

Safety Manual > ME Lab Checklist

Safety Checklist For Research and Teaching Labs (Class C)				
Mechanical Engineering Labs				
<p>This Checklist is for Class C (NFPA Classification) labs that are used for instruction and in research. Please note that there are several differences in the checklist requirements between research and teaching (instructional) labs that must be considered. Also, Class A and Class B lab units are higher hazard labs that must have special considerations in construction and operation. These higher hazard labs are not covered in this checklist. If your lab has more flammables than permitted in Class C labs, it will have to be reclassified to one of the higher classifications. Check with the Office of Occupational and Environmental Safety if your flammable liquid totals exceed the maximums shown in this checklist. (A “Laboratory Unit” consists of the rooms used for lab work and administration, but rooms must be contiguous. It can range in size from a single room to an entire floor or building.)</p>				
Item	Yes	No*	Description	Comments
1			Are floor surfaces free of tripping/slipping hazards caused by broken tiles, wet surfaces, or other problems?	
2			If grounds are associated with the lab, are they in safe condition with no holes, broken pavement, or protrusions that create hazards?	
3			Where stairs are used by lab personnel, are they safe with no missing or worn treads and clear of storage or debris?	
4			Are partitions, where installed, set up with emergency egress considered so that no interference is present?	
5			Are all electrical equipment items used in test or experiment setups adequately grounded to prevent electric shock? (Grounding is normally set up through the third conductor in the cord sets or three wire conductor cables.)	
6			Where activity with portable tools and/or cords is in a wet area, are ground fault circuit interrupters used (unless the tools are double insulated)?	
7			Are fuse and breaker boxes labeled with the identity of circuits served? Are fuse box doors closed?	
8			Are extension cords or temporary wiring adequately sized to carry the expected electrical load (wattage)?	

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9			Are first aid kits available and their whereabouts known by all personnel?	
10			Where caustics or acids used, are eye washes/safety showers available and serviceable?	
11			Are new students/instructors trained in safety procedures upon assignment to the lab? Before new experiments with injury potential are set up, are students/researchers briefed on the hazards, and methods to guard against them discussed?	
12			Are fire extinguishers located within 25' of your shop? Are they mounted and of the proper type for the location?	
13			Are evacuation plans posted? Have emergency procedures been discussed with students/instructors?	
14			Is sprinkler head clearance of 18" maintained all around?	
15			Do manual alarms (pull stations), emergency lights, and heat/smoke detection system appear to be in working order? Are exit lights unobstructed? Are both bulbs lit?	
16			Are power tools in good condition (cords, housing)? Are they UL approved? If not double insulated, is the 3rd prong intact?	
17			Are hand tools in good condition with no burrs or mushroomed heads?	
18			Are all tools properly stored when not in use?	
19			Is proper personal protective equipment available and used at all times? Are students/instructors trained to use PPE as tasks or procedures change?	
20			Are respirators being worn if the work requires their use?	
21			Is there adequate aisle space and turning room for power and hand trucks? Are speed limits posted?	
22			Are the rated capacities on cranes and hoists visible and adhered to? Are the hooks in good condition and not stretched?	
23			Are all cables, ropes, slings and chains in good condition with no fraying, bends or kinks in cables or ropes and no stretching in chains, cables or ropes?	
24			If a fork lift is in use, is the area properly ventilated? Are safe operating instructions posted? Are all flammable/combustible materials kept away from charging equipment?	

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25			Are all belts, pulleys, gears, shafts, points of operation, and nip points guarded? Are push sticks available where necessary? Are all oil/grease spills/leaks cleaned up immediately?	
26			Is the lockout/tagout program being followed?	
27			Are aisle lines for machines and worker spaces painted and adhered to? Lines around stock areas?	
28			Are all areas such as painting, welding, cutting, battery charging, storage and chemical handling posted against smoking?	
29			Are proper lifting techniques being followed?	
30			Are flammable liquid storage cabinets being utilized for the storage of flammable materials (paints, solvents, oils, etc.)?	
31			Are parts washers used? If so, are all safety devices functional?	
32			Are all original and subsequent containers of hazardous materials labeled with precautionary information? Are all storage cabinets and other storage areas also labeled in the same manner?	
33			Are chemical stored by hazard class and compatibility?	
34			Are Safety Data Sheets (SDS) available in each lab?	
35			Are compressed gas cylinders with a health hazard of 3 or 4 kept inside a continuously mechanically ventilated hood or other enclosure with no more than 3 cylinders per enclosure?	
36			Are there no more than 6 compressed gas cylinders (10×50 in.) of flammable gas or oxygen per 500 sq. ft. (3 in nonsprinklered space); no more than 3 liquified flammable gas cylinders (9×30 in.) per 500 sq. ft. (2 in non-sprinklered space); and no more than 3 cylinders (4×15 in.) of health hazard rating 3 or 4?	
37			Are compressed gas cylinders capped when not in use and secured at all times?	
38			Is there an up-dated chemical inventory of hazardous materials?	
39			Are standard operating procedures used to identify known hazards? Are prescribed safety guidelines followed?	

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40		Are all compressors and other pressurization equipment (air or hydraulic) regularly inspected for safety defects such as tank integrity, check valve function, pressure guage function, hose condition, etc.?	
41		In areas where hazardous vapors, dusts, and/or fumes are generated (fume hoods, welding hoods, canopy hoods, etc.) is local ventilation used?	
42		Where storage cabinets and/or safety cans are not used, is the amount of Class I, II and III flammables in the lab unit less than the maximums per 100 sq. ft. shown below? Research Teaching Labs Class I (Flash Point < 73, Boiling Pt.<100F)—— 2 gallons 1 gallon Class I, II, and III (Flash Pts. < 73- 200F)———4 gallons 2 gallons	
43		Where storage cabinets and/or safety cans are used, is the amount of Class I, II, and III flammables in the lab unit less than the maximums per 100 sq. ft. shown below? Research Teaching Labs Class I (Flash Point < 73, Boiling Pt.<100F)—— 4 gallons 2 gallons Class I, II, and III (Flash Pts. < 73- 200F)———8 gallons 4 gallons	
44		Is the total quantity of flammables in the laboratory unit less than the values below? <u>Note: Use one half of these values for a teaching lab.</u> Sprinklered No Sprinklers Class I totals No safety cans/cabinets 150 gallon 75 gallons With safety cans/cabinets 300 gallons 150 gallons Class I, II, III tot. No safety cans/cabinets 300 gallons 150 gallons With safety cans/cabinets 400 gallons 200 gallons	
45		During daily use, is the storage of class I & II liquids limited to 10 gallons when located outside of a storage cabinet? 60 gallons for class III liquids? 25 gallons for class I & II liquids when stored in safety cans outside of storage cabinets?	
46		Are flammable liquids containerized properly according to the table below? Container Type Flammable Class	

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 Engineering Labs

			IA IB IC II III Glass 1pt 1qt 1gal 1gal 1gal Metal 1gal 5gal 5gal 5gal 5gal Safety Can 2gal 5gal 5gal 5gal 5gal Polyethylene 1gal 5gal 5gal 60gal 60gal	
47			Are flammable liquid storage cabinets being used properly? Flammable Class Max. Storage Capacity Class I, II total 60 gallons Class I, II, III total 120 gallons	
48			Is a second means of exit provided when one or more of the following conditions exists? <ul style="list-style-type: none"> • Explosion hazard blocks escape or access to work area. • Lab work area exceeds 1000 sq. ft. • A hood is located adjacent to the primary means of exit access. • A compressed gas cylinder (larger than lecture bottle size) is in use that contains a gas that is flammable or has a health hazard rating of 3 or 4, and could prevent safe egress in case of accidental release of contents. • A cryogenic container is in use that contains a gas that is flammable or has a health rating of 3 or 4, and could prevent safe egress in case of accidental release of contents. 	

* “No” answers must be accompanied by comments that explain corrective action needed

Report completed by:

Title:

Laboratory Room #:

Building:

Date of Report: