include the following:

Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposures to the hazards.

- Verify the following before issuing (signing) an entry permit:
 - Requirements checked on the permit are appropriate for the hazards expected.
 - Required tests on the permit have been conducted.
 - Procedures and equipment specified by the permit are in place.
 - Any other requirements, outlined on the permit, have been met.
- Terminate the entry and cancel the permit.
- Verify that rescue services are available and that communication is present and operable.
- Keep unauthorized personnel away.
- Although the entry supervisor may elect to turn over responsibilities to an attendant, the entry supervisor remains responsible for ensuring operations remain consistent with the terms of the permit and that acceptable entry conditions are maintained.

Attendant Responsibilities

- Attendants and their duties and responsibilities shall conform to the following:
 - Know the hazards that may be faced during entry, including the mode, signs or symptoms and consequences of exposure to the hazards.
 - Be aware of possible behavioral effects of hazard exposure in authorized entrants.

- Continuously maintain an accurate count of authorized entrants in the permit space.
- Remain outside the space during entry until relieved by another attendant.
- Communicate with entrants as necessary to monitor their status and to alert them of the need to evacuate if the need arises.
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to evacuate the permit space immediately under any of the following conditions:
 - If the attendant detects a prohibited condition.
 - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
 - If the attendant detects a situation outside the space that could endanger the authorized entrants.
 - If the attendant cannot effectively and safely perform their duties
- Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape.
- Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
 - Warn the unauthorized persons that they must stay away from the permit space.
 - Perform non-entry rescues as outlined in this procedure.
 - NOT perform any other duties.

Authorized Entrant Responsibilities

- Authorized entrants and their duties and responsibilities shall conform to the following:
 - Know the hazards that may be faced including information on the mode, signs or symptoms, and consequences of exposure to the hazards.
 - Properly use any equipment required during the entry.
 - Communicate with the attendant as necessary to enable the attendant to monitor their status and to allow the attendant to alert entrants of the need to evacuate the space if required.
 - Alert the attendant whenever any of the following conditions exist:
 - The entrant recognized any warning sign or symptom of exposure to a dangerous situation.
 - The entrant detects a prohibited condition.

- Exit the permit space as quickly as possible during the following conditions:
 - When an order to evacuate is given by the attendant or the entry supervisor.
 - When the entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
 - When the entrant detects a prohibited condition.
 - When an evacuation alarm is activated.

Rescue Personnel Responsibilities

The primary responsibility of rescue personnel is to affect a safe rescue of trapped or injured personnel from a permit required confined space.

Rescue Requirements

Rescue systems shall be in place at the confined space site and shall be used during entry unless the confined space supervisor determines they would present a greater hazard to entrants.

- Rescue personnel must either be present during entry or be available to perform rescue if required. .
- If rescue personnel are not present during entry, the confined space supervisor must ensure that rescue personnel know they may be required to respond in an emergency, and that there is a method for determining if they become unavailable (unavailability requires termination of the entry).
- Regardless of the method used retrieval systems or methods shall be used during entry for each entrant; unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue (the confined space supervisor shall make this determination). Retrieval systems shall meet the following requirements:
 - Each entrant shall use a full body harness, with a retrieval line attached at the center of their back near shoulder level, above their head, or at another point which ensures a profile small enough for the successful removal.
 - The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be on site to retrieve personnel from vertical type permit spaces more than 5 feet deep.
- If entrants may be potentially exposed to chemical substances during entry, a copy of the SDS must be on site with the entry permit and be made available to rescue personnel as necessary.

- In addition, the rescue team or service shall be informed of the hazards they may confront when called on to perform rescue at the site.

Contractor Notification

Our City has the responsibility under governing standards to coordinate activities and hazards with contractors and their subcontractors that may enter spaces under City control. Exchange of information and coordination is also required when personnel from two or more contractors are involved in confined space entry.

Annual Program Review

An review of this confined space program will be conducted annually by the Safety & Risk Program Manager in conjunction with the Department/Division.

Training Requirements

All personnel involved with confined space entry shall be trained before they participate in confined space operations.

Chapter 15 HAND AND PORTABLE POWER TOOL SAFETY

Purpose

Establish a Citywide standard for the use of hand and portable power tools by City personnel.

Hand Tool Safety Guidelines

General Guidelines and Safe Work Practices

- All hand tools, whether owned by City personnel or provided by the City shall be maintained in a safe condition and meet regulatory requirements.
- Wooden handles of all tools shall be kept free of splinters/cracks.
- Insulated tools used for hot electrical work must meet ANSI Standards for electrical safety tools (tools which meet this standard will be marked by the manufacturer with a small double triangle and the number 1000 followed by a “v” or the word “volt”). This requirement applies to personal tools as well as City owned tools.
- Never use tools for jobs for which they were not designed. Examples of misuse of tools include using a knife to pry with, using an incorrect size wrench, or hammering with the side of a hammer rather than the face of the head.
- Keep tools in good condition. If the tool is broken, either fix it or dispose of it.
- Tools should be stored properly.

Metal Cutting Tool Safe Work Practices and Guidelines

Hand Chisels

- Wear safety glasses with side shields or goggles when using a chisel.
- Flat and cape chisels should be ground so the face forms an angle of 70 degrees for working on cast iron, 60 degrees for steel, 50 degrees for brass, and about 40 degrees for soft metals.
- Dress heads at the first sign of mushrooming. Failure to follow this rule may lead to flying chips that may cause serious injury.
- Always use a hammer that is heavy enough to do the job.

Tap and Dies

- Work should be mounted firmly in a vice. Never attempt to hold work in your hands. Use proper T-handle wrench or adjustable tap wrench (never use makeshift tools).
- Make sure you drill the right size hole and use lubrication as necessary during the tap process.
- If you must use a punch or chisel to remove a broken tap, wear proper eye protection.

Hack Saws

- Install blades so teeth point forward.
- Use the following as a general rule:
 - 14 Teeth per inch for machine steel.
 - 18 Teeth per inch for tool and high-speed steel or cast iron.
 - 25 Teeth per inch for soft metals such as brass, copper, and sheet metal 18 gage or over.
 - 32 Teeth per inch for small tubing, conduit, or sheet metal less than 18 gauge.

Wood Cutting Tool Safe Work Practices and Guidelines

Hand Saws

- Use the proper saw for the work to be performed.
- Keep saws sharp to prevent binding.
- Guide the saw with the thumb of your free hand held high on the saw when starting a cut (don't place a thumb on the material being cut).
- Wear eye protection.

Axes and Hatchets

- Always make sure ax and hatchet handles are firmly mounted in the ax or hatchet head and that handles are smooth and have no splinters.
- Keep ax and hatchets sharp. A dull ax or hatchet may glance off the wood and strike the user in the foot or leg.
- Use the proper size tool for the job.
- Never strike hard metal surfaces.
- Eye protection should always be used.

Always cut away from the body when using a knife.

Torsion Tool Safe Work Practices

Wrenches

- Wrenches should be pulled, not pushed, during operation. Use a short steady pull. Don't use a hammer. If the nut will not come free, get a wrench with a longer handle or use some type of chemical to help break the nut free. Never use a "cheater" bar or pipe to extend the length of the wrench.

Pipe Wrenches

- Inspect pipe wrenches frequently, especially the adjusting nut of the wrench. Take cracked wrenches out of service immediately.

- Using a wrench of the wrong length is also hazardous. A wrench handle too small does not give proper grip or leverage and one too large may strip the threads or break the fitting causing the pipe to slip or fall.
- Pipe wrenches are not designed to be used on valves, to be struck with a hammer, or used as a hammer.

Screwdrivers

- Do not use screwdrivers for punches, wedges, pinch bars, or for prying.
- The tip of the screwdriver must fit snugly in the screw. Using the wrong size will not only damage the screw, but may also lead to injury if the screwdriver slips out of the screw inadvertently.
- Never use a screwdriver for electrical work unless it is an ANSI approved electrical insulating screwdriver (marked with double triangle and 1000v).
- Never hold work in your hand. Use a vise.

Shock Tool Safe Work Practices

Hammers

- Make sure hammer heads are firmly on handle before each use.
- Never use hammers with damaged heads or damaged handles.
- Wear eye protection when using a hammer.
- Never use a steel hammer on hardened steel surfaces. If you must hammer hardened steel, use a soft-head hammer, ball peen hammer, or one with a plastic, wood, or rawhide head.
- Never hammer with the side of the hammer.

Sledge Hammers

- Always inspect these tools carefully before each use and discard any defective tools.
- Eye protection shall be worn when using a sledgehammer.

Portable Power Tool Safety

- Portable power tools, whether City furnished or employee provided, must be maintained in a safe condition and must meet applicable ANSI and/or regulatory standards for design and use.
- When power operated tools are designed to accommodate guards, the guards must be in place and functional.
- Do not remove or alter the guarding on portable power tools.
- Any tool that is used in an explosive atmosphere must be specifically approved for explosive environment. This requirement also applies to power sources for the tool.

- Personnel using any portable power tool that has the potential to create eye hazards must wear eye protection
- Store and transport them in a safe manner so they will not be damaged and in such a way that sharp surfaces do not present a hazard to personnel or other equipment.
- Electric tools must either be double insulated or grounded.
- Extension cords used for portable power tools used outdoors or in potentially damp locations must have ground fault protection.
- Never use the power cord to lift or lower a tool.
- Hearing protection should be used when using portable power tools. Many tools such as saws, drills, and impact tools produce noise levels which frequently register above 105 dB depending upon the material being worked and the individual tool.
- Blades should be checked frequently to ensure they remain sharp. .

Use extreme care when operating a portable power saw. Keep hands well clear. If the saw binds, stop the saw and remove it from the work.

Pneumatic Powered Tools and Hoses

- Hose and hose connections must be designed for the intended pressure and service. Never exceed the manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings.
- Always make sure hoses do not present tripping hazards.
- Unless automatic disconnects are provided, air must be turned off prior to changing or disconnecting air-powered tools or equipment. Hoses must be connected to tool housings by safety chains unless automatic quick disconnects are provided.
- Pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 PSI, must have a safety device on the muzzle to prevent the tool from operating unless the muzzle is in contact with the work surface.
- Compressed air will not be used for cleaning purposes unless reduced to less than 30 PSI and then only with effective chip guarding.
- Do not use hoses for hoisting or lowering tools.
- Hoses exceeding 1/2 inch inside diameter must have a safety device at the source of supply or branch line to reduce the pressure in case of hose failure.
- Eye protection is required when operating any tool that may lead to flying debris unless the employee is protected by a suitable alternate device such as a full face respirator or blasting hood.

Grinder and Abrasive Wheel Safe Work Practices

- Safety guards must be in place prior to any work being done.
- Safety guards must be used on right angle head/vertical portable grinders and must have a maximum exposure angle of 180 degrees.
- Wheels must be inspected and sounded immediately before mounting.
- Take special care to make sure when installing a wheel that the maximum grinder speed does not exceed the maximum wheel speed.
- Wheels must fit freely on the spindle and remain free during grinding conditions.
- Portable grinders can be exceptionally hazardous tools unless they are properly and carefully used . Never force the grinder if it binds. Do not apply excessive pressure on the wheel.
- Eye protection is always required when using portable grinders. The minimum eye protection is safety glasses with side shields or goggles AND a face shield (requires both).

Explosive Actuated Tool Safe Work Practices

- HILTI or Ram set Guns must be controlled and only used by qualified operators
- Ammunition for explosive actuated tools will be stored in appropriate metal containers that are locked to prevent unauthorized access. Quantity must be limited to less than 1000 rounds.
- Operators **MUST** wear eye protection. Operators must also wear hearing protection when actually firing the gun.
- The muzzle end of the tool must have a protective shield or guard at least 3 1/2 inches in diameter, designed to confine any flying fragments or particles that might otherwise create a hazard at the time of firing.
- The tool must be designed so it cannot be fired unless the guard, shield, fixture, or jig above is installed.
- The firing mechanism must be designed so the tool cannot fire during loading or preparation to fire or if the tool is dropped while loading. Firing must be dependent upon at least two separate and distinct operations of the operator, with the final firing movement being separate from the operation of bringing the tool into firing position.
- There must be a standard means of identifying the power levels of loads used.
- Fasteners will only be used in tools that are specifically approved by the fastener manufacturer.
- Ammunition must remain in the personal control of the authorized operator. Ammunition will **NEVER** be left unattended at the job site. Do not leave ammunition in vehicles for any period.

Miscellaneous Power Tool and Equipment Guidelines

Airless spray guns which operate at high pressures (1,000 pounds or more per square inch) must be equipped with a safety device that will prevent pulling of the trigger until the safety device is manually released.

Fuel powered tools must be stopped while being refueled, serviced, or maintained. Special care must be taken when using fuel powered tools in a closed environment to protect against potential concentrations of toxic gases.

Training Requirements

City personnel shall be sufficiently trained and knowledgeable to safely use the hand and portable power tools required for use on-the-job.

Chapter 16 DIGGING, TRENCHING AND EXCAVATING

Purpose

To establish a digging, trenching, and excavating program that provides protection for City personnel from the hazards associated with entry into and working in trenches or excavations.

Excavation/Trenching Plan

Digging, trenching, and excavating presents unique hazards including the potential for severe injuries from underground utilities and the possibility of entrapment or burial from cave-ins if standard safety practices are not followed. The requirements outlined represent the minimum City standard.

Locations of utility installations, such as sewer, telephone, fuel, electric, water lines shall be determined before an excavation is started. When excavation operations approach the estimated location, the exact location shall be determined by a safe and acceptable means (such as hand digging) before continuing.

If for some reason it is impossible to locate underground utilities, and digging is still necessary, it shall be done by hand. If any obstruction is encountered, digging shall immediately stop until the nature of the obstruction is determined and confirmed to not be a hazard.

Trench/Excavation Requirements

Surface encumbrances that may create a hazard to personnel must be removed or supported as necessary to safeguard workers. .

Underground installations must be protected, supported, or removed as necessary to safeguard personnel.

- A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are four feet or more in depth, so that no more than 25 feet of lateral travel for personnel is required. If a ladder is used it must extend a minimum of three feet above the top of the excavation.
- Personnel exposed to public vehicular traffic must wear vests or other suitable garments marked with or made of reflectorized or high-visibility material.
- Workers are never allowed under loads handled by lifting or digging equipment. Workers must stand away from any vehicle being loaded or unloaded, except that the vehicle operator may remain in the vehicle cab during loading and unloading.
- Personnel entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a life-line securely attached to it. The lifeline shall be separate from any line used to handle materials. In these cases, a minimum of one worker for each lifeline shall be stationed outside the excavation.

- If work is required in an excavation where water accumulation is present, or is possible, the following precautions and/or work limitations are required:
 - Personnel will not work in excavations with accumulated water, or in excavations in which water is accumulating, unless precautions are taken to protect them from the hazards posed by water accumulation. The precautions necessary to protect workers vary with each situation but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
 - If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means must be used.
- If the stability of adjoining buildings, walls, or other structures is endangered by the excavation, support systems such as shoring, bracing, or underpinning must be used to ensure the stability of such structures for the protection of workers.
- Excavation below the level of the base or footing of any foundation or retaining wall, that may pose a hazard to personnel, is not permitted unless:
 - A support system is provided to ensure the safety of workers and the stability of the structure; or
 - The excavation is in stable rock; or
 - A registered professional engineer has determined that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity.
 - Sidewalks, pavements, and appurtenant structure shall not be undermined unless a support system is provided to protect workers from possible collapse of such structures.
 - Personnel must be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into the excavation. Unless retaining devices are used, material and equipment must be kept at least two feet from the edge of excavations.
- Daily inspections of all excavations shall be performed. This inspection shall include looking for any evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or any other hazardous conditions.
- Excavations that are five feet or deeper require some type of protection from cave-in and shall meet the requirements in 29 CFR 1926, Subpart P.

Protective Systems Design Requirements

The information in this section is based on a “worst case” scenario (Type C Soil – Sandy Soil).

Each person in an excavation shall be protected from cave-ins by an adequate protective system.

If personnel must enter an excavation that is less than five feet deep, and a competent person has personally examined the ground and surrounding features and determined there is no indication of potential cave-ins, a protective system need not be used.

Protective systems, including layback, shall be designed to meet the requirements for Type C Soil (sandy soil).

Excavations deeper than 20 feet require protective systems designed and approved by a registered professional engineer.

Excavations 20 feet or less in depth, except those less than 5 feet in depth which present no cave-in hazard, require a protective system such as the use of sloping or the use of shields.

Excavations that use the slope protective method shall have sides sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal). This assumes Sandy Soil. This method is the easiest to use and should be considered the primary method for worker protection during City operations.

Excavations that use shield systems, or other protective support systems to protect personnel must use one of the following:

- Support systems, shield systems, or other protective systems made from timber shall be designed and constructed in accordance with the conditions and requirements for Type C Soil (sandy soil) in 29 CFR 1926.652, Subpart P.
- Commercially procured support systems, shield systems, or other protective systems must be installed and used in accordance with manufacturer's instructions.

Any deviation from the manufacturer's data must be approved in writing by the manufacturer and must be posted at the job site during construction and immediately available during use.

Training Requirements

Worker Training

Training is a one-time requirement unless the worker demonstrates a lack of resident knowledge sufficient to safely perform the required job, or the requirements of this program significantly change. In these cases, workers shall be re-trained.

Chapter 17 SCAFFOLDING

Overview

The use of scaffolding presents hazards including the potential for injuries from falls, injury to personnel, collapse of improperly erected scaffolding, and potential damage to property and equipment.

Scaffold Design Requirements

Each scaffold and scaffold component shall be capable of supporting its own weight plus 4 times the maximum intended load.

As long as commercially produced scaffold components, erected by manufacturer's guidelines, are used, scaffolding meets this criterion. It is City policy to only use commercially produced scaffolding.

General Scaffold Construction Requirements

Scaffolding must be erected, dismantled, or modified under the supervision of a competent person. A Scaffolding Competent Person must also inspect scaffolding before each shift. Documentation of this inspection shall be accomplished through use of tags.

- Each platform on all working levels of scaffolds must be fully planked or decked between the front uprights and the guardrail supports. All platform pieces must be fastened to scaffold members to prevent movement during normal use and to prevent uplift by wind forces.
- Each platform and walkway must be at least 18 inches wide unless this width is not possible due to obstructions. If the width must be reduced to less than 18 inches, guardrails or personnel fall arrest systems must be provided and used.
- The front edge of platforms must be no more than 14 inches from the face of the work, unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used.
- Where platforms overlap to create a long platform, the overlap must occur over supports and be not less than 12 inches unless the platforms are nailed together or restrained to prevent movement.
- Wooden platforms must not be painted with opaque finishes (these may hide damage or defects). A nationally recognized grading stamp such as "Scaffold Grade OSHA Planking" must identify all wood platform planks.
- Do not mix scaffold components manufactured by different manufacturers unless the components fit together without force.

Minimum Distances from Power Lines

Insulated Lines

Scaffolding must be placed no closer to insulated power lines than 10 feet for lines up to 50kV. (Consult the OSHA regulation for lines over 50kV).

Scaffold Construction

If the height to base width ratio of more than four to one (4:1) is used, the scaffold must be supported by guying, tying, or bracing to prevent tipping. This must also be repeated vertically every 20 feet or less thereafter for scaffolds three feet wide or less, and every 26 feet or less thereafter for scaffolds greater than three feet wide. The top guy, tie or brace of completed scaffolds must be placed no further than the 4:1 height from the top. Guys, ties and braces must be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet (measured from one end, not both, towards the other).
NOTE: U-Bolt types of wire rope clips are not allowed.

- Footings must be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement (never use unstable objects to support scaffolds or platform units or as working platforms).
- Scaffold poles, legs, posts, frames, and uprights must be plumb and braced to prevent swaying and displacement. They must also be placed on base plates and mud sills or other adequate firm foundation.

Scaffold Access

General Access Requirements

When scaffold platforms are more than two feet above or below a point of access, portable ladders, hook on ladders, attachable ladders, stair towers, stairway-type ladders, ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface will be used. Cross braces shall never be used as a means of access.

Scaffold Use

Inspections

Scaffolding shall be inspected for visible defects, before each work shift and after any occurrence that could affect a scaffold's structural integrity.

General Requirements and Safe Work Practices

- Never move scaffolds while workers are on them.
- Personnel shall wear hard hats when they are on scaffolding.
- Tag lines must always be used when loads are being hoisted onto or near scaffolds, (this is to prevent contact between the load and the scaffold and possible resultant scaffold damage or worker injury).
- Never allow debris to accumulate on platforms.
- Never use a makeshift device such as a box, to increase the working height of workers.
- Ladders will not be used on scaffolds to increase working height of workers.
- Work on or from scaffolds is prohibited during storms or high winds.

Fall Protection Requirements

General Requirements

Personnel on a scaffold more than 6 feet above a lower level must be protected from falling by either of the following methods:

- Personal Fall Arrest Systems
- Guardrail Systems

Preventing Falling Objects

- Personnel shall wear hardhats during erection, dismantling, and use of scaffolding.
- Toe boards, screens, catch nets, catch platforms, or canopy structures capable of catching falling objects shall be used in all areas where objects may be dropped.
- Equipment and tools should be tethered when used on scaffolding.
- If effective methods are not available to prevent objects from falling on workers below the working level, then the area below the work shall be barricaded and workers shall not be allowed to enter the area even if this means stopping work on lower levels of the scaffolding.

Mobile Scaffold Requirements

- Mobile scaffolds **SHALL NOT** be moved when personnel are on the scaffold. Even when unoccupied, movement of mobile scaffolds (rolling tower scaffolds) requires extreme care.
- Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or an equivalent means, to prevent movement of the scaffold while occupied.

Training Requirements

Personnel require training, as outlined in this section, before they may erect, disassemble, move, modify, repair, or maintain scaffolding.

Chapter 18 LADDER SAFETY

Purpose

Misuse of ladders present a major hazard and cause of injuries to City employees who use ladders in the performance of their duties. This section outlines requirements that afford protection for City personnel from the hazards associated with ladder use.

Ladder Selection

Selecting the right ladder for the job is the first step in ladder safety. Ladder type is defined by how much weight the ladder can support.

- Ladder Type 1A - Extra-Heavy Industrial Ladder - 300 pound capacity
- Ladder Type 1 - Heavy-Duty Industrial Ladder - 250 pound capacity
- Ladder Type 2 - Medium-Duty Commercial Ladder - 225 pound capacity
- Ladder Type 3 - Light-Duty Household Ladder - 200 pound capacity

The ladder type chosen for a job must support the workers' weight plus the weight of any tools and materials. Employees who weight more than 300 pounds will not be able to use portable ladders unless the supervisor can secure specially designed ladders that will accommodate the additional weight.

General Ladder Safety

Falls from portable ladders (step, straight, combination and extension) are one of the leading causes of occupational fatalities and injuries.

- Read and follow all labels/markings on the ladder.
- Avoid electrical hazards! – Look for overhead power lines before handling a ladder. Avoid using a metal ladder near power lines or exposed energized electrical equipment.
- Always inspect the ladder prior to using it. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.
- Always maintain a 3-point (two hands and a foot, or two feet and a hand) contact on the ladder when climbing. Keep your body near the middle of the step and always face the ladder while climbing (see diagram).
- Only use ladders and appropriate accessories (ladder levelers, jacks or hooks) for their designed purposes.
- Ladders must be free of any slippery material on the rungs, steps or feet.
- Do not use a self-supporting ladder (e.g., step ladder) as a single ladder or in a partially closed position.
- Do not use the top step/rung of a ladder as a step/rung unless it was designed for that purpose.

- Use a ladder only on a stable and level surface, unless it has been secured (top or bottom) to prevent displacement.
- Do not place a ladder on boxes, barrels or other unstable bases to obtain additional height.
- Do not move or shift a ladder while a person or equipment is on the ladder.
- An extension or straight ladder used to access an elevated surface must extend at least 3 feet above the point of support (see diagram). Do not stand on the three top rungs of a straight, single or extension ladder.
- The proper angle for setting up a ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface (see diagram).
- A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement or a barricade must be erected to keep traffic away from the ladder.
- Be sure that all locks on an extension ladder are properly engaged.
- Do not exceed the maximum load rating of a ladder. Be aware of the ladder's load rating and of the weight it is supporting, including the weight of any tools or equipment.

Chapter 19 HEAT STRESS

Purpose

To establish a heat stress prevention program that assures protection for City personnel from the effects of heat exposure.

GeneralWork activities that present a risk of heat injury/illness include: operations involving high air temperatures (greater than 85°F), radiant heat sources, high humidity, direct physical contact.

General Information

Work activities that present a risk of heat injury/illness include: operations involving high air temperatures (greater than 85°F), radiant heat sources, high humidity, direct physical contact with hot objects, or strenuous physical activities.

Additionally, operations that require workers to wear semi-permeable or impermeable protective clothing increase the risk for heat stress.

Heat Illness

Heat disorders such as heat fatigue, heat exhaustion, and heat stroke are usually progressive in nature; serious heat-related illnesses, such as heat stroke, can be prevented by early recognition of symptoms.

Exposure to heat can cause illness and death. The most serious heat illness is heat stroke. Other heat illnesses, such as heat exhaustion, heat cramps and heat rash, should also be avoided.

There are precautions that can be taken any time temperatures are high and the job involves physical work.

Heat Stroke

Heat stroke occurs when the body fails to regulate its core temperature and body temperature rises to critical levels of 105°F. During heat stroke, sweating stops, and the body can no longer release excess heat. **Heat stroke is a medical emergency.** The primary signs and symptoms of heat stroke are:

- Lack of sweating, hot and dry skin
- Mental confusion
- Delirium
- Irrational behavior
- Loss of consciousness
- Convulsions
- Abnormally high body temperature, (e.g., an oral temperature of 105°F).

If an individual shows signs of possible heat stroke, professional medical treatment must be obtained immediately. The worker should be placed in a shady area and the

outer clothing removed. The worker's skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional emergency medical treatment arrives. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the victim's physical fitness and the timing and effectiveness of medical treatment.

City personnel suspected of being ill from heat stroke must receive professional medical treatment and shall not be sent home or left unattended unless directed by a physician.

Heat Exhaustion

Heat exhaustion results from loss of fluid through sweating and from not drinking enough replacement fluids. The body still sweats but experiences extreme weakness or fatigue. The signs and symptoms of heat exhaustion are:

- Skin is clammy and moist
- Headache
- Nausea
- Vertigo
- Weakness
- Thirst

Heat exhaustion responds readily to prompt treatment. Workers suffering from heat exhaustion should be removed from the hot environment, rest in a cool place, and given fluid replacement. If the worker is not responding to this treatment then they must receive professional medical care.

Heat Cramps

Heat cramps are usually caused by performing hard physical labor in a hot environment and are attributed to an electrolyte imbalance caused by excessive sweating. Heat cramps can be caused by both too much and too little salt and by a lack of fluid replenishment. Do not rely on thirst; instead, drink water every 15 to 20 minutes in hot environments.

Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur. Drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing physiological disturbances.

Heat Stress Prevention

When the work area temperature exceeds 85°F DB (feels like) work/breaks shall be modified to prevent heat related illness. Recommendations for work modification and water consumption are detailed below.

Work Modification Recommendations

To avoid heat stress illnesses to employees work, breaks, and water consumption should be modified based on the current weather conditions and the workload.

Additional Preventive Measures

Engineering controls should be implemented when feasible to reduce/eliminate heat exposure. Effective engineering controls may include:

- Ventilation
- Air Cooling
- Shading

Administrative controls shall be implemented to reduce the effects of heat exposure.

- Provide a lot of cool water to workers close to the work area. Fluid replacement is perhaps the most important preventive measure. Workers must have adequate fluids available and be encouraged to drink small amounts frequently, i.e., at least 8oz every 20 minutes.
- Acclimatization is an important factor in preventing heat illnesses. Recommended acclimatization regimen for existing workers is 50% of the work hours to the heat exposure on day one, 60% on day two, 80% on day three, and 100% on day four. For new workers who will be similarly exposed, the regimen should be 20% on day one, with a 20% increase in exposure each additional day.
- Scheduling of high heat exposure jobs during the cooler part of the day and routine maintenance /repair in hot areas during the cooler seasons of the year.
- Other administrative controls include reducing the physical demands of the work, providing recovery areas or enclosures away from the sun, using relief workers, using worker pacing, and assigning extra workers to reduce the individual workloads.

Training Requirements

Employees who perform work in the out-of-doors shall receive heat stress awareness training annually. This training shall be scheduled to occur just prior to the start of the summer season.

Chapter 20 EMERGENCY SHOWER AND EYEWASH

Purpose

To establish requirements for installation, operation, and maintenance of emergency shower and emergency eyewash equipment that assures protection for City personnel from the hazards associated with chemicals in the workplace.

Installation Requirements for Emergency Shower/Eyewash

Eyewash equipment shall be provided at all work areas where during routine operations or foreseeable emergencies, the eyes of personnel may come into contact with a hazardous substance . Examples include:

- Battery charging areas
- Hazardous waste storage areas
- Chemical or paint mixing areas
- Areas where chemicals are routinely handled or poured

An emergency shower is required in all work areas where during routine operations or foreseeable emergencies, an area of the body may come into contact with a hazardous substance. Examples include:

- Battery charging areas
- Hazardous waste storage areas
- An location where chemical splash hazards exist
- Any area where a chemical is handled especially sprayed or pressurized, in such a way that it could be spilled or sprayed on the body.

Emergency eyewash / showers shall be in accessible locations so that injured personnel can reach them within 10 seconds. If both an eyewash and shower are needed, they shall be located so that both can be used at the same time by one person. The area of the eyewash and shower equipment must also be maintained free of any items that might obstruct their use or limit immediate access.

Permanently plumbed eyewashes are preferable. However, where these are not feasible, a wall hung eyewash that provides a minimum of 15 minute flush may be substituted provided it is installed, inspected, and maintained in accordance with the manufacturer's instructions.

Inspection and Testing Requirements

Plumbed eyewash and shower equipment shall be inspected and activated periodically to flush the line and verify proper operation (ANSI Z358.1 recommends activation at least weekly). Inspections should be documented. Portable units shall be maintained in accordance with the manufacturer's instructions but should still be inspected monthly.

Emergency Eyewash Requirements

Plumbed eyewash units shall be permanently connected to a source of tepid potable water. Gravity feed eyewash units shall be refilled or replaced after use with the water being maintained, inspected, and replaced at intervals and methods defined by the unit's manufacturer. Neither shall be used except for testing and/or for emergencies. Testing of portable units shall be as indicated in the manufacturer's instructions.

Heads of eyewash units shall:

- Be positioned 33 to 45 inches from the floor.
- Be positioned 6 inches from the wall or nearest obstruction.
- Provide 0.4 gallons per minute (GPM) for 15 minutes.
- Be supplied by a source of tepid and clean potablewater.

Valves of eyewash units shall:

- Activate in one second or less.
- Stay open without the use of hands.
- Bowls and nozzles must be kept clean and free of rust and other contaminates.

Emergency Shower Requirements

Plumbed shower units shall be permanently connected to a source of tepid potable water. Self-contained showers, that contain their own flushing fluid, shall be refilled or replaced after use with the water maintained, inspected, and replaced at intervals and methods defined by the unit's manufacturer. Neither shall be used except for testing and/or for emergencies. Testing of self-contained units shall be as indicated in the manufacturer's instructions.

Heads of shower units shall:

- Be positioned 82 to 96 inches from the floor.
- Have a spray pattern with a minimum diameter of 20 inches at 60 inches above the floor.
- Provide a flow rate of 20 gallons per minute (GPM).
- Have the center of the spray pattern at least 16 inches form any obstruction.
- Be supplied by a source of tepid and clean potablewater.

Valves of shower units shall:

- Activate in one second or less.
- Stay open without the use of hands.
- Remain on until the user shuts it off.
- Discharge area must be kept clean and free of rust and other contaminants.

Chapter 21 MANUAL MATERIAL HANDLING

Purpose

To provide guidelines to prevent occupational injuries, associated with manual material handling, to City personnel.

Engineering Controls

Engineering controls modify the method of performing a task. These controls effectively isolate the employee performing the task from the source of injury. Examples of engineering controls:

- Lift properly. If items weigh more than 45 pounds consider securing help or use material handling equipment.
- Reduce the weight of the load. Consider dividing the load into more than one unit.
- Change the size of the load. Bulky items are more difficult to handle than compact items.
- Change the shape of the load by changing the packaging. Boxes are easier to handle than bags.
- Keep containers as small as possible; this keeps the load closer to the body.
- If possible use handles on bags, boxes, and sacks. Handles minimize peak shearing forces on the spine.
- Identify weight on each container.
- Use mechanical aids instead of manual handling when possible:
 - Hand trucks and carts
 - Hoists
 - Scissors lift or spring lift tables
 - Powered industrial trucks

Floors should be smooth but not slippery and be pothole free. Eliminate areas that cause trips and missteps. Keep aisles clean, clear, and free of debris or spills.

Safe-Lifting Techniques

There are no comprehensive and universal rules for *safe* lifting. Individuals need to adjust how much weight they lift depending on their own capabilities. A few examples are:

Diagonal or Single Person Squat Lift

Establish a wide base of support and straddle the object with one foot slightly ahead of the other. Firmly grasp the object with the palm of both hands. Be sure to establish a good grip to prevent the item from slipping because the jerking movement during a slip could easily damage the low back.

Move the object as close to the body as possible before starting to lift.

Keep the head and shoulders up while maintaining the normal arch in the lower back. Straighten the knees and hips while coming to a standing position. If this portion of the lift is done correctly, the head will rise first, with no movement of the back. If done incorrectly, the hips will rise first. This incorrect technique causes the back to bend forward while the lift is performed. The key to preventing injuries is to keep the back arched and use the strength of the legs to lift.

As you reach the standing position, move the object tightly into your stomach. Now that you have the object lifted, do not forget to carry it and sit it down properly. Keep the load close to your body. Do not change your grip unless the loads weight is supported. **DO NOT TWIST**. Remember to bend your knees as you lower the load. Keep your back straight. Slide the load into tight spaces and pay attention to fingers and toes, especially as you sit it down.

There are times when it may not be possible to bend your knees or to get close to the object. During these times you can use alternative lifting methods such as bracing yourself by putting your knees against a solid object, bending at the hips while keeping your head and back in a straight line, or lifting gradually while using a combination of your legs, buttocks, and stomach muscles.

Team Lifts

There are many times when it is simply not safe to lift alone. Examples include heavy items, bulky items, and awkward items. In these cases a team lift approach should be used. Individual lift techniques remain the same for each person. However, when the second person enters the “lift equation” new factors come into play. For instance, members of the team should be of similar build and height. They should also be of approximately the same strength. One person needs to be in charge and all parties need to understand who this person is so there will be no misunderstandings that may lead to mistakes and resultant injury. Proper lifting procedures are just as important in team lifts as they are in individual lifts. However, it is necessary to move in a coordinated and smooth way. If care is not used to coordinate movement it is likely that one employee will receive the greater part of the weight and thus may be injured.

Lifting Do's and Don'ts

Adherence to the do's and don'ts in the table below will significantly reduce the risk of injury.

Dos	Don'ts
<i>DO</i> design job tasks to minimize lifting and lowering. If an employee must do lifting, perform the lift between knuckle and shoulder height.	<i>DO NOT</i> twist the back or bend sideways.
<i>DO</i> stay in good physical condition. If one is not used to lifting and vigorous exercise, do not attempt difficult lifting or lowering tasks.	<i>DO NOT</i> lift or lower awkwardly.
<i>DO</i> think before acting. Place material conveniently	<i>DO NOT</i> hesitate to

within	
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	get
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reach. Have handling aids available. Make sure sufficient space is cleared.	mechanical help or help from another person.
<i>DO</i> get a good grip on the load. Test the weight before trying to move it. If it is too bulky or heavy, get a mechanical lifting aid or somebody else to help, or both.	<i>DO NOT</i> lift or lower with the arms extended.
<i>DO</i> keep the load close to the body. Place the feet close to the load. Stand in a stable position with the feet pointing in the direction of movement. Lift by straightening the legs.	<i>DO NOT</i> continue heaving when the load is too heavy.

Training Requirements

All personnel should be trained in safe lifting techniques.

Chapter 22 STORAGE, HOUSEKEEPING, AND SANITATION

General

Good housekeeping is an important element of a safety program and must be a primary concern. A clean and orderly workplace will contribute not only to incident prevention but also makes it an easier space to work in.

Safe Storage

General Storage Guidelines

- Materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse.
- Maximum safe load limits shall be posted on mezzanines so as to be clearly visible. Posting shall be in pounds per square foot. These limits shall not be exceeded.
- Bagged materials shall be stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.
- Items, particularly combustibles, shall not be stored under stairs.
- Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, shall be stacked and blocked so as to prevent spreading or tilting.
- Items shall not be stored or stacked so as to protrude into aisles.
- Aisles and passageways shall be kept clear to provide for the free and safe movement of material handling equipment or employees.
- Chemical items shall be labeled with manufacturer name, product name, and hazards.
- If hazardous chemicals are handled, other than in sealed containers, an emergency shower and/or eyewash shall be provided.
- Safety footwear is required when handling material that presents a potential foot injury.
- Wear gloves when handling sharp objects or material that may cause hand injury.
- Finger rings, jewelry, or loose clothing should not be worn when handling material.
- Clean up spills immediately, even if you didn't cause the spill.
- Fire extinguishers shall be conspicuously located or clearly marked with arrows or other means. They will never be blocked.
- Flammable materials shall either be stored in approved flammable storage cabinets or in storage rooms or outside storage buildings that meet flammable storage requirement rules.

- Noise hazard areas shall be marked with warning signs that clearly warn of the noise hazard and indicate the requirement for hearing protection. An example of wording would be NOISE HAZARD AREA – HEARING PROTECTION REQUIRED.
- Aisles in storage areas and warehouses shall be at least four feet in width. If mechanical handling equipment is used, aisle width will be increased to a minimum of three feet wider than the largest equipment used.
- Do not block electrical power panel, disconnect switches, or alarm supplyboxes.
- Compressed gas cylinders shall be stored vertically, restrained by a non-flammable means such as chain, stored out of the direct sunlight, full and empty cylinders stored separately, and acetylene or other flammable gases and oxygen stored a minimum of 20 feet apart. If flammable gases are involved, smoking will be prohibited within 50 feet.
- Open sides of mezzanine storage areas shall have standard guardrails and toe boards. If stacked items are stored above these rails, and there is a potential for these items to fall to a lower level where personnel may be injured, a wall, cage, or other suitable method shall be used to prevent the stacked items from falling.
- Store heavy items and equipment on middle or lower shelves to prevent back injuries. Do not overload shelves or lockers.
- Exit doors shall never be blocked.
- Emergency exits shall be clearly marked with signs that read EXIT with letters at least six inches high and the principal strokes of the letters not less than $\frac{3}{4}$ inch wide.
- Clearance of at least 18 inches will be maintained between the top level of the stored material and any sprinkler deflectors.
- A minimum of 18 inches of clearance shall be maintained around lights and 36 inches around heating units to prevent ignition of combustible materials.

Housekeeping

- Keep floors dry to prevent slipping hazards.
- Floors, working places, and passageways shall be kept free from protruding nails, splinters, loose boards, and unnecessary holes and openings to facilitate cleaning.
- Trash and other waste materials shall be kept in approved containers. Do not allow trash to accumulate.
- Never allow surplus or waste material to accumulate in vehicles.
- Tools and equipment shall be properly stored, especially mobile vehicles or trailers.

- Non-potable water shall **not** be used for washing any portion of the person, cooking or eating utensils, or clothing.
- Non-potable water shall be clearly posted or marked as non-potable
- Potable drinking water will be accessible to City personnel at all times.

Food Consumption and Storage Guidelines

- Food preparation areas shall be maintained in a sanitary condition. Including utensils, ovens, toasters, refrigerators and microwaves. City personnel are expected to clean up their areas and keep them clean.

Safe Work Practices

- Clean up spills immediately.
- Post signs to warn personnel of a slipping hazard anytime floors are wet or being cleaned.
- Never leave material where someone may stumble over it.
- Eating and drinking shall not be allowed in any area exposed to toxic material.
- Areas shall be kept reasonably clean, free of accumulated dirt and dust, and as dry as possible.
- Everyone is expected to keep their own work area clean. This includes picking up litter, keeping items stored in proper places when not in use, and occasional dusting or cleaning as necessary to maintain sanitary and clean working conditions.

Chapter 23 COMPRESSED AND LIQUIFIED GASES

Purpose

To establish a program that provides for the handling, storage, and use of compressed and liquefied gases that affords protection for City personnel from hazards associated with compressed and liquefied gases.

Storage and Return of Cylinders

Compressed gas and liquefied gas containers must be stored in designated storage areas. Appropriate signs shall be used to ensure proper cylinder location (i.e. Empty Acetylene Cylinders, Full Oxygen Cylinders, etc.). General requirements for storage areas include:

- Container areas shall prominently display the hazard class (flammable, oxidizer, etc.) and where appropriate, *NO SMOKING* signs shall be posted.
- Provide sufficient storage racks designed to accommodate different cylinders.
- Provide adequate ventilation including a localized ventilation system and/or alarm devices, as required.
- Ensure that storage areas are distant from elevators, walkways, unprotected platform edges or any location where heavy objects might strike or fall on the cylinders. Do not allow containers to obstruct exit routes or other intended areas of egress.
- Secure storage areas against unauthorized entry at all times.
- Prohibit storage below grade or in subsurface locations.
- Designate separate areas for full and empty cylinders. Separate full and empty containers by hazard class.
- Handle, store, transport, or use compressed gas cylinders only while secured to a stationary object in an upright position. Exceptions to this rule include CFCs, LPG fuel tanks for industrial trucks, and ton containers of chlorine and sulfur dioxide.
- Do not subject cylinders of compressed gases to temperatures in excess of 125°F (52°C), or permit them to be exposed to open flames, electric circuits, or electric welding apparatus. Most cylinders have a fusible plug designed to release in a fire. This means cylinders stored outdoors will need to be stored under cover to prevent direct sunlight on the cylinders.
- Do not subject cylinders to artificially created low temperatures without the approval of the supplier.
- Keep valves closed when a cylinder, either full or empty, is not in use. Except when connected to the dispensing equipment, keep the protective valve cap in place. Do not transport or store cylinders without the protective cap in place.

- Separate flammable and combustible material containers from oxidizing materials by at least 20 feet (6m) or a one-hour fire-rated partition.
- When a cylinder is empty, or at low pressure, move it to the appropriate storage area. These cylinders shall be disconnected and transported only by trained employees. If using a cylinder cart, the cylinder must be securely chained to the cart.

General Handling and Storage Rules

- Compressed gas cylinders are considered explosion hazards due to high internal pressure. Many cylinders are also considered fire hazards when containing flammable contents.
- Basic safe handling rules apply to compressed gas cylinders. These rules are as follows:
 - Do not handle compressed gas cylinders with a sling (chain or rope), or clamps. Do not drop the cylinders.
 - Do not use cylinders of compressed gas, either full or empty, as rollers, or supports.
 - Do not use excessive force to operate cylinder valves. Do not use a wrench on cylinder valves equipped with a hand wheel. For cylinder valves designed to be turned with a wrench, use only the wrench designated for that cylinder valve and keep the wrench on the valve.
 - Do not direct a compressed gas stream at anyone.
 - When returning a compressed gas cylinder to the supplier, replace the valve protection cap if it is provided. Check the gas tight valve outlet plug if required, and tighten securely.
 - Do not handle cylinders with oily hands or gloves.
 - Close the cylinder valve before removing the regulator. Keep the valve closed to prevent air and moisture from entering the cylinder.
 - Know the properties of the material being handled. Be aware that some materials, such as corrosives or toxics, may require venting when disconnecting a regulator.
 - Always secure the cylinder when removing the regulator.
 - Mark the cylinder *Empty* or *MT* using signs and chalk.
 - Maintain access to cylinder shut-off valves when cylinders are in use.
 - Close the valve and relieve the hose pressure when the cylinder is left unattended for even short periods of time.

Connecting and Disconnecting Cylinders

When a cylinder of compressed or liquefied gas is installed or removed from a system, the following steps and rules shall be used:

- Before connecting a coupling to a cylinder valve, wipe the coupling and valve clean with a cloth which is free of oil and lint.
- Do not open the cylinder valve slightly to blow out contamination that may be in the valve. Exceptions to this include gas cylinders used in welding and cutting operations. These cylinders may have the valve opened slightly while the installer stands to one side and points the gas stream away from any ignition source.
- Check the threads of the coupling, cylinder valve, and regulator to make sure that each is compatible and that none of these parts has been damaged.
- Release the regulator adjusting screw before opening the cylinder valve.
- Open the cylinder valve slowly to prevent a sudden inrush of gas to the regulator.
- Do not allow the cylinder pressure to drop below 20 psig residual pressure. An exception to this is acetylene, which must be used at a maximum gauge pressure of 15 psig.
- Before removing the regulator, close the cylinder valve tightly and release the gas from the regulator.
- When disconnecting an empty or low positive pressure cylinder, anticipate a leak. Stand to the side of the cylinder, facing away from it, when disconnecting the regulator.

In addition to the precautions outlined above, City personnel connecting or disconnecting cylinders shall wear appropriate Personal Protective Equipment (PPE). This includes gloves, eye protection, and safety shoes, as required. Respiratory protection may be required if the cylinder contains toxic gas such as Chlorine.

Hoses and Other Portable Compressed Gas Appliances

Hoses, gauges, couplings, regulators, torches, and appliances used in conjunction with compressed gases shall be listed by Underwriter's Laboratories, Inc., and/or approved by Factory Mutual Laboratories.

The minimum hose length is 12 feet between the cylinder and the equipment. Hoses used for oxygen service are colored green, and hoses designated for combustible gas are red. Hoses used in compressed gas service shall be repaired by replacing defective sections using approved couplings.

Hoses used in compressed gas service shall be replaced every five years. During this five-year use span, the hose shall be inspected before each use and quarterly. If the inspection reveals possible deterioration, arrange replacement.

Associated equipment such as couplings, regulators, valves, torches, etc., shall be inspected before each use and quarterly. If the inspection reveals defective equipment, the equipment or system shall be removed from service and repair made immediately.

Emergency Situations and Chemical Information

In the event of an emergency involving a compressed or liquefied gas cylinder, personnel in the immediate vicinity shall evacuate the area and contact emergency personnel.

Hazard Class of Compressed and Liquefied Gases

Gases are classified based on their chemical and physical hazards. Gases may represent a hazard because they are:

- Flammable
- Toxic
- Asphyxiant (inert gases)
- Highly toxic
- Oxidizers
- Extremely cold (cryogenic)
- Corrosive
- Under high pressure

Training Requirements

City personnel storing, handling, and using compressed gases shall be trained.

Chapter 24 Bloodborne Pathogens

Purpose

To minimize or eliminate potential exposure to City personnel from Bloodborne pathogens, mainly Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV),

Occupational Exposure Determination

The contents and requirements in this guideline apply to City personnel who are occupationally exposed to Bloodborne Pathogens.

Blood and body fluids should always be considered to be contaminated. Personnel, who may come in contact with, or dispose of, any materials containing contaminated or potentially contaminated blood and/or body fluids have the potential to suffer an occupational exposure. Occupational exposure is defined as “reasonably anticipated abraded skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties”.

Safe Work Practices

Blood, body fluids, and other potentially infectious materials shall be handled as hazardous materials unless those precautions interfere with the proper delivery of first aid/CPR or health care, or create significant risk to the personal safety of the employee.

- Personnel shall wash hands and any other affected skin with soap and water, or flush mucous membranes (e.g., eyes) with water immediately or as soon as possible following contact with blood and/or body fluids. If hand washing facilities are not available, use an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels, or antiseptic towelettes.
- Used needles and other sharp objects shall be placed in a closable, puncture-resistant, leak-proof container.
- Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses is prohibited in any area where a potential for contact with blood and/or body fluids exists.
- Food and drink shall not be stored in refrigerators, freezers, shelves, cabinets, in areas of possible contamination.

Personal Protective Equipment

Personnel Protective Equipment

Where there is a potential for occupational exposure to blood and/or body fluids, Personal Protective Equipment (PPE) shall be used as follows:

- Disposable Gloves shall be worn when there is a potential for contact with blood and/or body fluids. When working with equipment that may damage the gloves, an outer glove made of cotton, leather, or metal mesh should be used.

- Masks and Eye Protection shall be worn when there is a potential for splashes, sprays, spatters, droplets, or aerosols of blood and/or body fluids.

After removing gloves or other Personal Protective Equipment, or in cases where direct contact with blood and/or body fluids may have occurred unexpectedly, wash hands and other skin surfaces with soap (antiseptic cleanser) and water immediately or as soon as possible after removing protective equipment. If hand washing facilities are not available, use an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels, or antiseptic towelettes.

Housekeeping

- Clean and disinfect surfaces immediately or as soon as possible after contact with blood and/or body fluids. Use an approved hospital disinfectant or a mixture of one part sodium hypochlorite (household bleach) diluted with ten partswater.
- Do not pick up broken glass by hand. Clean up using a brush and dustpan, or equivalent method.
- When emptying trash receptacles, avoid touching waste with hands. Pour or dump trash receptacles into bins or dumpsters to avoid the possibility of injury from contaminated glass, needles, or other sharp objects.
- Disinfect reusable items contaminated with blood and/or body fluids with an approved antiseptic cleaner or equivalent, or a mixture of one part sodium hypochlorite (household bleach) diluted with ten parts water.

Clean-Up Procedures

Spills of potentially infectious materials such as blood, vomit, urine, etc. shall be treated as if known to be infected with HBV, HIV, or other pathogens. City personnel are not authorized to cleanup these spills unless they have been identified and trained as outlined in this program.

Infectious Waste Disposal

Potentially contaminated waste shall be disposed of in accordance with federal, state, and local regulated waste laws. Feminine hygiene products are not considered to be regulated waste and can therefore be disposed of in the regular garbage.

Hepatitis B Vaccination

The HBV vaccination shall be offered to any employee whose routine job responsibilities expose them to blood and/or body fluids. Vaccinations shall be administered by Care ATC (City Clinic) or the Brevard County Health Department.

The HBV vaccination consists of a series of three injections given over a six-month period.

If the person previously received the HBV vaccination or if antibody testing reveals that the person has his or her own immunity, then the vaccination is not necessary.

If the person initially declines the HBV vaccination, they must sign a Hepatitis B Vaccination Declination form. This form shall be kept in the person's medical file. If, at

a later date, the employee requests a vaccination, it shall be provided at no cost to the person. If a booster dose is recommended, it shall also be provided at no cost to the employee.

Post-Exposure Evaluation and Follow-Up

Personnel exposed to blood and/or body fluids such as a splash to the eyes or mouth, or contact with exposed, abraded skin, shall be offered a confidential medical follow-up evaluation, vaccination, and post-exposure medical treatment. The follow-up shall be performed under the direction of a City-approved physician, clinic.

Medical Records

The medical file shall include a copy of the employee's Hepatitis B vaccination record or a copy of their Hepatitis B Vaccine Declination Form and medical records relative to the employee's ability to receive the vaccination.

Training Requirements

Training shall be provided to any job classification that has the potential for exposure on an annual basis.

Chapter 25 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Purpose

To establish a personal protective equipment (PPE) program that meets the requirements of the City and affords protection for employees from identified hazards in the workplace.

Requirements

Employees shall be provided all PPE that the City determines necessary based on the employee's duties. Employees are responsible for wearing PPE when required and shall maintain the PPE in a clean and reliable condition. Damaged or defective PPE shall not be used.

Eye and Face Protection

City personnel are exposed to a variety of hazards during normal work performance. Eye protection worn shall provide protection against the highest level of hazard encountered in the task. Examples of eye and face protection:

- Face shields – Used when hazards exist from splash or flying. Face shields should only be worn over primary eye protection (spectacles or goggles).
- Filter lenses must meet the requirements for shade designations. Tinted and shaded lenses are not filter lenses unless marked or identified as such.
- Personnel who need prescription lenses must wear either safety glasses fitted with the prescription lenses, or safety glasses designed to be worn over regular prescription eyewear.
- Wearers of contact lenses must wear appropriate eye and face protection devices in a hazardous environment. NOTE: Dusty and/or chemical environments present an additional hazard to contact lens wearers.
- Metal frame eye protection is not permitted in electrical hazard areas.
- Welding helmets should be used only over primary eye protection (spectacles or goggles).
- Eye and face gear should be designed so that it provides ventilation and protects the wearer from splash entry.
- Corrective lenses used as safety glasses must have protection that is equal to the applicable standard (must meet ANSI standards and have ANSI approved side shields)
- Contact lenses are permitted only if safety glasses are worn to protect against impact. When eye protection is worn to protect against other hazards, such as chemical splash, high dust levels, or working with molten metals, contact lenses are prohibited. They should also not be worn while wearing a respirator.

- Face shields must be worn when there is a splash hazard from chemicals or when sparks are generated. Note: Face shields, in addition to safety eyewear, are always required during grinding and during some electrical work (depending on voltage). In the case of hot electrical work, the face shield shall be specifically designed to provide arc-flash protection and rated for the potential flash hazard.
- Filter lenses shall be used to protect against radiant light during maintenance welding operations.

Head Protection

Safety helmets, which meet the applicable standards, shall be provided to personnel exposed to injury from falling objects or overhead obstructions. *Since workers frequently work near electrical hazards, safety helmets must also meet ANSI standard requirements for protection from electrical shock hazards.*

Head protection (hard hats) are specifically required:

- Within the operating radius of a crane.
- In areas where overhead work is being done.
- On all construction sites or any designated area or area with hardhat required signs.
- In trenches, pits, or excavations.
- On scaffolding.
- In bucket trucks, lifts, man baskets, or powered industrial truck personnel platforms.

Foot Protection

Each person exposed to foot injury due to falling or rolling objects, or exposure to electrical hazards shall wear safety footwear. In the case of electrical hazards, EH approved footwear is required.

Safety footwear is required for City personnel where:

- The employee routinely carries objects in excess of 25 pounds, or other objects of this weight that may fall onto the feet.
- Work, including metering, is performed on energized electrical systems. Use of steel toed shoes around energized electrical parts of less than 480 volts is allowed provided the footwear is in good condition with no exposed metal or tears in the outer covering and is ANSI certified as EH. Footwear with composite material is recommended in lieu of steel regardless of voltages involved.

- When visiting areas such as Dyal, Sellers, a minimum of closed-toed shoes shall be worn to avoid injury.

Hand Protection

Gloves will be used to prevent cuts, abrasions, burns, and skin contact with chemicals.

Gloves of the type and rating listed below **shall always be worn:**

- Cut Resistant Gloves - Handling sheet metal or other metal products that may cause cuts.
- Leather or Mechanics Gloves - Handling rough wood or other products that may cause splinters or abrasions.
- Leather or Mechanics Gloves - Moving furniture.
- Leather or Mechanics Gloves (Cut Resistant Gloves if glass or sharp objects may be present) - Handling debris or industrial type trash.
- Latex / Nitrile - Providing medical or first aid treatment to another person.
- Leather or Mechanics Gloves - Using tools such as shovels, and axes.
- Leather or Mechanics Gloves - Using portable power tools.
- Leather or Mechanics Gloves - Handling tag lines and during rigging.
- Gloves recommended by SDS - Handling tools or equipment that have been exposed to chemical hazards.
- Gloves recommended by SDS - Pouring chemicals or using chemicals or transferring chemical products.
- Welder Gloves - Welding, cutting, or braising.
- Chainsaw Gloves - Chainsaw use.
- Leather or Mechanics Gloves - Grounds maintenance.

Fall Protection

Safety harnesses, lanyards, and lifelines are the most common fall protection systems used by City personnel. Safety harnesses and lifelines shall be used according to the applicable regulatory requirements.

Hearing Protection

Hearing protection devices range from disposable earplugs to sophisticated earmuffs with built in communication devices that allow an employee to be protected from harmful noise and still communicate with other personnel. Protection levels vary between different types and different manufacturers.

As a rule, hearing protection shall be worn anytime personnel are exposed to noise levels that exceed 85 dB, even for short periods.

Hearing protection is always required under the following conditions:

- Use of power tools.
- Use of shop equipment such as table saws, grinders, etc..
- Arc welding and any other welding.
- Operation of heavy equipment such as backhoes, bulldozers, etc..
- Operation of jackhammers leaf blowers, etc..
- In equipment rooms when noise hazards such as HVAC equipment, compressors, or pumps are operating.

Respiratory Protection

Respirators offer protection from harmful airborne contaminants.

Miscellaneous Protective Equipment

Numerous other types of PPE such as disposable coveralls and special protective suits, or special flame retardant clothing may be required for unusual jobs. There are also special clothing requirements for performing work on energized or potentially energized circuits.

Visitors and Contractors

Visitors traveling into areas controlled by the City shall be offered PPE for protection if required. This may include hearing protection, safety glasses, and hard hats. These items shall be provided to visitors at no cost when necessary.

The City's sub-contractors shall be required to conform to the contents of this program, or their own written program, meeting the requirements outlined here. The issue of who provides PPE (the City or the Sub-Contractor) will depend upon the written contract.

Training Requirements

Every person who wears any type of PPE shall be trained.

Chapter 26 LOCKOUT/TAGOUT

Purpose

To establish controls, procedures, and safe work practices to prevent injury to City employees from exposure to the hazards associated with stored hazardous energy.

General Requirements

City employees, who service, maintain, adjust, clean, or un-jam components from machinery or equipment shall apply the requirements of this lockout/tagout program to ensure that machinery, equipment, or processes are isolated from hazardous energy whenever:

- A guard or safety device is removed
- Any part of the workers' body could be injured by an unexpected release of energy

The procedures described in this program apply to every form of hazardous energy, including but not limited to the following:

- Electrical - Contact with energized electrical panels, relays, switches, etc..
- Mechanical - Movement of presses, rollers, blades, etc..
- Chemical - Releases of material in tanks, pipes, or valves, etc..
- Thermal - Release of heat, steam, or refrigerants.
- Pneumatic - Power presses, conveyors, etc..
- Hydraulic - Powered industrial trucks, punch presses, etc..
- Stored Energy - Batteries, spring-actuated devices, capacitors, or gravity.

The requirements in this lockout/Tagout program do not apply to the following:

- Work on plug-in equipment only, where pulling the plug eliminates sources of energy.
- "Hot Tap" operations involving transmission and distribution systems for gas, steam, water, and petroleum products when performed on pressurized pipelines provided that the following conditions can be demonstrated:
 - The continuity of service is essential
 - Shutdown of the service is impractical

These are the only exceptions. Practices such as having another worker monitor a switch or circuit breaker are never authorized.

Machine Specific/Multiple Energy Source Lockout/Tagout Requirements

Departments shall determine the machinery and equipment on which City employees may be exposed to hazardous energy that requires machine specific LOTO procedures

as outlined above and develop/deploy these additional procedures to protect City employees.

Energy Control Procedures (to be followed during steps of LOTO)

Protective Materials and Hardware

Authorized employees shall be provided locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, blank flanges, or other hardware necessary for isolating, securing, or blocking machines or equipment from energy sources.

Tags shall be of a standard material, size, and print and shall be colored consistently throughout the site and not be used for any other purpose. To assure this requirement is met, locks and tags for City LOTO shall conform to the following specific requirements:

- Locks and keys shall be individually assigned or supplied from a central distribution point.
- Workers shall not be permitted to use another workers' device.
- Only two keys per lock shall be allowed with one key remaining with the assigned worker. The supervisor may maintain the second key, as well as a roster of assigned locks, in a locked key box located in his/her office area.
- No person, other than the supervisor, shall have direct access to the second key.
- Tagout devices shall be attached using nylon cable ties. Each Tagout device shall identify the person applying the device, type of maintenance being performed, and the date and time that the Tagout device was applied. In addition to the requirements outlined above, employees are responsible for using necessary Personal Protective Equipment (safety glasses, gloves, etc.) and tools meeting appropriate safety requirements. A Tagout device shall be affixed to each hazardous energy isolation point, even if a lock is also attached.
- Each person potentially exposed to the stored hazardous energy shall install a separate tag (if lockable, a separate lock in addition to the tag) at each energy isolation point.

Preparation for Shutdown

Before beginning or ending the lockout and tagout process, the authorized worker(s) shall notify affected employees of the intended application or removal of lockout and Tagout devices.

Before equipment is turned *OFF* for the purpose of lockout and Tagout, the authorized worker must know and/or identify:

- The type and magnitude of the energy that powers it.
- The hazards of the energy involved.
- The methods of controlling the energy.

Equipment Shutdown and Release of Stored Energy

Equipment shall be shut down in proper sequence (de-energized using normal shutdown procedures). If the authorized employee is unfamiliar with the machinery, shutdown shall not be attempted. In this instance, the authorized worker shall contact the supervisor or the manager for information on the proper shutdown sequence.

Isolating Equipment

General guidelines for the isolation of various forms of hazardous energy and the control of stored hazardous energy are shown below. This information is to be used as a guide only. In many cases, especially where multiple sources of different types of stored energy are present, these guidelines may not be sufficient. Supervisors should contact the Safety/Risk Program Manager for assistance if they are unsure of proper procedures to follow.

All Energy Forms

- Use energy-isolating devices to physically isolate the equipment from the energy source.
- Be sure to isolate energy sources - secondary, as well as main sources.
- Always verify that each source of energy has been isolated using an approved meter, gauge, or piece of test equipment.

Electrical Energy

- Know where electrical disconnects for a machine are located and lock these out.
- Stand to the side of electrical switch boxes and face away when turning them off. Use the hand that keeps you well away from the switch.
- Report any broken disconnects or disconnects that cannot be locked out.
- Disconnect any batteries supplying the system.
- Discharge any capacitors that may store residual energy.
- Install ground wires or operate grounding switches.
- Never pull an electrical switch while it is under load unless it is designed for that purpose.
- Never remove a fuse from an energized fuse holder rather than disconnecting the source.
- Never rely on a control switch to lockout a machine.
- Always verify that electrical energy has been isolated by testing the circuit/area with an approved voltage tester.

Hydraulic Energy

- Lockout electrical disconnect for the pump motor.

- Shut off valves to individual machines if a pump supplies more than one machine and other machines must remain operations.
- Close and lockout each valve supplying a machine.
- Block parts that could move from loss of pressure or where pressure cannot be relieved.
- Move a machine to its rest position prior to lockout and then relieve residual pressure.
- Identify and de-energize any accumulators that may be in the system by releasing the stored energy through a valve.
- Cycle a machine after it has been de-energized to release any possible stored energy.

Thermal Energy

- Allow extreme heat or cold to dissipate.
- Use proper protective clothing if thermal energy cannot be allowed to dissipate.
- Avoid contact with active steam or cold piping systems.

Pneumatic Energy

- Bleed supply lines and leave valves open.
- Block parts that could move from loss of pressure.
- Move a machine to its rest position prior to lockout and then relieve residual pressure.
- Relieve pressure on air tanks by using bleed off valves.
- Cycle a machine after it has been de-energized to release any possible stored energy.
- Never rely on gauges to determine if an air tank is still under pressure; listen for the discharge of air from the tank.

Mechanical Energy

- Let moving parts come to a complete stop prior to beginning work on the machine.
- Release the pressure on springs or block the movement of spring-driven parts.
- Block or brace parts that could move as a result of gravity.
- Never insert tools or stops in moving parts of the machine.

Chemical Energy

- Drain process piping systems and close valves to prevent the flow of hazardous materials.

- Purge reactor tanks and process lines.
- Use a blank flange or physically separate lines if a line must be blocked where there is no value.
- Use proper protective clothing when working with and around chemicals.

Applying Lockout and Tagout Devices

Only authorized employees shall apply lockout and Tagout devices. The lockout and Tagout devices shall be properly applied to each energy-isolating device.

When it is necessary for more than one group or an individual to lockout a single energy-isolating device, a multiple lock hasp or similar device shall be used.

If tags are used instead of locks, attach them at the same point as a lockout would have been attached and fill out the tag (separate tag required for each individual where group lockout and Tagout applies). If the tag cannot be attached directly to the energy-isolating device, the tag shall be located at the safest proximity to the device, in a position that is immediately noticeable by anyone attempting to operate the device.

Verification of Lockout and Tagout

Use the following steps to verify that the equipment is isolated from stored energy after the authorized individual ensures that danger areas are clear of employees:

- Verify that the main supply disconnect switch or circuit breaker **cannot** be moved to the *ON* position.
- Use a voltage tester or other approved test instrument to check systems and components on electrical equipment.
- Press start buttons and other activating controls to ensure lockout. On other equipment such as piping, springs, flywheels, etc., attempt to start the isolation device (valve, flange, mechanical block, etc.) to verify that it is locked in place.
- Verify that air, stored electrical, hydraulic, or other pressure has been relieved by recording the readings on gauges or other indicating devices.
- Listen for the discharge of air or watch for the discharge of hydraulic fluid at a safe distance.
- Set machine controls to **OFF** when testing is complete.

WARNING: Many systems must also be dissipated (bled, purged, discharged, etc.) after they are isolated. Failure to do so can cause death or severe injury.

Removal of Lockout and Tagout Devices

The following steps shall be performed at a minimum after completion of maintenance and repairs and before lockout and Tagout devices are removed:

- Inspect the work area to make sure that equipment has been fully assembled, including guards, and that it is safe to operate.
- Remove tools from the work area.

- Make a head count to ensure all employees are clear and safely positioned around equipment.
- Notify affected employees that the lockout and Tagout is being removed.
- Ensure that each employee who applied a lockout and Tagout device removes his/her device and documents the removal.

EXCEPTION: When the authorized worker who applied the lockout and Tagout device is unavailable to remove it, that device may be removed by the worker's supervisor or by a lead person under the direction of the supervisor. The supervisor must verify that the authorized worker is not onsite. The supervisor must also verify that reasonable efforts have been made to contact and inform the original authorized worker that the lock or tag needs to be removed. The supervisor must also notify the original worker that the lock or tag has been removed before he/she returns to work.

Outside Contractors

Whenever contractors or servicing personnel are engaged in activities covered by the City Lockout / Tagout program, the contractor/servicing organization shall inform the City of their lockout / tagout procedures and the City shall inform the contractor of its program.

Group lockout and Tagout

Some maintenance procedures involve locking and tagging out multiple energy isolating devices. Some may also require more than one person to work on the equipment at the same time. When a group of authorized personnel are working together on the equipment, one of two procedures shall be followed as outlined below:

Each authorized worker shall affix a personal lock and tag to a hasp on each energy-isolating device. OR

A single group lock and tag shall be attached to each energy isolating device with keys from these locks placed in a lockout box. In this case, each authorized worker of the maintenance group performing the procedure shall affix their personal lock and tag to the lockout box to secure the keys inside. This process ensures that none of the energy isolating devices can be unlocked until members of the group have removed their locks from the lockout box.

When more than one crew, department, or craft is involved in performing maintenance or servicing procedures which require lockout/tagout, the following procedures shall be followed:

- Each authorized worker shall affix a personal lockout and Tagout device to the group lockout device or group lockout box when he/she begins work, and shall remove those devices when he/she stops working on the equipment being serviced or maintained.

Limitations of Tagout Only Systems

The limitations include:

- The use of a Tagout only system must be approved by the manager.
- Tags are warning devices. They do not provide the physical restraint offered by locks when used to secure energy-isolating devices.
- The Tagout device attachment shall be attached by a nylon cable tie and completely filled out providing the authorized worker's name, pager or local phone number, and supervisor's name.
- The tag shall state the date and the time at which the tag was applied, and the type of maintenance being performed.
- A tag shall never be bypassed, ignored, defeated, or removed without authorization from the authorized worker who applied it (or the supervisor if the worker who applied the tag is unavailable).

Annual Lockout and Tagout Program Review

A program review shall be conducted annually. The review shall focus on assuring the City Lockout/Tagout Program remains effective in protecting City employees from stored hazardous energy.

Training

Both affected and authorized employees shall be trained annually. Emphasis shall be placed on ensuring each worker fully understands the lockout/Tagout procedures applicable to their work.

Chapter 27 EMERGENCY EVACUATION

Purpose

To establish an emergency evacuation program that affords protection for City employees from the hazards associated with emergencies in the workplace.

General Emergency Evacuation Procedures

In the event of a fire or other emergency that requires emergency evacuation of a facility, all City employees are authorized to activate the alarms. (Knowingly initiating a false alarm may result in disciplinary action.)

When an alarm to evacuate or take shelter is sounded, all employees shall immediately:

- Shut down any equipment currently in use.
- Go immediately to the designated safe area.
- The supervisor or senior person present shall make every attempt to perform a count of employees in the safe area to ensure that everyone is accounted for. If anyone is missing, the supervisor or senior person present shall determine:
 - The name(s) of any missing individual(s)
 - General physical description of any missing individual(s)
 - Where the individual(s) was/were last seen.
 - Names of individuals who are present in the safe area, but were not designated to report there (such as visitors from other facilities).

Under no circumstances will anyone be allowed to stay in, or re-enter an area of the facility that is under a fire emergency evacuation. The supervisor or senior person present must ensure that no one enters the facility to search for missing individuals. When qualified emergency responders arrive on site the supervisor or senior person present shall relay the following information:

- Missing person(s) name and physical description.
- When and where the person was last seen.
- Emergency responders will perform any rescue operations.

No one shall be allowed to return to the area until the highest-ranking City management representative on site has been informed by First Responders that the area is safe to re-enter.

Guidance for Specific Emergencies

Fire Emergencies

In general, when a fire is detected, 911 should immediately be called. If fire alarm stations are present, these shall also be activated. City employees shall not endanger themselves in attempts to put out the fire unless they have been specifically trained to do so.

Once the evacuation alarm is activated, all City employees shall exit the facility, assemble at the designated safe area outside the facility, and follow the procedures for emergency evacuation. No City employees shall re-enter the facility until the highest-ranking City management representative on site has been informed by First Responders that the area is safe to re-enter.

Even if the fire is successfully extinguished, the supervisor shall notify local fire officials of the incident so they can respond in an appropriate manner to confirm the fire is out and determine the cause.

Medical Emergencies

If a City person holds current certification in first aid or CPR as appropriate, but is not serving in a position designated as requiring first aid or CPR training, they may elect to respond as a “*Good Samaritan*.” In the case of the “*Good Samaritan*,” these actions are **NOT** required by the City.

The person discovering the injured or ill person shall immediately call 9-1-1 with the following information:

- The caller's name
- City name and location
- Number of people injured.
- Type of injury
- The entrance to the facility nearest the injured person

The person making the call, or a designee if the caller is asked to stay on the line, shall immediately report to the facility entrance to lead the rescue team to the injured employee.

The caller shall not hang up until told to do so by the person receiving the call.

In the event of fire, occupational death, or hospitalization of an employee, contact Director/Manager immediately. Contact the Safety/Risk Program Manager as soon as time allows.

City employees, who are potentially exposed to Bloodborne pathogens as a result of providing first aid treatment, or through CPR without a protective mask, shall follow additional procedures outlined in the *Bloodborne Pathogen Program*.

Bomb Threats/Sabotage Emergencies

Telephone calls, notes, or letters relating to bombs or bomb threats shall never be disregarded. In the event a bomb threat arrives over the phone, the person receiving the call shall try to obtain the following information:

- Date and time of the call
- Location of bomb
- Time it is expected to detonate

- Gender of caller
- Mood of caller; for example, angry, intoxicated, calm, intelligent
- Background noise
- Unusual characteristics, such as an accent, or key words used repeatedly

If any employee receives a bomb threat, he/she will immediately call 9-1-1 and then notify the highest-ranking City management representative. The senior management representative shall:

- Ensure the facility is evacuated immediately.
- Ensure that law enforcement has been contacted.
- Only the responding law enforcement will determine when it is safe to re-enter the facility.

Other Emergencies

If workplace emergencies arise that are not covered by this program City employees shall evaluate the situation and take whatever precautions are deemed necessary to protect employees and City resources. Although it is impossible to cover every possible contingency, the following minimum actions should always be included:

- Evacuate exposed employees to the safest possible location.
- Contact qualified employees to handle the emergency.
- Advise appropriate authorities of the circumstances.

Procedure for Contacting Emergency Agencies

No matter what assistance is sought from an emergency service, regardless of whether it is on-site or off-site, the following information shall be provided during the call:

- Caller's name
- Type of emergency and/or assistance needed.
- Specific directions to the location to enter (if applicable)
- It is important to remain on the line until instructed otherwise.

Emergency Information Posting Requirements

City employees shall be made aware of the following minimum emergency egress information during their initial safety orientation in each facility where they work:

- Emergency exit routes and emergency assembly points
- The location of safe areas inside and outside the facility
- The location of the nearest fire alarm boxes and fire extinguishers

The best method to convey this information is to outline these items on small facility drawings and post them at key locations throughout each facility. Supervisors are

responsible for ensuring these drawings are developed and posted in City areas. (To ensure uniformity of evacuation plans throughout City facilities coordinate with the Safety/Risk Program Manager)

Emergency Escape Route Requirements

- All exits shall be clearly marked with a visible illuminated sign that can be read in the dark or is illuminated by the emergency lighting system.
- If not all users can see an exit door, the route to the exit shall be clearly marked. Exit signs with arrows directing people to the nearest exit, strategically placed along the main aisles are required whenever direction to the nearest exit is not immediately apparent.
- In addition to illumination, the letters on exit signs must be at least 6 inches high and ¾ inch wide, standard.
- Exits will NEVER be locked shut so that occupants of the building cannot escape. There are mechanisms available that maintain facility security while staying within the requirements of the law. For examples: An exit door alarm, where the occupant pushes a *panic bar* that unlocks the door, but also sounds an audio alarm to alert others that the door has been opened. Local vendors have more information.
- All exits shall empty out of the facility into an area where public access can be obtained. Do not send people into a fenced area unless there is a gate that opens, allowing everyone to get to the street.
- Hazards, such as potholes, snow or ice cover, etc. shall not be present outside the emergency exits.
- Aisles leading to an exit door shall be clearly marked, and must be at least 28 inches wide, standard.
- Emergency aisles shall be in the straightest path possible to the exit.

Training Requirements

City employees shall receive training upon initial assignment to their work area and at least annually thereafter.

Chapter 28 RESPIRATORY PROTECTION PROGRAM

Purpose

To establish procedures for protecting City personnel from airborne contaminants, establish minimum requirements for respirators, and define requirements for common dust masks.

Types of Respirators

When selecting the proper respirator the department must consider the hazard of the contaminant, conditions of exposure, limitations of the equipment, and the capabilities of the user.

Respirators are grouped into three general categories:

- Air Purifying Respirators
- Atmosphere or Air Supplying Respirators
- Combination Air Purifying and Air Supplying Devices
- Air Purifying Respirators

An air-purifying respirator uses a mechanical or chemical filter media to cleanse contaminants from the users breathing air. Air purifying respirators are limited to environments with sufficient oxygen and concentrations of the contaminants within the specified “protection factor” of the device.

The three common air-purifying respirators are:

- Half or Full Face Negative Pressure Air Purifying Respirators
- Powered Air Purifying Respirators (PAPRs)
- Dust Masks.

City personnel shall not wear a dust mask for protection from hazardous atmospheres.

Air Supplying Respirators

- Air supplying respirators provide a breathable atmosphere to the worker. Various types exist. Those commonly used are:
 - Self-Contained Breathing Apparatus (SCBA) – Air is supplied from bottles usually worn on the wearer’s back.
 - Air Supplied Hoods – Air is supplied by a remote air source (bottles, compressor, etc.,) and piped to the user by hose.
- City personnel are **NOT** permitted to enter IDLH (Immediate Danger to Life or Health) atmospheres. This is normally limited to fire/rescue personnel.

Respirator Selection

Respirator selection is based on exposure hazard and the Assigned Protection Factor (APF) factor of the respirator. Criteria that shall be considered when selecting a respirator include:

The nature of the hazard(s) associated with the operation or process;

- The nature of the work operation or process;
- The physical and chemical properties of the air contaminant(s)
- The adverse health effects of the air contaminant(s);
- Warning properties of the hazardous air contaminant(s);
- The relevant regulated exposure levels;
- The measured concentration(s) of hazardous air contaminant(s)
- Worker activities in the area of the operation and the potential stress of work conditions on employees wearing the respirator:
- The length of time respiratory protection will be worn during the work shift.
- The physical characteristic, functional capabilities and limitations of the respirator:
- Respirator fit test results.

Each department shall perform site-specific evaluations to determine respirator requirements at least annually. Additional evaluations shall be performed as needed when new products or exposures are encountered.

To assure the list of tasks and exposures in Appendix A remains current, departments shall conduct an annual formal review of this document.

Medical Evaluations

All City personnel that wear a respirator shall complete the Medical Questionnaire, which will be reviewed by a medical professional.

Respirator Fit Testing

User Seal Checks

City personnel who wear a half-mask or full-face negative pressure respirator, or any other respirator capable of user seal checks shall perform a positive/negative pressure check each time the respirator is worn. These checks are outlined below:

- Positive Pressure Check - Close off the exhalation valve and exhale gently into the face piece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the face piece without any outward leakage of air at the face piece to face seal.
- Negative Pressure Check - Close off the inlet opening(s) of the canister or cartridge(s) covering with the palm of the hand(s); inhale gently so that the face

piece collapses slightly; and hold the breath for 10 seconds. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

Qualitative Fit Testing (QLFT) and/or Quantitative Fit Testing (PNFT)

Qualitative and/or quantitative fit testing shall be performed annually. Additional fit testing, of the appropriate type, shall also be performed:

- Whenever personnel report changes in his/her physical condition that could affect respirator fit; Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight.
- A trained and qualified professional using the protocols outlined in 29 CFR 1910.134, Appendix A., shall perform fit testing. NOTE: A P100 cartridge must be used for Irritant Smoke (Stannic Chloride) Protocol fit testing. Results of the fit testing shall be recorded and shall be retained for a minimum of three years.
- Fit test requirements are summarized in the table below.

TYPE RESPIRATOR/EXPOSURE	TYPE FIT TEST/REQUIRED FIT FACTOR
Half-Mask Negative Pressure Respirator (limited to 10 times the PEL)	Either Qualitative or Quantitative is acceptable. If Quantitative is used, the fit factor must be at least 100.
Full Face Negative Pressure Respirator (limited to 10 times the PEL)	Either Qualitative or Quantitative is acceptable. If quantitative is used, the fit factor must be at least 100.
Full Face Negative Pressure Respirator (limited to 50 times the PEL)	Quantitative is required. Fit Factor must be at least 500.
Other respirators	Qualitative is acceptable. If Quantitative is used, the fit factor must be at least sufficient to provide protection for the hazards involved.

Corrective Lenses (Eyeglasses) and Respirators

Glasses with sidebars are not allowed if they interfere with the seal of the face piece such as in the case of a full-face respirator. If a full-face respirator is being used, and the user needs to wear corrective lenses, the user must be provided respirator inserts with corrective lenses at no cost. These inserts must be secured from the respirator manufacturer. If personnel are wearing the respirator voluntarily, as defined in the definitions section of this procedure, then the City is not responsible for these additional costs. Half-mask users shall wear the sidebars of their glasses on the outside of the head strap to prevent potential interference with the face piece seal.

Contact lenses shall not be worn in areas that require the use of a respirator.

Respirator Inspections

Respirators shall be inspected as indicated below:

- Respirators must be inspected before and after each use, and during cleaning by the wearer. These inspections shall be performed by the wearer and need not be documented. Specific inspection steps are outlined in this program under “Respirator Cleaning and Disinfecting Procedures”.
- Respirators must also be inspected semi-annually. However, they should still be examined on an occasional basis to ensure they are being maintained in a sanitary and serviceable condition.
- Respirators that are kept in ready reserve for emergency use, such as SCBAs and ELSAs, shall be inspected after each use or at least monthly. This inspection must be documented. A record of the inspection must be kept with the respirator. A tag is an acceptable method of documenting this monthly inspection.

Repairs of Respirators

Only experienced persons shall repair respirators, and then only to the extent allowed by manufacturer’s recommendations.

Changing Filter Cartridges

Change respirator high-efficiency particulate air (HEPA) filter cartridges when a significant resistance to breathing occurs. The worker who wears the respirator decides when that point is reached. Chemical cartridges shall be changed based on the End of Service Life Indicator (ESLI) or as indicated for the type of area or task involved as listed in the table in Appendix A. Typically, cartridges should be replaced at a minimum after 40 hours of use.

Storage of Respirators

Respirators shall be stored in a manner that protects them from dust, sunlight, extreme temperatures, excessive moisture, damaging chemicals, and mechanical damage. Emergency respirators will be kept accessible and will be stored in containers to protect them. Containers must be clearly marked so personnel know the contents.

Routinely used respirators, such as air purifying respirators, shall be stored in a plastic bag, or otherwise protected from contamination and damage. Respirators shall not be stored in lockers or toolboxes unless they are in a carrying case or carton that protects them from damage from tools or equipment. Respirators should also be packed or stored face up and in a manner, which prevents deformation of the face piece or exhalation valve.

Respirator Selection Criteria

To select the proper respirator the department must use OSHA's Assigned Protection Factors (APFs) to select the appropriate type of respirator based upon the exposure limit of a contaminant and the level of the contaminant in the workplace. The department must select respirators by comparing the exposure level found in the workplace and the maximum concentration of the contaminant in which a particular type of respirator can be used (the Maximum Use Concentration, or MUC). Determine the MUC by multiplying the respirator's APF by the contaminant's exposure limit. If the workplace level of the contaminant is expected to exceed the respirator's MUC, then you must choose a respirator with a higher APF.

Use the information in the following Assigned Protection Factors tables, in addition to any other information such as MSDS requirements, NIOSH or OSHA tables, or other manufacturer's directions or guidance to determine the type of respirator and assigned protection factor required.

Respirator Inspection Requirements

DISPOSABLE RESPIRATORS

- Check for holes in the filter element or damage to sorbing such as loose charcoal canisters.
- Check straps for elasticity or deterioration.
- Check metal nose clip for rust or deterioration.
- Discard parts which do not pass inspection.

AIR PURIFYING RESPIRATORS

- Check the face piece for dirt, pliability, visible deterioration, cracks, tears, and holes.
- Check face piece lenses for proper mounting, cracks or scratches, broken or missing mounting clips.
- Check straps for breaks, tears, excessive wear, and loss of elasticity , broken attachment snaps, and proper tightness.
- Check inhalation and exhalation valve assemblies for holes, warping, cracks, detergent or soap residue, and dirt.
- Check air-purifying element holder for cracks, worn threads, dirt, and missing or damaged gaskets.
- Check filters, canisters, and cartridges for dents, corrosion, and damage to threaded fasteners. Check expiration dates. Check the protection afforded and limitations.
- Damaged components will be discarded and replaced with repair parts provided by the respirator manufacturer. Use of "equivalent" parts from other sources is not allowed. Only the manufacturer's parts are allowed.

SELF CONTAINED BREATHING APPARATUS (SCBA)

- Check face piece and hoses for integrity, as previously described for supplied-air respirators.
- Check the integrity and air pressure for the cylinder. Check the integrity of the regulator, harness assembly, straps, and buckles.
- Ensure that the regulator, communications accessories, and warning devices (end of service alarm) work properly.
- Damaged components may be repaired using approved procedures. Where repair procedures are not available, damaged components will be discarded and replaced with repair parts provided by the respirator manufacturer. Uses of “equivalent” parts from other sources are not allowed.

Respirator Cleaning and Disinfecting Procedures

RESPIRATOR CLEANING PROCEDURE

- Disassemble the respirator (review the assembly instructions in the applicable instruction manual) and remove the filter, cartridges or canisters from air purifying devices or combination APR/SAR models and immediately dispose of them to prevent reuse.
- Inhalation and exhalation valves shall be cleaned separately from the respirator body.
- It is not necessary to remove the lens in a full-face air-purifying respirator. However, extreme care must be taken in cleaning this lens due to any anti-fog and scratch resistant coatings that may exist. **Never use solvents, alcohol, Windex, or any other commercial glass cleaner on the lens.**
- The respirator face piece and its components can be washed in any mild detergent. **Never use anything any strongly acidic or alkaline.** Water temperature must not exceed 120 degrees F.
- Respirators may be cleaned either by hand or by a commercial respirator- cleaning device.
- Use a soft brush or cloth when manually cleaning the mask and its component parts. **Never use a brush, sponge, or any other potentially abrasive device to clean the coated lens.** A soft non-abrasive terry cloth or similar material can be used. **Do not apply hand pressure during cleaning, swirl lens or face piece to remove contamination.**
- Thoroughly rinse the mask to remove all detergent residues.
- Respirators can be allowed to air dry or may be hand dried with a soft, lint-free cloth. When using any force-air dryer, never exceed 120 degrees F.

RESPIRATOR DISINFECTING PROCEDURE

- The following procedure will be used if the respirator is to be used by more than one person:
- When the cleaner does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following solutions:
- Hypochlorite solution - Add two tablespoons of household bleach (Clorox or equivalent) to one gallon of water. or
- Iodine solution - Add one teaspoon tincture of Iodine to one gallon of water; or
- Other commercially available disinfectant cleaners when used as directed unless the respirator manufacturer recommends against their use.
- Limit immersion times to minimize deterioration or corrosion of respirator components.
- Respirators must be rinsed thoroughly to remove the disinfectant. Detergent or disinfectant that may dry on the face piece may cause dermatitis or corrosion of metal parts if not completely removed.
- Components shall be air dried or hand dried using a clean, lint-free cloth.

Training Requirements

City personnel must receive formal, documented training before wearing a respirator and annually thereafter.

Chapter 29 POWERED INDUSTRIAL TRUCKS

Purpose

To establish a powered industrial truck safety program that affords protection for City personnel and property from the hazards associated with the operation of powered industrial trucks.

General Requirements

- Powered industrial trucks are classified into categories for the purpose of determining what type of truck may be used in different locations.
- Modifications and additions are not allowed unless approved in writing by the forklift manufacturer. This includes forklift extensions as well as other attachments.
- Manufacturer's markings, nameplates, and similar placards such as stability tables must be maintained in a legible condition.

Safety Guards

- If the type of load presents a hazard, the forklift will be equipped with a vertical load backrest of sufficient height, width, and size of openings sufficient to minimize the possibility of the load falling toward the mast when the mast is in a position of maximum rearward tilt. The backrest, if used, must not interfere with good visibility and the size of the openings should not exceed five inches in one of the two dimensions.
- If personnel are lifted on a forklift, they must be lifted in an approved platform with a back guard sufficient to protect workers from moving parts of the forklift.

Powered Industrial Truck (Forklift) Operations

General

- Auxiliary lighting is required on the forklift unless general lighting is available.
- Wheel chocks must be placed around the rear wheels of highway trucks to prevent them from moving before a forklift is allowed to enter the bed of the truck.
- Fixed jacks may be necessary to support a semi-trailer and prevent upending during loading or unloading when the trailer is not coupled to a tractor.
- Personnel shall not stand or pass under the elevated portion of any truck, whether loaded or empty.
- The truck operator is responsible for placing appropriate warning signs or controlling access when work is done near doorways where personnel may inadvertently walk into the hazard area.
- Do not place arms or legs between the uprights of the mast or outside the running lines of the truck.

- Maintain a safe distance from the edge of ramps or platforms while on elevated docks or platforms.
- Do not fuel tanks with engine running and never use open flames for checking gasoline level in fuel tanks.
- Keep powered industrial trucks clean, free of lint, excess oil, and grease. Use noncombustible agents for cleaning.

Traveling

- Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.
- Personnel shall not ride on a forklift except in the operator seat.
- Obey traffic regulations, including speed limits.
- Slow down and sound horn at any place where vision may be obstructed.
- If load obstructs forward view, travel with load trailing.
- Look in the direction of, and keep a clear view of, the path of travel.
- Ascend or descend grades slowly. When ascending or descending grades in excess of 10 percent, drive loaded trucks with the load upgrade. On all grades, tilt the load and load engaging means backward if applicable, and raise only as far as necessary to clear the road surface.
- Slow down for wet and slippery areas. Maintain a speed slow enough that the truck can be brought to a stop in a safe manner regardless of the conditions.
- Horseplay and stunt driving is absolutely prohibited.
- Secure dockboards and bridgeplates before driving over them.
- Reduce speed when negotiating turns.

Parking

When a powered industrial truck is left unattended (operator more than 25 feet from vehicle or vehicle not in view) the following precautions must be taken:

- Forks must be fully lowered
- Controls must be neutralized
- Power must be shut off
- Brakes must be set.
- Wheels should be blocked if the truck is parked on an incline.

If a powered industrial truck operation dismounts temporarily, but remains within 25 feet with the truck still in view (therefore not unattended), the following precautions must still be taken:

- Forks must be fully lowered

- Controls must be neutralized
- Brakes must be set
- When a powered industrial truck is parked indoors, the following precautions must be taken:
 - Do not block emergency exit aisles.
 - If the truck leaks, some type of oil pan must be placed under the vehicle.
 - The operator must check the floor area when moving truck to ensure it did not leak while parked. If a leak is found, it is the operator's responsibility to clean up the spill before proceeding with the job.

Loading

- Ensure the load is stable. Exercise caution when handling off-center loads that cannot be centered.
- If there is a chance that the load may shift, secure it to the forklift before movement. Any hazardous materials that are likely to spill when in transport, e.g., paint cans, etc., shall be secured to prevent spillage.
- Never exceed the load capacity of the forklift. If approved attachments/fixtures are used, ensure the reduced/adjusted load capacity is not exceeded.
- Long or high loads (including multiple-tiered loads) that may affect load capacity must be adjusted as necessary to ensure capacity will not be exceeded and that the load is secure.
- Exercise extreme care when tilting the load forward or backward, especially when high tiering. Tilting the load forward with the forks elevated is prohibited except to pick up a load.

Free Rigging of Loads

Free rigging is the direct attachment to or placement of rigging equipment such as slings, shackles, and rings onto the forks of a powered industrial truck for a below-the-forks lift. Although this is a common practice in industry, **this type of lift DOES NOT use an approved lifting attachment. It is therefore NOT ALLOWED unless specifically approved by the manufacturer.**

Personnel Platforms

Use

Personnel shall not be lifted on a powered industrial truck except in an approved commercially procured platform. The forklift shall not be moved except up and down with personnel on the platform.

- The platform must be secured to the forklift.
- Have standard guardrails (or chains) around all pen sides.
- Floor must be slip resistant.

- The back of the platform must provide the operator with protection from truck lifting components (should be made of expanded metal and be approximately 7 feet high).
- Must be large enough to provide sufficient space for safe work for the number of workers placed on the platform.

Fall protection, in the form of a body harness and lanyard with deceleration device, should be worn by each occupant anytime the worker would be exposed to a fall hazard of more than 6 feet. Although minimum protection is provided by the guard rails, unplanned movement of the forks, or jerky operation, could cause a worker to be thrown out of the platform. The proper use of fall protection equipment will minimize this hazard.

Inspections and Maintenance

Industrial trucks shall be inspected before each use. Inspections shall be documented using a daily inspection checklist. Completed checklists should remain with the forklift (powered industrial truck) so operators can confirm the inspection has been done before using the equipment. Defects, which affect safety, shall be immediately reported and corrected before the truck is used.

Training Requirements

No City personnel shall be allowed to operate a forklift until they have been properly trained.

Chapter 30 FLAMMABLE / COMBUSTIBLE LIQUIDS

Purpose

To establish procedures for receiving, handling, and storing flammable and combustible liquids that ensures the safety of all personnel.

General Precautions

- Personnel shall guard against any part of their clothing becoming contaminated with flammable or combustible liquids. If contamination does occur:
 - Work shall not continue in contaminated clothing
 - Contaminated clothing shall be removed as soon as possible
 - Affected skin areas shall be thoroughly washed
- Flammable and combustible liquids shall not be stored, even temporarily, in areas used for exits, stairways, or safe passage of people.
- Unopened containers of flammable and combustible liquids such as paints, varnishes, lacquers, thinners, and solvents shall be kept in a well ventilated location which is free of excessive heat, smoke, sparks, flame, or direct rays of the sun.

Receiving flammable and combustible liquids

Flammable and combustible liquids in containers (i.e., drums, cans, bottles) shall not be held in the receiving area for more than six hours before being removed to approved storage facilities.

When transferring Class I and II liquids delivered in drums to other containers, a bonding cable that makes electrical contact with metal surfaces shall be attached between the drum and the container before and during the transfer operation. Class I liquids will be transferred from drums using approved pumps (Underwriters Laboratories, Inc., etc.).

- Class I and II Liquids:
 - Class IA - Flash Point less than 73°F; Boiling Point less than 100°F
 - Examples: Diethyl Ether, Ethylene Oxide, some light crude oils
 - Class IB - Flash Point less than 73°F; Boiling Point equal to or greater than 100°F
 - Examples: Motor and Aviation Gasolines, Toluene, Lacquers, Lacquer Thinner
 - Class IC - Flash Point equal to or greater than 73°F, but less than 100°F
 - Examples: Xylene, some paints, some solvent-based cements
 - Class II - Flash Point equal to or greater than 100°F, but less than 140°F
 - Examples: Diesel Fuel, Paint Thinner

Bung plugs shall be replaced immediately after drums are emptied. Emptied drums or containers shall not be allowed to accumulate for more than four hours at any general receiving/shipping area or in any general area within a building. Containers shall be moved to an approved storage area as soon as possible. Non-sparking bung plugs removal equipment may be necessary.

Containers for Storing Flammable and Combustible Liquids

General Requirements

Manufacturers' containers shall be used for storing Class I and II liquids in central liquids storage areas or other adequately protected areas, such as a flammable liquids cabinet. These containers must have the contents clearly identified, and when emptied shall be kept closed while awaiting disposition.

Class I and II waste liquids shall be collected in safety cans or drums fitted with self-closing lids and/or funnels. Waste containers shall be properly labeled to comply with applicable hazardous waste regulations.

Repairing, welding, or cutting safety cans or small containers that have held flammable and combustible materials shall not be permitted. Repair of any tanks or drums that have held a flammable or combustible material is also strictly prohibited.

Safety Cans

- Only DOT / UL (Underwriters Laboratories) approved safety cans shall be used to store flammable liquids.

Drums

Drums containing flammable and combustible liquids shall be maintained in clean, undamaged condition. The drums shall be legibly labeled with the contents. Bung plugs shall be maintained in place at all times except during dispensing or filling operations. Drums containing flammable or combustible waste materials shall be labeled either *Hazardous Waste* or *Waste (Chemical Name)*. Drums filled by emptying small containers shall be fitted with a self-closing funnel.

Storage of Flammable and Combustible Liquids

General

- Grounded busbars and grounding straps are required where liquids are transferred from one container or tank to another.
- Flammable liquids shall not be stored within 10 feet (3 meters) of a means of egress unless suitable protection such as a fire-rated partition wall or flammable liquids cabinet shields the egress.
- Class I and II liquids shall be kept in designated central storage areas, approved flammable liquids storage cabinets, or approved tanks.
- Class I and II liquids shall be kept in closed containers at all times. Covers, caps, or bungs on containers or drums that previously held flammable liquids shall be replaced promptly after the contents have been removed.

- The quantity of stored Class I and II liquids shall never exceeds 70 gallons (265 liters) within a fire area.
- Good housekeeping will be maintained at all times in storage areas, flammable liquids storage cabinets, and at tank car or truck unloading points. Keep extraneous materials, particularly ordinary combustibles such as cardboard or wood, out of storage areas and flammable liquids storage cabinets. Remove any packaged materials from the manufacturers' shipping box before storing in a flammable liquids cabinet.
- Make the appropriate notifications whenever any container shows signs of bulging, leaking, deteriorating, or breaking. Any leakage or breakage is a *spill* and requires action.
- Post and prominently display signs prohibiting smoking within 50 feet (15.25 meters) of the area outside all storage areas containing Class I and III liquids.
- Separate nonflammable solvents, corrosive liquids, oxidizing materials, and toxic materials from flammable and combustible liquids. This separation must be a distance of at least 20 feet (6m) or a (1.5m) high, one hour fire rated partition.
- Storage area floors shall be sloped, walls fire-rated, and curbs provided so a spill or leak from one area cannot contaminate another.
- Do not store water-reactive materials in the same room with flammable and combustible materials.
- Store waste rags or other items saturated with flammable and combustible liquids in an approved containers.
- Temporarily store flammable and combustible liquids used for maintenance, such as paint, in closed containers outside storage cabinets if limited to a 5-day supply at anticipated rates of consumption.
- Ensure that the quantity of liquid located outside of an inside storage room or storage cabinet in a building or fire area does not exceed:
 - 25 gallons (95 liters) of Class IA liquids in containers
 - 120 gallons (450 liters) of Class IB, IC, II, or III liquids in containers
 - 660 gallons (2500 liters) of Class IB, IC, II, or III liquids in a single portable tank

Flammable Liquids Storage Cabinets

- Flammable liquids storage cabinets shall meet the design and construction requirements of applicable regulatory and industry standards. Additional requirements are summarized below:

- Flammable liquid storage cabinets shall be labeled in red letter, **FLAMMABLE - KEEP FIRE AWAY and NO SMOKING**” signs shall be erected within 50 feet (15.25 meters) of the cabinet.
- Materials shall not be stored on top of flammable liquids storage cabinets.
- Flammable liquids storage cabinets shall have vent bungs in place unless the cabinet is connected to an exhaust ventilation system.
- Do not locate more than three cabinets in a single fire area. An additional group of three cabinets is permitted if they are separated by at least 100 feet (30m) from the other storage cabinets or a fire-rated partition.

Dispensing Flammable and Combustible Liquids

General

Filling or draining vehicle gasoline tanks in buildings, truck courts, or loading docks is not permitted. Gasoline engine powered mowers, trimmers, and similar equipment shall be refueled outside the building. Vehicle motors shall be shut off during fueling.

Drums and Tanks

- Tanks, drums, and other containers holding flammable or combustible liquids shall have approved self-closing dispensing faucets or drum transfer pumps. Approved safety vents shall be present to relieve container vacuums created by dispensing operations. Where drums are refilled, an approved combination vent and fill fitting shall be used.
- Approved drum pumps or automatic closing faucets shall be used to dispense material from the drums. Underwriters Laboratories Inc. approved safety tools shall be used on drums of Class I liquids.
- An approved viscous self-closing drum valve shall be used for dispensing viscous liquids from drums.

Transporting Flammable and Combustible Liquids

- Flammable liquids shall be transported from points of use only in approved safety cans or the manufacturer's original containers.
- Class I and II liquids may be transported within a facility on manually-powered vehicles. If distance warrants use of powered vehicles to transport these liquids, a pallet shall be used to prevent sliding or tipping from rough surface routes, sudden vehicle deceleration, and rapid turns.

Training

- Personnel who handle, store, or dispense Class I and Class II liquids require training in the proper handling, storage, and use of these liquids.

Chapter 31 HEARING CONSERVATION

Purpose

To establish controls, procedures, and safe work practices to prevent injury/illness of City personnel from exposure to noise hazards.

Workplace Evaluation and Documentation

Each department shall evaluate work areas and tools to determine if there are potential exposures above an 8-hour time weighted average of 85 dB.

The table below shows typical noise levels associated with common tools and equipment. If a worker uses a chainsaw or jackhammer, or leaf blower for more than 30 minutes a day they are exposed above an 8-hour time weighted average of 85dB.

Tool	dB(A)	Tool	dB(A)
Air compressor	93	Jet engine	130
Chain saw	115	Lawn mower	94
Circular saw	104	Leaf blower	105
Concrete chipper	101	Gun fire	140
Grinder	100	Nail gun	97
Hand drill	95	Pipe threading	92

If significant changes occur in either assigned equipment or contract requirements that may expose employees to new or changed noise hazards a re-evaluation shall be conducted>

Hearing Protection Equipment

A variety of suitable hearing protection shall be made available for personnel who:

- Are exposed to noise levels of 85dBA or greater
- Want to wear hearing protection

Hearing protection shall be provided to personnel at no cost and shall be replaced as necessary.

Hearing protection shall be evaluated for the specific noise environments in which it is used. Hearing protection is required to reduce noise exposure to less than 85dBA.

Chapter 32 WORKING IN THE PUBLIC RIGHT-OF-WAY

General

- Florida Department of Transportation rules and regulations and the Manual for Uniform Traffic Control Devices procedures shall be followed.

- When road surfaces are being repaired, manholes opened, or excavations dug, it is necessary that adequate warning of the hazard be posted, that a minimum amount of right of way be blocked off consistent with safety requirements, and that traffic be efficiently re-routed.
- If street construction or repair work is to be done, preparations will be made to assure vehicle and pedestrian safety before such work is allowed to begin.
- If traffic is affected by the operation, proper signing must be used to warn in advance of the work area. Traffic control signs in and around the affected area are to be correctly placed and maintained through the period when work is being performed and traffic obstructions exist.
- All barriers and lights shall be maintained in good condition, and kept clean and brightly finished to insure high visibility. Faded or otherwise illegible signs shall not be permitted.
- Signs placed solely for the protection of workers shall be removed at the end of the day or sooner if work stops.
- Signs placed to warn of temporary hazards (i.e. bumps, one way traffic, etc.) shall be removed as soon as the hazard is eliminated.
- Lighted barricades shall be used whenever possible for overnight protection, and supervisory personnel shall examine the work area for proper placement of barricades and signs at the end of the workday.
- Where traffic must be periodically stopped or is obstructed by workers or equipment in the travel portion of the roadway, a flagger wearing a reflective vest will be stationed. All workers in or near the roadway shall wear reflective vests while at the worksite. Vests must meet the requirements set forth in Manual on Uniform Traffic Control Devices (MUTCD) 6D.03 (2009) and ANSI/ISEA 107- 2004 standard for Class 2 (Class 3 if used at night) reflective vests.
- A flagger will be used to slow or direct traffic where the approach to the work area does not provide adequate visibility to drivers.
- During maintenance or construction activities, the following procedures will be adhered to:
 - “Men Working” signs shall be placed in advance of the work in both directions in accordance with section 1.01 of this chapter.
 - Work shall be done on one-half of the roadway when patching, filling cracks, etc.
 - No street shall be completely closed for repair work without prior approval of the police and fire departments and notification to the public.
 - When work crews must perform emergency repair during peak traffic periods, the appropriate law enforcement agencies shall be notified as to the location, start time, and estimated completion time.

- If an open cut is left in a posted traffic lane when work is topped or suspended for any reason, a cover of sufficient strength to sustain normal traffic loads should be placed over the cut and anchored. If a cut cannot be covered and must be left overnight, signs and barricades shall be left in place.
- Mobile equipment used for maintenance and repair work in roadways should be equipped with flashing and/or rotating lights.
- When pedestrian traffic is impeded, barricades, reflective tape, rope, or other restraints shall be used to keep the public from the work site.

Chapter 33 MAINTENANCE SHOP SAFETY

General

The normal activities of motor vehicle and/or maintenance shops present numerous hazards to maintenance personnel. It is essential that adequate safety standards be observed by all shop personnel to promote efficiency and reduce the possibility of personal injury and property damage. The following safety rules shall be adhered to by shop employees and enforced by shop supervisors.

Shop Safety

- Follow these steps when handling hot automotive parts that have been removed from vehicles:
 - Pick up the part using gloves, heat resistant pads or dry rags.
 - Place hot parts such as loose pipes, mufflers and shocks in metal containers that are labeled "Hot Metal Parts Only".
- Wear safety glasses when working in the shop area.
- Remove dust and shavings from drum lathes with a dust pan and broom or vacuum cleaner on a daily or job by job basis. Do not use your bare hands.
- Dump gasoline and other liquid chemical waste into containers labeled "Flammable Waste" from containers labeled "Flammable".
- Attach the pressure reducing nozzle that is labeled "Reduces Pressure to 30 psi" to the air hose when using compressed air to clean. Wear safety goggles when using compressed air to clean.
- When lifting batteries or other heavy objects from the engine compartment of a vehicle, use the following procedures:
 - Press your thighs against fender by leaning into vehicle.
 - Grasp the object by lifting with both hands.
 - Keep the object close to body, with elbows close to body.
 - Turn body using feet, not twisting at waist.
 - Move the object to work bench and lower onto bench. Use arms to lower and do not bend at waist.
 - Drape a shop rag over the radiator cap before venting or removing the cap from the radiator.
- Wear gloves, safety goggles and a rubber apron when working in the battery charging area.
- Direct engine hand tools away from rotating fan blades when the engine is running.

- Before "running" the vehicle for an engine analysis, engage the parking brake and use wheel blocks to "chock" the wheels of the vehicle.

Vehicle Safety

- Do not drive over 5 mph in the shop area.
- Shut all doors and fasten seat belt before moving the vehicle.
- Maintain a 3-point contact using both hands and one foot or both feet and one hand when climbing into and out of vehicle.
- Do not approach any vehicle until the vehicle stops and the driver exits.
- Walk behind the vehicle and remove any equipment, tools, or other pathway instructions before getting into the vehicle. Sound the horn to alert nearby coworkers before backing the vehicle.
- Tie down, lash, or secure all materials and equipment hauled in the bed of vehicles.
- Stand clear of vehicles in motion.
- Do not mount or dismount a moving vehicle.

Tire Service

- Use the positive lock-down device to hold the wheel on the tire machine before you attempt to inflate the tire. If tire is mounted on a machine that does not have a positive lock-down device, perform inflation in a safety cage.
- Use an extension air hose with an air pressure gauge to check the tire pressure. Do not inflate beyond 40 pounds of air pressure when trying to seat the beads. If both beads are not completely seated when pressure reaches 40 pounds, completely deflate the assembly, reposition the tire, and/or tube on the rim, re-lubricate, and re-inflate.
- Inspect both sides of the tire to be sure that the beads are evenly seated.
- After the beads are fully seated, adjust the tire pressure to meet the operating pressure labeled on the tire sidewall.
- Replace a tire on a rim with another tire of exactly the same rim diameter designation and suffix letters.
- Do not mount or use tires, tubes, wheels or rims that are split, cracked, cut or contain signs of other structural defects.
- Wear leather gloves when removing rocks, glass, and other foreign materials from the inside of the tire.

Tubeless Tires

Dismounting Procedures

- Place the tire in a horizontal position on the changer with the narrow ledge of the wheel facing up. Remove valve core and allow the tire to deflate completely.
- Center the wheel and securely fasten it onto the changer with the hold-down cone.
- Loosen both tire beads from rim flanges. If the beads do not readily separate from the rim flange, do not force or hammer. Use the rubber tire lubricant labeled "Non-Petroleum Based Lubricant" to lubricate the tire, rotate tire to another position and try again. Never use antifreeze, silicones, or petroleum-based lubricants.
- After beads are loosened from rim flanges, lubricate the inside of the wheel and both bead areas of the tire.
- Use a tire iron to bring the bead of the tire onto the rotating finger of the tire changer. Hold the tire bead in the center wheel well during this operation. Do not use a pipe or a makeshift bar.
- Start the tire changer to remove the top bead from the wheel.
- Again use the rubber tire lubricant labeled "Non-Petroleum Based Lubricant" to lubricate the tire beads and bead seat areas of the wheel including the drop-center well of the wheel.
- Use a tire iron to raise the bottom bead and bring it over the rotating finger of the changer. Use your hip and hand to hold the side of the tire opposite the rotating finger down in the center well of the wheel.

Mounting Procedures

- Do not mount a tire on a wheel rim that has molten metal scars or other signs that it has been repaired by welding or brazing.
- Remove any oxidized rubber, dried soap solution, rust or heavy paint from the rim flanges and bead ledges (especially hump and radius) using a wire brush. Replace valve stems that are cracked, split, and cut or are otherwise visibly damaged.
- Place wheel on changer with narrow bead-ledge up. Center wheel and securely fasten it onto the changer with the hold-down mechanism.
- Use the rubber tire lubricant labeled "Non-Petroleum Based Lubricant" to lubricate sides and bases of tire beads, rim flanges, and bead ledge areas. Do not use antifreeze, silicones, or petroleum-based lubricants.
- Remove any tools, foreign objects, or liquids that may be present inside the tire casing.
- In mounting the tire, push the bottom bead first in the well of the wheel.

- Push the top bead down into the center well of the wheel. Hold the tire in this position while the rotating finger runs the bead onto the wheel. Center tire on rim.
- Install the valve core.
- Tighten the hold down cone before inflating the tire.
- Use an extension air hose with gauge and clip-on chuck to permit operator to stand clear of the tire assembly.
- Slowly inflate the tire until the beads "pop" on the bead ledge of the wheel.
- Prior to inflating the tire, loosen the hold down cone so that it and the tire assembly can be removed later.
- Inflate the tire to operating pressure labeled on the tire sidewall.

Wheel Mounting/Dismounting

- Position the lift so that the axle hub of the vehicle is about waist height.
- Position the tire and wheel on the floor so that the inside of the tire faces you and the outside of the tire faces the car.
- Place hands on the side of the tire with the tire resting against your thigh just above the knee.
- With a continuous motion, straighten up using your thigh as a pivot point. Rotate the tire until most of the weight is resting on your thigh. The inside of the tire is now facing the car.
- Continuing the momentum, the tire and wheel goes toward the hub with a little guidance from the hands.
- Position the wheel and hub hole on the hub and align the lugs with the holes.
- Reverse this procedure when demounting.

Tire Handling

- When loading tires onto or unloading tires from a vehicle, do not throw the tires off of the truck; use the following procedure:
 - Bend at knees, grasp tire with two hands, elevate tire to upright position and carry the tire to the end of the truck.
 - Hand tire off to a co-worker.
- Do not stack tires above your shoulder level.
- When unstacking tires that are above shoulder height, use two people to unstack down to shoulder height.
- Carry tires with your hands.
- Do not carry more than two tires at a time;

- Do not roll tires.

Electrical Tool Safety

- Do not use power equipment or tools on which you have not been trained.
- Keep power cords away from the path of vacuum cleaners, floor polishers, and grinders.
- Do not carry plugged in equipment or tools with your finger on the switch.
- Do not carry equipment or tools by the cord.
- Disconnect the tool from the outlet by pulling on the plug, not the cord.
- Turn the tool off before plugging or unplugging it.
- Do not leave tools that are "On" unattended.
- Do not handle or operate electrical tools when your hands are wet or when you are standing on wet floors.
- Turn off electrical tools and disconnect the power source from the outlet before attempting repairs or service work. Tag the tool "Out of Service."
- Do not drive over, drag, step on or place objects on a cord.

Hand Tool Safety

- Tag worn, damaged, or defective tools "Out of Service" and do not use them.
- Do not use a tool if its handle has splinters, burrs, cracks, or splits, or if the head of the tool is loose.
- Do not use impact tools such as hammers, chisels, punches, or steel stakes that have mushroomed heads.
- Do not carry sharp or pointed hand tools such as screwdrivers, scribes, aviation snips, scrapers, chisels or files in your pocket unless the tool is sheathed.
- Do not perform "make-shift" repairs to tools.
- Wear safety glasses, goggles or face shields when operating grinders.

Grinders

- Do not use grinding wheels that have chips, cracks, or grooves.
- Do not use the grinding wheel if it wobbles. Tag it "Out of Service."
- Do not try to stop the wheel with your hand, even if you are wearing gloves.
- Do not use grinder if it is not firmly anchored to the workbench.
- Prior to installing a new grinding wheel, inspect the wheel for cracks or other visible damage; tap the wheel gently with a plastic screwdriver handle to detect cracks that are not visible. If the wheel has a dead sound rather than a ringing sound, do not use the wheel.

- Do not install a grinding wheel whose labeled RPM speed is lower than the rated speed of the grinder.
- Do not clamp a portable grinder in a vise to use it as a bench grinder.

Automotive Lifts

- Remove all tools, cords, hoses, trash and any other debris from the lift area and wipe up all grease and oil spills before driving a car or truck into the service bay.
- Position the lift arms, adapters, and supports to the center of the lift out of the way of the car's tires before driving the vehicle into the service bay.
- Do not use any lift that has cracked contact pads, cracked lift arms or any other visible damage.
- Do not use wood or concrete blocks as a substitute for an extender.
- Use wheel blocks to chock the wheels of any vehicle on a runway lift while the vehicle is on the lift.
- Do not leave the controls unattended while the lift is in motion.
- Do not use the engine or transmission supports or stands as a substitute for jack stands.
- If the vehicle begins to slip off the lift, run in the opposite direction of the fall, but not toward a wall or workbench that might trap you between the object and the vehicle.
- Before you lower the vehicle, remove tool trays, jack, engine and transmission stands, and any other obstructions from under the vehicle.
- Before removing the vehicle from the service bay, position lift-arms and supports to the center of the lift away from the wheels of the vehicles.
- Do not raise vehicle with anyone inside it.
- When raising a vehicle, use the following procedure:
 - Use the lift to raise the vehicle about one foot off the ground, then moderately push the rear or front bumper of the vehicle to ensure that the vehicle frame is stably mounted on the lift support's contact pads.
 - If the frame of the vehicle is not firmly touching a support contact pad, or is slipping, immediately lower the vehicle and start over.
 - Once the vehicle is secure on the lift, lift the vehicle to the desired work height and visually check those contact points for misalignment before going under the vehicle.
- As you raise the vehicle, you will hear a "clicking" noise, which indicates that the lift's locking device is engaging. If you do not hear the "clicking" noise, stop the lift, fully lower the vehicle, and use another lift. Place an "Out of Service" tag on the control switch of the damaged lift and do not use it.

- If you will be working under a lift that will be positioned at a point below where the lift's locking device engages, place four jack-stands under the vehicle's frame or suspension for additional support before working under the vehicle.
- Wear safety goggles when working underneath vehicles.

Chapter 34 CHAIN SAW SAFETY

Purpose

To establish a program that provides for the receipt, handling, storage, and use of chain saws that affords protection for City personnel from hazards associated with their use. Minimize potential injuries by using proper personal protective equipment and safe operating procedures.

Before Use

- Check controls, chain tension, and all bolts and handles to ensure that they are functioning properly and that they are adjusted according to the manufacturer's instructions.
- Make sure that the chain is always sharp and that the oil tank is full.
- Start the saw on the ground or on another firm support. Drop starting is never allowed.
- Start the saw at least 10 feet from the fueling area, with the chain's brake engaged.

Fueling

- Use approved containers for transporting fuel to the saw.
- Dispense fuel at least 10 feet away from any sources of ignition when performing construction activities.
- **No smoking during fueling.**
- Use a funnel or a flexible hose when pouring fuel into the saw.
- Never attempt to fuel a running or HOT saw.

General Chain Saw Safety

- Clear away dirt, debris, small tree limbs, and rocks from the saw's chain path. Look for nails, spikes or other metal in the tree before cutting.
- Shut off the saw or engage its chain brake when carrying the saw on rough or uneven terrain.
- Keep your hands on the saw's handles, and maintain balance while operating the saw.
- Wear proper personal protective equipment when operating the saw, which includes hand, foot, leg, eye, face, hearing and head protection.
- Do not wear loose fitting clothing.
- Be careful that the trunk or tree limbs will not bind against the saw.
- Watch for branches under tension; they may spring out when cut.

- Gasoline powered chain saws must be equipped with a protective device that minimizes chain saw kickback.
- Be cautious of saw kickback. To avoid kickback, do not saw with the tip. Keep tip guard in place.

Chapter 35 ELECTRICAL SAFE WORK PRACTICES

Purpose:

To establish a City electrical safe work practices program, including an energized work process, that meets the requirements of the City safety and health plan as well as the spirit and intent of NFPA 70E for personnel protection while performing electrical work.

Work On or Near Energized Hazards

Work is considered to be “on or near” anytime any of the following conditions occur:

- Any part of the body, regardless of the level of PPE protection, enters or may inadvertently be placed within the Restricted Approach Boundary based on the maximum potential voltage involved.
- Any tool or piece of equipment (regardless of whether it is insulated) enters or may inadvertently be placed within the Restricted Approach Boundary based on the maximum potential voltage involved.

Work “on or near” live equipment as defined above is permitted only when it is impossible to shut off the equipment or circuits; or when de-energizing the equipment would introduce additional or increased hazards; or is infeasible due to equipment design or operational limitations. Examples of situations that would meet the requirements of “increased or additional hazards” include:

- Interruption of life safety equipment
- Deactivation of emergency alarm systems
- Shutdown of hazardous location ventilation equipment
- Removal of illumination from a large area

If all exposed live components of 50 volts or greater in a cabinet, vault, box, or other piece of electrical equipment are not completely de-energized through lockout/tagout, ANSI approved voltage rated tools shall be used anytime the plane of the cabinet, vault, box, or opening is breached.

Metering during authorized troubleshooting is not considered working on or near. However, full PPE shall be worn based on maximum potential.

Approach Boundaries for Live Parts

Flash Protection Boundary:

The minimum flash protection boundary is 4 feet for voltages between 50 volts and 600 volts. Arc flash protection is required for any worker within this boundary when work is being performed that could lead to an arc flash.

Limited Approach Boundary:

The limited approach boundary establishes an area around exposed energized hazards of 50 volts or greater where unqualified employees must be escorted and directly supervised by a qualified employee and insulated voltage rated ANSI approved tools based on the maximum voltage are required. Limited approach boundaries include the:

- 50 to 750 volts – 3 feet 6 inches
- 751 volts to 15 kV – 5 feet
- 15.1 kV to 36 kV – 6 feet
- 36.1 kV to 121 kV – 8 feet

Restricted Approach Boundary:

The restricted approach boundary establishes an area around exposed energized hazards of 50 volts or greater where unqualified employees are prohibited and insulated tools and full PPE based on the maximum voltage are required. A worker is considered to be working “near” energized systems when any part of the body or tool could approach an energized component closer than the distances below. An energized work permit is always required in these cases except during troubleshooting with an approved meter. Restricted approach boundaries include the following:

- 50 to 750 volts – 1 foot
- 751 volts to 15 kV – 2 feet 2 inches
- 15.1 kV to 36 kV – 2 feet 7 inches
- 36.1 kV to 46 kV – 2 feet 9 inches
- 46.1 kV to 72.5 kV – 3 feet 2 inches
- 72.6 kV to 121 kV – 3 feet 3 inches

Prohibited Approach Boundary:

The prohibited approach boundary establishes an area around exposed energized hazards of 50 volts or greater where approach within the boundary is considered “working on” an energized system. A worker is considered to be working “on” energized systems when any part of the body or tool could approach an energized component closer than the distances below. Unqualified workers are prohibited, full PPE based on the maximum voltage is required, and an energized work permit is required except during troubleshooting with an approved meter. Prohibited approach boundaries include the following (refer to NFPA 70E for higher voltages):

- 50 to 750 volts – 1 inch
- 751 volts to 2.1 kV – 7 inches
- 2.1 kV to 36 kV – 10 inches
- 36.1 kV to 46 kV – 1 foot 5 inches
- 46.1 kV to 72.5 kV – 2 feet 1 inch
- 72.6 kV to 121 kV – 2 feet 8 inches

Establishing an Electrically Safe Work Condition

Every attempt shall be made to establish an electrically safe work condition before performing work (other than authorized metering as a part of troubleshooting) within the Limited Approach Boundary of exposed electrical hazards.

All circuits and equipment are considered energized until an electrically safe work condition has been established and verified.

If an electrically safe work condition as described above has not been established then the following work practices shall be followed:

Insulated Tools and Equipment

Suitably insulated tools (ANSI approved for electrical work) and/or handling equipment shall be used when working near exposed energized conductors or circuit parts. The insulating materials on these items must be protected during storage or transportation. When removing or installing fuses from an energized fuse terminal, use of fuse handling equipment capable of withstanding the circuit voltage is necessary. Also, only nonconductive ropes and hand lines are permitted near exposed parts.

Insulated tools and insulated equipment shall be used when:

- Breaking the plane (or opening) of an electrical fixture (cabinet, vault, panel, etc.) where any live voltage of 50 volts or greater remains (including metering for troubleshooting).
- Any part of the body or a tool or piece of equipment may cross the Limited Approach Boundary for the maximum voltage present.

All tools used in either case above shall be voltage rated ANSI approved tools rated to the maximum voltage hazard present.

Fuse or fuse holding equipment shall be used to remove or install a fuse if the fuse terminals are energized. Fuse or fuse holder shall be rated and insulated for the circuit voltage.

Ropes or hand lines used near exposed live parts operating at 50 volts or greater shall be non-conductive.

Fiberglass-reinforced plastic rod and tube tools used for live line work shall meet the requirements of

Portable ladders shall have non-conductive side rails. Metal ladders are prohibited in areas where electrical hazards exist.

Workers shall not wear conductive apparel (e.g., watches, rings, bracelets, key chains, necklaces, metalized aprons, cloth with conductive thread, metal head gear, wire/metal-rimmed glasses, etc.),

Personal Protective Equipment Requirements

Protective equipment requirements outlined below are mandatory when any part of the body or a tool or piece of equipment may be placed within the Restricted Approach Boundary: All personnel shall wear the required PPE as outlined in this section until all energy sources of 50 volts or greater within the Restricted Approach Boundary have been completely eliminated through lockout/tagout and de-energization has been confirmed through metering. The ratings in this section, of cal/cm², represent arc flash protection ratings. If protective equipment is not marked with these ratings it does not meet the requirements of NFPA 70E and shall not be used. Exceptions to these

requirements are limited to those specifically addressed under each type of protective equipment.

Minimum Eye/Face Protection

- 50 volts to 240 volts – safety glasses with side shields or goggles
- Above 240 volts and below 600 volts – Face shield with minimum arc thermal protection value of 8 cal cm² (if face shield is not rated for impact protection safety glasses with side shields or goggles are also required)
- During removal and installation of panel covers on electrical panels above 240 volts – Face shield with minimum arc thermal protection value of 8 cal cm² (if face shield is not rated for impact protection safety glasses with side shields or goggles are also required).
- Above 600 volts – Face shield with minimum arc thermal protection value of 25 cal cm² (if face shield is not rated for impact protection safety glasses with side shields or goggles are also required).
- Work on 600 Volt Class Motor Control Center, 600 Volt Class Switchgear and other 600 Volt Class equipment requires a double layer switching hood. This includes during application of safety grounds after voltage testing and during removal of bolted covers to expose bare energized parts.
- Work on equipment of 1 kV and above may also require a double layer switching hood depending on flash potential (see NFPA 70E for specific requirements and guidance on determining proper level of flash protection in these circumstances).

NOTE: Face shield is not required when the only exposure to electrical hazards is from metering lighting circuits of 300 volts or below, at the lighting fixture, to confirm energy isolation after the circuit is locked out/tagged out.

Minimum Foot Protection

Electrical Hazard (EH) rated safety footwear (boots/shoes) or an Electrical Mat rated for the highest potential voltage involved.

Minimum Hand Protection

- 50 volts to 480 volts – Electrical Hazard (EH) gloves class 00 with leather protectors.
- Above 480 volts and below 600 volts – Electrical Hazard (EH) gloves class 0 with leather protectors.
- During removal/installation of panel covers on electrical panels of greater than 240 volts – Electrical Hazard (EH) gloves class 00 with leather protectors between 240 volts and 480 volts, class 0 with leather protectors above 480 volts.
- Above 600 volts – Electrical Hazard (EH) gloves class 0 or higher (depending on maximum voltages involved).

Minimum Body Protection

- 50 volts to 240 volts – 100% cotton clothing with long sleeves and long pants (nylon, polyester, and rayon are prohibited). If flame retardant long sleeve shirt and long pants or long sleeve coveralls are provided they must meet minimum rating of 5 cal/cm²
- During removal and installation of panel covers on electrical panels above 240 volts – One layer of flame retardant (FR) clothing (FR long sleeve shirt and FR long pants or FR long sleeve coveralls) meeting minimum rating of 8 cal/cm² ATPV.
- Above 240 volts and below 600 volts – One layer of flame retardant clothing (FR long sleeve shirt and FR long pants or FR long sleeve coveralls) meeting minimum rating of 8 cal/cm² ATPV.
- Above 600 volts – Two layers of flame retardant clothing (FR long sleeve shirt, FR long pants, AND FR long sleeve coveralls) meeting minimum rating of 25 cal/cm² ATPV.
- Work on Metal Clad switchgear and other equipment above 1 kV may require layers of FR clothing with a minimum rating of 40 cal/cm² ATPV depending on arc flash potential (see NFPA 70E for specific requirements and guidance on determining proper level of flash protection in these circumstances).

NOTE: Flame retardant clothing is not required when the only exposure to electrical hazards is from metering lighting circuits of 300 volts or below, at the lighting fixture, to confirm energy isolation after circuit is locked out/tagged out.

Minimum Head Protection

- When working in areas where overhead hazards are present, especially if head contact with energized hazards is possible – Class E hardhat rated for electrical protection is required.
- Inside any substation or other power transmission and distribution equipment area – Class E hardhat rated for electrical protection is required.

Hazard Alerting/Control Requirements

Special precautions shall be employed to warn employees of unusual electrical hazards until they are corrected or eliminated. As an example, if breakers or breaker blanks are found missing inside a breaker panel a warning sign limiting access to qualified electricians shall be placed on the panel door until the electrical hazard below is returned to compliance with electrical code.

Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas containing live parts. Barricades shall be of non-conductive design and shall be placed so as to prevent access to the Limited Approach Boundary by non-qualified personnel (10 feet for exposed movable conductors and 3 ½ feet for non-movable conductors up to 750 volts).

Exposed energized components shall never be left unattended and/or unprotected. If signs or barricades cannot assure warning and protection from electrical hazards an attendant shall be stationed to warn and protect personnel

Insulating equipment shall be cleaned as needed to remove foreign substances and stored in a location and manner that protects it from light, temperature extremes, excessive humidity, ozone, and other injurious substances and conditions. A thorough visual examination by the worker is always required immediately before each use.

General Electrical Safe Work Practices

- Rated-load switches or circuit breakers shall be used to disconnect electric power and lighting circuits. Non-electrical workers may reset a tripped single-pole convenience outlet or lighting circuit breaker one time, provided it is not located in a designated emergency panel and when, based on their knowledge, it is safe to do so. If the circuit breaker trips again, contact supervision so an appropriate response can be authorized and initiated. Other types of circuit breakers may only be reset by personnel who are trained and knowledgeable of the affected systems.
- If electrical equipment is used near sources of flammable vapors, such as in identified Class 1, Division 1 or Class 1, Division 2 locations, the equipment must meet the requirements of NFPA and/or NEC for these locations.
- Lamps and fixtures shall be guarded and secured to preclude injury. Open fluorescent fixtures must have wire guards, lenses, tube guards and locks, or safety sockets that require force in the horizontal axis to remove the lamp.
- Lamps for general illumination shall be protected from inadvertent contact or breakage either with a suitable guard or by separation of at least 7 feet from normal working surface.
- All portable electric hand tools must be double insulated.
- Portable electrical hand tools shall be unplugged when not in use.
- Electrical cords shall not be used to raise or lower equipment.
- Equipment with frayed cords or three-wire cord ends that have had the grounding prong removed shall not be used.
- The proper power receptacle shall be used for each application. Cord-end prongs shall not be manipulated to fit the wrong receptacle.
- The use of temporary wiring shall be avoided. Appropriate ground fault circuit interrupters shall be employed with any temporary wiring including extension cords used for portable electrical equipment and tools.
- Extension cords shall not be used in place of permanent wiring (affixed to structure, run around poles, under doors, through holes in walls or structure, etc.)

- High current draw items such as coffee pots, refrigerators, microwaves, toaster ovens, and toasters must be plugged directly into an approved outlet, never into extension cords or power strips.
- Power strips (surge protectors) shall be plugged directly into an approved outlet, not into other power strips or into extension cords. Surge protectors shall be listed by a nationally or internationally recognized testing laboratory. Loads plugged into these devices shall not exceed the maximum recommended by the manufacturer.
- Extension cords and cords on electrical equipment shall be inspected before each use. Equipment or extension cords with damaged wiring or missing plug prongs shall be taken out of service until the damage is repaired.
- Only trained and qualified personnel may defeat electrical safety interlocks and then, only temporarily, when directed to do so by an approved procedure or work practice, while working on the equipment. The interlock shall be returned to its operable condition as soon as possible.
- Circuits shall be de-energized immediately if an electrical shock victim is still in contact with electrical energy. If not possible to de-energize the circuit, only trained and qualified employees may attempt to remove the victim.

NOTE: Electrical shocks are medically serious regardless of the voltage. Even if the victim shows no apparent signs of injury, they shall be seen by a qualified health care professional.

- The following ground fault circuit interrupter (GFCI) protection requirements are applicable to all operations:
 - GFCI protection shall always be used in wet or extremely damp areas.
 - A GFCI device shall be used to protect personnel when they use portable electric tools and portable electric equipment including portable lights.
 - If an extension cord is used, GFCI protection is required, even if the cord is plugged into an indoor outlet (if the indoor outlet is GFCI protected, this is sufficient).
 - GFCI protection for extension cord use shall be located between the extension cord and the electrical outlet into which it is plugged.
 - Permanently mounted GFCI devices shall be checked monthly by pushing the test button on the device.
 - Portable GFCI devices shall be tested by workers by pushing the test button on the device before each use.
- Personnel must remain alert at all times when working near exposed electrical parts or in situations where electrical hazards may exist. Personnel must never reach blindly into areas that may contain live circuits. If alertness is recognizably impaired due to illness, fatigue, or other reasons, the person shall not be permitted to work in areas containing electrical hazards.

- Personnel shall not enter an area containing exposed electrical circuits unless adequate illumination is provided. When the illumination or obstructions affect visibility and the worker might contact the exposed circuits or equipment, they shall not perform the task.
- Protective shields, barriers, or insulating materials shall be used to protect workers from exposed energized parts which might be inadvertently contacted or where dangerous electric heating or arcing is likely to occur.

When work is performed in a confined or enclosed space such as a manhole or vault, precautions to avoid contact with the energized part are required. Work in confined spaces also requires special training in confined spaces and a confined space entry permit before entry.

Housekeeping and custodial duties shall not be performed adjacent to energized parts where such parts present an electrical contact hazard. Cleaning materials such as water, steam, conductive cleaning fluid, steel wool, metalized cloth, or silicon carbide shall not be used in the proximity of energized parts.

Training Requirements

Affected personnel, both those qualified to perform electrical work and those not qualified who may still work on or near energized systems, shall be trained in the safe work practices.

Chapter 36 FALL PROTECTION

Purpose:

To establish a fall protection program that meets industry standards, and affords protection for City personnel from potential falls when working at heights or areas not protected by standard guardrails.

General Requirements for Fall Protection

Some type of fall protection shall be employed anytime a worker is exposed to a potential fall of more than six feet in construction situations and 4 feet or more in manufacturing situations.

- All components used in fall arrest or positioning shall be commercially procured, remain unmodified, and be used for the purpose for which they were designed.
- Manufacturer's tags shall be on each piece of equipment and the tags shall be readable.
- Equipment shall not be used past its 5 year service life.
- Body belts shall not be used by City personnel.
- All fall arrest lanyards shall have a deceleration device present.
- Lanyards used to secure personnel in buckets or lifts shall be adjustable and include a deceleration device.
- Any fall arrest or positioning equipment that has been subjected to an actual fall shall immediately be removed from service by the application of an appropriate warning or do not use tag.

Rescue Planning and Provisions

A method for prompt rescue of fallen workers (both assisted and self-rescue) shall be deployed when City personnel work at heights where fall protection equipment is required. Assisted rescue shall either be provided by a professional rescue agency, e.g., fire department. The preferred method is to use a professional rescue agency.

Self-Rescue - The "buddy" or assigned safety person shall remain within visual/verbal range to initiate rescue of the fallen worker if required and shall have a reliable method of communication (cell phone, radio, etc.) to summon rescue.

Fall Protection Systems

Various types of systems are available to protect workers. These systems and their components and the specific design requirements of each are summarized in this section.

Guardrail Systems: A guardrail system must have components that meet the following minimum requirements (system normally requires top rails, mid rails, and toe boards):

- Have top rails or equivalent system members 42 inches plus or minus 3 inches above the walking/working level (if stilts are being used, the top rail height must be increased an amount equal to the height of the stilts). When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria of this section.
- Have mid-rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches high. Mid-rails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking/working level. Screens and mesh, when used shall extend from the top rail to the walking/working level and along the entire opening between top rail supports. If intermediate members are used as posts, they shall not be more than 19 inches apart. Other structural members, such as additional mid-rails and architectural panels, shall be installed so there are no openings in the guardrail system more than 19 inches wide.
- Normally have toe boards to prevent falling objects from injuring workers or equipment below.

Guardrail systems must be capable of withstanding a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge. The top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level if these forces are applied.

Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding a force of at least 150 pounds applied in any downward or outward direction at any point along the mid-rail or other member.

- Guardrail systems shall be surfaced in such a way so as to prevent injury to a worker from punctures or lacerations, and to prevent snagging of clothing.
- The ends of top rails and mid-rails shall not overhand the terminal posts, except where such overhang does not constitute a projection hazards.
- Steel banding and plastic banding shall not be used as top rails or mid-rails.
- Top rails and mid-rails shall be at least one-quarter inch nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high visibility material.

When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

When guardrail systems are used at holes, they shall be erected on all unprotected sides or edges of the hole.

When guardrail systems are used around holes used for the passage of materials, the hole shall have not more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover, or a guardrail system shall be provided along all unprotected sides or edges.

Guardrail systems used around holes that are used as points of access, such as ladder ways, shall be provided with a gate, or be so offset that a person cannot walk directly into the hole.

Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge.

Manila, plastic or synthetic rope being used for top rails or mid-rails shall be inspected as frequently as necessary to ensure it continues to meet the strength requirements and height requirements of this section.

Personal Fall Arrest System

A personal fall arrest system must meet the following requirements:

- The total weight of the worker and equipment must not exceed 310 pounds unless the system has been modified as outlined at the end of this paragraph.
- Fall arrest equipment, other than lifelines, must be commercially purchased and must meet ANSI design criteria for use as a component of a fall arrest system. It must have the original manufacturer's label, including date of manufacturer. Maximum service life is 5 years from the date of manufacturer. Equipment that does not meet these criteria must be removed from service.
- Snaphooks must be of the locking type and be of proper design and size to hook to the type anchorage used.
- Lanyards and vertical lifelines must have a breaking strength of at least 5000 pounds. A separate lifeline must be provided for each worker.
- Lifelines must be protected against being cut or abraded.
- Self-retracting lifelines and lanyards that automatically limit free fall distance to two feet or less must be capable of sustaining a minimum tensile load of 3000 pounds. Those that do not limit distance to two feet or less and rip stitch lanyards and tearing and deforming lanyards must be capable of sustaining a minimum tensile load of 5000 pounds.
- Ropes or straps used in lanyards, lifelines, and strength components of belts and harnesses must be made from synthetic fibers.
- Anchorages used for attachment of personal fall arrest equipment (including lifelines) must be independent of any anchorage used to support or suspend platforms and must be capable of supporting a minimum of 5000 pounds. These anchorages must provide a safety factor of at least 2 and be installed under the supervision of a qualified person and approved by a qualified person.

- Fall arrest lanyards must be rigged in such a way that the worker cannot fall more than six feet, nor contact any lower level during a fall. The lanyard must also bring the worker to a complete stop and limit maximum deceleration distance to 3.5 feet and maximum arresting force to 1,800 pounds.
- Fall arrest lanyards (as opposed to positioning lanyards) should have a deceleration device installed.
- The attachment point of the body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head.
- Fall arrest components such as lifelines and lanyards shall not be attached to guardrail systems.
- Components used as a part of a fall arrest system must never be used to hoist materials.
- Any component of a fall arrest system subjected to impact loading must be removed from service.
- Components of the fall arrest system must be inspected prior to each use and any defects found must be corrected before use.
- Attachment points must be approved by a qualified person

Personal fall arrest systems designed for use by workers who have a *total combined tool and body weight of 310 pounds or greater require special considerations*. The component design criterion above is based on a weight of less than 310 pounds. Weights of 310 pounds or more may exceed the safety factors involved for anchorage points and equipment design or may result in arresting forces on the worker of over 1800 pounds with a body harness. Therefore, if the total combined weight of the worker and tools is 310 pounds or greater, the fall arrest system shall be modified to ensure a safety factor of at least two and to limit arresting forces to 1800 pounds or less. A qualified engineer should make this modification.

Positioning Device Systems (Fall Restraint System)

- A positioning device system must meet the following minimum requirements:
- Positioning devices must be rigged so that a worker cannot free fall more than two feet and be secured to an anchorage capable of supporting at least twice the potential impact load of the worker's fall or 3000 pounds, whichever is greater.
- Lanyards used for positioning must be commercially manufactured to meet ANSI Standards for either positioning or fall arrest and must be marked with the manufacturer's name and date of manufacturer
- Connectors used on positioning devices must be of the locking type.
- Connecting assemblies must have a minimum tensile strength of 5000 pounds.
- Shaphooks must be sized and be compatible with the anchorage point.

- Positioning systems must be inspected prior to each use and any defects found corrected prior to use.
- Components shall only be used for worker protection and not to hoist materials.
- Attachment points must be approved by a qualified person.

Warning Line Systems

- Warning line systems, and their use, must meet the following minimum requirements:
- The warning line shall be erected around all sides of the roof work area.
- When mechanical equipment is not being used, the warning line shall be erected not less than six feet from the roof edge.
- If mechanical equipment is being used, the warning line shall be erected at least 6 feet from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from the roof edge that is perpendicular to the direction of mechanical equipment operation.
- 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.
- When the path to a point of access is not in use, a rope, wire, chain, or other barricade shall be placed across the path at the point where the path intersects the warning line around the work area, or the path shall be offset to prevent a person from walking directly into the work area.
- Warning line systems shall consist of ropes, wires, or chains, and supporting stanchions flagged at not more than six foot intervals with high visibility material.
- Warning lines must be rigged and supported in such a way that their lowest point is no less than 34 inches from the walking/working surface and their highest point is no more than 39 inches from the walking/working surface.
- Warning lines must 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 potential fall.
- The rope, wire, or chain must have a minimum tensile strength of 500 pounds.
- The line must 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.
- Workers are not allowed in the area between a roof edge and a warning line unless they must perform roofing work in that area.

- Mechanical equipment on roofs must be used or stored only in areas where workers are protected by a warning line system, guardrail system, or personal fall arrest system.

Safety Monitoring Systems

- Safety monitoring systems shall never be used alone. When used in conjunction with other fall protection systems, they must meet the following minimum requirements:
- A Safety Monitor must be designated to monitor the safety of other workers.
- The Safety Monitor must be knowledgeable in all tasks to be performed and be able to recognize fall hazards.
- The Safety Monitor must be close enough to communicate orally with the worker performing the work and must remain on the same walking/working surface and within visual sighting distance of the worker being monitored.
- The Safety Monitor must have no other responsibilities that could take their attention from the monitoring function.
- The Safety Monitor must immediately warn the worker when it appears that they are unaware of a fall hazard or are acting in an unsafe manner.
- Mechanical equipment must not be used or stored in the area.
- No other workers, except those engaged in the roofing work and the safety monitor are to be allowed in the area.

Covers

Covers must meet the following minimum requirements:

- Covers located in roadways and vehicular aisles shall be capable of supporting at least twice the maximum axle load of the largest vehicle expected to cross the cover.
- Covers located in locations other than roadways and vehicular aisles shall be capable of supporting at least twice the weight of workers, equipment, and materials that may be imposed on the cover at any one time.
- Covers shall be secured when installed so wind, equipment, or workers will not accidentally displace them.
- Covers shall be color-coded or marked with the word “HOLE” or “COVER” to provide warning of the hazard (does not apply to manhole covers).

Protection from Falling Objects

- Falling object protection shall comply with the following provisions:
- Toe boards, when used as falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect workers below.

- Toe boards shall be capable of withstanding a force of at least 50 pounds applied in any downward or outward direction at any point along the toe board.
- Toe boards shall be a minimum of 3 ½ inches in vertical height from their top edge to the level of the walking/working surface. They shall have not more than ¼ inch clearance above the walking/working surface and be solid or have openings not over one inch in greatest dimension.
- Where tools, equipment, or materials are piled higher than the top edge of a toe board, paneling or screening shall be erected from the waling/working surface or toe board to the top of the guardrail system's top rail or mid-rail, for a distance sufficient to protect workers below.
- If a guardrail system is used as falling object protection, it shall have openings small enough to prevent passage of potential falling objects.
- During overhand bricklaying and related work, no material and equipment except masonry and mortar shall be stored within 4 feet of the working edge and excess mortar and other materials and debris shall be kept clear from the work area by removal at regular intervals.
- During roofing work materials and equipment shall not be stored within six feet of the roof edge unless guardrails are erected at the edge and materials that are piled, grouped, or stacked near the roof edge shall be stable and self-supporting.
- If a canopy is used as falling object protection, it shall be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy.

Specific Fall Protection Requirements

Bucket Truck Operations

Operations from bucket trucks present fall hazards if the bucket lurches or if the occupant is knocked out of the bucket. For this reason, each person in the bucket requires a personal fall arrest or a fall restraint system. This shall include a body harness with lanyard appropriately attached to the center back of the harness and to a suitable attachment point on the bucket structure (approved and designed for attachment of fall arrest or fall restraint system). An adjustable lanyard shall be used and shall be adjusted so as to prevent the worker from falling out of or climbing out of the bucket.

Ladder Operations

Fixed Ladders - Fall protection is required on fixed ladders over 22 feet tall. These same requirements apply if shorter fixed ladders are placed in ways that a fall from the shorter fixed ladder would expose a worker to a fall that would normally require fall protection. An example would be a short fixed ladder at the top of a stair landing where the worker has to climb above the level of the guardrail protecting against falls from the top of the landing. A standard ladder cage meets this requirement. However, a better protective feature is a safety climb device which consists of a vertical member mounted to the ladder and a sliding device mounted to an attachment point on the front of a

safety harness. A fixed ladder higher than 22 feet that lacks either a cage or safety climb device may still be climbed by using a personal fall arrest or fall restraint system. In this case, at least two safety lanyards, one of which must remain attached to the ladder at all times, must be used. If a third lanyard (a position lanyard) is used, at least one safety lanyard must still remain attached at all times.

Man-lift Operations, Scissors Lifts, Simon Lifts, Etc.

Workers operating or riding in, scissor lifts, Simon lifts, and other similar lifts are subject to potential fall hazards if the lift lurches or if the occupant is knocked out of the lift. For this reason, each occupant in a lift requires a personal fall arrest system or fall restraint system. The lanyard shall be attached to an approved attachment point on the lift (never structure outside the lift) and to the approved harness attachment point at the occupant's upper back. An adjustable lanyard shall be used and shall be adjusted so as to prevent the worker from falling out of or climbing out of the device.

Roof Inspections

The fall protection requirements do not apply to assessments of workplace conditions prior to the actual start of construction work or assessment of workplace conditions after all construction work has been completed.

Assessments (Not Involving Work) on Low Slope Roofs (Less Than or Equal to 4 in 12, Vertical to Horizontal)

- Fall arrest systems, positioning systems, or guardrail systems shall be used if possible. If there are no attachment points available, or the fabrication of temporary guardrails would provide a greater fall exposure to workers than a short-term inspection, the following precautions shall be taken:
- Exposure without fall protection shall be kept to a minimum.
- Workers shall not perform inspections alone (a safety monitor shall be used).
- Inspections shall not be performed within six feet of roof edges that present potential falls of 25 feet or more.

Assessments (Not Involving Work) on Steep Roofs (More Than 4 in 12, Vertical to Horizontal)

Personnel shall be protected by a fall arrest system, positioning system, or guardrail system, if they are inspecting an area of roof where a slip and resultant fall would result in a potential fall of six feet or more.

Roof Work

Personnel engaged in roofing activities on low-slope roofs, with unprotected sides and edges six feet or more above lower levels shall be protected from falling by one of the following:

- Guardrail systems
- Warning line system and safety net system

- Warning line system and personal fall arrest system
- Warning line system and safety monitoring system.
- Each worker on a steep roof with unprotected sides and edges six feet or more above lower levels shall be protected from falling by one of the following:
 - Guardrail systems with toe boards
 - Safety net systems
 - Personal fall arrest systems

Walking/Working Surfaces Other Than Roofs

Personnel on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge that is six feet or more above a lower level shall be protected from falling by a guardrail system, a safety net system, or a personal fall arrest system.

- Workers constructing a leading edge six feet or more above lower levels shall be protected from falling by a guardrail system, a safety net system, or a personal fall arrest system. If the employer can demonstrate that this is infeasible or creates a greater hazard, then a written fall protection plan is allowed. However, OSHA “presumes” feasibility without a greater hazard and places the burden of proof on the employer. Therefore, the use of a fall protection plan is considered a last resort and should be approved by the site manager.
- Workers on a walking/working surface six feet or more above a lower level where leading edges are under construction, but who is not engaged in the leading edge work, shall be protected by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is used, and a controlled access zone has been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge.
- Workers on walking/working surfaces shall be protected from falling through holes, including skylights, more than six feet above lower levels by personal fall arrest systems, covers, or guardrail systems erected around the holes.
- Workers on walking/working surfaces shall be protected from tripping in or stepping into or through holes by covers and from objects falling through holes by covers.
- Workers on formwork and reinforcing steel shall be protected from falling six feet or more to lower levels by personal fall arrest systems, safety net systems, or position device systems.
- Workers on ramps, runways, and other walkways shall be protected from falling six feet or more to lower levels by guardrail systems.
- Workers working at the edge of excavations six feet or more in depth, where the excavation is not readily seen because of plant growth or other visual barriers, shall be protected from falling by guardrail systems, fences, or barricades.

- Workers at the edge of a well, pit, shaft, or similar excavation six feet or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers.
- Workers less than six feet above dangerous equipment shall be protected from falling into or onto the dangerous equipment by guardrail systems or by equipment guards.
- Workers six feet or more above dangerous equipment shall be protected from fall hazards by guardrail systems, personal fall arrest systems, or safety net systems.
- Workers working on, at, above, or near wall openings where the outside bottom edge of the wall opening is six feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface, shall be protected from falling by one of the following:
 - Guardrail system
 - Safety Net System
 - Personal fall arrest system

If workers are exposed to falling objects they shall wear a hard hat and at least one of the following additional measures shall be implemented:

- Erect toe-boards, screens, or guardrail systems to prevent objects from falling from higher levels.
- Erect a canopy structure to keep potential falling objects far enough from the edge of the higher level so they would not go over the edge if they were accidentally displaced.
- Barricade the area, to which objects could fall, prohibit workers from entering the barricaded area, and keep objects that, may fall far enough away from the higher-level edges so that they would not go over the edge if they were accidentally displaced.

Fall Protection Equipment Inspections

All fall protection equipment shall be inspected for the following minimum items on a semi-annual basis (include any additional items recommended by the manufacturer of each piece of equipment):

- Inspect all pieces of equipment for cuts, abrasions, or damage.
- Check for worn parts or damage to any parts of buckles, D rings, or straps.
- Ensure that buckles are of the hook-and-eye type, except that locking bar type buckles are allowed on the leg straps only.
- Ensure that fall arrest lanyards are equipped with a deceleration device, and labeled for fall arrest use (plain ropes, wires, or straps without fall arrest devices shall not be used for fall arrest).

- Ensure positioning lanyards do not have a deceleration device and that manufacturer's name is clearly visible on the product.
- Ensure that all lanyard latch hooks are of the double locking snap hook design (lanyard hooks without a safety latch are not authorized) and that they function properly.
- Ensure that rope material used as lifelines or as a portion of lanyards is a minimum of ½ inch continuous filament nylon rope and that there are no cuts, nicks, or knots, or parted segments, variation in size or roundness, or evidence of deterioration.
- Ensure the total length of any fall arrest lanyard does not exceed 6 feet.
- Ensure that metal or polypropylene thimbles are used at both ends of the lanyard where the rope connects to the snap hooks or to the safety harnesses and that these thimbles are in good condition.
- Ensure that the snap hooks on the lanyards are metal and stamp forged or tested by the manufacturer.

Leather belts and lanyards are not allowed (leather padding is permitted).

A manufacturer's tag must be attached to all commercial equipment, including harnesses, both fall arrest and positioning lanyards, ladder climbing devices, and related hardware such as rope grabs. This manufacturer's tag serves to prove that the equipment meets ANSI specifications.

Training Requirements

City personnel shall not wear fall protection equipment unless they have been trained as outlined in this section.

Chapter 37 RETURN TO WORK

Purpose

A Return-To-Work (RTW) Program allows the City of Cocoa to retain experienced employees who can continue to be productive and contributing while helping to minimize Workers' Compensation costs.

General

Each division / department shall establish an RTW program for employees injured on-the-job. This program will not normally exceed an eight (8) week period (case dependent) and shall include light or modified duty, part-time duty, modification of the work site or equipment, or an alternate job within the capabilities of the injured worker.

When injured employees return to work, supervisors must carefully monitor the employees work to ensure that all restrictions are enforced and adhered to. This supervision not only allows employees to continue working, but also serves to ensure that the employees does not suffer additional injuries due to their restrictions and that the original injury is not further aggravated.

Job Analysis of Modified Duty Positions

Department Directors and Managers in conjunction with Human Resources shall develop job modification guidelines within their work areas to enable employees to return-to-work early. Jobs should be modified so that the employee is seen as an asset and a productive worker. Job modification possibilities include, but are not limited to:

- On-Site Modification – Modification of the injured employee’s worksite or equipment so that it will not aggravate the injury, (i.e. lower a workbench, bring in a special chair, etc.)
- Task Reassignment Modification – A listing of positions throughout all departments that involve light duty work for which an injured employee can relocate with minimal or no retraining.
- Relocation Modification – Relocate the employee’s pre-injury / illness task to a more convenient location, (i.e. no long distances to walk, stairs to climb, etc.).
- Limited Workshift Modifications – A listing of positions that involve light duty that may be accomplished within a shortened workday, (i.e. 2 hours per day, mornings only, afternoons only, etc.).
- Job Restructuring Modification – Change the way the job is performed, (i.e. use of equipment for lifting or moving, etc.).

The return of injured employee to any job, modified or otherwise, is contingent upon the consent of the healthcare provider, but shall be pursued by the Safety/Risk Program Manager.

Modified jobs are temporary, NOT PERMANENT positions.

Responsibilities

Designated Physician

Under Floridas’ Workers’ Compensation Law, the employer has the right to choose the authorized treating physician or medical provider. If an employee objects to the City’s choice of physician and requests another, the employee is eligible for a one-time change; however, the choice of the alternate provider is also that of the City’s.

It should be noted that the City of Cocoa shall exercise its right to choose the health care provider. Under no circumstances, shall the employee be given the choice of healthcare providers except when given the choice from a list of healthcare providers that has already been established and approved by the City of Cocoa.

The Safety/Risk Program Manager will establish a list of healthcare providers. The list will include emergency room facilities for emergencies or after hours purposes.

If it is necessary for an employee to seek medical attention after hours, then the employee must report the visit at the earliest possible time. The designated Emergency Room shall be used.

The Safety/Risk Program Manager in concert with the Third Party Workers' Compensation Administrator (TPA), will coordinate the services and responsibilities of the healthcare provider as they pertain to Workers' Compensation and the City's Return-To-Work Program. Those services and responsibilities will include:

- Review the City's RTW program philosophy and policies.
- Review the modified job dut descriptions for each injured employee.
- If necessary, schedule and complete a site visit for the modified duty.
- Help to establish a referral system for Specialists
- The referral system should include among others: Osteopaths, Chiropractors, Podiatrists, Optometrists, Ortopedist, and Dentists.
- Review the City's RTW program philosophy and policies and the modified duty job descriptions with Specialists before referring employees.

Excess Carrier / Third –Party Claims Administrator (TPA)

It will be the responsibility of the Safety/Risk Program Manager to coordinate the RTW Program with the City's third party administrator. This coordination shall include but not be limited to:

- Review the City's philosophy and policies in regard to the RTW program.
- Coordinate and maintain communication with the healthcare providers, as established by the city.
- Establish a "checks and balance" that requires the TPA to notify the City's Safety/Risk Program Manager before deviating from the established referral system.
- When necessary, coordinate and schedule an annual site visit for accidents resulting in a claim.
- Coordinate and schedule an annual site visit especially of departments with high claims.

Workers' Compensation Salary Schedule

- If your doctor says you cannot work, because of your work-related injury or illness, you should receive money equaling 66 2/3% of your regular wages at the time you were hurt, subject to a statewide maximum reimbursement amount.
- You will not receive temporary disability benefits for the first 7 days of disability, unless you are disabled more than 21 days due to the work-related injury as determined by the authorized doctor.
- Certain severe injuries may entitle you to 80% of your regular wages for up to 6 months after the accident.

When the doctor states you can return to work with restrictions, you may be eligible to receive Temporary Partial Disability Benefits if you are unable to earn 80% of the wages you were earning at the time of your accident. It should be noted that any employee who refuses a modified job duty that has been approved by the healthcare professional may result in suspension of lost wage benefits.

RTW Program Recovery System

The Safety/Risk Program Manager, in cooperation with Department Supervisors, may assign an injured employee to perform appropriate duties within the city. The assignment shall be based on the employee's capabilities and with the concurrence of the healthcare provider.

The Safety/Risk Program Manager shall contact the employee and notify them of the City's interest in their return-to-work and that there is a temporary position for them to fill.

The Supervisor shall closely monitor the progress of the injured employee who has returned to work.

Such supervision not only allows employees to continue working, but it also allows supervisors to discover when work restrictions may be lifted with the concurrence of the healthcare provider.

Any suggested increases or decreases in duties should be referred to the Safety/Risk Program Manager.

The Safety/Risk Program Manager will notify the healthcare provider of the supervisors observations and suggestions.

It is the responsibility of the injured employee to establish, track, and keep scheduled Doctor appointments.

The injured employee will keep both his Supervisor and the Safety/Risk Program Manager informed of any doctors appointments.

Failure to make and/or report Doctor appointments may result in disciplinary action.

It is in the best interest of the employee to give full participation and cooperation with the City's RTW Program.

Based on the case review, the healthcare provider shall make the appropriate recommendations to the injured employee and their Department Director regarding the work load of the injured employee.

Monitoring and Evaluating the RTW Program

Safety/Risk Program Manager Responsibilities

- Elicit and document feedback from employees, supervisors, management, healthcare providers, and the third-party administrator.
- Assess employee morale; analyze productivity and document findings.
- Complete a comparison of lost time days prior to the implementation of the program, with similar statistics after the program has been in place for one quarter.
- Analyze the workers' Compensation costs before and after program implementation.
- Review loss run reports before and after the implementation of the RTW program.

Safety Committee Responsibilities

- Assess and evaluate all information and reviews regarding the RTW program.
- Review and evaluate modified duty positions.
- As necessary, review individual cases and actions taken.
- Make specific and appropriate recommendations to resolve any problems or concerns.