Health and Safety Program Manual

Department of Materials Engineering

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# Emergency and Safety Contacts

**EMERGENCY:** 

**911**

**Police | Fire | Ambulance | Hazardous Spill**

|  |  |
| --- | --- |
| **NON-EMERGENCY** | |
| RCMP | 604-224-1322 |
| Vancouver Fire and Rescue | 604-665-6010 |
| BC Ambulance Service | 604-872-5151 |
| **SECURITY & PERSONAL SAFETY RESOURCES** | |
| Campus Security (Vancouver) | 604-822-2222 |
| AMS SafeWalk | 604-822-5355 |
| **FIRST AID RESOURCES** | |
| Closest Defibrillator | [www.srs.ubc.ca](http://www.srs.ubc.ca) |
| UBC Faculty, Staff, and Student Workers | 604-822-4444 |
| UBC Students | 911 or Student Health at UBC Hospital 604 822-7011 |
| Visitors | 911 or Urgent Care at UBC Hospital 604-822-7222 |
| **SAFETY RESOURCES & SAFETY & RISK SERVICES CONTACTS** | |
| MTRL Local Safety Team Faculty Co-Chair (Bé Wassink) | 604-822-2662 |
| MTRL safety information | <http://mtrl.ubc.ca/safety/> |
| Sexual Violence Prevention and Response (SVPRO) | 604-822-1588 |
| Report an Accident or Incident | [www.cairs.ubc.ca](http://www.cairs.ubc.ca) |
| Asbestos Safety | 604-822-8772 |
| Biological and Radiation Safety | 604-822-4353 |
| Chemical Safety | 604 827-3409 |
| Emergency Management & Business Continuity | 604-822-1237 |
| Health and Safety - Faculty of Medicine | 604-827-1982 |
| Health and Safety - Student Housing and Hospitality Services | 604 827-2671 |
| Health and Safety - Facilities | 604 822-1885 |
| Safety & Risk Services | 604-822-2029 |
| Safety Programs | 604-822-6513 |
| Student Health | 604-822-7011 |
| Equity and Inclusion | 604-822-6353 |
| Counseling Services | 604-822-3811 |
| Ergonomics | 604-822-9040 |
| Occupational Hygiene | 604-822-6098 |

**Documented Health and Safety Program**

**Regulatory Compliance**

The Occupational Health and Safety Regulation ([OHSR](https://www.worksafebc.com/en/law-policy/occupational-health-safety/searchable-ohs-regulation/ohs-regulation/part-02-applications)) requires that an employer with a workforce of 20 or more workers have an Occupational Health and Safety Program that includes the following:

(a) A statement of the employer's aims and the responsibilities of the employer, supervisors and workers.

(b) Provision for the regular workplace inspection to ensure that prompt action is undertaken to correct any hazardous conditions found.

(c) Appropriate written instructions, available for reference by all workers.

(d) Provision for holding periodic management meetings for the purpose of reviewing health and safety activities and incident trends, and for the determination of necessary courses of action,

(e) Provision for the prompt investigation of incidents to determine the action necessary to prevent their recurrence.

(f) The maintenance of records and statistics, including reports of inspections and incident investigations, with provision for making this information available to the joint committee or worker health and safety representative, as applicable.

(g) Provision by the employer for the instruction and supervision of workers in the safe performance of their work.

**Use of this Manual**

This document will assist Administrative Heads of Unit develop their Health and Safety Program. Once completed, the documented program must be available to all unit personnel. The manual must be reviewed annually to ensure regulatory requirements are up to date.

This template provides all the necessary content to ensure your unit has all the elements of a functional health and safety program Throughout the document there is unit specific information, demarcated in [red font], that you are expected to fill in. You are encouraged to provide additional information to enhance your health and safety program. However, a health and safety program manual that has had modifications made to it, must be sent to [safety.programs@riskmanagement.ubc.ca](mailto:safety.programs@riskmanagement.ubc.ca) for review.

This document will assist university administrative units achieve the intended outcomes of the University’s Occupational Health and Safety (OH&S) management system. Consistent with University [Policy SC1- Occupational and Research Health and Safety](https://universitycounsel.ubc.ca/policies/index/), the intended outcomes of an OH&S management system include:

1. continual improvement of OH&S performance;
2. fulfilment of legal requirements and other requirements;
3. achievement of OH&S objectives.

If there are any questions regarding the development of your Unit’s Health and Safety Program manual, please contact the Safety & Risk Services (SRS) Safety Program Advisor at 604-822-6513

# Element 1: Health and Safety Policy

The University of British Columbia (UBC) is committed to providing a safe, healthy, secure and environmentally friendly workplace and learning environment for its employees and students. An effective Health and Safety Program that follows the continuous improvement cycle of Plan, Do, Check and Act will foster a positive culture into the working and learning experience at UBC. Through cooperative efforts of workers, supervisors and management within the Department of Materials Engineering (MTRL), we will be able to carry out the objectives of [Policy SC1: Occupational and Research Health and Safety](https://universitycounsel.ubc.ca/policies/index/) and provide a collaborative working environment that will strengthen our commitment to the University’s overall safety culture.

Supervisors, workers and graduate students are required to review the Policy SC1 as part of the required safety training for new personnel. Compliance with this requirement is documented in the MTRL Safety Orientation Worksheet.

**POLICY SC1: OCCUPATIONAL AND RESEARCH HEALTH AND SAFETY**

**General Policy**

UBC aims to eliminate unnecessary risks, injuries, and occupational diseases, from UBC's workplace, teaching, and research environments.

UBC accepts Applicable Standards as minimum standards and may establish and enforce more stringent standards, as it deems appropriate for UBC Members.

Each UBC Member who engages in or is responsible for a UBC Activity involving Hazardous Materials and

Wastes must:

* Comply with this Policy and the Procedures (i.e. Policy SC1; see Element 1 for a link to the policy. Or search: mtrl.ubc.ca > Safety > Safety forms and resources > Forms > UBC Policy SC1 Occupational and Research Health and Safety);
* Understand the Occupational Health and Safety Program, the Biosafety Program, the Radiation Safety Program, and the Chemical Safety Program, prior to carrying out or supervising any UBC Activities; and
* Procure, handle, store, transport, and dispose of Hazardous Materials and Wastes in a manner that harms neither the environment nor living beings.

Each UBC Member engaged in UBC Activities involving, or potentially involving, Hazardous Materials and Wastes should endeavour to:

* Substitute less harmful materials for those that are known to be Hazardous Materials and Wastes prior to the time of acquisition; and
* Acquire or purchase Hazardous Materials and Wastes in sufficiently small quantities to minimize the period of storage at or by UBC.

Sincerely,

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| --- |
|  |

Daan Maijer, Ph.D., P.Eng.

Head and Professor

Department of Materials Engineering

The University of British Columbia

# Element 2: Roles, Responsibilities and Accountability

**UBC EXECUTIVE**

"UBC Executive" means: UBC's senior leadership team consisting of UBC's President, Deputy Vice Chancellor, Vice-Presidents, Provosts, and University Counsel.

The UBC Board of Governors has delegated to the UBC Executive the following occupational health and safety responsibilities of an employer under the Workers Compensation Act, to:

* ensure the health and safety of UBC Members engaging in UBC Activities in the workplace, research, and teaching environments at or of UBC;
* provide adequate orientation and training to Supervisors and other UBC Members, to ensure that they are made aware of:
  + all known or reasonably foreseeable health or safety hazards related to Hazardous Materials and Wastes;
  + compliance with Applicable Standards; and
  + their individual rights and duties as per [Policy SC1](https://universitycounsel.ubc.ca/policies/index/)
* establish as appropriate the Occupational Health and Safety Program, the Biosafety Program, the Chemical Safety Program, the Radiation Safety Program, and Emergency Procedures, to:
  + support Supervisors in the implementation of effective health and safety programs;
  + provide adequate information, instruction, training, and orientation to Supervisors and other UBC Members;
  + regularly inspect its workplace, teaching, and research environments, and take action, as required, to improve or address unsafe conditions or conduct when reported;
  + initiate an immediate investigation into incidents/accidents/conduct through the procedures established for the area in which the incident/accident/conduct has occurred;
  + communicate with the UBC community or affected groups about events or situations when potentially harmful conditions or conduct arise or are discovered;
  + ensure that workplace teaching, and research health and safety considerations and resources form an integral part of the design, construction , purchase, and maintenance of all buildings, equipment and work processes, including the physical planning for the future research, teaching, and operational needs of UBC, so that design elements are included to address health and safety issues (e.g., ergonomics), handling, storage, transportation, emissions, and disposal of Hazardous Materials and Wastes;
  + ensure that the physical space or facilities being used in UBC’s workplace, teaching, and research environments are appropriate for the nature of the UBC Activities being carried out in them;
  + provide access to appropriate first aid and first aid facilities;
  + comply with Applicable Standards; and
  + establish Local Safety Teams to support the Joint Occupational Health and Safety Committees.

**Element 2: Roles, Responsibilities and Accountability (cont’d)**

**ADMINISTRATIVE HEADS OF UNITS**

"Administrative Head of Unit" means: a Director of a service unit; a Head of an academic department or unit; a Director of a centre, institute or school; a Principal of a college; a Dean; an Associate Vice

President or the equivalent; the Registrar; the University Librarian; a Provost; a Vice Principal, a Vice President or the equivalent, not otherwise identified as a member of the UBC Executive.

Each Administrative Head of Unit, acting under the authority of their respective UBC Executive and through their Supervisors, must:

* share in the accountability for addressing non-compliance with the Policy and the Occupational Health and Safety Program, as applicable, by UBC Members involved in UBC Activities under their Area of Responsibility; and
* cooperate with both Safety & Risk Services and the Office of Research Services, as applicable, with any workplace, teaching, and research health and safety audit, and any inspection or investigation involving their Supervisor(s) conducted in accordance with the Occupational Health and Safety Program.

**SAFETY & RISK SERVICES**

Safety & Risk Services is the department responsible for monitoring and implementing the requirements of the Workers Compensation Act and its applicable occupational health and safety regulations, the Occupational Health and Safety Program, the Emergency Procedures, and the Applicable Standards by:

* acting as a central resource and auditor of Policy SC1 and Procedures, and Emergency Procedures;
* reporting any substantive Research related issues of non-compliance with Policy SC1 or associated procedures to the Office of Research Services;
* reporting any existing issue or concern identified starting with the Local Safety Team or the Joint Occupational Health and Safety Committees, Administrative Heads of Unit, through to the Responsible Executive(s), and, as necessary and required, ultimately up to the UBC Executive, as part of their duties under the Occupational Health and Safety Program and in accordance with the Workers Compensation Act; and
* attending meetings of and reporting to the Responsible Executive(s), as required by the UBC Executives.

Note: In some areas, Local Safety Experts assist administrative heads of units in meeting their safety obligations.

**Element 2: Roles, Responsibilities and Accountability (cont’d)**

**SUPERVISORS**

"Supervisor" means: a person who manages, instructs, directs, or controls other UBC Members in the performance of their duties at UBC (including studying), and may include Biosafety Permit Holders, Radiation Safety Permit Holders, and Principal Investigators.

Each Supervisors is responsible under the Applicable Standards for their Area of Responsibility and must:

* be accountable for the health and safety of UBC Members under their direct supervision and acting in their UBC capacity when engaged in UBC Activities;
* be aware of Applicable Standards and all known or reasonably foreseeable health and safety hazards pertinent to the Areas of Responsibility where such UBC Members conduct UBC Activities;
* formulate and document specific safety rules, guidelines, and procedures for all Areas of Responsibility under their supervision;
* ensure that the Emergency Procedures are in place to mitigate any hazards specific to their Areas of Responsibility, and understand, follow, and communicate to UBC Members under their supervision about Emergency Procedures;
* remove or mitigate unique hazards associated with UBC Activities under their supervision with consultation from the applicable Local Safety Team and/or Joint Occupational Health and Safety Committee;
* provide workplace orientation and training in the safe operation of equipment, handling of Hazardous Materials and Wastes, and performance of day-to-day tasks;
* conduct regular inspections to identify hazardous conditions or conduct and ensure that equipment and materials are properly handled, stored, and maintained;
* promptly mitigate or correct unsafe work practices, conduct, or hazardous conditions;
* ensure all accidents, incidents, or personal security concerns are investigated within two (2) work days;
* promptly report any accidents, incidents, or conduct to the appropriate UBC authority and Safety & Risk Services; and
* consult and cooperate with the appropriate Local Safety Team, Joint Occupational Health and Safety Committee, and/or safety representative(s) for the workplace

**Element 2: Roles, Responsibilities and Accountability (cont’d)**

**FACULTY AND STAFF**

“Faculty and Staff” includes: any full-time or part-time staff, faculty, adjunct or clinical faculty, post-doctoral fellow, paid student, visiting academic or researcher, any person holding an appointment at UBC, or any other person having a contractual obligation to adhere to UBC’s Board of Governors’ policies and procedures.

Roles and responsibilities include:

* comply with Applicable Standards and any rules, restrictions, guidelines, or directives established by their Supervisor, Safety & Risk Services, or the Office of Research Services;
* be safety-conscious in all UBC Activities;
* take all reasonable and necessary precautions to ensure their own safety and the safety of others around them;
* be familiar with the procedure to refuse unsafe work provided for under such Act, if a UBC Member applies as a [“worker”](http://www.bclaws.ca/civix/document/id/complete/statreg/96492_01#section1) under the Workers Compensation Act;
* request training when unfamiliar with a task;
* correct unsafe conduct and conditions;
* report as soon as possible any accident, injury, conduct, unsafe condition, or insecure condition to a Supervisor;
* participate in inspections and investigations at the request of UBC; and
* participate in such committee, if elected or appointed to a Joint Occupational Health and Safety Committee, or a Local Safety Team, or other such health and safety committee.

**JOINT OCCUPATIONAL HEALTH AND SAFETY COMMITTEE (JOHSC) MEMBERS**

"Joint Occupational Health and Safety Committees" means: the committees established by UBC in accordance with the Workers Compensation Act set out in the Occupational Health and Safety Procedures.

Roles and responsibilities include:

* Attend all monthly Committee meetings, or appoint an eligible alternate to attend.
* Participate in all activities of the Committee, and chair Sub-Committees when requested.
* Review inspections and investigations reported to the Committee, by the LSTs. Participate in inspections and investigations as requested or required.
* Recommend and advise in the development of policies and procedures for improvement of health and safety.
* Attend safety courses or seminars, which are made available to Committee members. Each Committee member is entitled to a total of 8 hours of additional training each year.
* Promote the University Safety Policy, and safety procedures of the University, in carrying out their work.
  + Be familiar with WorkSafeBC Occupational Health and Safety Regulations, the University Safety Policy, and the Committee's Terms of Reference.

**Element 2: Roles, Responsibilities and Accountability (cont’d)**

**LOCAL SAFETY TEAM (LST) MEMBERS**

"Local Safety Teams" means: site or department specific occupational health and safety teams, established by UBC, to provide area-specific safety information to the relevant Joint Occupational Health and Safety Committee set out in the Occupational Health and Safety Procedures.

Roles and responsibilities include:

* Hold and /or attend regularly scheduled LST meetings, or appoint an eligible alternate to attend.
* Function within the set Terms of Reference
* Participate in the review of:
  + Reports of current accidents, incidents or illnesses/diseases
  + Remedial action taken or required by the reports of investigations and inspections
  + Other safety and health matters
* Conduct formal workplace inspections
* Assist as required in incident and or accident investigations
* Assist management in the health and safety program development
* Post and distribute meeting minutes
* Make recommendations directly to the Joint Occupational Health and Safety Committee
* Escalate safety related issues to the JOHSC where necessary
* Review and monitor the effectiveness of the unit’s Health and Safety Program

Faculty, staff and students in the Department of Materials Engineering have activities in the Advanced Materials Process Engineering Laboratory (AMPEL) located in the Brimacombe building on the UBCV campus as well. All activities in AMPEL are within the domain of the AMPEL safety program. This manual pertains to the activities of the Department of Materials Engineering in the Frank Forward building.

The MTRL LST focuses on activities in the Frank Forward building that are associated with the Department of Materials Engineering. The building is shared with the Department of Mining Engineering. The MTRL and Mining LSTs cooperate, but are distinct as are the MTRL and Mining safety programs.

The MTRL LST terms of reference are available at:

<http://mtrl.sites.olt.ubc.ca/files/2019/08/MTRL-LST-terms-of-ref-Aug-2019.docx>

Or search: mtrl.ubc.ca > Safety > MTRL LST Terms of Reference

The LST regular meeting occurs once per month. The LST meeting minutes are posted to the APSC JOHSC SharePoint website and are emailed to faculty, staff and graduate students in the department, as well as to a representative from the Mining department. The LST conducts two semi-annual safety inspections. See Element 8 for the forms.

**RESOURCES**

* [Find your JOHSC](http://safetycommittees.ubc.ca/johsc/find-your-johsc/)
* [JOHSC Resources](http://safetycommittees.ubc.ca/johsc/johsc-toolkits/)
* [LST Resources](http://safetycommittees.ubc.ca/local-safety-teams-lsts-2/local-safety-teams-lsts/)
* Unit Organizational Chart: See the figure below.
* Our JOHSC is APSC JOHSC
* LSTs in our area are: MTRL LST; the Mining department, which shares the Frank Forward Building with MTRL has an LST as well; Mining LST.



# Element 3: Faculty/Departmental Leadership Meetings

The UBC Executive has delegated an Executive Safety Management Team (ESMT) that meets three times per year. This team consists of delegated Vice-Presidents that are responsible for making decisions on health and safety matters that effect faculties or departments within their portfolio or the University as a whole.

Similarly, Faculty and Departmental Units must strive to take all reasonable measures to provide a safe and healthy workplace. This requires management to be aware of issues and activities that could have an impact on health and safety in their area of responsibility. **To meet these obligations, Faculty and Departmental leadership groups must have regularly scheduled meetings that:**

* Have Health and Safety as a standing agenda item or are either solely dedicated to health and safety
* Have a designated person responsible for providing Health and Safety information. (eg. incident reports, health and safety statistics and trends, etc.)
* Discuss and make decisions on recommendations from the JOHSC and/or LSTs
* Address questions or concerns brought directly to management
* Assign responsibilities for required action on management decisions
* Are clearly documented

Management is responsible for designating key personnel that attend both management and local level meetings to ensure relevant information and decisions are clearly communicated to faculty and staff within their portfolio.

For assistance in developing faculty/departmental leadership meetings, visit or contact Safety Program Advisor at 604-822-6513

**RESOURCES**

* <http://safetycommittees.ubc.ca/>
* <http://safetycommittees.ubc.ca/roles-responsibilities/>
* <http://safetycommittees.ubc.ca/johsc/johsc-toolkits/>
* Monthly Departmental Faculty meetings: Department Faculty meetings are run monthly. Safety is an agenda item at each faculty meeting. The LST faculty co-chair updates the faculty at the meeting on current or ongoing safety concerns and issues. Discussion and decisions on any action items ensues as needed. The LST faculty co-chair is responsible to follow up on action items and report back to the department head, the faculty as a whole or both. Faculty, staff and graduate students may be informed (e.g. by e-mail) on issues and action items that ensue from faculty meetings or LST meetings or based on communications to the LST faculty co-chair from other sources (e.g. UBC SRS, APSC JOSHC, etc.). Safety discussions are included in the minutes of the meetings.

# Element 4: Hazard Identification, Risk Assessment and Safe Work Procedures

All University units shall establish, implement and maintain a process for hazard identification and risk assessment that is ongoing and proactive. The process(es) shall consider, but not be limited to:

* The type of hazard and /or changes in knowledge of hazard
* Number of workers and non-workers (students, volunteers, contractors etc.) participating in or affected by work activity
* Experience level and capability of the workers involved
* Frequency of work activity
* Relevant investigated incidents and/or emergency situations
* Recommendations as a result of an inspection or investigation
* Requirements of the Occupational Health and Safety Regulation

**HOW TO DEVELOP SAFE WORK PROCEDURES**

Written safe work rules and procedures are formulated to meet WorkSafeBC, UBC and, if applicable, manufacturer’s requirements. Safe work procedures should be developed to eliminate or effectively control the hazards. The process for developing a written Safe Work Procedure includes the following steps that are to be completed by the supervisor or designate (subject to review by the supervisor):

1. Identify all personnel carrying out the task.
2. Identify the hazard(s) associated with each element of the task.
3. Conduct a “Risk Assessment” for the identified hazards.
4. Establish controls to minimize the risk.
5. Determine all required personal protective equipment (PPE) and include when and how it is used.
6. Document the findings.
7. Develop a “Safe Work Procedure (SWP)” to carry out the task(s). This procedure will incorporate findings from the “Risk Assessment” and identified controls.
8. The SWP will undergo review as per Figure 1. Where the SWP applies to work permitted by a UBC institutional compliance committee (e.g. Biosafety, Radiation Safety, Human Ethics or Animal Care), the SWP must also be reviewed and approved as part of the permissions application before implementation.

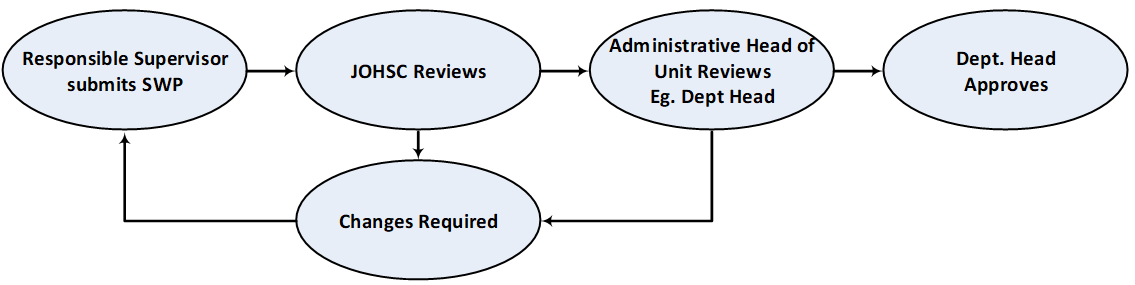


Figure 1: Safe Work Procedure Approval Process

**Element 4: Hazard Identification, Risk Assessment and Safe Work Procedures (cont’d)**

1. Train all applicable workers on the approved “Safe Work Procedure” and document the training.
2. Ensure [documented training records are readily available](https://srs.ubc.ca/health-safety/safety-programs/risk-assessment-safe-work-procedure/) to indicate that the worker has been trained in the task/procedure that will be carried out.
3. SWP should be regularly reviewed to ensure they are current and effective

It is essential that supervisory staff engage and collaborate with workers when developing Safe Work Procedures to ensure the processes outlined are realistic and meets the demands of the task. Joint Occupational Health and Safety Committees (JOHSC) and Local Safety Teams can provide valuable insight and feedback on the procedures. Safety & Risk Services (SRS) can be contacted at any point to consult on meeting Occupational Health and Safety regulatory requirements.

Be sure to review these procedures whenever a job changes, new equipment is introduced, or workers return after being away for a long period of time. For further information on reviewing procedures, refer to the Safe Work Procedure Guidance Document.

**RESOURCES**

* [General Risk Assessment Template](http://srs.ubc.ca/health-safety/safety-programs/risk-assessment-safe-work-procedure/)
* [Risk Assessment Guidance Document](http://srs.ubc.ca/health-safety/safety-programs/risk-assessment-safe-work-procedure/)
* [General Safe Work Procedure Template](http://srs.ubc.ca/health-safety/safety-programs/risk-assessment-safe-work-procedure/)
* [General Safe Work Procedure Guidance Document](http://srs.ubc.ca/health-safety/safety-programs/risk-assessment-safe-work-procedure/)
* [Field Work Safe Work Procedure Template](http://srs.ubc.ca/health-safety/safety-programs/risk-assessment-safe-work-procedure/)
* [UBC Workplace Violence Risk Assessment Tool](http://srs.ubc.ca/health-safety/safety-programs/personal-safety/workplace-violence-prevention/#What%20are%20supervisor/department%20responsibilities%20for%20workplace%20violence?)
* [Chemical Safety Risk Assessment Guide](http://srs.ubc.ca/health-safety/research-safety/research-safety-resources-documents/chemical-safety-resources/#What%20is%20a%20Risk%20Assessment?)
* [Chemical Safety Safe Work Procedures](http://srs.ubc.ca/health-safety/research-safety/research-safety-resources-documents/chemical-safety-resources/#What%20ECPs,%20GDLs%20and%20SWPs%20do%20I%20need%20for%20Chemical%20safety?)
* [SWPs approved by UBC Biosafety Committee](http://srs.ubc.ca/health-safety/research-safety/research-safety-resources-documents/biosafety-resources-documents/#What%20documents%20are%20approved%20by%20the%20UBC%20Biosafety%20Committee?)
* [Ergonomics](http://www.hr.ubc.ca/wellbeing-benefits/workplace-health/ergonomics/)

Units specific Risk Assessments and Safe Work Procedures

In MTRL, there is a great variety of types of work and research being done. Specific SWPs may be needed for the activities being conducted in each lab / shop of the department and may vary for different workers and students depending on the specific focus of their work. To address this, SWPs are kept in each lab / shop in close proximity to the work being conducted.

Where repetitive tasks are being conducted, standard work procedures are to be provided. In a setting involving technical or research work many tasks may involve widely varying procedures depending on the specific requirements, details and outcomes. In such instances, it is not possible to write standard work procedures. Rather standard work protocols may be developed where the hazards of the work warrant. These involve presentation of the hazards and principles and procedures to minimize the hazards.

The LST (e.g. the faculty co-chair) develops or sources standard work procedures or protocols for tasks that are known to be commonly practiced by numerous people in the department. These are made available on the MTRL website safety page:

<http://mtrl.ubc.ca/safety/standard-operating-procedures/>

Or search: mtrl.ubc.ca > Safety > Standard operating procedures.

The supervisor is responsible to develop and disseminate standard work procedures/protocols for tasks in his/her areas for work as he/she deems necessary. These should include the hazards, what to do to protect against the hazards and the procedures or principles to be applied. The supervisor is responsible to ensure that students/staff in his/her areas have received the safe work procedures or protocols pertinent to their work and should document this as part of the safety training. If the safe work procedure/protocol is needed at a later date after initial safety training the supervisor should document that the necessary persons received it and were sufficiently trained. This includes research labs, shops and offices. The LST semi-annual safety inspection checks whether there are any safe work procedures/ protocols in effect.

Supervisors and/or their technical staff (if applicable) and department technicians will either have the necessary expertise to develop safe work procedures/protocols or consult with outside sources if they deem it necessary. Draft SWPs may be prepared by a designate appointed by the supervisor, but must be reviewed by the supervisor.

All new lab personnel are required to do a hazard analysis and minimization exercise as part of their safety training. This must be completed before work commences. The completed form must be reviewed and signed by the supervisor or his/her designate. The completed project planning sheets are submitted as part of the documentation that necessary safety training has been completed. These are called Project Planning Sheets. They cover: (1) the equipment to be used, (2) the safety plan, (3) waste handling plan and (4) the environmental plan. The safety plan requires identification of hazards, a qualitative assessment of the risk (high, medium or low) and methods of hazard control to be applied. One new set of Project Planning Sheets is required for each distinct project. The student or worker is responsible to complete the sheets, preferably with input from the supervisor or his/her designate. Project planning sheets are available from the MTRL website safety page.

A hazard analysis guideline produced by SRS is available for use. This includes categories of hazards and methods to minimize the hazards.

The hazard analysis and minimization guide is available from the MTRL website safety page.

Contact information for the SRS Environmental Services Facility is provided in the MTRL department safety orientation presentation, available on the MTRL website safety page. ESF provides for storage, pick-up and disposal of hazardous wastes. Supervisors must make arrangements for storage, packaging and disposal of hazardous wastes not handled by ESF (e.g. radioactive wastes).

# Element 5: Workplace Inspections

A critical component in proactively identifying hazards in the workplace lies in the regular performance of health and safety inspections. Structured examinations of the workplace will not only identify hazards but will help to correct identified safety issues before an injury can occur.

The Occupational Health and Safety Regulation (OHSR) states that “Every employer must ensure that regular inspections are made of all workplaces, including buildings, structures, grounds, excavations, tools, equipment, machinery and work methods and practices, at intervals that will prevent the development of unsafe working conditions.”

At UBC, a number of different types of inspections can occur:

**1. LOCAL AREA SELF INSPECTIONS**

What are they?

Local Area Inspections conducted in areas where the JOHSC, LST or local area supervisors have determined that more than one inspection per year must due to the tasks or environment may have an increased risk of injury. (E.g. laboratories, shops, kitchens, shipping/receiving areas etc.)

*Note that areas covered by a UBC Biosafety or UBC Radiation Safety Permit must be inspected by the Permit Holder or delegated to a study team member named on a valid permit for the space. Anyone not named on valid permit or authorized to perform maintenance\* for the space should not enter nor inspect a biological or radiological containment zone unless escorted by a permitted study team member.*

\*This applies to custodial and trades staff and extends only to the tasks that are part of their regular work.

Who participates?

Local supervisory staff of the workplace are responsible for conducting these inspections.

When are they conducted?

The frequency of local area inspections can vary depending on the risk of the activities being performed in the space. Consult with JOHSC, LST or SRS to assist in making this determination.

Note that documented inspections of permitted spaces must occur monthly.

Supervisors or persons they designate are required to conduct monthly safety inspections in their labs or areas; shops are to be inspected monthly by the primary technician responsible for that area. A copy of the completed inspection report is to be provided to one of the department secretaries who keeps a record of completed inspections. The inspection report is also to be posted in a prominent location in the lab or shop.

**Element 5: Workplace Inspections (cont’d)**

How are they conducted?

The personnel completing the inspection are required to document the inspection (checklist) and implement a corrective action plan where the immediate supervisor of the area will be responsible for the correction. All corrective actions taken requires collaboration with supervisory staff and workers to ensure that the identified hazard has been eliminated or properly controlled. There may be site specific conditions (equipment, machinery, environmental conditions etc.) that are not included in the standard checklist, they should be amended to ensure they are regularly checked

**RESOURCES:**

* [General Inspection Checklist and Report Template](http://rms.ubc.ca/health-safety/safety-programs/workplace-inspections/) (JOHSC/LST)
* [Monthly Self Inspection Checklist for Lab Users](http://rms.ubc.ca/health-safety/research-safety/research-safety-resources-documents/general-research-safety-resources/#What%20forms%20and%20checklists%20are%20needed%20for%20general%20research%20safety?)
* See Element 8 or mtrl.ubc.ca > Safety for MTRL Inspection Forms.

**2. JOHSC OR LST GENERAL INSPECTIONS**

What are they?

JOHSC/LST inspections are an examination of specified work areas and practices. Documented workplace inspections are a regulatory requirement under the Workers Compensation Act and the Occupational Health and Safety Regulation.

Who participates?

On behalf of the employer, identified or delegated faculty and staff of Joint Occupational Health and Safety Committees (JOHSC), Local Safety Teams (LST), or faculty/departmental representatives conduct regular Inspections of their workspaces.

When are they conducted?

The frequency of these inspections can vary depending on the location and risks associated with each specific location or area. All workspaces must be inspected at least once per year.

How are they conducted?

Personnel conducting an inspection are required to use the UBC standardized “General Inspection Checklist”. The corrective actions within the checklist are to be reviewed and discussed by the LST and the JOHSC at the next scheduled meeting.

**RESOURCES:**

* [JOHSC and LST General Inspection Checklist and Report](http://safetycommittees.ubc.ca/johsc/johsc-toolkits/johsc-toolkits/)

The MTRL LST conducts semi-annual safety inspections and follow-up inspections of labs, shops, offices, classrooms and storage areas. Team members conduct the inspections using paper forms and report to the faculty co-chair. The safety inspection team members indicate if items meet requirements, are not applicable in any given work area or if requirements are not met (infractions). The faculty co-chair provides a summary report of the inspection results to the department head. The department head reviews and informs faculty by providing the summary report. Approximately one month later the LST conducts the follow-up inspection to check on progress on correcting infractions. A follow-up summary report is provided by the faculty co-chair to the department head for subsequent follow-up as the department head deems necessary. Labs, shops, classrooms offices and storage areas are inspected according to the recommendation of UBC SRS. See Element 8 for a list of areas inspected. The various semi-annual inspection forms also are provided in Element 8.

Safety inspection forms may be modified from time to time by the LST faculty co-chair if new items need to be checked, based on communication from APSC JOHSC, UBC SRS, etc.

**Element 5: Workplace Inspections (cont’d)**

**3. EQUIPMENT INSPECTIONS**

What are they?

Equipment inspections are independent of General Inspections and Local Area Inspections.

Equipment inspections include inspections of tools, vehicles, machinery or equipment.

They can be:

* Pre-use inspections(e.g. inspecting a vehicle or equipment prior to using it)
* Scheduled preventative maintenance inspections as per the manufacturer’s manual
* A Special Inspection of equipment, machinery or work process in response to a reported condition or after a malfunction, accident or incident.

Who participates?

They are conducted by workers familiar with the tool, vehicle, machinery or equipment.

When are they conducted?

The frequency depends on the manufacturer’s recommendation or industry standards for preventative maintenance. Pre-use inspections are conducted before every use.

How are they conducted?

A pre-use and/or preventative maintenance inspection checklist specific to the tool, vehicle, machine, or equipment is used. Items of deficiency are identified and documented in the corrective action report following the inspection checklist. This type of inspection aids in the development and revision of Safe Work Procedures (SWPs). Specialized equipment may require consultation from trained professionals

Supervisors or their designates in labs and shops are responsible to perform equipment inspections on equipment and tools they deem necessary to inspect according to their areas of expertise. The completed form used for the inspection must be kept and posted in close proximity to the equipment. If necessary (based on the hazards) a piece of equipment must be locked out or otherwise disabled until repaired. The semi-annual inspection checks for equipment inspections being done in shops and in labs. The relevant semi-annual inspection forms are available in Element 8.

The supervisor's monthly lab and shops inspection forms have sections to indicate corrective actions. At a minimum, follow-up to check if the actions are completed occurs at the next monthly inspection. But, inspectors or supervisors may require more rapid follow-up as they deem necessary. Follow-up that precedes the next monthly inspection should be documented, e.g. by annotating the monthly inspection form to indicate corrective actions and the dates. The semiannual inspection forms have sections for comments to note details about infractions and corrective actions. Completed inspection forms are provided to supervisors and their designates. The department head is provided with a summary report which he/she reviews and then forwards to supervisors with instructions to correct infractions. A follow-up inspection is conducted by the LST about one month later to check on corrective actions. The semi-annual inspection forms are used for the repeat inspection. A summary report is again provided to the department head for review. If necessary the department head will follow up with supervisors. It is the responsibility of the supervisors to ensure that corrective actions are completed.

**RESOURCES:**

* Equipment inspections records are kept in the labs or areas where the equipment is located. Records must be kept and may be posted or located where the supervisor deems best.

**Element 5: Workplace Inspections (cont’d)**

**4. SPECIALIZED COMPLIANCE SAFETY INSPECTIONS/AUDITS**

What are they?

These formal inspections are led by SRS staff to meet WorkSafeBC, Public Health Agency of Canada (PHAC), Canadian Food Inspection Agency (CFIA) and/or the Canadian Nuclear Safety Commission (CNSC) regulatory requirements. These inspections augment but do not replace local area self-inspections or JOHSC/LST inspections.

When are they conducted?

SRS may perform specialized audits or inspections in Faculties, departments or areas identified to have an increased risk of injury or require assistance to meet provincial or federal regulatory requirements. Various regulatory requirements are used as criteria for the inspection.

For research spaces that require federally regulated inspections, Safety & Risk Services will collaborate with responsible management:

* Prior to the start of a new project, to assess suitability of the space for the planned work;
* Prior to decommissioning of laboratory space due to a lab move, faculty retirement or impending renovation; and
* As a part of the ongoing monitoring required by regulatory agencies to maintain facility certifications and institution licensing. The frequency of these inspections varies from 1-5 years depending on: the risk rating of the work done, applicable regulatory requirements and compliance history.

How are they conducted?

Specialized audits is a combination of observational inspections and interviews performed by SRS safety specialists.

Identified safety concerns or gaps are presented to management and supervisory staff. Identified personnel are responsible to complete a corrective action plan and return it to SRS with timelines and task assignments completion.

# Element 6: Orientation and Training

Employees must be informed about potential hazards and safe work practices in the workplace.

Training and education must begin with orientation. Following orientation, training should continue through the entire period of employment. The objective of training is to raise the skill level of the worker to an acceptable standard of competency, facilitate professional growth and to ease and enable the implementation of health and safety policies into job specific practices.

**SAFETY ORIENTATIONS FOR NEW AND YOUNG WORKERS**

The BC Occupational Health and Safety Regulation defines a "young worker" as any worker under the age of 25. A "new worker" can be any age and includes those who are new to the workplace or location, or facing new hazards.

According to WorkSafeBC, units need to provide a workplace [orientation](https://www.worksafebc.com/en/health-safety/create-manage/training-orientation) for workers when they:

* Begin a new job
* Go to a new worksite or department
* Face new hazards, such as working with new equipment
* Perform new tasks

The following topics must be included in the young or new worker's orientation and training:

1. the name and contact information for the young or new worker's supervisor;
2. the employer's and young or new worker's rights and responsibilities including:
   1. the reporting of unsafe conditions, and
   2. the right to refuse to perform unsafe work;
3. workplace health and safety rules;
4. hazards to which the young or new worker may be exposed, including risks from robbery, assault or confrontation;
5. working alone or in isolation;
6. violence in the workplace;
7. personal protective equipment;
8. location of first aid facilities and means of summoning first aid and reporting illnesses and injuries;
9. emergency procedures;
10. instruction and demonstration of the young or new worker's work task or work process
11. the employer's health and safety program
12. WHMIS information requirements as applicable to the young or new worker's workplace
13. Contact information for the joint occupational health and safety committee

**Element 6: Orientation and Training (cont’d)**

**TO ADEQUATELY ORIENT AND TRAIN WORKERS, SUPERVISORS MUST ENSURE**

1. Workplace and job-specific orientation and training is provided (by the supervisor or trainer with subject matter expertise)
2. UBC Mandatory Training Courses are completed
3. Program Specific Safety courses are completed
4. All orientation and training is documented

**WORKPLACE SAFETY TRAINING AND EDUCATION**

In order to help ensure workers can do their jobs safely, Units need to determine and then provide education and/or training necessary.

Generally, education refers to formal classroom instruction that may include lectures, discussions, and videos. Training refers to hands-on, job-specific instruction to individuals or small groups. Typically, training involves demonstrations and active participation by workers so you or a supervisor can confirm that workers fully understand safe work procedures.

**UBC MANDATORY TRAINING COURSES**

As a new employee, a number of courses are mandatory to meet WorkSafeBC and UBC requirements. At UBC, a worker includes, UBC Executive(s), Management, Faculty, Staff, and Student workers.

Mandatory Training for all workers includes:

* [New Worker Safety Orientation](http://rms.ubc.ca/training-and-general-education-courses/mandatory-training-for-all-ubc-workers/#New%20Worker%20Safety%20Training) – this assists in meeting the requirements outlined above.
* [Preventing and Addressing of Workplace Bullying and Harassment Training](http://rms.ubc.ca/training-and-general-education-courses/mandatory-training-for-all-ubc-workers/#Prevention%20of%20Workplace%20Bullying%20&%20Harassment%20Training)
* [Workplace Violence Prevention Training](http://rms.ubc.ca/training-and-general-education-courses/mandatory-training-for-all-ubc-workers/#Workplace%20Violence%20Prevention%20Training)
* [Safety Supervision at UBC (for supervisors only)](https://srs.ubc.ca/training-and-general-education-courses/mandatory-training-for-all-ubc-workers/#Safety%20Supervision%20at%20UBC)

Note: In addition to a general workplace safety orientation, a site- and task-specific safety orientation must also be completed for each new or transferred employee. The site specific safety orientation template can be found [here](https://srs.ubc.ca/health-safety/safety-programs/new-worker-orientation/#New%20Worker%20Safety%20Orientation).

Note: Some employees at UBC do not have access to a computer and as a result, the New Worker Safety Orientation may be carried out in person within your department/building. The mandatory orientation topic list, provided above, can assist in providing a comprehensive in-person orientation.

**Element 6: Orientation and Training (cont’d)**

**JOB SPECIFIC TRAINING**

Each role in the workplace has assigned tasks that require training specific to that worksite. Supervisors are responsible for task assignment and assessment of the training needed to complete those tasks safely and effectively.

Laboratory work often does not fall within well-defined specific tasks; it may vary widely. For job specific training workers and students need to be oriented to safety principles and specific procedures where pertinent.

Work in shops may or may not follow well defined procedures. Shops supervisory personnel need to provide safe work procedures or protocols where necessary.

While this job-specific training may be delivered by the supervisor or a trainer with demonstrated subject matter expertise, the supervisor retains responsibility for oversight of training and confirmation that an adequate level of proficiency has been attained.

Signing off on an employee’s training completion testifies to demonstration of trainee competency and is a legally necessary demonstration of supervisory due diligence.  If a supervisor finds that an employee has not reached an adequate level of competency, further training must be done prior to sign off of the training record for that assessed requirement.

Training and safety orientation documents are reviewed by the supervisor or his/her designate. This is indicated by signature. The LST faculty co-chair reviews the completed set of safety training documents to ensure that they are complete, including required signatures by the supervisor or his/her designate. Then the LST faculty co-chair signs the safety training checklist summary sheet and dates it with an expiry date for 5 years from the time that the chemical safety course is completed.

Safety training for short-term visitors who are not UBC employees may be less involved at the discretion of the supervisor. A template checklist is available at:

<http://mtrl.sites.olt.ubc.ca/files/2017/01/VISITORS-Safety-training-checklist1.pdf>

Or search: mtrl.ubc.ca > Safety > Safety forms and Resources > Forms > Safety training checklist for SHORT-TERM VISITORS

**CONDUCTING JOB SPECIFIC TRAINING**

The supervisor or trainer with subject matter expertise must:

1. Instruct the worker to read the relevant protocol/procedure for individual tasks/techniques
2. Ensure safety measures (hierarchy of controls) are integrated into the protocol/procedure
3. Demonstrate how to do the task as per the protocol/procedure and have the worker observe
4. Instruct the worker to perform the task while you observe them and verify that the workers’ performance meets expectations for safety
5. Document the training

The supervisor is responsible for making their workers aware of all foreseeable hazards they may be reasonably expected to be exposed to in the course of their work.

Supervisors are responsible to determine activities in their areas that require specified and distinct training, e.g. changing a regulator on a compressed gas tank. Where departmental resources are not available (for those that are see mtrl.ubc.ca > Safety > Standard operating procedures) supervisors are responsible to develop training documents and procedures that they deem necessary. Documentation is the supervisor's responsibility and should include the name of the person trained, who provided training, date and details of training provided. The person receiving the training must sign off on the document as well.Where a hazard is identified:

* A risk assessment may be necessary to assess the risk posed by the hazard
* Determine how to best control that risk using the hierarchy of controls
* Establish a documented procedure for working with or in proximity to the hazard
* Written procedures and training should always be provided together because:
  + Written procedures facilitate consistent training delivery
  + Training is most effective when key messages can be heard and read

Note: Where tasks involve the same hazards, use the same risk mitigation procedures and are performed in the same environment, training may be generalized across the tasks.

Project planning sheets are used as a risk assessment and hazard analysis and minimization tool. Research students/staff are required to complete a set of project planning sheets as described in Element 4. A set of project planning sheets must be completed prior to lab work commencing.

**Element 6: Orientation and Training (cont’d)**

**THIRD PARTY TRAINING**

The most effective method of training for certain tasks may be through an external, third party that specializes in that field/topic.

Supervisors may opt to provide some aspects of group- or area-specific training for specific individuals from an external source as they deem necessary.

**ORIENTATION AND TRAINING RECORDS**

The supervisor is primarily responsible for maintaining training records. The department can keep training records if there is an established system for maintaining these records.

It’s not only good practice to maintain an education and training record for each worker, listing dates and topics covered, federal regulations require it for anyone working with hazardous substances Reviewing the records from time to time helps ensure training requirements have been met. Annual review of these records is a federal requirement for work with regulated biological substances.

Note that the assessment of training needs pertaining to work with biological substances must be documented and available for review by federal and institutional inspectors along with proof of training completion and attainment of competency.

For detailed information about the types of records that must be kept, please refer to Element 8.

**RESOURCES**

* Unit specific training/orientation requirements are:

The department keeps records of safety training. Records of specific training not covered by departmental requirements are to be kept by the supervisor. Examples include respirator fit testing certificates, equipment and procedures training requiring safe work procedures/protocols, etc.

Safety training and orientation is accomplished in two ways: (1) at the level of the University and the department and (2) at the level of the lab or workplace. The former covers matters generally common to all new research and technical staff. The latter addresses the specific issues that have to do with individual labs and shops. The specific hazards and how they are to be addressed vary from lab to lab.

A summary of the required safety training for new research personnel is available at:

[http://mtrl.sites.olt.ubc.ca/files/2019/09/Safety-training-checklist-rev-Jan-2019.doc](http://mtrl.sites.olt.ubc.ca/files/2020/02/Safety-training-checklist-rev-Feb-2020.doc)

Or search: mtrl.ubc.ca > Safety > Safety forms and resources > MTRL Student and Employee Safety Training checklist

Documentation of safety training is covered in Element 8.

* Completed departmentally required safety training forms are kept in the MTRL main office, Frank Forward 309. Supervisors are responsible to keep records of specific safety training for their areas.

# Element 7: Reporting and Investigating Incidents/Accidents

The purpose of incident reporting and investigating is to identify factors that contributed to the incident and to implement corrective actions. This will help create a safe working environment and prevent reoccurrence of similar incidents.

An incident investigation is an analysis of an incident based on the factual information gathered of all the factors involved to determine the preventative root causes.

**WORKSAFEBC REQUIRES THE FOLLOWING TYPES OF INCIDENTS TO BE INVESTIGATED**



**Element 7: Reporting and Investigating Incidents/Accidents (cont’d)**

**AFTER CONTACTING THE APPROPRIATE EMERGENCY SERVICES, THE FOLLOWING INCIDENTS ARE REQUIRED TO BE IMMEDIATELY REPORTED TO SAFETY & RISK SERVICES (SRS)**

* A serious injury to or the death of a worker
* A major structural failure
* A major release of a hazardous substance
* A fire or explosion that had potential for serious injury
* A blasting incident causing personal injury
* A dangerous or unusual incident involving explosives
* A diving incident that causes death, injury or decompression sickness requiring treatment
* A major exposure to a pathogenic or radioactive substance

During work hours, 8:00am – 4:30pm Monday- Friday at 604-822-2029. After work hours, contact Campus Security at 604-822-2222 and the call will be forwarded to SRS’ 24/7 on-call personnel.

Note: Upon notification, SRS will immediately notify WorkSafeBC of the incident

**WHEN AN INCIDENT OCCURS THAT REQUIRES INVESTIGATION, THERE ARE TWO TYPES OF INVESTIGATIONS**

|  |  |
| --- | --- |
| **Preliminary Investigation**  **(within 48 hours)** | **Full Investigation**  **(within 30 days)** |
| * Upon notification of the incident, ensure that the area is secured or restricted, and anyone injured has received first aid * Within 48 hours (2 days) of the incident occurring, go to the area where the incident happened and ensure the area is safe * Gather information by speaking with your worker. The [UBC Incident Site Investigation Guide](https://srs.ubc.ca/health-safety/safety-programs/accident-incident/accidentincident-reporting-for-supervisors/#Why%20do%20I%20need%20to%20investigate?) details the type of information you need to gather * Submit information into [CAIRS](https://www.cairs.ubc.ca/public_page.php) within 48 hour of the incident occurrence * Document immediate corrective actions that make the area safe or restrict access, and address the direct (obvious) causes of the incident | * SRS stipulates that a full investigation needs to be completed in CAIRS within 25 days of the incident occurring to meet the 30 day legal requirement   Full Investigations require the following:   * All details have been added to the report * Error Producing Conditions, Root causes and corrective actions with assigned timelines and personnel have been documented.   Preliminary Investigation = Full Investigation if:   * Details in the incident report provide a sufficient amount of information to allow corrective actions to be determined * Root causes and corrective actions with assigned timelines and personnel have been documented. |

**Element 7: Reporting and Investigating Incidents/Accidents (cont’d)**

**CONDUCTING AN INVESTIGATION**

The [Accident/Incident Investigation Training Course](http://rms.ubc.ca/training-and-general-education-courses/safety-programs-training/) and [Safety Supervision at UBC](https://srs.ubc.ca/training-and-general-education-courses/safety-programs-training/) provide more detail information on how to conduct an investigation. The steps below provide a general overview

1. Manage the Accident Scene
   * Contact First Aid, Control the remaining hazards, Preserve the accident scene
2. Gather Information
   * Physical Data, Interview Witnesses, Document Review
3. Evaluate and Analyze Findings
   * Build a sequence of events that occurred before, during and after the incident
4. Determine Causes
   * Direct Causes (obvious, can be seen and sensed), Root Causes (obtained by asking “Why?”)
5. Corrective Actions
   * Corrective actions should be SMART (Specific, Measureable, Actionable, Realistic, Timely)
6. Complete Documentation
   * File a [CAIRS](http://www.cairs.ubc.ca) report with all the information obtained from the previous steps
7. Follow up
   * Ensure corrective actions are complete and are not creating new hazards

**SUPERVISOR RESPONSIBILITY:**

It is the responsibility of the supervisor to investigate an incident that has occur in their area. Subject matter experts and workers familiar with the associated work are available to assist as required.

1. Educate all workers under their supervision to report all incidents that have occurred in the workplace
2. In the event of an injury, all workers are aware of how to access first aid by contacting 2-4444 (Point Grey Campus only)
3. Completing an incident report in [CAIRS](http://www.cairs.ubc.ca)
4. Informing injured workers to initiate a WorkSafeBC claim by calling 1-888-967-5377 if they have seen a doctor or missed any time from work beyond the date of the incident
5. Ensuring corrective actions are implemented and effective

**IMPORTANT: The Worker and Supervisor are able to submit an incident report in** [**CAIRS**](http://www.cairs.ubc.ca)

Accident/incident reporting requirements are covered in mandatory SRS courses and in the Department safety orientation worksheet.

Accident and incident reports for the MTRL department in the Frank Forward Building are provided to the LST chair, the APSC JOHSC and SRS via e-mailed links. The LST reviews accidents and incidents reports at monthly meetings and may recommend corrective actions in addition to those indicated by the supervisor.

*NOTE: Incidents involving exposure to or theft of biological or radiological substances must also be reported immediately and directly to the appropriate UBC Compliance Committee by calling*

*604.822. 4353 or 604.827.5111.*

**Element 7: Reporting and Investigating Incidents/Accidents (cont’d)**

**CENTRALIZED ACCIDENT/INCIDENT REPORTING SYSTEM**

The [Centralized Accident/Incident Reporting System (CAIRS)](https://www.cairs.ubc.ca/public_page.php) is used to:

* Report incidents
* Obtain required information to initiate a WorkSafeBC claim for work-related injuries/illnesses
* Document incident investigations

**RESOURCES**

* [Accident/Incident Reporting Program](http://srs.ubc.ca/health-safety/safety-programs/accident-incident/)
* [UBC Incident Site Investigation Guide](https://srs.ubc.ca/health-safety/safety-programs/accident-incident/accidentincident-reporting-for-supervisors/" \l "Why%20do%20I%20need%20to%20investigate?)

# Element 8: Documentation, Records and Statistics

It is the Administrative Head of Unit’s responsibility to ensure proper record keeping and statistics are kept for the prevention of injuries and illnesses in their area of responsibility. This will assist employers, managers, supervisors, and JOHSC members:

* Identify the nature, extent, and cause of health and safety hazards
* Set prevention activities
* Determine if control measures are working

Good record keeping is essential. In order for occupational health and safety information to be useful, it must be reliable and accurate.

**UNIT REQUIREMENTS**

Units are required to keep the following safety records:

1. **Safety Orientation and Training Records**, including:

* **Mandatory and Program-Specific Training**
  + Maintain SRS Course certificates for mandatory and program specific courses
  + Maintain completed safety orientation documents – such as online New Worker Orientation
  + Note: Training certificates do not always have to be printed out but they should be readily accessible when needed
* **Site Specific Orientation Records** – ideally, Part 2 of the New Worker Orientation
* **Job Specific Training when hazards are present**
  + Training delivery and verification of competency must always be documented where there is a potential for worker exposure. Job Specific training records provide a legal record that workers have been trained to competently recognize and deal with hazards as outlined in the procedures.
  + Note: [A Task Specific Training Documentation Template](http://rms.ubc.ca/training-and-general-education-courses/mandatory-training-for-all-ubc-workers/#What%20training%20is%20required%20for%20job%20specific%20tasks?) is available to guide you in the documentation of staff training assessments and completion.
* **Third Party Training** 
  + Some procedural training is best provided by a specialist (3rd party) for that topic. If the training is provided by a 3rd party:
    - The training must be adequately specific for the job tasks performed
    - Attendance must be documented and a course syllabus kept as proof of training
    - Create a log indicating the name of the trainer, trainee, date of training, and name of third party course/training session.

The LST faculty co-chair reviews all the safety training documentation to ensure that it is complete and has been signed where required. The LST co-chair then indicates an expiry date (5 years from completion of the SRS Chemical safety course) on the MTRL Student and Employee Safety Training Checklist and signs it. Copies of the safety training documents are provided to the student/staff and the original is brought to the main office for filing. Note that the LST faculty co-chair will sign off on the MTRL Student and Employee Safety Training Checklist if the Project planning sheets are not available because the project is not yet adequately defined. It is then the responsibility of the supervisor or his/her designate to ensure that the project planning sheets get completed before lab work begins. The staff/student is to provide the form to the main office for filing.

**Element 8: Documentation, Records and Statistics (cont’d)**

1. **Additional Safety-Related Records**, including:

* Risk Assessments
* Meeting minutes and crew talks where health and safety issues were discussed and noted
* Local Safety Team and JOHSC meeting minutes
* Inspection reports and records of actions taken to solve problems or for continual improvement
* Equipment log books and maintenance records
* Incident Investigations - automatically stored in CAIRS
* Statistics on the frequency, severity of accidents, type of injuries, etc.
* Supervisors’ notes and logs of health and safety contacts with workers
* Records showing the use of progressive discipline to enforce health and safety rules
* Building Emergency Response Plan (should be updated annually or as necessary)
* Sampling and monitoring records of exposures to harmful substances
* Inventory records and federal permissions pertaining to hazardous materials
* Noise exposure measurement records and hearing tests
* Other documents applicable to the type of work (e.g. confined space permits)

Units should strive to generate statistics in order to develop and implement safety initiatives in their workplace.

Incident/Accident records are a good source for identifying trends in the workplace. The UBC Centralized Accident/Incident Reporting System ([CAIRS](https://www.cairs.ubc.ca/public_page.php)) database allows administrators access to retrieve relevant statistics. To learn how to obtain access, click [here](http://rms.ubc.ca/health-safety/safety-programs/accident-incident/ubc-cairs-for-safety-committees/).

Risk Assessments: Project planning sheets (Element 4) function as risk assessments for research projects in labs.

Supervisors are responsible to develop a working alone policy and post it in their labs and ensure that their personnel are aware of it, e.g. provide a copy of it as part of group specific safety training. Supervisors indicate the equipment and procedures that they deem sufficiently hazardous to forbid when working alone. Generally this pertains to outside of normal weekday hours (8:30 AM-4:30 PM, Mon.-Fri., except holidays, or as indicated by the supervisor). If someone needs to use equipment or conduct a procedure that is not permitted while working alone, a buddy system or call-in system must be implemented. For the buddy system the people present in the lab must be able to call for emergency help (911 or UBC first aid) and must know the building civic address. This is covered in the MTRL department safety orientation. The MTRL working alone policy is available at:

<http://mtrl.sites.olt.ubc.ca/files/2017/01/Working-Alone-or-in-Isolation-Jan-2017.docx>

Or search: mtrl.ubc.ca > Safety > Safety forms and resources > Forms and Resources for Supervisors > MTRL policy on working alone

Safety meetings minutes: LST meeting minutes are uploaded to the JOHSC SharePoint website, available at:

<https://safetycommittees.ubc.ca/johsc/find-your-johsc/joint-occupational-health-safety-committees/provost-vp-academic-a-to-l/applied-sciences/>

Or search: apsc.ubc.ca JOHSC.

LST meeting minutes are also e-mailed to faculty, staff and graduate students in the department.

Safety is an agenda item at faculty meetings. Discussion and decisions regarding safety items are recorded in the faculty meetings minutes.

Safety inspection reports: Supervisors or their designates are responsible to conduct monthly safety inspections. Reports are to be posted in labs or areas. Copies of reports must be provided to the main office for filing. Supervisors may develop inspection forms that they deem suitable. A basic monthly lab safety inspection form is available at:

<http://mtrl.sites.olt.ubc.ca/files/2020/02/Supervisors-monthly-inspection-checklist-Feb-2020.doc>

Or search: mtrl.ubc.ca > Safety > Safety forms and resources > Forms and Resources for Supervisors > Supervisors Monthly Laboratory Inspection Form. This may be modified as necessary by the supervisor.

Lead shops technicians in the machine shop and the electronics shop may use or modify the semi-annual shops inspection template form as the deem best. A link to the template form is provided below following the table of rooms inspected.

Or search: mtrl.ubc.ca > Safety > LST Safety Inspection Forms

Stores and the electron microscope lab use a monthly lab inspection form (see above). Lead technicians in these areas may modify the form as required.

The LST is responsible to conduct semi-annual safety inspections. Safety team members are assigned rooms or areas to inspect. These include labs, shops, classrooms, offices and storage areas. The rooms in the Frank Forward building that are inspected are:

|  |  |
| --- | --- |
| Room # | Room Type |
| 06A | Lab |
| 06B | Lab |
| 06C | Lab |
| 06D | Lab |
| 17 | Shop |
| 17A | Shop |
| 101/103 | Lab |
| 106/108 | Lab |
| 119 | Lab |
| 201C | Office |
| 201E | Office |
| 203 | Office |
| 205 | Lab |
| 206 | Lab |
| 210 | Lab |
| 301 | Lab |
| 308 | Office |
| 308A | Office |
| 309 | Office |
| 309A | Office |
| 310 | Office |
| 311 | Office |
| 312 | Office |
| 313 | Office |
| 317 | Class room |
| 317A | Storage |
| 319 | Class room |
| 406/408 | Lab |
| 417 | Lab |
| 419 | Lab |

Safety inspection forms are available at:

<http://mtrl.sites.olt.ubc.ca/files/2020/01/Jan-2020-Lab-safety-inspection-form.doc>

<http://mtrl.sites.olt.ubc.ca/files/2019/08/Semi-annual-shops-inspectn-form-Jan-2019.docx>

<http://mtrl.sites.olt.ubc.ca/files/2019/08/Semi-annual-office-inspection-form-Jan-2019.docx>

<http://mtrl.sites.olt.ubc.ca/files/2019/08/Semi-annual-classroom-inspectn-form-Jan-2019.docx>

<http://mtrl.sites.olt.ubc.ca/files/2019/08/Semi-annual-storage-area-inspectn-form-Jan-2019.docx>

Or search: mtrl.ubc.ca > Safety > LST Safety Inspection Forms

The paper forms are completed by the LST team members and submitted to the LST faculty co-chair. The co-chair compiles an Excel file report and submits it to the department head for review. The department head forwards the report to faculty and indicates a deadline for correction of infractions (usually about one month). The LST members then complete a re-inspection after that deadline to check for correction of infractions. These reports are submitted to the co-chair who compiles a second re-inspection report and submits it to the department head for review and subsequent action as he/she deems necessary. Semi-annual safety inspection reports and follow-up inspection reports are uploaded to the APSC JOHSC SharePoint website.

Supervisors are responsible to post records of equipment inspections in their labs and areas. Supervisors determine what equipment needs to be inspected and the inspection frequency.

Supervisors are responsible to keep records of respirator fit tests and any other safety testing records appropriate to their areas as they deem necessary.

Equipment logbooks and maintenance records: Supervisors as they deem necessary will have equipment logbooks and maintenance records.

Accident/Incident statistics: Annually the SPA will review accident and incident reports as part of the safety program review. See Element 14.

Supervisors’ notes and logs of health and safety contacts: If specific safety concerns arise between a supervisor and staff or students, supervisors should keep records of these interactions (e.g. an email trail).

Progressive discipline records: Safety violations when noticed may be reported to the LST faculty co-chair. The supervisor will be informed and is expected to discuss with the person involved and instruct as needed. If there is a subsequent violation reported then the person involved and the supervisor are to meet with the department head to discuss the matter, including the possibility of disciplinary action.

Building emergency response plan: The Building emergency response plan is maintained by the Building emergency response director (MTRL faculty LST co-chair). It is available at:

<http://mtrl.sites.olt.ubc.ca/files/2019/09/Jun-2019-Building-Emergency-Response-Plan-MTRL.pdf>

Or search: mtrl.ubc.ca > Safety > MTRL Building-Emergency-Response-Plan

Sampling and monitoring for harmful substances: Sampling and monitoring for exposure to hazardous substances may be initiated by the department head if the need arises. The SRS Occupational Hygiene Advisor must be contacted. Analysis may be conducted by a qualified member of the department or an outside agent. Records of the reports are kept by the LST faculty co-chair. Follow-up corrective actions if required are indicated by the department head. The LST remains involved throughout keeping this as an item on safety meeting agendas.

Inventory records and federal permissions pertaining to hazardous materials: At the time of writing this manual, the only pertinent items are those associated with radioactive materials licenses. Supervisors are responsible to keep inventories of such items.

Noise measurement records and hearing tests: At the time of writing this manual, there has not been a need for noise measurements nor hearing tests.

# Element 9: Joint Occupational Health and Safety Committee (JOHSC) and Local Safety Team (LST)

A JOHSC is made up of worker and employer representatives working together to identify and resolve health and safety problems in the workplace. They are mandated to advise, assist, and make recommendations to improve occupational health, safety, and personal security within UBC’s workplace environments. To be successful, the committee must meet at least once per month, operate in an atmosphere of cooperation and be effective in promoting and monitoring a sound occupational health and safety program.

The committee’s role (through various activities) in the workplace includes:

1. Promoting safe work practices
2. Assisting in creating a safe and healthy workplace
3. Recommending actions which will improve the effectiveness of the occupational health and safety program, and
4. Promoting compliance with the WCA and the Occupational Health and Safety Regulation (OHSR).
5. Participating in inspections and incident investigations

For more information about the JOHSC, refer to the [JOHSC Reference Manual](http://safetycommittees.sites.olt.ubc.ca/files/2017/09/JOHSC-Reference-Manual.pdf)

Our JOHSC is the Faculty of Applied Science JOHSC (APSC JOHSC)

Their minutes ca be found here:

<https://rms.share.ubc.ca/safetycmtes/FOAS/JOHSCDOCS/APSC%20JOHSC-Terms-of-Reference-Oct%202019.pdf?Web=1>

LSTs in our area are: MTRL LST and MINE LST. (See also Element 2, Local safety team (LST) members.)

**RESOURCES**

The following Resources can be found on the [Safety Committees Website](http://safetycommittees.ubc.ca/johsc/johsc-toolkits/johsc-toolkits/)

* Information pertaining to each JOHSC
* JOHSC Terms of Reference Template
* JOHSC Meeting Agenda Template
* JOHSC Minutes Template

**Element 9: Joint Occupational Health and Safety Committee and Local Safety Team (cont’d)**

**LOCAL SAFETY TEAM**

A Local Safety Team (LST) is a dedicated safety advisory group for a building, department or area that assists the JOHSC in assisting occupational health and safety initiatives in workplaces across the University. The LST has a mandate to advise, assist and make recommendations to Heads of Units and the correlated JOHSC to improve health, safety and the personal security for all faculty and staff.

Each Faculty/Department has a variety of work groups and workplaces within its portfolio which have a diverse set of functions and related hazard potential. It is felt that one JOHSC within the Department would be overwhelmed in this diverse workplace, so the decision has been taken to organize and implement LSTs to provide site specific safety information to JOHSCs.

The role of the LST is to:

* Assist local supervisory staff Identify hazards in the workplace
* Participate in, discuss, and review investigations within their work area.
* Conduct, discuss and review workplace inspections.
* Collaborate with JOHSC in the development of health and safety initiatives
* Recommend actions that will improve the effectiveness of the Health and Safety Program
* Educate and promote WorkSafeBC regulatory requirements to faculty and staff in their area
* Identify and escalate items beyond their local scope of control to the JOHSC

**WHY SHOULD AN LST BE ASSEMBLED?**

* The JOHSC membership is unable to perform inspections for all their areas of responsibility
* The members of the JOHSC are unable to participate in incident investigations for all areas in their area of responsibility
* There are geographical constraints that would limit the effectiveness of the JOHSC (e.g. Off- campus facilities )
* There is an increased safety risk in the day-to-day work activities in a given area that requires local expertise and oversight. (e.g. Theatres, gardens, farms etc.)

**RESOURCES**

* The following Resources can be found on the [Safety Committees Website](http://safetycommittees.ubc.ca/local-safety-teams-lsts-2/local-safety-teams-lsts/) 
  + [LST Terms of Reference](http://safetycommittees.ubc.ca/local-safety-teams-lsts-2/local-safety-teams-lsts/)
  + [LST Meeting Agenda Template](http://safetycommittees.ubc.ca/local-safety-teams-lsts-2/local-safety-teams-lsts/)
  + [LST Meeting Minutes Template](http://safetycommittees.ubc.ca/local-safety-teams-lsts-2/local-safety-teams-lsts/)
  + [LST General Inspection and Report Template](http://safetycommittees.ubc.ca/local-safety-teams-lsts-2/local-safety-teams-lsts/)

# Element 10: Emergency Procedures and First Aid

The purpose of first aid and emergency services are to:

* Ensure prompt and effective emergency response
* Minimize the effects of injuries/exposures and promote speedy recovery
* Provide workers with assistance when required

**UNIT REQUIREMENTS FOR EMERGENCIES**

1. Units must understand how to provide employees with a quick and effective response in the event of injuries or emergencies.

UBC first aid is available by contacting 604 822-4444.

1. Supervisors are required to communicate emergency numbers and procedures to workers during orientation and to regularly review this information during staff meetings. Annual emergency and evacuation drills shall be practiced to ensure awareness and effectiveness of emergency routes and procedures. The success of the First Aid and Emergency Service Programs depends on employees knowing what to do in emergency situations, both major and minor.

Training for all new personnel for accessing first aid is provided through mandatory SRS courses and the department safety orientation worksheet available from mtrl.ubc.ca.

1. The risks associated with the Unit’s work process and related control measures must be communicated with employees and understood.

Each lab and shop setting has its own particular hazards. Communication of the hazards is to be provided by supervisors or their designates through the group specific training (see Element 6).

1. All training, meetings and drills shall be documented to meet due diligence requirements.

See Element 8 for documentation of safety training. Fire drills are documented in the Building Emergency Response Plan.

1. Management will provide all tools and resources required for these programs to be effective. These include:

* Appropriate emergency response plans and equipment
* Education and training of Unit
* Time made available to allow key personnel to complete their duties
* Established chain of command for emergency situations.

Each floor of the building has a floor warden and an alternate floor warden (see the Building Emergency Response Plan). When an evacuation is initiated floor wardens are responsible to check floors and urge people to evacuate. Floor wardens report to the building emergency response director or his/her alternate during an evacuation. The Department head retains authority for directing additional actions in an emergency.

**BUILDING EMERGENCY RESPONSE PLANS AND PROCEDURES**

The Unit has a current completed [Building Emergency Response Plan](https://rms.ubc.ca/emergency/emergency-plans/#How%20do%20you%20create%20a%20BERP?) that details plans and procedures for situations where emergencies could arise. These plans and procedures deal with fire prevention, emergency evacuation, personal security, earthquake and bomb threats.

Depending on the nature of the emergency, response will be provided by Vancouver Fire and Rescue Services, the local detachment of the RCMP, Campus Security and/or SRS.

The UBC Building Emergency Response Plan must be completed for each UBC Building

The Building Emergency Response Plan is described in Element 8.

**Element 10: Emergency Procedures and First Aid (cont’d)**

**UNIT REQUIREMENTS FOR FIRST AID**

**University “2-4444” Central First Aid System**

The UBC Occupational First Aid program will provide first aid coverage for all Faculty, Staff, and Paid/Practicum Students for the UBC Point Grey Campus, 24 hours a day.

Faculty, Staff and Paid/Practicum Students can call 604-822-4444 (or 2-4444 on a campus phone) which will summon trained first aid attendants, to the location of the injured person.

The First Aid attendants will:

* Promptly provide first aid at a level of care within the scope of their first aid training.
* Objectively record observed or reported signs and symptoms of injuries and illnesses in the first aid record
* Refer workers with injuries and illnesses beyond the scope of their training to medical attention
* Arrange for transport of a worker to medical aid, as required (Attendants can decide whether an injury requires rapid transport, or to transport to UBC Hospital or clinics on campus via first aid vehicle)

In the event of a medical emergency all Faculty, Staff and Paid/Practicum Students should first call 911 and then first aid at 604-822-4444. This will ensure the quickest response for assistance.

Supervisors must ensure that signs clearly indicating the location of, and how to call for, first aid are posted conspicuously throughout the workplace, and communicated to the workers in the Unit.

First aid access posters are posted through the building, including in labs and shops. Accessing first aid is covered in the department safety orientation worksheet. All first aid is provided by UBC first aid.

**FIRST AID AT OFF CAMPUS LOCATIONS**

Supervisory staff are required to educate Faculty, Staff and Paid/Practicum Students under their responsibility when and how to summon first aid at their location.

**Element 10: Emergency Procedures, First Aid and AEDs (cont’d)**

**AUTOMATED EXTERNAL DEFIBRILLATORS (AEDS)**

AEDs have been installed in a variety of UBC buildings to provide quick response in the event of a cardiac arrest. The defibrillator provides quick access to help and can increase the chance of saving someone’s life. You can download a list of [UBC Vancouver Buildings with AEDs](https://srs.ubc.ca/health-safety/safety-programs/first-aid/automated-external-defibrillators/#Where%20are%20AEDs%20located%20on%20the%20Vancouver%20campus?) .

An AED is located on the first floor of the Frank Forward Building near the main (north) entrance.

Using a defibrillator is safe and straightforward, and its light weight means it can be carried to where it is needed. Once activated, the device provides easy-to-follow voice instructions and automatically determines if someone requires a life-saving shock. Defibrillators cannot do harm, and will only deliver a live-saving shock if it is required in the case of cardiac arrest. It will not shock someone accidentally. When an AED is used, a CAIRS report must be completed and you must contact Campus Security who will retrieve the used AED and replace it with a temporary unit.

**RESOURCES**

* First Aid Poster ([UBC Vancouver Occupational First Aid Poster](http://rms.ubc.ca/health-safety/safety-programs/first-aid/workplace-first-aid-for-employees/#What are the first aid attendant responsibilities?))
* [AED Locations at UBC Vancouver](https://srs.ubc.ca/health-safety/safety-programs/first-aid/automated-external-defibrillators/#Where%20are%20AEDs%20located%20on%20the%20Vancouver%20campus?) ([General AED Information](http://rms.ubc.ca/health-safety/safety-programs/first-aid/automated-external-defibrillators/)
* Building Emergency Response Plan ([Sample Template](http://rms.ubc.ca/emergency/emergency-plans/#What is a BERP?))

# Element 11: Hazardous Materials Management

**BIOLOGICAL SAFETY**

Biosafety is the containment principles, technologies and practices that are implemented to prevent unintentional exposure to biological material and toxins, or their accidental release. The primary objective of the UBC Biological Safety Program is to facilitate and ensure the safe and knowledgeable use of biological materials in research, teaching and the environment. Additionally, the Biosafety Program supports the containment practices for genetically modified organisms, environmental pests/insects, and invasive species

Approval for research projects using biological substances must be sought, in the form of a biosafety permit application, from the University Biosafety Committee for review prior to release of funding. Once approved, a UBC Biosafety Permit is issued by the UBC Biosafety Committee through the UBC Research Information System ([RISe](https://www.rise.ubc.ca/)). The Permit, which states the allowable biological substances, methods and spaces where they may be used and stored, must be posted in each room listed on the permit. Only study team members listed in the permit application are authorized to do the work described in the permit.

The Biosafety Office acts as a resource on issues of biosafety, including pathogen & toxin acquisition, training, laboratory design and equipment selection. Specialized, mandatory training is offered for permit holders, study team members and people shipping or receiving infectious materials.

Specialized inspections of permitted spaces are done as necessary to maintain facility certifications, obtain importation permissions and keep permits in good standing.

At this writing there are no research projects in the Frank Forward building involving biohazardous agents. If a project involving a biohazardous agent is to be undertaken the persons involved must take the UBC Biosafety course.

**CHEMICAL SAFETY**

The Chemical Safety Program promotes the recognition, evaluation and control of chemical hazards that may cause illness, impaired health or significant discomfort to UBC faculty, staff and students.

The Chemical Safety Program incorporates the entire lifecycle of the chemical beginning with purchasing and ending with disposal. The aim is to ensure faculty and staff are properly informed on the use and handling of chemicals that are capable of causing injury, illness, disease, fire, explosions or property damage.

All research personnel in the Frank Forward building who might have to work with chemicals or who might come into contact with chemicals are required to take the safety training outlined in previous elements. Ongoing requirements for people working with chemicals have been outlined in previous elements.

**Element 11: Hazardous Materials Management (cont’d)**

**RADIATION SAFETY**

Radiation Safety is the protection of people and the environment from the harmful effects of ionizing radiation. The primary objective of the UBC Radiation Safety Program is facilitate and ensure the safe, knowledgeable and legal use of radiation sources and devices in research and teaching.

All research projects using radioactive substances and/or radiation devices must be submitted to the University Radiation Safety Committee for review prior to release of funding to verify that the work planned is compliant with the terms of UBC’s CNSC licensing. Once approved, a UBC Radiation Permit is issued by the Committee through [RISe](https://www.rise.ubc.ca/). The Permit, which will state the types and amounts of radiolabeled compounds and radiation devices as well as the spaces where they may be used and stored, must be posted in each room listed on the permit. Only study team members listed on an approved permit are authorized to work with radiation as described in the permit.

The Radiation Safety Office acts as a resource on issues of radiation protection, including radiation acquisition, handling and disposal, training, laboratory design and equipment selection. Specialized training is offered for authorized users of open source and sealed substances. The Radiation Safety Training course provides an introduction to the safe handling of radioactive sources and is mandatory for all faculty, staff and students prior to commencing work with radioactive materials.

Specialized inspections are done of permitted spaces as necessary to maintain institutional licensing, obtain importation permissions and keep permits in good standing.

All personnel working with radioactive materials in the Frank Forward Building are required to take the UBC Radiation Safety courses and abide by the regulations and requirements for having a radiation permit.

**RESOURCES**

* [Policy SC1](https://universitycounsel.ubc.ca/board-of-governors-policies-procedures-rules-and-guidelines/policies/)
* SRS Website ([Biological Safety](http://rms.ubc.ca/health-safety/research-safety/biosafety/))
* [Biological Safety Manual](http://riskmanagement.sites.olt.ubc.ca/files/2015/09/Biosafety-Manual-2012.pdf)
* SRS Website ([Chemical Safety)](https://srs.ubc.ca/health-safety/research-safety/chemical-safety/)
* [WHMIS Information and Training](http://rms.ubc.ca/health-safety/research-safety/chemical-safety/whmis-and-globally-harmonized-system-ghs/)
* [Chemical Safety Manual](https://riskmanagement.sites.olt.ubc.ca/files/2017/12/Chemical-Safety-Manual_2017.pdf)
* [Spill Clean Up Procedure](http://riskmanagement.sites.olt.ubc.ca/files/2017/11/Chemical-Spill-Cleanup-SWP.pdf)
* [SDS Database](http://ccinfoweb.ccohs.ca/)
* SRS Website ([Radiation Safety](http://rms.ubc.ca/health-safety/research-safety/radiation-safety/))
* [Radiation Safety Manual](http://riskmanagement.sites.olt.ubc.ca/files/2015/09/Radiation-Reference-Manual-2011-1.pdf)
* Supervisors are responsible to keep inventories of chemicals, peroxidizable chemicals (separate inventory and testing records), biohazardous materials and radioactive materials. Inventories are to be posted in their labs/areas and must be updated annually or as required. Testing records for peroxidizable chemicals must be updated as required by the type of peroxidizable chemicals on hand. See the SRS Chemical Safety Manual (available from mtrl.ubc.ca > Safety > Safety forms and resources > Resources and guides) for more information.
* The department safety rules are available on the MTRL website, Safety page. Safety rules for undergraduate labs are posted in laboratories and on the MTRL website safety page (see mtrl.ubc.ca > Safety > Safety forms and resources > Resources and guides). Supervisors may post/disseminate safety rules for their labs or areas if they deem it necessary.
* Notice of location of Safety Data Sheets is posted in labs. This is covered in the MTRL department safety orientation.

# Element 12: Occupational Hygiene

**DEFINITION AND PURPOSE**

Occupational Hygiene promotes a safe a healthy environment by providing information and advice on prevention of ill health from work activities.

**OCCUPATIONAL HAZARDS**

A hazard is anything in the workplace that poses a risk to buildings, machinery/equipment, or individuals. The following items are occupational hazards that can be found in many workplaces.

**Hygiene Hazards**

A hygiene hazard is anything that could cause adverse health effects. Most hygiene hazards can be categorized as physical, biological, or chemical hazards.

|  |  |
| --- | --- |
| **Hazard Type** | **Source** |
| Physical | noise, light, temperature, and radiation; in MTRL this also includes: high force, sharp objects, electricity |
| Biological | micro organisms, toxins and animal allergens |
| Chemical | acidic, basic, and organic vapors in the interior air; in MTRL this also includes: corrosive, toxic, flammable, combustible, explosive |

To determine if a hygiene hazard can result in adverse health effects, monitoring needs to be carried out through either personal sampling or area sampling using specialized equipment. The results from all monitoring are compared to WorkSafeBC regulations or other applicable standards to ensure compliance. If compliance is not achieved then the necessary controls need to be implemented. See the [SRS website](http://rms.ubc.ca/health-safety/occupational-hygiene/occupational-hazards/hygiene-hazards/) for further information.

Volatile, hazardous chemicals, dusty materials and materials emitting mists must be used in a fume hood or with a NIOSH approved respirator and suitable cartridges. Where respirators are used, others in the vicinity must not be exposed to the vapours, dusts or mists unless they too are appropriate respirators.

**Noise Hazards**

Noise levels greater than 85 decibels, averaged over eight hours, can damage hearing. If anyone is exposed to this level of noise, controls must be implemented to mitigate the risk of hearing damage.

Nuisance noise is noise that does not cause hearing loss, but may have a psychological effect and impact employee performance. Due to its effect on employees, it should be minimized where possible and should be managed at a local level.

As with any exposure, the hierarchy of controls should be used when controlling for noise exposure. See [Noise Hazards](http://rms.ubc.ca/health-safety/occupational-hygiene/occupational-hazards/noise-hazards/) for further information.

If you are concerned that noise in your workplace exceeds 85 dBA, contact the [Occupational Hygienist](mailto:occhygiene@rms.ubc.ca) to arrange an on-site noise assessment. This assessment will determine if a hearing test is required and if other controls need to be used in that area.

**Element 12: Occupational Hygiene (cont’d)**

**Indoor Air Quality (IAQ) Hazards**

IAQ deals with the content of interior air that could affect the health and comfort of building occupants. The IAQ may be compromised by microbial contaminants (mold, bacteria), chemicals (such as carbon monoxide, radon), allergens, or any particulate or environmental stressor that can induce health effects.

If you are concerned about poor Indoor Air Quality at your workstation please see the [SRS Website](http://rms.ubc.ca/health-safety/occupational-hygiene/occupational-hazards/indoor-air-quality-iaq-hazards/#What%20are%20the%20steps%20for%20beginning%20an%20investigations%20on%20poor%20IAQ?) for more details on how to proceed.

**Scents in the Workplace**

Exposure to scented products can adversely affect a person’s health. In high concentrations, scented products may trigger a negative responses for those with allergies or chemical sensitivities. Dealing with a scent situation can be a sensitive undertaking. There is a delicate balance between expressing your concern to the individual and appearing to be confrontational.

Scent situations can be brought to the attention of your supervisor, Joint Occupational Health and Safety Committee (JOHSC) representative and/or Local Safety Team (if available). See the [SRS Website](http://rms.ubc.ca/health-safety/occupational-hygiene/occupational-hazards/scents-in-the-workplace/) for more information.

**Respirators**

Respirators must be fitted to the individual, which ensures the respirator fits properly on the face. Respirator fit is affected by scarring, dental work, surgery, weight loss, facial hair. A respirator fit testing session will ensure individuals are competent at putting on their respirator.

Respirator fit testing is required prior to the first use of your respirator and annually thereafter, as required by WorkSafeBC regulations. For more information on respirators and fit testing, see the [SRS Website](http://rms.ubc.ca/health-safety/occupational-hygiene/respiratory-safety/).

Respirator fit certification is valid for one year from date of testing. SRS performs testing. Other qualified agencies may also perform fit testing (e.g. departments with trained personnel) and certify fit testing. Respirator fit test certificates/records must be kept by the supervisors.

# Element 13: Contactor Safety

It is the intent of UBC to provide a safe, healthy and secure environment for all members of its faculty, staff, students and visitors. As a contractor, it is your responsibility to ensure that project work is performed in a safe manner, and that it is in compliance with WorkSafeBC Occupational Health and Safety Regulations, any other applicable provincial and/or federal laws and/or regulations, and any UBC policies, procedures and other requirements that may apply.

The University expectations are that contractors will train, supervise, and direct their employees to be mindful of the safety of UBC’s students, faculty, employees, neighbors and property, when performing work on UBC’s premises. The manual below does not address, and is not intended to abrogate or assume responsibility for the contractor’s duty to its employees. Nor does the manual provide an exhaustive outline of laws, ordinances or regulations governing environmental, health and safety compliance. Rather it is provided to identify specific responsibilities, communicate the availability of hazard information for university properties and to outline UBC Safety and Environmental procedure.

**RESOURCES**

* [Contractor Safety Manual](https://srs.ubc.ca/health-safety/safety-programs/safe-work-processes/contractor-safety/)

# Element 14: Program Review

To ensure the overall success of a Health and Safety Program (HSP) a system for evaluation must be in place. The purpose of a reviewing and evaluating an HSP is to determine and implement changes needed to continually improve all elements health and safety in the workplace.

These evaluations/reviews are to be designed to:

1. Identify the strengths of the Unit's HSP
2. Identify areas of non-compliance (with WorkSafeBC and UBC Policy requirements)
3. Identify where the HSP could be further improved so as to achieve higher levels of health, safety and compliance
4. Assist the Unit in reducing workplace injuries and the resulting operational disruption.

Once the evaluation has been completed, identified improvements must be implemented using a standardized **Plan-Do-Check-Act** continual improvementcycle:

1. **Plan**: Developing an action plan based on risks and opportunities to improve the health and safety program in your area of responsibility
2. **Do**: Prioritize recommendations and assign accountability for implementation of plan
3. **Check**: Monitor and measure activities and processes with regard to health and safety objectives. Document a report of the results
4. **Act**: Take actions to continually improve health and safety performance to achieve the intended outcomes

Annually the LST faculty co-chair will review accidents and incidents, the LST meeting minutes, faculty meeting minutes regarding safety issues and communications from UBC SRS and the APSC JOHSC. A report will be written and provided to the department head for review. The department head may provide directives on any necessary safety program changes or initiatives as he/she deems necessary. Any changes to the safety program will be noted by the SPA in the safety program manual. Changes will be indicated in the relevant training and safety resources or new resources as needed. Department personnel will be notified.