

## Mechanical contractor safety guidelines—best practices



The following information is provided to assist policyholders in the development or improvement of safety programs. This information can be used as minimum safety guidelines for your company to follow in an effort to improve employee safety, driver selection and vehicle maintenance and inspection. Risk control consultants from United Fire Group (UFG) are available to assist you in safety program development and the implementation of safety guidelines and procedures.

### Workers compensation

#### Management responsibilities

- Company safety rules should be developed and provided to all employees. All employees should be required to review these rules and be documented as reviewed with their signature.
- Personal protective equipment (PPE) should be made available to all employees. Each job should be reviewed prior to starting work in order to determine the appropriate PPE to be provided. All employees should receive training in the proper use of PPE.
- Minimum written guidelines and procedures should be developed and followed to control losses from workplace or worksite exposures. Suggested “best practices” are provided by UFG in this technical bulletin.
- All drivers should be screened for competence and safe driving records.

#### Personal protective equipment

- A program of identification and selection of required PPE should be developed.
- Documentation of employee training in the use and maintenance of required PPE is on file.
- PPE should include, at minimum: hard hats, safety glasses, proper work attire, work boots and gloves, as necessary.
- A hearing conservation program should be implemented where high noise levels are encountered.
- A written respiratory protection program with worksite-specific procedures should be implemented at any workplace or worksite where respirators are required to protect the health of the employee or are required by the employer.

#### Fall protection

Each employee on a walking/working surface with unprotected sides or edges and over six feet from a lower level shall be protected by guardrail systems, safety net systems, personal fall arrest systems or warning lines. In addition, safety monitors may be used in certain circumstances.

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## Mechanical contractor safety guidelines—best practices

### **Guardrail systems**

- The top edge of the guardrail should be 42 inches plus or minus three inches.
- Mid-rails, screens, mesh or intermediate structural members should be installed between the top edge of the guardrail system and walking/working surface when there is no wall or parapet wall at least 21 inches high. If vertical structures are used such as balusters, they should be spaced no more than 19 inches apart.
- Guardrail systems shall be capable of withstanding, without failure, 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.
- Guardrails used on ramps and runways shall be erected along all unprotected sides and edges.

### **Safety nets**

- Safety net systems use should comply with all provisions of CFR 1926.
- Safety nets should be inspected prior to each use and installed by competent persons.
- Safety nets, if used, should be installed as close as practicable under the working surface, on which employees are working, but in no case more than 30 feet below such level.
- Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to drop-test specifications as outlined in CFR 1926.

### **Personal fall arrest systems (PFAS)**

- This is a system to arrest a falling employee from a working level and consists of an anchorage, connectors and a body harness. PFAS may also include a lanyard, deceleration device, lifeline or suitable combination of the above.
- An inspection of PFAS should be completed prior to each use.
- Connectors such as D-rings and snaphooks should be drop forged and corrosion resistant with a minimum tensile strength of 5,000 pounds.
- A competent person should install and inspect all PFAS daily with employees who will be using such systems.
- All employees who use PFAS shall be trained and documented.
- PFAS should comply with all provisions of CFR 1925.

### **Warning line systems**

- Warning lines may be used on roof perimeters where work is completed to warn employees that they are approaching an unprotected roof side or edge.
- The warning line shall be installed no less than six feet from the roof edge when mechanical equipment is not used.
- The warning line shall be installed no less than six feet away when working with mechanical equipment parallel to the line and no less than 10 feet when working with mechanical equipment perpendicular to the line.
- Mechanical equipment may not be used or stored outside of the warning line.

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## Mechanical contractor safety guidelines—best practices

### **Safety monitoring systems**

- A competent employee trained to recognize and warn employees of potential fall hazards shall be the only one allowed to act as a safety monitor.
- The safety monitor shall be on the same working level in visual sighting of roofers and close enough to verbally warn approaching employees of potential fall hazards or unsafe actions.
- The safety monitor shall have no other duties or responsibilities, while acting in this capacity.
- Mechanical equipment shall not be used or stored in areas where safety monitoring is being provided.

### **Ladders**

- Extension ladders must be tied and secured at the top, placed firmly on level ground at the bottom and side rails must extend a minimum of 36 inches above the roof edge.
- Extension ladders must be placed so the distance of the foot to the wall is one-fourth (1/4) the length of the ladder to the roof edge.
- Ladders should be inspected each day prior to use.
- Defective ladders should not be used and repairs should not be attempted. If defective, the ladder should be tagged and discarded.

### **Aerial lift equipment**

- Only authorized persons shall operate an aerial lift.
- Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.
- Belting off to an adjacent pole, structure or equipment while working from an aerial lift platform shall not be permitted.
- Employees should always stand firmly on the floor of the basket and should not sit or climb on the edge of the basket or use planks, ladders or other devices for a work position.
- Boom and basket loads, as specified by the manufacturer, shall not be exceeded.

### **Manual material handling**

- Assessments of manual lifting tasks should be completed for anticipated loads that need to be lifted by employees.
- Lift training and enforcement with documentation of training is on file.
- Two-person lifts are completed where necessary.
- Adequate and appropriate mechanical equipment is in use with approved/certified equipment operators.
- Mechanical equipment inspection and maintenance should be completed.

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## Mechanical contractor safety guidelines—best practices

### ***Energized equipment controls***

- Evaluation of exposure to energized equipment while completing maintenance, service, setup or installation should be completed prior to each job.
- An electrical lockout/tagout (LOTO) program should be implemented at all times when plant or equipment maintenance is to be completed.
- A system of locks and tags should be developed with identification of personnel trained and authorized to place and remove the locks or tags.
- Authorized persons only should be assigned keys for locks.
- All employees should be required to attend LOTO training. UFG risk control consultants are available to assist you.

### **Commercial auto**

#### ***Driver hiring and screening***

The following requirements should be implemented to assist with employee selection and screening:

- A state Motor Vehicle Record (MVR) should be obtained at the time of hiring and reviewed by management. The review should be completed by management to determine a prospective employee's prior driving history. MVR reports should be updated annually and maintained on file for all drivers. Drivers who have a history of speeding or other violations are more likely to have future violations than a driver with a clean record. Sample MVR evaluation programs are available from your UFG risk control consultant.
- A written drug testing program, developed with legal assistance, should be in place for all drivers and can include all non-driver employees, as well. The written program should be reviewed with all employees and signed. Results of drug tests should be maintained in confidential files.
- Reference checks of past employers should be obtained. Past references should not be solely relied on when hiring, but obtained only as one portion of the overall hiring procedure.

#### ***Cell phone use***

- Cell phones and hands-free devices are to remain off while the vehicle is moving.
- Voice mail should handle all calls. Return them when the vehicle is stopped and safe.
- Violation of cell phone use will result in disciplinary action and possibly immediate termination.

#### ***Vehicle inspection and maintenance***

- All vehicles should be maintained on a regular basis. Preventative maintenance should be completed following the minimum guidelines provided in vehicle manuals by the manufacturer. Vehicle maintenance files should be in place for each unit. Any work completed by your company mechanic, driver or outside garage should be recorded in the maintenance file.

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- Periodic vehicle inspections should be completed by drivers using a checklist covering critical vehicle and equipment items. Any items identified during the inspection that require maintenance should be repaired prior to the vehicle going back on the road. A procedure should be in place to ensure that prompt follow-up maintenance is completed and documented.
- Management should complete a periodic review of maintenance files and inspection checklists to ensure the program is being followed.

### **General liability controls**

The controls needed to ensure a safe installation include management programs prior to starting work, employee and subcontractor controls on the job site, and procedures during and after installation.

The following are general requirements for mechanical contractors:

- **Management controls:** Management controls include, but are not limited to, plan review, approval of change orders, review of quality control specification sheets, and legal review of contracts, if acting as a subcontractor.
- **Subcontractor controls:** Minimum requirements when using subcontractors include a written contractual agreement. The agreement should include requirements for certificates of general liability and workers compensation insurance, additional insured status, and indemnity agreements, including waiver of subrogation and hold harmless.
- **Quality control:** Minimum requirements for installation, service, and repair include testing, inspecting and documentation. Work completed on pressure vessels and associated piping require more rigorous testing and inspection procedures, as well as documentation.

### **Summary**

Safety does not just happen and needs to be practiced every day. The information provided above should not be considered as all-inclusive safety programs and procedures to be followed. This information is the minimum safety practices or guidelines to assist you in the development of a safety program for your operation.

UFG risk control consultants are available to help you with technical assistance as outlined in this safety guidelines and best practices bulletin. If further assistance is required, please call the UFG risk control department at 800-828-2705.

### **Related references**

CFR 1926 Personal protective and life saving equipment

CFR 1926 Scaffolds

CFR 1926 Aerial lift platforms

CFR 1926 Fall protection

CFR 1926 Stairways and ladders

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