

Greenhouse Safety Survey

Signs and Postings

<i>Reference</i>	<i>Question</i>	<i>Risk Ranking</i>
Fire Code OSHA 1910.145(f)(3) Lab Standard 1910.1450 App A	Are the notice board hazard warning labels and the emergency call list up to date?	LOW - 1
Corrective Action	Per UF policy the greenhouse must have a notice board posted at the entrance containing two (2) contacts which includes after-hour emergency phone numbers (one of the contacts must be the PI), laboratory hazard warning labels and required PPE. Notice boards and hazard warning labels are provided by EH&S free of charge. Please contact labsafety@ehs.ufl.edu to request needed items.	
Florida Administrative Code 5E-14.147	Are warning signs posted when pesticides are in use, and do those signs include date/time to safely access the area?	LOW - 1
Corrective Action	Warning signs must be posted outside the greenhouse when pesticides are in use to communicate the hazard to others working in the area. Warning signs should include the date/time it will be safe to access the greenhouse. Pesticide warning signs are provided by EH&S free of charge. Please contact labsafety@ehs.ufl.edu to request needed items. Signs are also available for download on the Greenhouse Safety Program website: https://www.ehs.ufl.edu/departments/research-safety-services/chemical-and-lab-safety/greenhouse-safety/	

Chemical Inventory

<i>Reference</i>	<i>Question</i>	<i>Risk Ranking</i>
Prudent Practices, General Chemical Hygiene Plan	Has the greenhouse chemical inventory been created, reviewed, updated within the last year?	MODERATE - 2
Corrective Action	All UF entities must maintain an accurate inventory of all chemicals including pesticides and herbicides within the Gator TRACS system. Inventories must be updated on an annual basis.	
EH&S Policy	Is the chemical inventory accurate as determined by an on-site audit?	MODERATE - 2
Corrective Action	The chemical inventory was found to be an inaccurate representation of the chemicals in the greenhouse. All UF entities must maintain an accurate inventory of all chemicals, including but not limited to pesticides and herbicides within the Gator TRACS system. Inventories must be updated on an annual basis.	

Chemicals Hazard Questions

<i>Reference</i>	<i>Question</i>	<i>Risk Ranking</i>
General Chemical Hygiene Plan	Are all chemicals used in the greenhouse (other than pesticides) stored in a secure location with restricted access?	MODERATE - 2
Corrective Action	To limit the risk of accidents and exposure - chemicals, including pesticides and herbicides should not be stored in greenhouses. Please speak with your department building manager on where chemicals and pesticides can be stored securely.	
40 CFR Part 170 (?) FDACS Chapter 487	Are personnel using the pesticides/herbicides in the greenhouses certified and authorized to do so?	LOW - 1
Corrective Action	Any individual utilizing or applying pesticides or herbicides needs to be authorized. Individuals applying pesticides must be able to provide certification for application and use of such materials.	
Florida Administrative Code 5E-14	Are pesticides stored in a secure area only accessible by certified personnel?	MODERATE - 2
Corrective Action	All pesticides must be stored in a secure area that is only accessible by those individuals who are trained (certified) in pesticide application.	
OSHA 1910.132	Is hazard specific PPE available (gloves, eye protection, hearing protection, etc.) and stored in a way to prevent damage or contamination?	HIGH - 3
Corrective Action	Refer to specific SDS for hazardous chemicals being used in the greenhouse. Personnel Protective Equipment (PPE) should be worn in accordance with the safety data sheet (SDS) when working with hazard specific chemicals/items/equipment. The OSHA regulation requires a hazard assessment be completed whenever PPE equipment is necessary. Personnel are responsible for knowing the location and proper use of the PPE they are required to use. The Principal Investigator or supervisor shall determine and provide the appropriate PPE.	

Physical Hazard Questions

<i>Reference</i>	<i>Question</i>	<i>Risk Ranking</i>
EHS Policy	Are there broken/cracked or otherwise damaged glass panes present in the greenhouse?	HIGH - 3
Corrective Action	Broken/cracked or otherwise damaged glass and plastic panes used in greenhouse construction has the potential to cut, puncture or harm persons working in the greenhouse. Unsecure siding can also cause damage to equipment. All damaged panels should be replaced as soon as possible. A work order will need to be placed with your Facilities Services Team.	
OSHA 1910.22(c)	Are all walkways at least 18 inches in width?	MODERATE - 2
Corrective Action	To maintain emergency egress, all walkways in the greenhouse must be a minimum of 18 inches.	
OSHA 1910.22 Prudent Practices	Are all walkways free of trip hazards including plumbing, hoses, electrical wires or extension cords, and other debris?	HIGH - 3

Corrective Action	All walkways must be free and clear of debris and tripping hazards. This includes but is not limited to plumbing, hoses, electrical wires, extension cords, trash, tools, supplies and other equipment. All cords, cables and hoses should be unplugged and spooled when not in use to reduce tripping hazards. In instances where more than one type of flooring is utilized in the greenhouse, these two surfaces cannot have a height difference great than one (1) inch.	
29 CFR 1910.212(a)(5)	Are all pieces of mechanical equipment including fans, motors, and blades equipped with appropriate guarding?	HIGH - 3
Corrective Action	All fans within 7 feet of the greenhouse floor need to have a machine guarding in place with openings no greater than ½ inch in width. All belt driven fans require a belt guard with no opening larger than ½ inch and cannot have damage that would interfere with the rotating assembly. To replace or secure a fan guard, a work order will need to be placed with your Facilities Services Team.	
OSHA Housekeeping 1915.81 EHS Policy	Are there “Wet Floor” signs, or other means to communicate the hazard present, posted in irrigated greenhouses where standing water could be present?	MODERATE - 2
Corrective Action	In greenhouses where irrigation can result in standing water, a “Wet Floor” sign or other means to communicate the hazard should be posted to notify all individuals entering the greenhouse that there is a potential slip hazard.	
EHS Policy	Are all rusted metal surfaces in good condition, with no compromised integrity?	HIGH - 3
Corrective Action	Rust on metal surfaces that compromises the integrity of the structure, support, equipment, etc. must be replaced immediately. A work order will need to be placed with you Facilities Services Team.	
OSHA 1910.23	Are portable ladders being used safely and in accordance with manufacturer guidelines and training?	MODERATE - 2
Corrective Action	All ladders need to be used in accordance with the manufacturer guidelines. All ladder users must complete Ladder Safety Training EHS818. Any ladder with structural defects must be immediately removed from service.	
OSHA 1910.243	Are hand/power tools stored properly and in good condition?	MODERATE - 2
Corrective Action	Any hand/power tools used in the greenhouse need to be stored in a manner that prevents rust, contamination and other possible damage. Any tools with defective components or obvious damage must be immediately removed from service.	

Electrical Hazard Questions

<i>Reference</i>	<i>Question</i>	<i>Risk Ranking</i>
OSHA1910.334(a)(2)(i) OSHA 1910.303 (c)	Are electrical cords in good condition showing no signs of damage, fraying, or tampering?	HIGH - 3
Corrective Action	All electrical cords must be in good condition and not show signs of damage, fraying or tampering including separation from their plugs or connectors. Exposure to humidity and UV light can reduce the longevity of electrical cords and they should be inspected on a regular basis to reduce the risk of electrical failure, shock or fire. PVC tape is not an acceptable fix for a damaged electrical cord. The damaged cord will require complete replacing or repair by a licensed professional.	

NEC 210.8	Are outlets ground fault circuit interrupter (GFCI) protected? If not, are outlets covered with a (weatherproof) cover?	HIGH - 3
Corrective Action	Outlets within 6 feet of a sink are required to be on a GFCI. All other outlets within the greenhouse that are not GFCI need to be protected with a cover to reduce exposure to humidity and water. A work order will need to be placed with your Facilities Services Team.	
EHS Policy	Are the timers being used UL or NRTL listed and there are no 2 to 3-prong adapters being used?	HIGH - 3
Corrective Action	2-prong adapters are prohibited. All timers, including irrigation timers, must have 3-prongs and be either UL or NRTL listed. Industrial grade timers with a higher current draw are required to be installed by a qualified electrician and will require a permit through EH&S Building Codes division.	
OSHA 1910.305(b)(2)	Are all openings (on breaker panels, receptacle boxes, faceplates) in electrical enclosures and fittings appropriately plugged or covered?	HIGH - 3
Corrective Action	Openings on electrical panels and boxes were not sealed. Submit a work order for repairs. A work order will need to be placed with your Facilities Services Team.	
EHS Policy IFAS Policy	Are heaters and/or chillers in compliance with existing policy?	HIGH - 3
Corrective Action	Thermostats for heaters and chillers must have a cover installed and all connections enclosed where low voltages can be exposed. Strain relief is required for standard voltage wiring. Portable space heaters are not allowed in IFAS greenhouses per UF IFAS Policy. For other areas, electrical space heaters must be UL listed or Factory Mutual approved for the intended use, have a thermostat to automatically shut down, have tip-protection (will shut off when knocked/tipped over) and only oil-filled electric radiator space heaters are approved.	
OSHA 1910.305(g) OSHA 1910.303(b)(2) NEC 400.8(1) – 2014	Are extension cords only used temporarily (not as permanent wiring) and are extension cords/power strips never daisy-chained to each other?	HIGH - 3
Corrective Action	OSHA regulations and fire codes prohibit the use of extension cords as a substitute for fixed wiring. Extension cords are only to be used for temporary wiring and should be unplugged and put away between uses. Please find an alternate means of supplying power and remove the extension cord from service as soon as possible. If additional power outlets are needed, submit a Work Order to your Facilities Services Team. Extension cords are designed to carry a certain amount of current over a fixed distance (length of the cord). Extension cords, power strips and surge protectors are not allowed to be connected to each other. Surge protectors with longer cords should be purchased.	

General/Other Questions

<i>Reference</i>	<i>Question</i>	<i>Risk Ranking</i>
EHS Policy	Are entrances to the greenhouse kept closed?	MODERATE - 2
Corrective Action	All greenhouse entrances are to be kept closed, especially during non-work hours or when no one is actively working. If any doors or latches are damaged, a work order will need to be submitted to your Facilities Services Team.	
EHS Policy	Is the greenhouse free from personal plants?	LOW - 1
Corrective Action	Only plants intended for research or teaching are allowed in the greenhouse. Personal plants are not to be stored/grown/propagated in research greenhouse facilities.	
OSHA 1910.1450 (h) (i) Prudent Practices in the Laboratory 6.C.3	Are all chemical containers (including pesticides and fertilizers) appropriately and clearly labeled with their contents, in good condition, and closed when not in use?	MODERATE - 2
Corrective Action	<p>All containers must be clearly labeled with their contents regardless of contents and in good condition (not corroded or leaking). Containers holding chemicals, regardless of hazard, should be capped and securely closed when not actively in use. Parafilm and aluminum foil are not sufficient caps or seals. If a container must have tubes going into it, holes may be drilled into a cap to allow for the tubes. Unlabeled containers found in the greenhouse must be identified and labeled. If the contents are not known, affix a hazardous waste label and list the contents as "unknown." Submit a hazardous waste pick-up request to EHS Hazardous Materials Management as soon as possible: https://www.ehs.ufl.edu/forms/hazardous-waste-forms/.</p> <p>Materials in containers found in the greenhouse with deterioration and/or in poor condition need to be transferred to another container, or discontinue the use of improper containers. Fertilizers (granular or in solution) should be stored in a leak proof container to limit the risk of runoff. If the fertilizer's original container can be easily damaged (for example: paper or plastic easily damaged by UV) then it should be stored in a secondary leak-proof container. Expired chemicals must be disposed of or reassessed for usability in accordance with UF Policy.</p>	
EHS Policy	Is weed growth in gravel beds/walkways less than 50% coverage?	MODERATE - 2
Corrective Action	Weed growth should not exceed 50% coverage in gravel beds. Remove weeds from the greenhouse by either chemical or physical means and dispose of all plant material appropriately.	
EHS Policy	Is the greenhouse free from pests such as ants, wasps, rodents, etc.?	MODERATE - 2
Corrective Action	Contact EH&S with all pest management issues at (352) 392-1591.	
OSHA 1915.81	Does the greenhouse have good housekeeping (work surfaces and storage areas are uncluttered and orderly)?	MODERATE - 2
Corrective Action	Good housekeeping practices should be used in the greenhouse (should be kept clean and organized). The greenhouse must be maintained clean and free of clutter. Adequate space must be provided between benches, cabinets, and equipment to facilitate cleaning.	