

QUEST SELF-ASSESSMENT CHECKLIST For LABS

GENERAL SAFETY

Are interlock test procedures posted or readily available? Are interlock systems tested at least twice yearly when equipment is active (posted record of test or notes of inactivity within the last 6 months)?

Are current work authorizations posted or readily available for experiments that require them? Are lists of authorized personnel up-to-date? Are there experiments, clean-up/construction projects, or other non-routine operations with significant hazards that might need a documented hazard analysis and work authorization?

Do all entrances to labs have signs next to doors describing hazards, PPE requirements, and contact people? Are there any outdated or non-standard signs? **Contact the Area Safety Lead to update door signs. Check bulletin boards and remove any outdated materials.**

Is appropriate PPE (eyewear, lab coats, gloves, etc.) conveniently available, properly stored, and in good condition in areas where it is required? Are closed-toed shoes worn in all lab areas and safety shoes worn where heavy or sharp objects could cause injury?

Are food and beverages kept out of areas where chemicals are stored or used? Is there a conveniently located non-technical area where food and beverages are allowed to be consumed?

Are sharp cutting tools (razor blades, scalpels, knives, etc.) stored with the blade covered? Are there red sharps disposal containers available near areas where sharps are used? (Note any full containers that need to be picked up.)

Check the chairs in your area. Are there any damaged or defective chairs or stools that need replacement?

EMERGENCY PREPAREDNESS

Have up-to-date emergency evacuation routes and assembly areas been posted?

Are there any outdated or non-standard signs that need to be removed? Check bulletin boards and remove any outdated materials.

Are copies of the Emergency Response Guide (red/orange/yellow flip chart) posted? Is the site specific information (red tabs in the Guides) filled out and correct? **Tip: contact Pat Thomas for copies of the Emergency Response Guide.**

Talk to your Building Emergency Team Leader(s):

- Are there Emergency Team members assigned to sweep each area that may need to be evacuated?
 - Have Emergency Team members completed required training?
 - Has the Building Emergency Team held or scheduled a hands-on drill during FY15 (in addition to the Lab-wide earthquake exercise)?
 - Do all team members know how to use the emergency radio?
 - Is there an up-to-date list of Building Emergency Team members?
 - Is there a current Building Emergency Plan available?
 - Do all team members know where the nearest trauma kit and emergency equipment box are located? Does the Emergency Team Leader have a key to the emergency equipment box? Are the supplies in the Trauma Kits and Emergency boxes adequate and up-to-date? ? Have you received the small, clear plastic Trauma Kits?
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Are aisles, walkways, stairways, and exit doors unobstructed? Is the area free of tripping hazards?

Check the area outside your building. Are there any burned-out lights, tripping hazards, worn or damaged steps, or other conditions that make walking hazardous? Are there any areas where traffic / bicycle / pedestrian safety could be improved?

Have all heavy objects that could fall during an earthquake been secured safely (no bungee cords)?

Is fire extinguisher access unobstructed? Are the types of fire extinguishers appropriate to the type of fire you might have in the areas (A= ordinary combustibles, B=flammable liquids, C=electrical, D=metals)?

Have eyewashes and safety showers been inspected within the last 3 months? Are they in good condition? Is access unobstructed? Are eyewashes located so that someone with chemicals in their eyes would be able to reach the eyewash within 10 seconds?

Are there adequate numbers and appropriate types of spill kits (e.g., flammable, acid, and base) available in work areas where they may be needed?

Where emergency egress lights are easily reachable without climbing ladders, test by depressing button. Are all emergency lights, including any illuminated EXIT signs and laser signs, in good operating condition?

Are there any types of lab work in your area that should not be performed alone? This might include work with significant hazards where a person might become so severely injured that they could not summon help, work in a location where a person would not be seen if they were incapacitated, or work by people who are inexperienced or unfamiliar with the area. Does your group have documented rules for any work that should not be performed alone?

EQUIPMENT GUARDING & SAFETY

Does any laboratory equipment have reasonably accessible points of operation, pinch and nip points, rotating parts, and flying chip or spark hazards that may expose an employee to injury? (Examples include presses, heat sealers, polishers, cutting equipment, and rotating transmission components such as belt drives, gears, and rotating shafts over 10 rpm.) Have all these hazards been guarded to prevent injuries:

- Points of operation (cutting, shaping, boring, bending, punching, etc.)?
- Power transmission apparatuses (pulleys, belts, flywheels, couplings, cams, spindles, chains, cranks, gears, etc.)?
- Nip and pinch points?
- Hot surfaces?
- Entanglement hazards?
- Chips/flying materials, splashes, or sparks?

Do the guards themselves pose a safety hazard?

Tip: See ES&H Manual Chapter 25, Appendix C for examples or contact Mike Wisherop for assistance.

If there are manufacturer's maintenance and operating procedures, are they being followed?

For laboratory-made equipment, have maintenance and operating procedures been developed?

ELECTRICAL SAFETY

Is access to electrical panels, including breaker boxes and disconnects, unobstructed? Is the working space for accessing electrical panels and electrical equipment at least 3' wide x 3' deep x 6.5' high? (Note: equipment >150V will require additional clearance – contact a QEW to check).

Does each electrical panel have a schedule posted nearby indicating the purpose of all breakers and disconnects? Are all breakers and disconnects numbered or otherwise identified?

Are electrical panels and breaker boxes in good condition (intact, screws in place, door latches work, no materials stored on top)?

Are all wall-mounted plug strips, receptacles, and outlets in good condition?

Are labeled ground fault circuit interrupters (GFCIs) located on electrical outlets near water outlets and other areas where they may get wet? Is electrical equipment that is within 6 ft. of a safety shower/eyewash, sink, or other source of splashing either rated for use in a wet environment or protected by a GFCI?

Test your GFCIs. Testing a GFCI is very simple and can be done safely by anyone. Apply a load (plug something in) to the GFCI, press the TEST button. Does the power trip off? Press the RESET button. Does it come back on? Are any of the buttons stuck?

Are power / extension cords in good condition (3-conductor plugs with ground prongs in good condition, no frayed insulation or exposed wiring, no evidence of modification)? Are unused extension cords unplugged and rolled up and stored properly?

Are power/ extension cords used properly (appropriate for the load, covered with a bridge if in walkways);

NOT:

- rapped over furniture or fire sprinkler lines, d
 - xtending through doors or windows, e
 - ttached to walls with staples, a
 - sed to support the weight of equipment, u
 - ore than 2 extension cords attached together? m
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Are relocatable power taps (plug strips) in good condition and used properly?

NOT:

- sed outdoors, u
 - onnected to another power tap or more than 1 extension cord, c
 - ermanently attached, p
 - onnected to equipment over 600 Watts/5 amps (such as heaters, cooking appliances, or fans) unless specifically rated for the load? c
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Have any extension cords been in use for longer than 1 month?

Are cable trays properly grounded and used correctly (not overfilled, electrical and water lines separated, not used for flexible cords or extension cords)?

Are all unused openings (including conduit knockouts) in electrical enclosures and fittings closed with appropriate covers, plugs, or plates?

Are portable metal ladders clearly labeled "Do Not Use Around Electrical Equipment" and kept away from areas where the ladder or person using the ladder could come in contact with energized equipment?

Are electrical conduits free of attached cord, lines, equipment, decorations or other materials?

Is electrical equipment on metal carts or tables bonded, and grounding provided for metal carts used for electrical equipment?

Is someone assigned and trained to survey non-NRTL electrical equipment in your area? Is there any non-NRTL equipment that has a potential of 50 Volts or greater anywhere in the equipment that has not been inspected and approved by the Electrical Equipment Inspection Program?

Is portable electric equipment and accessories rated for circuits and equipment to which they will be connected? (Check the equipment nameplate for rating information. This will typically include voltage, amperes, and wattage.)

CHEMICAL SAFETY

Are floors and work surfaces free of chemical residues?

Are chemical containers and gas cylinders in good condition (not leaking, rusted, dented, etc.)?

Are chemical containers and gas cylinders labeled with name of chemical contents and hazard?

Have chemicals been entered into the Chemical Management System? (Check for a barcode on the container or on a Multi-Container Inventory Sheet posted nearby.) Have chemicals >1 gallon inside equipment been inventoried (bar code on Multi-Container inventory sheet, or entered into Hazards Management System database)?

Do workers know how to find and use Material Safety Data Sheets / Safety Data Sheets?

Pick a chemical container or gas cylinder. Ask a worker in the area to show you the MSDS/SDS and identify the hazards of the chemical.

- Does the worker know what an MSDS or SDS is?
 - Can they quickly produce a current MSDS/SDS (either hard copy or from the website)?
 - Can they find the hazard information?
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Are chemicals and gases stored properly?

Examples:

- Acids separated from bases?
 - Corrosives (acids and bases) separated from flammables and toxics?
 - Acetic acid stored with flammables?
 - Flammables >10 gal. stored in flammables cabinet?
 - Flammables and gas cylinders protected from heat and sources of ignition?
 - Stored in approved containers, tightly closed and covered when not in use?
 - Containment pans under liquids?
 - Gas cylinders secured by metal bracket, top and bottom chains, or on a cart secured to prevent rolling or tipping?
 - Regulators removed from gas cylinders not in use?
 - Chemicals and gases stored away from stairs and exits?
 - Overhead storage shelves equipped with shelf lips or latched doors?
 - Hazardous liquids stored away from sinks and drains?
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Are ventilation systems uncluttered (air flow not blocked)? Is there a sticker indicating ventilation systems have been inspected and tested within the last two years?

Have potential lead hazards been identified and controlled (lead bricks and shielding covered, lead not needed for shielding removed from work areas, no old paint peeling or chipping)?

For cryogenics, has the Oxygen Deficiency Hazard been evaluated?

HAZARDOUS WASTE and SATELLITE ACCUMULATION AREAS

Are nitric acid wastes being generated that may require bench- top treatment (reaction mixture or aqueous solutions >5% HNO₃ by weight, 0.8M, or pH <1, or any organic or metal contaminants)? Is there an approved bench top treatment procedure in place?

Is the Satellite Accumulation Area (SAA) near the point the where the waste is generated? Can access to the SAA be controlled by the responsible person (locked up or within visual contact from work area?)?

Has an SAA sign been posted at each hazardous waste accumulation area? Has the sign been filled out completely and accurately with the name of the responsible person, building/room, telephone number, and type of waste?

Is there a Hazardous Waste label attached to each container? Is the label filled out with the name and phone number of the generator, building/room location, type of waste, hazards, waste form (solid/liquid), and accumulation start date?

Are there any wastes that have been in the SAA for more than 9 months?

Are all waste containers in good condition (not leaking, bulging, etc.)?

SUSPECT/COUNTERFEIT PARTS

Do key personnel know how to identify and report suspect parts? (How long since they received training?)

Are periodic inspections of facilities, equipment, spaces and parts stocks being conducted to identify suspect parts?

Are high strength fasteners (bolts, nuts, screws, and washers) certified and controlled since purchase? Are certifications for installed high-strength fasteners available for review?

Are the following types of items assessed for possible suspect/counterfeit parts when received through procurement or obtained from other groups:

- High-strength fasteners (bolts, nuts, screws, washers);
 - Electrical/electronic components (circuit breakers, current and potential transformers, fuses, resistors, switch gear, overload and protective relays, motor control centers, heaters, motor generator sets, DC power supplies, AC inverters, transmitters, computer components, semiconductors);
 - Piping components (fittings, flanges, valves and valve replacement products, couplings, plugs, spacers, nozzles, pipe supports);
 - Pre-formed metal structures;
 - Elastomers (O-rings, seals);
 - Spare/replacement kits from suppliers other than the original equipment manufacturer;
 - Weld filler material;
 - Diesel generator speed governors; and
 - Pumps?
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LAB WORK BEHAVIOR OBSERVATIONS and DISCUSSION

(NOTE: Any observations of unsafe behaviors should be noted without using names of people observed – just note the location.)

Lifting: tests weight before lifting; gets help with large/awkward items; avoids awkward body positioning; bends knees when lifting; avoids bending over, twisting, overextending; checks path for hazards before carrying. Note any potential problems you observe for follow-up by ergonomist:

Repetitive Motion: Plans work and gets help before taking on extended repetitive tasks. Takes breaks as needed to prevent overuse injuries. Re-evaluates when workload or schedule changes. Note any potential problems you observe for follow-up by ergonomist:

PPE: wears protective equipment required in the area and appropriate to the job. Consider eye/face protection (goggles, face shield, safety glasses), gloves, hearing protection, foot protection, respiratory protection, clothing (lab coat, coveralls, apron).

Procedures: plans work, identifies hazards, ensures controls are effective, gets permits/work authorizations, checks condition of equipment before using, follows written procedures, obeys signs, performs LOTO when needed, leaves equipment and work area in clean and safe condition.
