

UNIVERSITY OF MINNESOTA

Twin Cities Campus

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June 23, 2011

TO: Ed Welsch, Coordinator CFAN, Blanca Martinez Scientist
Biosystems Ag Engineering

FROM: Mike Maurer, Public Health Specialist DEHS

RE: Occupational Safety and Health Assessment, Building 334
Biosystems and Ag Engineering,

CC: Mike Austin, AD DEHS, Paul Serafini OHS

This report is an occupational safety and health and assessment of building 334, Biosystems and Ag Engineering, on the St. Paul campus.

This report is based on a site visit conducted by Mike Maurer, Department of Environmental Health and Safety on Friday, May 013, 2010. The visit was made at the request of Ed Welsch and Bianca Martinez. The purpose of this visit is to determine the level of compliance with MNOSHA program compliance, machine guarding, electrical safety, flammable and hazardous chemical storage and housekeeping within the building.

Executive summary:

A review of the facility indicates the following potential program violations.

- 1. OSHA postings.** The mandatory OSHA poster was not displayed and was not available in any of the spaces within the facility.
- 2. AWAIR.** I did not observe any program materials in any areas within the spaces. Several different departments and the solar care project group use the building for R and D and lab space but no program information was available
- 3. Minnesota Employee Right To Know.** No MSDSs or SOPs or lab safety plan information was available or observed at the time of this site visit.
- 4. Hearing conservation.** There are no documented noise exposure evaluations. There are several shops within the building with bench grinders, table saws, miter saws and similar equipment that present the potential for hazardous noise exposure. There are no noise hazard warning signs in these areas.
- 5. Lock out/Tag out.** . There are machines that would require lockout during routine maintenance and service work, but no locks tags or lockout appliances were observed.
- 6. Personal Protective Equipment.** N-95 respirators, welding hoods and other protective equipment were observed on benches, shelves and the floor in several locations within the building. OSHA requires that all PPE must be maintained and kept in a clean and sanitary condition.

7. **Powered Industrial trucks and Skid steers.** A propane fueled forklift is in use within the facility. I did not observe certification and operator training documents for staff operating that operate this machine.
8. **Respiratory Protection.** Respirators are in use within the building. DEHS has no record of respiratory hazard evaluation, inclusion in a respiratory protection program, medical evaluation and fit testing of staff. At a minimum, voluntary use of N-95 respirators requires staff be given 29 CFR 1910.134 appendix D before use.
9. **Woodworking Machinery Requirements.** Each circular table saw must be equipped with a hood that covers the blade and the portion of the saw above the material being cut, a spreader bar and anti-kickback fingers that prevent material kick back towards the operator. Radial arm saw blade hoods must cover the upper portion of the blade and the lower exposed portion must be guarded by a device that automatically adjusts to the material being cut and remain in contact with the stock. Additionally, radial arm saws require an automatic return mechanism. In the wood shop and the solar car project lab, these guards are missing or are discarded and the self-return mechanism is missing from the radial arm saw.
10. **Electrical Safety and Flexible Cord use.** Missing and broken conduit, switch covers and exposed wires were observed in several locations throughout the facility and extension cords are being used as substitutes for permanent wiring in many areas. In the solar car project office, extension cords are hung from pipes identified as asbestos containing.
11. **Hazardous Materials Management.** Chemical management in the building does not comply with the maximum allowable amounts for the building classification. Chemicals in room 320D are stored in unapproved steel cabinets. The chemical inventory and quantity on hand is posted on the door of each cabinet, however the total amount and types of hazardous chemicals and flammables in the lab could not be inventoried. The shops and garage areas and solar car lab do not have adequate chemical storage. In-use chemicals are left on the benches, shelves and in unapproved metal cabinets throughout the facility. Bulk containers are stored in unapproved metal cabinets, open shelves or on the floor.

Unapproved plastic gasoline containers can be found in the shops, solar car lab and garage areas. 1b and 20 lb. propane tanks are being stored in the solar car lab office as well as other solvents and chemicals used in fiberglass fabrication. Unknown and unlabeled chemicals are housed in several side rooms and store rooms throughout the building, and the total quantities of flammable liquids and the types of chemicals in the shops, garage and solar car lab could not be accurately estimated but are probably above the maximum allowable quantities per building classification.

12. **Housekeeping.** Housekeeping is a concern throughout the facility. There are trash accumulations and unknown combustibles in the shops areas, solar car lab, mezzanine and 2nd floor rooms. Abandoned and leaking motors can be found in several locations within the building as well as used lead acid batteries and other hazardous waste accumulations. Used oil, bulk oil drums and other liquids are stored on pallets without secondary containment and are not labeled.

The solar car project lab has accumulations of food, trash, used chemicals, propane and flammable liquids in both the shop and the “office” area. It would also appear that this space is being used as a living area for the lab occupants.

13. **Overhead Crane.** A gantry crane is located in the main equipment bay. Inspection and maintenance documentation was not observed.

Corrective Actions

Post the required MNOSHA “6 in One” poster in an area where staff congregates.

Provide AWAIR, ERTK, Respiratory Protection Program, Personal Protective Equipment, Hearing Conservation, Lock-out Tag-out, and Powered Industrial truck written programs, including training materials, records of training and powered industrial truck certifications to DEHS for review.

Provide a lab safety plan or an ERTK program for room 320B to DEHS and OHS for review.

Provide a lab safety plan or an ERTK program for the solar car project to DEHS for review.

Provide a safety plan for woodworking and metalworking equipment including training materials and records of training to DEHS for review. Restrict access to the machines until the safety plan has been reviewed. Remove from service the metal shop lathe and milling machine until the start/stop control switches are relocated, by qualified electrical staff, to positions where the operators can safely reach them while in position at the point of operation.

Provide MSDSs in the labs and shop

Comment [M1]: SOPs are required for high hazard operations

Remove from service all metal and woodworking equipment with missing guards, spreaders and anti-kickback devices including the radial arm saw in the solar project lab, until such time as they are repaired or replaced.

The overhead crane must be tagged out of service until it can be inspected by a qualified vendor and a maintenance program is established.

Remove from service all cord and plug equipment with broken coverings, insulation and missing strain relief until such time as they are repaired or replaced by qualified electrical staff.

Remove all extension cords fastened to the building and fixtures. If electrical services is needed install permanent wiring.

Remove all cords, wire, rope and hangers from the asbestos containing pipes in the building.

Remove all accumulations of trash and combustible materials from mezzanine areas, shop areas and solar car lab.

Provide a hazardous substance and flammable materials inventory of all chemicals used in the building. The allowable quantities of Class IB flammable liquids stored in a non-sprinklered class B occupancy building with 1 control area is 120 gallons for the entire facility. Approved safety cabinets may be used to increase the allowable quantity, however, until installation of the cabinets the flammable liquid inventory must be reduced to the allowable quantity.

Remove all unapproved flammable storage containers (plastic gasoline containers) and replace them with approved metal cans.

Use approved waste storage and disposal methods to reduce and remove the hazardous waste. Label all bulk waste containers with the contents, and provide secondary containment as well. Develop a hazardous waste storage and removal plan for the facility.



Response






A written response to these comments is requested within 14 days. Your response can be added to this document and returned to Mike Maurer by email at maure017@umn.edu. Please use the subject line of this report as the subject line of the email.






Questions/Comments




Questions regarding the inspection, the contents of this report or the required response can be directed to Mike Maurer at (612) 624-6454 or by email to maure017@umn.edu

Observations and Corrective Actions

Item #	Safety Hazard	Description of Observation and Specific Location	Required Corrective Actions	Photo (if applicable)	ROC Corrective Action Taken (to be completed by appropriate ROC staff)
1.	Electrical Safety	Large milling machine in machinery bay has damaged and exposed electrical wiring.	Replace/repair electric wiring by qualified electrical staff		
2.	Electrical Safety	Un approved wire splices, electrical code violations in 320.	Replace wiring and conduit per code.		
3.	Electrical Safety	Woodshop panel cutter wiring is bare in several spots, and possibly grounded to metal frame. The plug end insulation is broken	Immediately remove from service and repair or replace.		
4.	Electrical Safety	Abandoned and possible live wires in woodshop area.	Immediately remove or lock out wiring.		
5.	Electrical Safety	Woodshop area, flexible wiring fixed to wall behind sink.	Remove flexible cord from behind sink. Verify GFCI installed on circuit		

6.	Electrical Safety	Mezzanine area, exposed and broken wires and plugs on fans.	Remove fans from service until repaired or replaced with approved wiring.		
7.	Entanglement hazard	Metal machining shop. Stop/start switch is located behind lathe on the wall. Operator must reach over the machine to operate switch.	Immediately remove lathe from service, until start/stop switch is relocated to front of machine.		
8.	Machine guarding	Solar car lab, abrasive wheel grinder tool rest out of adjustment.	All abrasive wheel grinders must be equipped with a tool rest which is constantly adjusted to within 1/8 inch of the wheel and tongue guards (sometimes known as spark deflectors) which are adjusted to within 1/4 inch of the wheel.		
9.	Machine guarding	Guard missing on horizontal band saw. Exposed in running nip point between belt and motor sheave.	Replace/fabricate guard.		
10.	Right to Know and chemical safety	Throughout the facilities, but specifically in the shop area, there were numerous unlabeled containers of oil, oil filters, etc.	Ensure that all hazardous chemical containers are labeled with the trade name of the chemical, and a hazard warning. Hazardous waste such as oil filters must also be appropriately labeled.		

11.	Flammable Liquid storage	Garage area, Mezzanine area, Solar car lab. Plastic containers are not approved for gasoline storage.	Replace with approved metal safety cans.	 	
12.	Fire Extinguisher	Fire extinguishers in large bay not mounted on wall	Inspect and mount all fire extinguishers on the walls and near doorways. Maintain a clear space at and around each extinguisher.		
13.	Fire Extinguisher	Fire extinguisher in solar car lab not mounted on wall	Inspect and mount all fire extinguishers on the walls and near doorways. Maintain a clear space at and around each extinguisher.	 	
14.	Housekeeping	Trash and unknown material accumulation within building, shop areas and solar car lab.	Remove trash and unknown material accumulations.	 	

15.	Machine Guarding	Exposed drive shaft near stop/start switch on mill in machine shop is in close proximity to stop/start switch posing an entanglement hazard.	Immediately remove from service until stop/start switch is relocated away from shaft.		
16.	Machine Guarding	Solar car lab, the craftsmen radial arm saw does not self-retract to its original starting position when released by the operator. Both the contractor saw and the radial arm saw are missing spreader bars and anti-kick back pawls. The contractor saw is missing guards.	<p>Replace blade guards and anti-kickback devices. Install approved counterweights or other means to ensure the radial arm saw's cutting head gently returns to starting position when released by the operator.</p> <p>All woodworking equipment must have safety features, such as a magnetic switch, to ensure that he machine does not unexpectedly start at the conclusion of a power outage.</p>		
17.	Respiratory Protection	Respiratory protection is being used in the shops areas, and the Solar car lab. Provide evaluation of respiratory hazards to identify the need, or lack of need, for a program.	Contact DEHS for assistance with respiratory hazard identification.		
18.	Personal Protective Equipment	Personal Protective Equipment in the wood shop area is not being maintained in working and sanitary condition.	Replace all worn and broken PPE. Instruct staff on care and maintenance of this equipment.	