



The University of Arizona has a comprehensive U of A Risk Management Services and Loss Prevention Program. This program contains provisions and requirements for establishing scheduled safety inspections of buildings, grounds, equipment, and University vehicles. For more information and the official University of Arizona documentation and procedures on this subject please go to <https://risk.arizona.edu/insurance/deductible>.

OSHA also has provisions and requirements for Safety Inspections. For more information on these provisions go to <https://www.osha.gov/laws-regs/regulations/standardnumber/1926/1926.20>.

As a guide for Steward Observatory employees, we have included in this manual a non-comprehensive guide for making routine safety inspections of observatory facilities. It is our policy that all operational observatory facilities will be inspected by at least one Safety Representative at least twice per year. Where there are continuous or unabated safety infractions, inspections will be made on a more frequent basis. A copy of this guide is provided for your convenience below.

Safety inspections should be conducted of all Steward Observatory Facilities at least twice per year, and more often if there are unabated safety infractions. The inspections should be conducted by at least one authorized Safety Representative, preferably with a member of management or a site Safety Representative in attendance.

Pre-inspection discussion:

1. Safety concerns . . . what is the most unsafe job?
2. What is the department attitude towards safety?
3. Is there a lockout/tagout program and is it used?
4. Are there confined space issues, hazmat issues, etc?

A. Telescope Inspection:

1. Look for, loose wires, possible pinch points, lockout/tagout devices, oil leaks, cryogenic safety (proper connectors, gloves, long sleeves, face masks, etc), telescope movement lights or sirens, fall protection devices, including tie off points, and guard rails.
2. Look or listen for extended loud noise levels, flammable liquids exposed, unsafe ladders, access issues, control issues, sharp points or corners, unguarded belts or pulleys, etc.

B. Machine Shop Inspection:

1. Look for unguarded belts and pulleys, loose wires, machines too close to each other, oil leaks, housekeeping, fluid disposal, two hand control buttons, emergency shut off switches, safety glass availability and use by operators and visitors, access to electrical panels, evidence of lockout/tagout, air nozzles over 35 lbs. for cleaning, slippery conditions, availability of first aid kit and telephone.



2. Check steel storage racks, parts bins and general condition of machines and equipment. Are hazardous metals being machined? If so, are there proper precautions in place. Check grinding wheels for aluminum build up, and proper spacing of tool rests and eye shields.

For more information and the official University of Arizona documentation and procedures on this subject please go to: <https://risk.arizona.edu/occupational-safety/shop-safety>

C. Vehicle Inspection:

Includes cars, trucks, forklifts, cranes, snow plows, tractors, etc.

1. Check overall appearance and condition.
2. Check brakes, lights, turn signals, horns and back up warning systems.
3. Look for worn tires, missing parts, crane inspection certificates, worn, leaking, or gashed hydraulic hoses.
4. Be sure chains and lifters are in good shape on the cranes.
5. Do road graders and other highway vehicles have slow moving warning signs or revolving lights that work?
6. Do all vehicles have fire extinguishers, and small safety kits with first aid items?

D. Fall Protection:

1. Are there proper tie off points for employees working at heights?
2. Does each employee have his/her own full body harness and is there a record of each inspection for each harness?
3. Are there records of inspections of other fall protection equipment?
4. Has each employee attended a Fall Protection Training course and submitted a copy of their certification to their Safety Representative for their records?
5. Is there a Fall Rescue Plan documented at your facility?

E. Housekeeping:

1. Are floors maintained in a clean, safe dry manner, with no holes or protrusions such as nails, slippery areas, or tripping hazards such as extension cords?
2. Is equipment stored properly, at least 18 inches from the ceiling in sprinkler system areas and not in aisles?
3. Are eating areas and bathrooms cleaned and sanitized on a regular basis?

F. Electrical:

1. Look for blocked electrical panels and shut offs, extension cords being used in place of permanent wiring, and flexible electric cords without strain relief.
2. Are all boxes, feeder and branch circuits identified at the outlet and in the panel box?
3. Are boxes and/or breakers equipped with lock holders for lockout/tagout?
4. Are cords or wires run through walls without approved conduit?



G. Compressed Gas:

1. Look for cylinders to be chained to walls or in approved standing containers.
2. Are cylinders marked properly and do they have safety relief valves?
 - Cylinders should not be stored in hallways, corridors, near flammables, or combustibles.
3. Is hydrogen being used and if so, is it in a well-ventilated area and being kept at a safe distance from flammable gases and people?
4. Are rules concerning transportation of gases being followed?

H. Welding Areas:

Welding should only be done in a well-ventilated area, away from flammables. Only approved welding equipment in good condition should be used and should have anti-flash back valves installed.

1. All welders must attend a Welding Safety Training Course and submit a copy of their certification to their Safety Representative for their records.
 2. Cylinders must be kept in approved carts or containers.
 - Acetylene cylinders shall be stored with the valve end up.
 - All cylinders that are not in use shall have valve protection caps in place, especially when being moved.
 - When moving cylinders, work is finished, and the welder has left the area, all cylinder valves should be closed.
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- Proper safety equipment in good, safe condition, including gloves and welding safety eyewear or helmets must be used.
 - Precaution must be taken to assure that visitors to a welding area cannot look at the flash or be exposed to it without proper equipment.

I. Signs and Labels:

1. Are there proper exit signs, equipment warning signs, chemical labels, in use signs, fire extinguisher location signs, safety eyewear warning signs, etc. visible and in the proper locations?

J. Fire Safety:

1. Look for current inspection stickers on fire extinguishers.
2. Check for accumulations of trash and flammable materials, weeds and debris.
3. Is there a fire alarm system and/or smoke detectors?
4. If there is a furnace, are there carbon monoxide detectors?
5. Are routine tests for fire apparatus and fire drills performed and documented?
6. Has there been training on proper usage of a fire extinguisher and a list of approved persons to handle extinguishers?



K. Forklift and Crane Safety:

1. Check equipment, approved certifications, approved operator lists, and look for leaking hydraulic hoses or cylinders.
2. Is there an approved man lift or safety platform with guard rails and can it be secured to the forklift mast?
3. Check the fork pins, stops, cowling, body cage, and tires for wear.
4. Are the forks in the lowest position when the forklift is parked and not in use?

L. Security:

1. Check fences, locks on doors, windows etc.
2. Are there after-hour workers and good parking lot lights?
3. Is there an alarm system and does it go to police directly?

M. Stairs and Handrails:

1. Are the stairs painted to indicate a level change?
2. Are handrails located at the right height?

N. Ladders:

1. Check all ladders for proper feet, damage, OSHA approval in electrical shop, etc.
 - Wood ladders should not be painted because paint can mask problems.

O. Portable Hoists and Winches:

1. Look for current certification; is wire rope connected properly, cable spooling properly, and are weight limits marked?
2. Is there an inspection log for the hoist?
3. Check associated slings, chains and web straps are in good condition and have regular inspection.

P. Fuel Tanks:

1. Check to see if there are barricades, proper signage, vents, and emergency shut off valves?
 - If it is underground, is it due for removal or is it a double tank?
 - If it is above **ground**, is it a double tank or is it located in a spill proof container?
2. Are there leak test valves in the external tank? If so, at each inspection perform a leak test by opening the valve to see if fuel leaks out.



Q. Used Oil Management:

All telescopes and laboratories use oil and grease which must be disposed of properly.

1. Check that the facility has a plan and accurate records on the disposal of all used oil and grease.
2. Check that new oil and greases are stored properly.
3. Are old oils in drums in spill proof containers?

R. Chemicals:

There should be specially made flammable liquid storage cabinets for oil-based paints, thinners and solvents.

1. Look for proper storage of chemicals and other flammable compounds.
2. Are there persons trained to handle chemicals?
3. Is there an updated GHS (Global Harmonization System) manual in the vicinity of chemical usage?
4. Is there a policy to receive a current SDS (Safety Data Sheet) from the vendor selling the product, to the person using it, and have updated SDS's been placed in the GHS manual located in the vicinity of use?

S. Respiratory Protection:

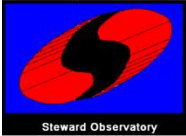
1. Identify areas that might require respiratory protection.
2. Check respirators are available and being fitted and used properly.

T. Lasers:

1. Are lasers being used and if so, what class are the lasers?
2. Are there proper protections in place for the class of laser being used?
3. Verify a laser safety program is initiated and identifies who is authorized to use lasers and where.

U. General:

1. Is asbestos or lead-based paint an issue and is there a management plan for dealing with it?
2. Are there workers who must go in confined spaces and if so, is there a program for safety in place?
3. If it is in a remote place, are there person's always available, trained in first aid, or a certified EMT?
4. Check for first aid cabinets in all areas where there are likely to be cuts and injuries, such as machine shops, shipping areas, or repair facilities.



References:

Abrasive wheels 29 CFR 1910.215
Compressed gases .101, .252
Electrical installations .301
Emergency lights .261
Exits and egress .37
Fire extinguishers .157
Hazard communication .1200
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