

University of
Lethbridge



Facilities

*Planning & Capital
Projects*

Health & Safety Program

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

ORGANIZATIONAL COMMITMENT

ORGANIZATIONAL COMMITMENT

RESPONSIBILITIES

The ultimate responsibility for establishing and maintaining the Occupational Health and Safety Program on campus rests with the Board of Governors of The University of Lethbridge. Basic policies, which govern the activities and limitations of the Health and Safety program, are proposed by the President of The University of Lethbridge and issued under the final authority of the Board of Governors.

The primary responsibility for providing and maintaining a healthy and safe campus environment on a day-to-day basis lies at the operational departmental level. Specific responsibilities of all Facilities staff are directly proportional to their operational authority and are listed below.

The Facilities Department requires that all supervisors and employees adhere to the policies, regulations and procedures set forth in this manual as well as the policies and regulations of The University of Lethbridge and the Alberta *Occupational Health & Safety Regulation and Code*. This manual does not replace the standards set forth by The University of Lethbridge or the Alberta *Occupational Health & Safety Regulation and Code*. Where there are discrepancies the stricter will apply.

Executive Director of Facilities:

It is the responsibility of the Executive Director of Facilities to maintain a healthy and safe working environment within the jurisdiction, to monitor and exercise control over assigned areas and implement the following designated safety-related responsibilities:

- Providing management the support and leadership necessary for the overall planning, implementation and execution of The University of Lethbridge safety policies within their areas of responsibility.
- Incorporating adequate provisions for safe working practices and conditions in operational policies and procedures and in programs and projects.
- Monitoring and evaluating safety performance within their areas of responsibility and recommending measures to bring about improvement.

Superintendents, Managers and Supervisors

All Superintendents, Managers and Supervisors within Facilities are responsible for ensuring that facilities and conditions under their jurisdiction are monitored and maintained in a safe manner at all times. Special emphasis should be given to ensuring that adequate training is provided prior to tasks being assigned. It is expected that preference will be given to following established safe work procedures over expedient hazardous shortcuts in all operations. Further responsibilities include:

- Ensuring compliance with the Alberta Occupational Health and Safety Regulations and Code;
- Planning and executing all activities in a manner that promotes compliance with The University of Lethbridge safety policies.
- Ensuring that individuals in their areas of assignment have been given adequate direction, training and instruction in the safe performance of their work, and that it is performed without undue risk.
- Ensuring that employees are provided with all tools and equipment (including Personal Protective Equipment (PPE) complete with instructions on its proper use), necessary to

carry out their duties without jeopardizing their health and safety or the health and safety of others.

- Ensuring that work areas are inspected at regular intervals to prevent the development of unsafe conditions and practices.
- Authorizing the action necessary to correct substandard conditions or procedures.
- Ensuring all incidents and near misses are reported and investigated, and action taken to prevent a recurrence.
- Making every effort to ensure that medical treatment is received for all injuries.

Employees

All Facilities employees are subject to the health and safety requirements established in this manual, to departmental operational procedures and to all other applicable regulatory requirements. Responsibilities of employees include:

- Observing all safety rules and procedures established by the regulatory authorities and The University of Lethbridge.
- Consulting with their Supervisor on the safe way to perform a task which is considered hazardous or is known to be hazardous, prior to beginning the task.
- Performing a Hazard Assessment before commencement of any task, involving the physical environment, to ensure all control measures are in place to safely execute the task without risk to themselves, other employees or the public.
- Wearing Personal Protective Equipment when required to ensure health and safety are not jeopardized.
- Promptly reporting hazardous or unsafe equipment, facilities, conditions, procedures or behavior to a supervisor, making suggestions for their corrective action and taking corrective action where authorized.
- Immediately reporting to a supervisor all work related incidents or injuries and obtaining first-aid treatment without delay.
- Reporting promptly to a supervisor any treatment by a physician following a work related injury.

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

HAZARD IDENTIFICATION

HAZARD IDENTIFICATION

A consistent hazard evaluation process was used throughout the Facilities departments for hazard identification of the various job tasks performed, and equipment used. Workshops were conducted to train employees and managers on how to evaluate the hazards associated with their jobs.

The employees performing the tasks, and operating the equipment conducted all evaluations.

HAZARDS

For each job task and piece of equipment evaluated the following OH&S industry standard hazards were taken into consideration:

- 1. Falling Objects**
- 2. Chemical Exposure**
- 3. Exposure to Heat / Cold**
- 4. Dust / Vapours**
- 5. Light Radiation**
- 6. Electrical**
- 7. Noise**
- 8. Eye Injury**
- 9. Repetitive Strain / Motion**
- 10. Lifting**
- 11. Slips / Falls**
- 12. Ice / Docks & Roads**
- 13. Rotating Equipment**
- 14. Pinch Points**
- 15. Cuts**
- 16. Eye Strain**
- 17. Fire**
- 18. Asbestos**
- 19. Radioactive Exposure**
- 20. Working Alone**
- 21. Mould**
- 22. Pedestrian / Vehicular Traffic**
- 23. Bio-Hazardous Material**
- 24. Wildlife Hazards**
- 25. Asbestos Awareness Information**

The above list shall be used as a guide in reference to hazards identified throughout this manual.

HAZARD ASSESSMENT

The fundamental principle of a Health and Safety Program is to reduce injury and disease to employees. One of the most important aspects of a health and safety program is hazard assessment. Hazard identification is crucial in the workplace.

Conducting a Hazard Assessment

1. The job tasks are listed.
2. Compile a master list of the jobs.
3. Determine the hazards associated with the jobs. Each hazard is determined as if there are not controls in place. For example, chemical splash without safety goggles.
4. Rank the **exposure**
 - 1 = unlikely: a person is exposed to the hazard 1x a year or less
 - 2 = occasionally: a person is exposed to the hazard 1x month or less
 - 3 = often: a person is exposed to the hazard more than 2x but less than 4x per month
 - 4 = frequently: a person is exposed to the hazard 1x or 2x per week
 - 5 = continuous: a person is exposed to the hazard 1x or more per day
5. What is the **probability of occurrence**
 - 1 = unlikely to occur
 - 2 = some chance
 - 3 = could occur
 - 4 = good chance
 - 5 = will occur if not attended to
6. What are the **consequences**
 - 1 = insignificant: a person receives a very minor injury, no damage to property
 - 2 = first aid or minor property damage: a person administers first aid to self
 - 3 = injury results in lost time, seeking medical help or significant property damage
 - 4 = injury results in permanent disability, serious health effects or property damage
 - 5 = injury results in a fatality, or there is major property damage
7. Add the numbers to reach a total risk rating. A risk rating of:
 - Serious (11 – 15)** means the hazard must be attended to immediately, prior to the commencement of the job. Controls **must** be put into place. A safe job procedure **must** be in place prior to the commencement of the job.
 - Moderate (6 – 10)** means the hazard requires attention. Controls **should** be put into place. A safe work procedure **should** be in place prior to the commencement of the job, but could be attended to once the job has commenced. Employees **must** be aware of the hazard. The safe work procedure **must** be in place prior to the completion of the job.
 - Low (3 – 5)** means the hazard requires monitoring. Controls are recommended. A safe work procedure is recommended.

HAZARD ELIMINATION AND CONTROL

If an existing or potential hazard to workers is identified during a hazard assessment, measures must be taken to:

- eliminate the hazard, or
- If elimination is not reasonably practicable, control the hazard

If reasonably practicable, the hazard must be eliminated or controlled through the use of engineering controls.

If a hazard cannot be eliminated or controlled using engineering controls, administrative controls must be used to control the hazard to a level as low as reasonably achievable.

If a hazard cannot be eliminated or controlled using engineering or administrative controls, then appropriate personal protective equipment must be used.

If a hazard cannot be eliminated or controlled using any one of the above controls, then a combination of these should be used if this would provide a greater level of worker safety.

If emergency action is required to control or eliminate a hazard that is dangerous to the safety or health of workers:

- only those workers competent in correcting the condition, and the minimum number necessary to correct the condition, may be exposed to the hazard, and
- every reasonable effort must be made to control the hazard while the condition is being corrected.

The following are some examples of controls.

Engineering controls

- Design of a workplace
- Automation/material handling devices
- Machine guard, interlocks, lockouts, warning devices
- Isolation/enclosure
- Limitation (safety valves)
- Ventilation (general dilution/local exhaust)
- Storage
- Air monitoring devices
- Communication devices

Administrative controls

- Substitution of a less toxic product
- Purchasing criteria (tools, equipment, chairs, etc)
- Policies and procedures
- Training
- Organizing and planning work
- Rotation of workers
- Safety plan/procedure

Personal Protective Equipment (PPE)

- Hard hat
- Goggles
- Hearing
- Safety boots
- T-shirts with 4 inch sleeves
- Respiratory protective equipment
- Fall protection

HAZARD IDENTIFICATION FOR CONTRACTED PROJECTS

In order for the awarded contractor to be Prime, the area must be completely secured from outside general traffic, including other contractors working on non-related projects. If the area is accessible to other contractors, and general public, then the University of Lethbridge must be Prime Contractor.

GENERAL CONTRACTOR – PRIME CONTRACTOR

If the hired Contractor is Prime, the Contractor must hold a current C.O.R., and they are responsible for making sure a hazard assessment is conducted for the various jobs they will be carrying out, and are responsible for supplying / implementing the hazard controls necessary.

Before the startup of a project, the Facilities Project Manager is to meet with the Prime Contractor to review the scope of the project and conduct a Site Specific Hazard Assessment.

UNIVERSITY OF LETHBRIDGE – PRIME CONTRACTOR

If the U of L is the Prime Contractor, then we are to conduct a hazard assessment of the work being carried out. The General Contractor (if applicable) and a representative (preferably the foreman) from each of the trades must be present. The U of L is then responsible for supplying / implementing the hazard controls necessary.

The hazard assessment procedures and spreadsheet to be used are outlined on following pages.

If a Safe Work Procedure has been written for a specific job task, we can then transfer the procedure between projects. WE DO NOT HAVE TO RE-WRITE ANY EXISTING PROCEDURES. However, a hazard assessment for that task needs to be completed for each new project, to ensure all project specific conditions are addressed. If the procedure in place needs to be modified to accommodate these specific conditions, it is done at this time.

SITE-SPECIFIC HAZARDS

All site-specific hazards need to be identified for each project, regardless of which party is the Prime Contractor. These include any hazards that may be encountered specific to the location of the work, ie: buried utilities, traffic (vehicular & pedestrian), lockout / tagouts, confined space, hot work, rooftops, etc.

A check sheet has been developed to identify site-specific hazards. The hazards are then rated on the Hazard Assessment form. This must be completed, signed, and dated by the Facilities Project Manager, the Awarded Contractor and OH&S.

The contractor must follow University procedures for obtaining any permits required for interruption of services (ie. tie-ins, lockout / tagouts etc.).

A Copy of the hazard assessments must be distributed to each of the parties present and a copy must be kept in the project file.

SITE SPECIFIC HAZARD ASSESSMENT CHECK SHEET

Project Name: _____

Project #: _____

Startup Date: _____

Finish Date: _____

Buried / Hidden Utilities

Gas _____
 Water _____
 Sewer _____
 Power _____
 Irrigation _____
 Culverts _____
 Concrete Coring _____
 Concrete Sawing _____
 Other (specify) _____

Equipment

Cranes _____
 Power Lifts _____
 Swingstage _____
 Scaffolds _____
 Ladders _____
 Temp. Stairs _____
 Const. Elevators _____
 Heavy Equip. (specify) _____
 Other (specify) _____

Utility Tie-Ins / Modifications / Relocations:

Telephone _____
 Electrical _____
 Plumbing _____
 Computer _____
 HVAC Systems _____
 Fire Suppression _____
 Other (specify) _____

Traffic

Pedestrian _____
 Vehicular _____

Welding

Indoors _____
 Outdoors _____

Hazardous Material

Chemicals _____
 PCB's _____
 Asbestos _____
 Airborne Contaminants _____
 Mold _____
 Biohazards _____
 Other (specify) _____

Occupied Area

Staff Offices _____
 Classrooms _____
 Labs _____

Enclosed Space

Confined _____
 Restricted _____

Miscellaneous (specify)

Permits / Procedures: (Provide Utilities 24 hr. notice)

Hot Work Permit _____	Red Tag Permit _____
Lockout / Tagout _____	Notices to Public _____
Site Signage _____	Working Alone _____

 Physical Plant Project Manager

 Date

 Contractor Representative

 Date

 OH&S Representative

 Date

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

HAZARD CONTROL

SAFE WORK PROCEDURES OVERVIEW

Within Capital Projects, assessments are conducted on every project to determine existing and potential hazards. The assessment system used can be found in the previous section of this manual. Hazard controls are implemented as determined by the hazard assessment. Where applicable, Safe Work Procedures are written.

The Safe Work *Procedures* vary from the Safe Work *Practices*, in that the *Procedures* are a step by step outline on how to carry out a specific task. Safe Work *Practices* are general safety measures / precautions for tools, equipment, or general work practices which can be applied to a number of Safe Work Procedures.

Safe Work Procedures Template is designed to ensure that any information pertaining to the task could be found on the form prior to commencing work. Any hazards associated with the task, along with control measures for these hazards, specific tools or equipment required for the job, as well as references to supplementary material are all listed on the form.

A copy of the Safe Work Procedures Template can be found in this section.

SAFE WORK PROCEDURE TEMPLATE

GENERAL / BRIEF DESCRIPTION OF TASK:

FREQUENCY OF TASK PERFORMED:

HAZARDS IDENTIFIED:

P.P.E. REQUIRED:

SPECIAL TOOLS REQUIRED (if any):

SAFE WORK PROCEDURE:

CONCRETE CORING

GENERAL / BRIEF DESCRIPTION OF TASK:

Coring through concrete.

FREQUENCY OF TASK PERFORMED:

- On Demand

PROCEDURAL GUIDELINES:

- Coring is to be avoided whenever possible
 - use existing core holes in vicinity
 - cut conduit runs into the concrete topping
 - **no** coring of vertical concrete "T" slabs is permitted
- Prime Contractor shall develop project procedures and permits to suit the particular project risk analysis as determined by the hazard assessment.
- Prior to coring taking place, the executing contractor shall layout the proposed location of the cores, advise the Project Manager and request a review.
- If instructed to proceed, the contractor shall arrange through the Prime Contractor for an electromagnetic survey of the proposed core location(s).
- The University will take the survey and advise the contractor and engineer of the findings and provide a schedule for the work.
- The contractor will be instructed to proceed or to make location adjustments and then proceed.
- Should the electromagnetic survey identify a conduit in the vicinity of the core area, an on-site review and determination of how to proceed will be conducted and approved by the Project Manager. If it is determined that the core area cannot be relocated a safe distance from the conduit, the Project Manager will inform the contractor who must then obtain an electrical Lock Out / Tag Out permit (from Utilities) to de-energize the circuit prior to coring.
- All core breaches must be sealed, horizontally and vertically, with firestopping material.

HAZARDS IDENTIFIED:

Noise
Electrical – Conduit
Eye Injury
Falling Objects
Rebar
Water damage

P.P.E. REQUIRED:

- Safety Boots

SPECIAL TOOLS REQUIRED (if any):

Coring Machine & Bits

- Safety Glasses
 - Hearing Protection
 - Hard Hat
- Water Pump Can
 - Water Hose
 - Extension Cords
 - Eye Wash Solution / Station
 - Wet Vacuum
 - Clean-up equipment
 - 2-way communication

SAFE WORK PROCEDURE:

- Visually inspect worksite for all potential hazards (hazard assessment).
- Check space directly opposite the core (below or adjacent to) for occupancy. Ensure that the area is clear of people and or objects prior to commencing, in order to prevent loss due to personal injury or property from concrete and / or water used for coring.
- Always use two people, one person as the “operator” of the machine on one side, and one person as the “spotter” on the opposite side.
- An effective two-way communication system, (ie. portable radios) is to be used at all times.
- Confirm coring requirements (diameter, depth and location).
- Review location of any electrical conduit in the wall / floor space.
- Lockout / Tagout procedures are to be followed where there is presence of electrical conduit.
- Using an electromagnetic detector, check for presence of rebar. Check above and below floor, or both sides of wall if thickness of element to be cored is greater than 4 inches. Adjust coring location as necessary.
- Confirm electrical and water supplies are available for coring, or use alternate source.
- Confirm circuits being used and identify panel prior to startup. Avoid using circuits to which computers are connected. If no alternative circuit is available, prior notification must be given to other users to close out any systems. This is to protect against loss of documents in the event of accidental tripping of the circuit.
- In order to confirm the breakthrough location of the core, the operator will drill a pilot hole approximately 1/2” in diameter. The spotter should be situated on the opposite side of the element being cored. A pilot hole is not required if a coring sensor is used.
- Once breakthrough location has been determined, the spotter will place a container over the spot where the coring is to occur to contain the concrete plug and water used during coring. If any water or concrete is not contained, immediate cleanup is required.
- Ensure cleanliness of area during and after procedure. Ensure that slurry is cleaned off walls after coring of exposed concrete walls.

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

ORIENTATION & TRAINING

ORIENTATION SHEET FOR NEW EMPLOYEES

- Organizational Chart
- Campus Map
- Mission Statement
- The Departments of Facilities
- Appropriate Dress
- Issuance of Keys
- Security of Offices, Classrooms, Labs
- Cell phones
- Faxes / Long Distance Calls / Telephone Procedures
- Lateness / Unscheduled Absenteeism / Illness
- Campus Tour
- Off Campus Facilities
- Room Numbering System
- Bus Service to the University
- Parking
- Security
- Introduction to Employees / Tour of Work Area
- Introduction to Safety Manual / Program
 - OH&S Employee Orientation
 - Prime Contractor Regulations
 - Personal Protective Equipment (Purchase)
 - Safety Training
 - Asbestos Orientation
- Work Alone Policy
- Time Sheets
- Pay Periods
- Vacations
- Personal Appointments
- Use of Personal Vehicle / Insurance / Recording Mileage
- Expense Claims
- Credit Card Issuance
- Food Services
- Breaks / Lunch Schedule
- First Aid
- Recycling
- Printing / Copying
- ID Cards
- Daily Sustenance Allowance
- Coffee Fund
- Hours of Work
- Work Orders
- Planning & Capital Projects Policies and Procedures
- Office Supplies
- Recreation Services
- Orientation Sign-off Sheet

Mission Statement

- The University of Lethbridge Planning & Capital Projects Management Team supports the philosophy of the University and its commitment to the advancement of higher learning.
- The team's mission is to act as a liaison between the University stakeholders and the construction community, and to accomplish this mission in a professional manner through **teamwork**, training and technology.

Departments of Facilities

- Major Construction Projects
- Planning & Capital Projects
- Infrastructure & Engineering Services
- Security & Parking Services
- Service Centre (Work Control)
- Facility Operation & Maintenance
 - Building Maintenance
 - Caretaking
 - Grounds Maintenance & Motor Pool
 - Electrical Systems
 - Mechanical Systems
 - Operation Systems

Appearance and Dress

- The standard dress is to be office casual, however there may be times, when representing the University that a more formal attire will be required. Dress and personal appearance is to be such that it is consistent with our mission statement.

Issuance of Keys

- Each employee is assigned a key to access the Facilities Main Office and a key for their individual office from Key Control.
- Keys required to gain access to areas involved with projects will be issued and signed out on an as need basis.
- The established University of Lethbridge "*Keying Policy*" should be reviewed.
- Upon termination of employment, all keys issued to the employee are to be returned to the Key Control.

Security of Offices, Classrooms, Labs, Buildings

- Under no circumstances should an employee allow access to areas for other University Employees or Students. Refer the individual to the Administrative Support office of the room in question or Campus Security.
- If a room is normally unlocked during regular building hours ie. classrooms, the room is to be left unlocked upon leaving. If the room was locked upon arrival, re-lock when leaving.

Cell Phones

- A cell phone will be provided for all Project Managers. Issuance of a cell phone for other staff will be determined as required.
- Cell phone use is restricted to University business and University cell phone policy.

FAX's / Long Distance Calls / Telephone Procedures

- Local FAX's and phone calls do not need to be recorded.
- All long distance FAX's are to be recorded on the sheet located next to the FAX machine. Personal FAX's, are to be noted on the sheet. You will be notified of the charges when the monthly statement has been reviewed.
- Long distance phone calls are restricted to University business and should be kept to a minimum.
- To obtain an outside line dial 9 first.
- To make a connection to an on campus line the last four digits need only be entered.
- Voice mail messaging is provided. Ensure messaging is revised to reflect absence from campus.

Lateness / Unscheduled Absenteeism / Illness

- High priority is placed on your being at work consistently and on time. However, if for some valid reason you will be late or absent it is your responsibility to inform your immediate supervisor.
- Call (403) 382-7104 or (403) 380-1873 at the beginning of the work day.
- In the case of illness, if you are absent from work longer than three consecutive days, you will require a doctor's certificate in order to return.

Campus Tour

- The new employee will be taken on a tour of the campus. Points of general interest will be addressed, making reference to the various buildings and departments.

University Hall (UH) (A, B, C, D, E)

- This facility houses the cafeteria, some residences, classrooms, scientific and computer laboratories, administrative offices, plant utilities.

University Centre for the Arts (UCA) (W)

- This facility houses the departments of Art, Dramatic Arts, Music and the School of Fine Arts.
- It features a multi-purpose theatre, recital hall / film theatre, the University Gallery, classrooms, offices, practice rooms and studios.

University Library (L)

- This facility houses the University Library, offices, classrooms, and Security Services.

1st Choice Savings Centre for Sport & Wellness (CSW) (PE)

- This facility provides gymnasias, fitness centre, indoor running track, climbing wall, sauna and steam room facilities, in addition to classrooms and administrative offices.

Max Bell Regional Aquatic Centre (RAC) (PE)

- This facility houses an Olympic Standard swimming pool, administrative offices and a classroom.

Student's Union Building (SU)

- This facility features a retail floor housing the Bookstore, food kiosks, dining area, mini-mart, video games room; Students' Union offices, clubrooms, CKUL Radio, The Meliorist, the ZOO Pub, Health Services and all Student Affairs departments are located on three other floors.

Turcotte Hall (TH)

- This facility houses Facilities Department, faculty offices, classrooms, seminar rooms and study areas.

Aperture Park (AP)

- Aperture Park , comprises two apartment buildings and two townhome complexes. The names of the four buildings are Kainai House (KA), Piikani House (P), Siksika House (SI), and Tsuutina House (TU)

Anderson Hall (AH)

- This facility houses offices, classrooms, and computer labs, Financial Services, Human Resources, RSS, Cashier's Office.

Canadian Centre for Behavioural Neuroscience (CCBN) (EP)

- This facility houses scientific research labs and offices.

Hepler Hall (HH)

- This facility houses scientific research labs and offices.

Parkway Service Complex (SC)

- This building houses the garage/mechanic shop, carpenter shop, paint and sign shop, Grounds department, Materials Management, Post Office, Shipping/Receiving, Printing Services and Bookstore Receiving.

Remote Research Building (R)

- This facility houses scientific research labs, office and Aviary.

Observatory (R)

- This facility houses a telescope and other astronomical equipment.

Boneyard

- This area is for University storage exterior and interior in several buildings.

Residence Village (RV)

- Six fourplex residence buildings.

Paterson Centre (PC)

- Houses laundry facilities for RV residents, large communal room with kitchenette, storage, outdoor deck.

Markin Hall (MH)

- Under construction – completion Summer 2010 – will house Faculty of Management and School of Health Sciences.

Alberta Water and Environmental Science Building (WE)

- Under construction – completion Fall 2008 – will house research labs, aquaculture facility and offices for water and environmental science research.

Sports Field Complex (SF)

- Under construction – completion Fall 2008 – consists of an artificial turf playing field, track, practice areas, throwing areas and stadium.

Off Campus Facilities

- Biology Field Station – Westcastle
- Gushul Studio – Blairmore
- Nicholas Sheran Arena – West Lethbridge (leased space)
- Senator Burns Building at SAIT – Calgary (leased space)
- U. of L. Building – Edmonton (leased space)

Room Numbering System

- Room numbers consist of one or two letters which designate the building (or, in the case of University Hall, the section), followed by a three or four digit number. The first one or two digits designate the floor.
 - eg. TH210 is on the second floor of Turcotte Hall;
 - D630 is in D section of University Hall on Level 6.
- Building designations are as follows:
- A, B, C, D, E - University Hall (Sections start at south end)
- AH - Anderson Hall
- AV - Art Storage Building
- BF - Biology Field Station (Westcastle)
- EP - Canadian Centre for Behavioural Neuroscience
- GU - Gushul Studio (Blairmore)
- HH - Hepler Hall
- KA - Kainai House (Aperture Park)
- L - University Library
- M - Markin Hall
- N - Nicholas Sheran Arena
- P - Piikani House (Aperture Park)
- PE - 1st Choice Savings Centre for Sport & Wellness/Aquatic Centre
- PC - Paterson Centre
- R - Remote Buildings
- R100 - Research
- R110 - Grounds Storage
- R120 - Observatory
- R130 - Building Maintenance Storage
- R140 - Grounds/Housing Storage
- RV - Residence Village
- SC - Parkway Service Centre
- SI - Siksika House (Aperture Park)
- SF - Sports Field Complex

- SU - Students' Union Building
- T - Tunnel/Rotunda
- TH - Turcotte Hall
- TU - Tsuutina House (Aperture Park)
- W - University Centre for the Arts
- WE - Alberta Water and Environmental Sciences Building

Bus Service to the University

- Bus drop off / pick up areas are as follows:
 - Aperture Drive Loop at South end of Students' Union Bldg.
 - University Drive just north of Valley Road
 - Aperture Drive near SW entrance to FW parking lot
 - Refer to campus map for locations.

Parking

- Parking is available in the West, Far West, Exploration Place, and Northwest lots upon purchase of a U of L Parking Permit (Plug or Non-Plug).
- Vehicles must be parked in the applicable areas. The East, North and South lots are for special permit parking. Applications for parking in these lots can be made at the Security Office.
- Temporary permits are available at Security, Facilities Service Centre, and roadside dispensers at each entrance to the Far West Lot.
- Rover permits allow short term parking in any area on campus except for individually marked spaces and the Level 4 loading dock area adjacent to University Hall.

Security

- Office located in Library room L911
- Emergency phone dial 2345 on campus (403) 329-2345 off campus
- Lost & Found office dial 2549
- Obtain parking permit from security.

Tour of Work Area / Introduction to Planning & Capital Projects Staff

- Introduce co-workers and explain their roles
- Detailed tour of employee's work area
 - Computer equipment: computer, printers, plotter
 - Photocopiers, FAX machine
 - Plan files, project files
 - Library
 - Meeting rooms

Introduction to Other Facilities Staff

- Introduction to units in Turcotte Hall: Facilities Management, Service Centre, Building Maintenance, Caretaking, Parking Services, Major Construction Projects, Infrastructure & Engineering Services.
- Introduction to Capital Projects Accounting in Anderson Hall.
- Introduction to Grounds and Vehicle Maintenance staff in Parkway Service Complex, Security in the University Library and Utilities staff in University Hall can take place during Campus tour.

Introduction to Safety Manual / Program

- A Planning & Capital Projects Safety Manual is issued to each staff member and contents are reviewed with new staff including Prime Contractor requirements on campus.
- Review of Personal Protective Equipment policy, and **issuance of PPE**.
- Review of Safe Work Procedures.
- Introductions to RSS staff can take place during Campus tour.
- Review safety training expectations for the department.
- Asbestos orientation as to locations and how to identify.

Work Alone Policy

- Refer to department Work Alone Policy ensuring that the employee understands the policy and the importance of the compliance.
- Have employee sign that they have been shown and understand the policy. A copy of this is to go in the employee's file.

Pay Periods / Time Sheets / Exception Reports

- Salary is deposited directly into your bank account on the last banking day of each month
- Planning & Capital Projects time sheets are to be completed and handed to Admin. Assistant each week
- An Exception Report is to be completed on-line at the end of each month.

Vacation

- Vacation entitlement is based on length of employment with the University and as outlined in the AUPE or APO Handbook.
- Requests for vacation time are made with a Time Off Request form which is submitted to your supervisor
- Generally, vacation time will be granted as requested, unless your absence would be overly detrimental to the operation of the department (eg. too many staff requesting the same period of time off)

Personal Appointments

- Time off for personal appointments (i.e. medical, dental, etc.) are to be requested on a Time Off Request form
- All time off is to be recorded on the monthly exception report

Use of Personal Vehicle / Insurance / Recording Mileage

- If staff use their personal vehicles to conduct University business, mileage is to be recorded on the Planning & Capital Projects mileage sheets.
- Submit mileage sheets as necessary when amount is in excess of \$50, quarterly or annually.
- Carrying the appropriate level of insurance is the responsibility of the staff member.

Expense Claims

- Expenses incurred by staff as a result of University business or training are to be recorded on expense claim forms and submitted for reimbursement.

Credit Card Issuance

- APO positions will be issued a University endorsed American Express Card.
- Refer to University policy regulating card use and responsibilities.

Food Services

- UH – Cafeteria, Fresh Express
- SUB – Food Court; ZOO Bistro
- Library – Station
- 1st Choice Savings Centre – Tim Horton's

Breaks / Lunch Schedule

- Fifteen minute break at mid-morning and again at mid-afternoon.
- One hour lunch break at 12 noon.
- If employee takes advantage of a fitness activity during lunch the time is extended 15 minutes.

First Aid

- First Aid kit is located in TH129 (kitchen).

Recycling

- The University has an extensive recycling program.
 - white paper, coloured paper and magazines are collected in recycle bags found in numerous locations on campus
 - cardboard can be left beside the recycle bags
 - bottles/cans with refundable deposit are collected in bins provided by the Students' Union in various locations (we have our own)

Printing / Copying

- Printing Services provides a variety of services such as various types of binding, printing on material other than paper, etc.
- The Copy Centre (Level 6 UCA) handles large duplicating jobs.
- Requests for Printing or Copying services are made with a Printing Services Request form
- A photocopier is available in the Facilities area. The copier has collating, stapling and hole punching capabilities.

ID Cards

- Campus ID cards are available at no charge at the Info Tech Help Desk in Anderson Hall computer lab area
- ID cards are to be worn when visiting job sites on campus

Daily Sustenance Allowance

- APO positions are entitled to a Daily Sustenance Allowance when off campus attending seminars, training courses or other University related business.
- Refer to APO Policy and Procedures for usage.

Coffee Fund

- Coffee, tea, hot chocolate and bottled water are available to Facilities staff located in TH Level 0.
- Cost is \$5.00/month payable at the start of each month. The cost is the same for everyone no matter how much they consume.

Hours of Work

- Hours of work for AUPE positions are from 8:30 am. to 4:30 pm. Monday to Friday.
- Hours of work for APO positions are from 8:00 am. to 4:30 pm. Monday to Friday.
- Sign-out when leaving office area for a period of time, indicating expected return time and destination.

Work Orders

- Direction for another department to perform work is initiated by submitting an on-line work request.
- Show employee what information must be recorded on the form when they complete the

work request.

University Policies

- Employees are to be aware of all University policies. These may be reviewed at <http://www.uleth.ca/policymanual>.

Office Supplies

- Supplies are available in the Facilities Library TH124.
- For supplies not available in storage cabinet, submit request to Administrative Assistant.

Recreation Services

- The aquatic centre, indoor track and fitness centre are available for staff use.
- Check with the staff at the Customer Service Centre (PE160) for details on use and available programs.

EMPLOYEE ORIENTATION

This is to recognize that the employee listed below has completed the Orientation Process for Planning & Capital Projects. The employee is aware of Department and University Policies and has been provided with the necessary information to proceed with the Job Training Program.

Supervisor

Date

Employee

Date

OCCUPATIONAL HEALTH & SAFETY TRAINING

*Please record date of training session for each individual)
(Capital Projects)*

Employee Name	John Claassen Capital Projects Manager	Brad Robinson Project Manager	Doug Ross Technician	Gene Lublinkhof Project Technician	Greg Lacey Project Manager	Jason Baranec Project Manager	Robin Scha Admi
Orientation	2001	2002	Not done	2003	2001	2010	2
WHMIS	Mar 3 2004	2004	Jan 2001	Oct 2003	Mar 3 2004	2005	1
First Aid	March 26 2004	2005	May 18 2001	1999		2007	2
CPR	Mar 26 2004	2005	May 18 2001	1999		2007	2
Risk Analysis	N/A		Jan 22 2001		N/A		
Task Analysis	N/A		Jan 22 2001		N/A		
Safe Work Procedures	N/A		Mar 8 2001		N/A		
Hazard Assessment Control	May 26 2004	2004	Jan 22 2001	May 26 2004	May 26 2004		
Prime Contractor	Dec 5 2001	2004	N/A	Dec 18 2003	Dec 5 2001		
Principles of Health & Safety Management						2009	
Confined Space Entry		2004	N/A			2009	
Leadership for Safety Excellence	Feb 13/14 2002	2002	N/A		Nov 6/7 2001	2009	
WHMIS Trainer			Jan 2001			N/A	
Asbestos Awareness	N/A	2004	N/A	N/A	N/A	2009	

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

WORKSITE REVIEWS

WORKSITE REVIEWS

Project Managers are to visit the worksites of their projects on a regular basis throughout the duration of the project.

The Project Manager must wear all Personal Protective Equipment required by the job site, whenever the site is visited. The Site Supervisor, regardless of Prime Status has the right to refuse access to the site to anyone not wearing appropriate equipment.

The Project Manager must complete Construction Observation Report(s) each time the site is visited. Any unsafe practices observed are recorded on one report; and interim progress from the last visit and instructions discussed with Contractor during the visit are recorded on a second report.

The Project Manager will sign and date the Construction Observation Report(s) and distribute as outlined on the bottom of the report.

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

EMERGENCY RESPONSE PLANNING

EMERGENCY RESPONSE PROCEDURES OVERVIEW

The Capital Projects team is responsible for being aware of the Emergency Response Procedures that we have on the University of Lethbridge campus. In addition to this, Emergency Response Procedures need to be established for each project as applicable.

At the start of each project a Project Start-up Directory is exchanged between the U of L Project Manager and the Contractor. A copy of this form can be found in this section, along with a sample of the numbers exchanged. **This list must be posted at the worksite for all employees and public to reference.**

If the University of Lethbridge is Prime Contractor, we need to establish and provide the Contractor with Emergency Response Procedures / Evacuation route, and ensure all workers on site are aware of them.

If the General Contractor is Prime on a project, the General must provide the U of L Project Manager with a copy of their Emergency Response Procedures. An evacuation route will be provided to the Contractor by the U of L Project Manager.

The Contractor is responsible for ensuring an adequate number of employees are trained in First Aid and that the appropriate First Aid Supplies are available on site.



Interoffice Memorandum

Date: August 05, 2010

To: APO Managers

From: B. Sullivan

Re: Procedures for After Hour Occurrences

From time to time a situation may arise that requires the notification and/or call out of management and/or staff of the Facilities Department.

Generally, the protocol for a routine after-hours incident would be for Security to call the manager of the affected department(s). From time to time however, there may be situations, which require notification of other senior Facilities staff or senior university administration.

Security Services usually receives the initial information concerning an incident. Routine incidents will be communicated via the immediate supervisor and up through the normal channels.

Significant incidents however, must be communicated to the Office of the President/Vice Presidents via telephone or personal contact. The actual notification will be done by Director of Security Services, Director Facility Operations & Maintenance, Associate Director of Facilities, or the Executive Director of Facilities, or in their absence, a senior Facilities manager. When determining whether or not the incident is “significant”, the guiding principle is: **it is better to inform than not to inform.**

It is important that the senior administration of the University are apprised of major incidents. Significant incidents are those which:

- Seriously affect the safety of persons on campus
- Affect the integrity and reputation of the University
- Have the potential to attract the attention of the media

All media contact concerning any incident will be via the Communications Office, unless otherwise directed by the President or his designate.

The attached document outlines the process for notification in the event that the Director of Security Services, Director Facility Operations & Maintenance, Associate Director of Facilities, or the Executive Director of Facilities are not available.

Facilities managers have the discretion to call upon other department staff to deal with emergencies if they are unable to get a hold of the manager involved or the Associate Director of Facilities or Executive Director of Facilities.

The attached back up document also provides phone numbers of senior department staff that can be called upon in an emergency basis, to deal with situations that affect health and safety of campus users.

Brian Sullivan

Brian Sullivan
Associate Director
Facilities

BS:sh

Attachment: Emergency Response Callout List
Emergency Contact Numbers

cc. D. Parker
N. Walker

SPILL RESPONSE For Bio-Hazards

Blood borne Pathogens And Other Potentially Hazardous Human Materials

Definitions:

- BLOODBORNE PATHOGENS – pathogenic microorganisms that are present in human blood and cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV). Other examples include microorganisms that cause hepatitis C, i.e. Malaria.
- Other potentially Hazardous Human Materials – Human body fluids such as urine, vomit, saliva, semen and vaginal secretions.

**HEPATITIS “B” VACCINATION IS MANDATORY FOR ALL CARETAKING, SECURITY AND UTILITIES STAFF EMPLOYED BY THE UNIVERSITY OF LETHBRIDGE.
(NOTE: Building Maintenance and Grounds Staff do not require Hepatitis “B” vaccinations)**

Part of the job requirements of a Caretaker employed by the University when needed is to clean-up a blood spill or other human materials these are unknown hazards and must be treated as such. Grounds, Building Maintenance and Utilities staff and Security Officers may come in contact with these unknown hazards and must treat them as such.

Rules to follow:

- Always wear personal protective equipment in exposure situations.
- Remove PPE that is torn or punctured, or has lost its ability to function as a barrier to blood borne pathogens.
- Replace PPE that is torn or punctured.
- Remove PPE before leaving the work area.

Inspection of the job area is required prior to the commencement of the work to be executed.

- Check the area for blood borne pathogens and other potentially hazardous materials
- If this is the case, notify work control during normal work hours to arrange for Caretaking to clean up. Grounds staff will cleanup any Hazardous Materials found on campus outside of buildings.
- If cleanup is required outside normal work hours, contact your supervisor for guiding and assessment of the situation.
- Before you start the job, ensure you wear your PPE i.e. Gloves, goggles, aprons and face masks should be worn when cleaning the sewage lift stations on campus with fall restraint when working over open pit areas.

Clean-up Procedures for Blood borne Pathogens and Other Potentially Hazardous Human Materials:

- Inspect the area prior to commencement of clean-up.
- Ensure you wear P.P.E. 1- Gloves (disposable latex or vinyl)
2- Goggles
3- Apron (Optional)
- Ensure you have appropriate cleaning materials on hand.
1-Disinfectant solution (Bleach 1 in 10 dilution)
2-Absorbent cloths i.e. paper towel or disposable cloths
3-Garbage bags.
- Carefully apply bleach solution around the edges of the spill working to the center
Allow a twenty-minute contact time. Using paper towels or absorbent cloths, wipe-up spill working from the edges of the spill to the center.
- Clean the spill area again with fresh bleach solution place all materials used in double garbage bags for disposal, including disposable gloves used in the clean up.
- Immediately after spill is cleaned up you must wash your hands.
- Disposal of materials used will be at the direction of your foremen or manager.

OTHER POTENTIAL BIO-HAZARD MATERIALS

SHARPS

Far too frequently Physical Plant workers are punctured or cut by improperly disposed of needles and broken glass. This, of course, exposes them to whatever infectious material may have been on the glass or needle. For this reason, it is especially important to handle and dispose of all sharps carefully in order to protect yourself as well as others.

Rules to follow:

- Look before you reach to empty garbage containers or where your vision maybe impaired i.e. under furniture or behind fixtures.
- Ensure you wear PPE (vinyl gloves).
- Check your gloves for punctures or tears. Replace if damaged.
- Remove PPE before leaving the work area.

Clean-up Procedures for SHARPS:

- If you suspect an object to be bio-hazardous (needles etc.) contact your immediate supervisor before attempting to pick it up.
- Ensure you wear PPE 1- Gloves (disposable vinyl)
2- Goggles
- Inspect the container you are emptying (do not reach inside container).
- Before picking up any object ensure you are able to identify it is not a hazard.
- Ensure you have appropriate disposal container on hand for (sharps) objects. i.e. needles. (Your supervisor will supply appropriate disposal container.)

PROCEDURE FOR CUTS OR STAB WOUNDS FROM NEEDLES

- Report the incident to your supervisor immediately.
- Save the needle to give to medical personnel.
- You must go to your doctor or emergency for treatment.
- You will be required to fill out an accident incident report form.

-

YOU MUST KNOW AND UNDERSTAND THE FOLLOWING

- Ensure you know Safe Work Procedure for clean up of Blood borne Pathogens or other potentially Hazardous Human Materials.
- All Appropriate PPE must be worn.
- Remember to use universal precautions and treat all blood or potentially infectious body fluids as if they were contaminated. Avoid contact whenever possible, and whenever it's not wear personal protective equipment.

IN CASE OF FIRE – R.E.A.C.T.

REMOVE THOSE IN IMMEDIATE DANGER

**ENSURE DOORS ARE CLOSED
(PARTICULARLY THOSE IN THE IMMEDIATE FIRE AREA)**

ACTIVATE THE FIRE ALARM SYSTEM

CALL THE FIRE DEPARTMENT 9-1-1

TRY TO EXTINGUISH (IF SMALL)

FIRE PREVENTION DUTIES OF FIRE WARDENS

FIRE WARDENS WILL CHECK THEIR AREA(S) FOR:

- a) Accumulation of combustible material, rubbish, or flammable liquids in excess of quantities allowed.
- b) Dangerous ignition sources, i.e. worn extension cords, oily rags, overheating equipment.
- c) Exit lights in good working order and adequate lighting in public corridors and stairwells.
- d) Fire and exit doors and their self closing hardware in good operating condition (Doors should not be wedged open under any circumstances).
- e) Exit routes unobstructed.
- f) Fire hose and portable extinguishers not obstructed, in good working order and ready to use.

ALL FIRE HAZARDS THAT ARE DISCOVERED MUST BE REPORTED TO THE BUILDING FIRE WARDEN OR DELEGATE IMMEDIATELY.

GENERAL RESPONSIBILITIES OF FIRE WARDENS DURING AN EMERGENCY EVACUATION

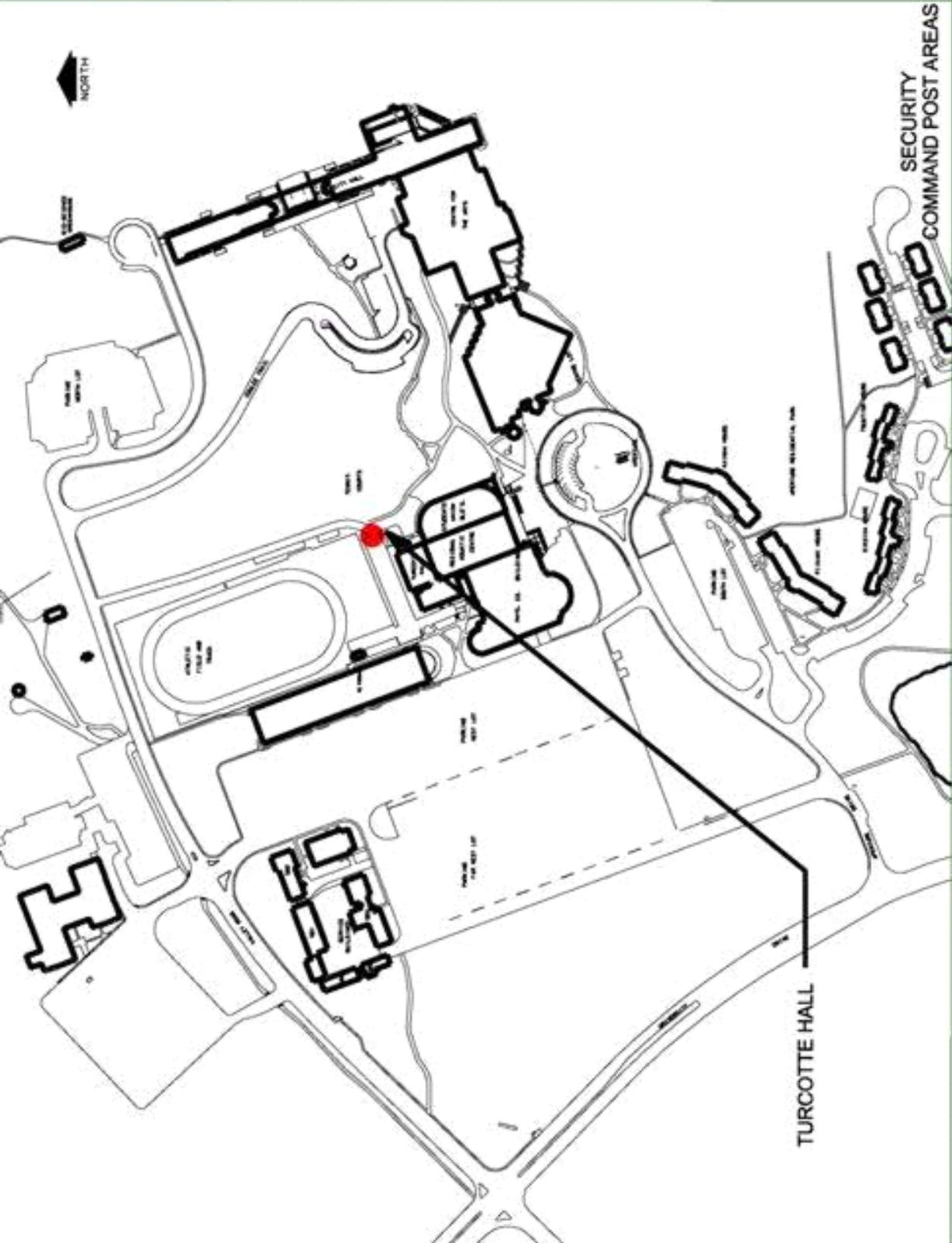
- a) Responsible for the conduct of an orderly evacuation of their area(s).
- b) Responsible for checking the exit stairwells to see that they are clear for evacuation, and choose an alternate route should egress be blocked by fire or smoke.
- c) Responsible for ensuring that no one from the area is allowed to re-enter the building until the fire department or building fire warden has given permission to do so.
- d) Responsible for communication with the building fire warden or delegate on the status of their area(s) and the disposition of any handicapped persons, or others who might need assistance.

DUTIES OF A FIRE WARDEN & ASSISTANT FIRE WARDEN DURING AN EMERGENCY EVACUATION

TURCOTTE HALL

1. In the event of a fire, your primary duty is to evacuate your designated area(s) outlined in this manual.
2. In the event of a fire or explosion, immediately activate the nearest pull station and call 911.
3. Your building is equipped with a two-stage alarm. At the sound of the first stage alarm (20 beats\minute), return to your area and prepare for an evacuation.
 - Put on your fire warden apron
4. At the sound of a general alarm (120 beats\minute):
 - Knock, check and evacuate each room in your area(s)
 - Once evacuated, close all doors
 - Evacuate hallways in your area(s)
4. Be aware of those people that are evacuating within your designated area(s), particularly those that may have vision or hearing disabilities as these impairments are not always obvious. For those with mobility problems, appoint others who are evacuating your area(s) to assist you to ensure that these people or any disabled person is moved to the nearest floor that will provide an exit out of the building and that these people are moved away from the building, providing there is no immediate or apparent danger. **DO NOT USE THE ELEVATOR. DO NOT USE STAIRWELLS TO HOUSE EVACUEES** as Turcotte Hall stairwells are not designed as safety areas and will not hold back smoke.
5. Designate a person to guard exterior exits to prevent unauthorized re-entry. Your assigned exits if applicable are outlined in this manual and marked with a red “**X**”.
6. Exit the building and report to the Security command vehicle located near the tennis courts North of Turcotte Hall. Report the disposition of any handicap or injured people to the Security Officer in the vehicle at this time.
7. Follow instructions from the building fire warden or their delegate and the Lethbridge Fire Department.
8. If transportation of evacuated people is necessary, contact Security at 329-2345.

Security – Command Post Areas – Turcotte Hall



UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

INCIDENT INVESTIGATION

ACCIDENT / INCIDENT INVESTIGATION OVERVIEW

When an accident / incident occurs on the worksite, the Employee is responsible for reporting it immediately to their Supervisor. It is then the responsibility of the Supervisor to conduct an investigation with the help of the Employee.

The purpose of incident investigation is to determine direct and underlying causes, and implement immediate and long-term corrections in order to prevent re-occurrence.

There are four (4) essential steps in conducting an investigation. An overview of each of the four phases is presented here;

1. **Gather Facts** - Investigation techniques and methods are designed to discover facts. A fact is something that actually exists or has actually occurred; something known by observation or examination to be true or real. This is done mainly, by examining the scene and talking to people.
2. **Analyze and Evaluate the Facts** - This is a systematic and thorough study of the facts to determine causes and recommend corrective measures. (This is the step where we spend much of our time - applying the Incident Analysis Worksheet.)
3. **Document Findings** - A written report is necessary to communicate the findings of the investigation to management and affected employees and to ensure proper follow-up takes place.
4. **Follow-up** - This step is essential to ensure that the recommended corrective actions to prevent recurrence are actually implemented, and are working effectively.

These phases generally do not occur separately, or in a linear fashion. Rather the phases sometimes overlap: analysis and evaluation begins while the facts are being gathered (e.g. while getting an overview of the incident), and evaluation of the facts may well send you back to gather more information. The investigator must be careful not to let early analysis lead to premature conclusions.

Once an investigation is complete, the results and corrective recommendations must be shared with all Employees within that department. The report is to be signed off by the Executive Director of Facilities and returned to the department Supervisor. Copies of all reports are kept on file within the department for 3 years.

In cases where the result is a loss time claim, the Supervisor is then responsible for sending a copy of the investigation to the RSS Department on campus for review.

It should be noted that this investigation and report **does not replace** any required WCB or on-line reporting forms that are to be completed by the Employee and Supervisor, nor does it replace any investigations that need to be conducted by the RSS department on campus. This is for the department's own investigation and follow-up procedures.

On-line forms can be found at www.uleth.ca/hum/riskandsafetyservices

INCIDENT REPORTS OVERVIEW

The Security Department at the University of Lethbridge is the first response team for all Accidents / Incidents on campus.

Security Officers write up Incident Reports for all situations they respond to as well as conduct any follow-up investigations that are deemed necessary. Incidents are assigned 1 of 23 categories as outlined on the following pages.

The information on the Incident reports includes the following:

- Incident Number
- Type of Incident
- Date / Time / Location of Incident
- Date and Time Reported
- Name / Address / Phone Number of Person Reporting Incident
- Time Taken to Investigate
- Officer(s) Investigating Incident
- Details of Incident
- Follow-up Required
- Distribution of Report

INCIDENT ANALYSIS WORK SHEET

Injury/Loss:

Incident:

Immediate Causes:

Underlying Causes:

Corrective Action (Controls/Management System):

INCIDENT INVESTIGATION REPORT

Date of Incident: _____ Time: _____

Location: _____ Name of Person in Charge: _____

Name of Investigator(s): _____

Injuries - Persons Injured

Name: _____ Phone: _____

Address: _____

Description of Injury:

First aid given? Yes No By whom? _____

Transported to medical aid? Yes No By whom? _____

Where to? _____ Name of Doctor: _____

When was the accident reported to Occupational Health & Safety?

Date: _____ Time: _____

By Whom?: _____

Property Damage

Damage to property: Yes No Estimated Value: \$ _____

Damage to equipment: Yes No Estimated Value: \$ _____

Description:

Party(s) Responsible for cost of replacement / repair:

Person(s) involved/Witnesses

Name	Address	Phone

Incident Reported by: _____ Reported to: _____

Date Reported: _____ Time Reported: _____

Conditions at time of incident (weather, status of job, housekeeping, etc.)

Description of incident (What was the job being done? What equipment, tools, materials, etc. were involved? What happened?) - Attach a diagram if necessary.

What were the causes of the incident?

Immediate? (Unsafe Practices/Conditions)

Underlying? (Personal/Work Environment Factors)

Recommended action(s) to prevent recurrence?

Short-term?

Long-term?

Persons) responsible for implementing corrective actions)? Completion date?

INCIDENT INVESTIGATION FOR PROJECTS

ACCIDENT / INCIDENT REPORTING BY PRIME CONTRACTOR

When an accident / incident or near miss situation occurs on a worksite under the jurisdiction of a Prime Contractor, the Prime Contractor must report the incident to the Project Manager immediately.

The Prime Contractor will document the accident / incident or near miss in writing and submit this report to the Project Manager. The Project Manager will complete a Campus Accident/Incident Report, attach the Prime Contractor's report and submit them both to RSS.

ACCIDENT / INCIDENT REPORTING: UNIVERSITY AS PRIME

On worksites where the University is acting as Prime, contractors are to follow the same accident / incident investigation and reporting procedures as our own employees.

LOCATION OF FIRST AID KITS

1. **AH** AH1J2
2. **CCBN** EP12J1
3. **HH** HH1J01
4. **LINC** L814
 L9J1
 L10J1
 L11J1
5. **PE** PE1J2
 PE2J7
6. **PWSC** SC1305
 SC1320
 SC1330
 SC1360
7. **SUB** SU062
 SU1M2
 SU2M1
 SU3J1
8. **TH** TH129
 TH1J1
 TH2J1
 TH3E1
9. **UCA** W4J15
 W5J15
 W6J15
 W7J15
 W8J15
10. **UH** B424
 C5J1
 D6J1
 C7J1
 C8J1

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

POLICIES & GUIDELINES

PLANNING & CAPITAL PROJECTS OFFICE WORK ALONE POLICY

Date of Update: April 21, 2008

PURPOSE

To ensure that Planning & Capital Projects staff working alone can do so safely.

OBJECTIVES

To develop procedures that will minimize or eliminate risks associated with various work tasks.

DEFINITION

Working Alone - An employee is considered to be working alone if the employee works at a work site in circumstances where assistance is not readily available if needed.

WORKING ALONE SITUATIONS

- Entering secluded areas within buildings and roofs, and mechanical areas
- Traveling alone
- Working outside normal office hours

PROCEDURES:

Traveling to remote buildings on campus, entering secluded areas on campus or traveling locally off campus:

Planning & Capital Projects staff will note their destination and expected time of return on the Facilities sign-out board. Upon return, the employee will remove this information.

Should the employee not return within a reasonable period of time after their expected return, the Director, Planning & Capital Projects will attempt to contact the overdue employee. If the Director, Planning & Capital Projects is unavailable, the Administrative Assistant will notify the Executive Director or Associate Director and advise that the employee is overdue. The Executive Director or Associate Director will then take measures to locate the employee. These measures may include:

- calling the employee's cell phone number
- personally retracing the travel route
- contacting campus security for assistance
- contacting local police for assistance

If the Executive Director and Associate Director are absent, the Administrative Assistant will contact the Superintendent of Security who will take measures to locate the employee.

Traveling to remote facilities off campus; attending an off campus course or conference:

When traveling to remote facilities off campus, ie. Gushul Studio, Westcastle etc., or attending an off campus course or conference, Planning & Capital Projects staff must carry a cell phone to call for immediate assistance should it be required. A travel plan indicating destination(s) and anticipated time of return must be noted on the sign out board.

Working outside normal working hours:

If an employee is working alone on campus after normal working hours, either of the following two situations shall apply:

- If the employee is working in her/his office, the employee is to sign in to the on-line Working Alone website (under Administration on the Home Page), and sign off before leaving.
- If the employee is visiting a worksite, the employee is to call Campus Security and inform them of their location and their expected completion time.
The employee must contact Campus Security prior to leaving campus.

If Campus Security has not been contacted by the employee at the expected time of departure, they will attempt to locate the employee. If the employee cannot be located, Campus Security will contact the Director, Planning & Capital Projects or, in his absence, the Executive Director or Associate Director, and advise that the employee is overdue. The Director, Executive Director, or Associate Director will then take measures to locate the overdue employee. These measures may include:

- paging / phoning the employee
- contacting co-workers
- personally retracing the travel route
- contacting local police for assistance

UNIVERSITY OF LETHBRIDGE HOT WORK POLICY

HOT WORK INFORMATION AND RESPONSIBILITIES

Fires caused by hot work can have a significant adverse effect on our operations and our ability to do business. Consequently the hot work procedure has been established to help minimize any hazards.

As a contractor at the U of L, you are a partner in our continued success in preventing losses. The optimal goal is to avoid hot work whenever possible by using alternative measures. Suggestions as to avoiding hot work are welcomed. However, if hot work is necessary the hot work procedures will be strictly followed.

The Utilities Department will assist with hot work procedures. If appropriate, the U of L Project Manager will introduce you to other workers in the area to discuss unique conditions you should be aware of before work begins.

UNIVERSITY OF LETHBRIDGE HOT WORK RULES

A hot work permit is required for any temporary operation involving an open flame that produces sparks. This includes, but is not limited to: brazing, cutting, grinding, soldering, pipe thawing, torch-applied roofing and welding.

1. If there is a practical and safer way to do the job without hot work, that method is to be utilized.
2. A **fire alarm / protection system work request form** must be submitted to the Utilities Department **24 hours prior** to commencement of work. Written authorization will be valid for a maximum of **one shift, or 8 hours**, whichever is shorter. After that time period or at the start of a new work day, a new form must be submitted to the Utilities Department for authorization.
3. Written authorization, in the form of a signed **hot work permit**, is required from the Utilities Department prior to the commencement of any job.
4. The permit will be valid for a maximum of **one shift, or 8 hours**, whichever is shorter. After the time period, another permit must be obtained from, and signed by the Utilities Department before any hot work can continue.
5. A copy of the signed Hot Work Permit will be faxed to the U of L Fire Safety Officer.
6. Specific fire fighting equipment and protection material will be required at the hot work site before any work commences. Equipment needs should be discussed with the U of L Project Manager before arriving at the U of L as the Contractor must have their own fire extinguishers and protection material when completing hot work projects.
7. No hot work is permitted without a designated fire watch present. The Prime Contractor/Contractor will supply the employee to the fire watch role. The employee will have total control over the hot work area for fire prevention. If unsafe conditions are observed during the hot work operation, the work will be stopped until the hazard can be neutralized or eliminated.
8. After work is complete for the day, the U of L Fire Safety Officer will designate a Security Officer to complete the fire watch.
9. The Contractor or permit holder will verify that all hot work equipment is in proper working order and in a fire safe condition. An inspection of equipment may be conducted by the U of L Project Manager. Any unsafe equipment will be removed from the property.
10. Any contractor equipment or material that is to be stored at the U of L overnight must be properly secured in an area designated by the U of L Project Manager.

11. Upon completion of the work or at the end of the work day (**prior to 3:30 p.m.**), the Contractor must notify the Utilities Department in order to put the fire alarm system back to normal operating mode.

UNIVERSITY OF LETHBRIDGE SPRINKLER REPAIR PROCEDURES

In compliance with the University of Lethbridge (U of L) Insurance Requirement a Red Tag Permit needs to be completed anytime repairs or modifications are conducted on U of L Fire Protection Equipment (Building Sprinkler Systems). Advance notice of 24 hours must be given to the Utilities Department in order to receive a Red Tag Permit.

The U of L Journeyman Plumber's (herein after referred to as 'the Plumber') responsibilities are listed below. In the absence of the Plumber, the U of L Journeyman Millwright carries out this work. For the purpose of this document wherever it is noted Plumber, assume this implies Millwright in the Plumbers absence.

UNIVERSITY OF LETHBRIDGE SPRINKLER REPAIR PROCEDURES

A Red Tag permit is required for any repairs or modifications to Sprinkler Systems resulting in shut-down of a Sprinkler System Building Zone.

1. All Modifications / Repair to Sprinklers to be conducted **BY A CERTIFIED CONTRACTOR**.
2. Prior to shutting the zone down, the Plumber is to complete the required sections of the Fire Alarm System Maintenance Form.
3. The Fire Alarm System Maintenance Form is then handed over to the U of L Electrical department requesting the disconnection of the applicable fire alarm zones.
4. The Electrical Department then carries out the appropriate procedures in disconnecting the zone and is responsible for the notification to the Fire Alarm Monitoring Company and U of L Security of the work being done.
5. Once the alarm zones have been disconnected, the Contractor completes the necessary sections on the Red Tag Permit. A copy of this permit is to be posted at the worksite, and a copy is faxed to the Insurance Company (Factory Mutual Insurance Company) as outlined in their letter found in this section.
6. If work is not completed by the end of the regular workday, a copy of the Red Tag Permit is to be faxed to Security requested additional patrols of the area.
7. The Plumber isolates and drains the zone for the contractor to carry out the applicable work.
8. Prior to bringing the zone back on-line, the Plumber is to ensure the zone is in safe condition to be brought back into the system.
9. When work is completed on the sprinkler systems, the U of L Electrical Department is to be notified for reconnection of the zone to the fire alarm system. It is the responsibility of the Electrical Department to contact the Fire Alarm Monitoring Company and U of L Security, notifying them of the reconnection and completion of work.
10. The U of L Electrical Department then completes the Fire Alarm Systems Maintenance Form. This form is kept in the Plant Utilities OH&S Safety Centre.
11. The Plumber then completes the necessary areas on the Red Tag Permit, closing out the work.
12. All three (3) copies of the Red Tag Permit are faxed to the Insurance Company (Factory Mutual Insurance Company) as outlined in their letter found in this section.

CONFINED SPACE ENTRY

Campus Wide Code of Practice

University of
Lethbridge



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1.0 PURPOSE

To define a campus wide code of practice which will ensure the safety of workers who enter a confined space and meet requirements of Alberta's Occupational Health and Safety, Act, Regulation and Code. At anytime should Legislation requirements change they shall take precedence over this Code.

Exceptions to this Standard and/or Campus Wide Code of Practice must be endorsed by the University of Lethbridge which will be referred to as the U of L.

1.1 Disclaimer

The information in this publication is solely for general illustration and instructional purposes and does not, in any way, create a business or professional services relationship. The Standards set out herein will not apply to every circumstance. The Standards are not a definitive guide to the OH&S Act or the accompanying Regulations and regardless of the Standards set out herein; each reader and user is solely responsible for their own compliance with all applicable Legislation, including the OH&S Act. The U of L assumes no obligation to update the Standards set out herein or advice on further developments concerning the topics mentioned herein.

The occupational health, safety and training of employees in the workplace remain the responsibility of each employer and employee.

The U of L and its employees, agents and contractors are not responsible for the contents of this Standard, for any errors or omissions herein or for the results obtained from the use of the information contained in this Standard or for any training programs that may be developed from the use of the information in this Standard. Each Training Provider is completely responsible for its own training Programs. All information set out in this Standard is provided "as is", with no guarantee of completeness, accuracy, timeliness or of the results obtained from the use of this Standard. There is no warranty of any kind, express or implied, including, without limitation, warranties of performance, merchantability and fitness for a particular purpose. In no event will the U of L Members and Employees be liable to the reader, user or anyone else for any decision made or action taken in reliance on the information in this Standard or for any consequential, special, or similar damages (including, without limitation, personal injury), even if advised of the possibility of such damages, arising or resulting from the information contained in this Standard or for any violation by such user, reader or other person of any Legislation.

Certain words, phrases, names, designs or logos used in this Standard may constitute trademarks, service marks or trade names of the U of L and its Member Departments. The display of any such marks or names in this Standard does not imply that a license has been granted by the U of L or any of its Members to use such marks or names.

1.2 Introduction

The entry of confined spaces is a necessary part of the operation and maintenance of the University of Lethbridge Facilities. Entries are required for inspections; maintenance; repairs and cleaning; Construction activities or any other similar operations which are done as a part of the daily operation of the plant sites and is essential for the continued ongoing operation of the facilities.

Unplanned and/or uncontrolled confined space entries can potentially be extremely hazardous to the health of those attempting to execute them.

The practice outlined herein is viewed as a means of protecting the health of the individual by significantly reducing the risk of accidental injury associated with entering confined spaces, and to make the employee aware of the hazards associated with the work and the safe practices necessary to deal with these hazards.

Understanding and applying the Health and Safety principles are fundamental to the proper implementation of this code of practice. This code of practice supports the fundamental principles developed by each operating area or facility under each organization's Management Systems. It also identifies the maintenance required of ongoing programs to ensure the safety and health of all workers and reduce the probability and magnitude of incidents in and around confined spaces at the University of Lethbridge.

Each Department shall develop and regularly audit its own specific standards to ensure that such standards meet the needs of their specific work place and comply with the Code and all applicable Legislative safety requirements.

1.3 Scope

This Code of Practice applies to all employees and students of the University of Lethbridge, and their contractors, subcontractors and vendors.

This Code of Practice has been developed by representatives from the University of Lethbridge Utilities Department and the Occupational Health and Safety Department.

1.4 Accountability

- 1) In accordance with O.H. & S. Act (Chapter 0-2, 2000) all workers are responsible for protecting the health and safety of themselves and other workers.
- 2) Where a confined space is to be entered by workers the supervisors are responsible to ensure that:
 - a) Adequate steps have been taken to eliminate/control all hazards present.
 - b) All applicable Legislative requirements, this Code of Practice and any other facilities specific standards, rules, procedures, and practices are followed.

2.0 CONFINED SPACE CAMPUS WIDE CODE OF PRACTICE BASICS

2.1 Training

Role of Employer:

1) An employer must ensure that a worker assigned duties related to confined space entry is trained by a competent person in:

- a) Recognizing hazards associated with working in confined spaces, and
- b) Performing the worker's duties in a safe and healthy manner.

2) An employer must keep records of the training given under subsection. (1)

3) An employer must ensure that competence in the following is represented in the workers responding to a confined space emergency:

- a) First aid;
- b) The use of appropriate emergency response equipment;
- c) Procedures appropriate to the confined space.

2.2 Confined Space Definition

1) Confined Space means an enclosed or partially enclosed space, not designed or intended for continuous human occupancy, having restricted means of entry or exit that may become hazardous to a worker entering it due to:

- a) Its design, construction, location, work activities or atmosphere;
- b) The materials or substances in it;
- c) The provision of first aid, evacuation, rescue or other emergency response service is compromised; or any other hazards relating to it.

2) Examples of confined spaces may include (but are not limited to):

- a) Crawlspace.
- b) Ducts.
- c) Excavations.
- d) Exchangers.
- e) Pipelines.
- f) Piping Systems.
- g) Sewers.
- h) Some components of major equipment.
- i) Tanks.
- j) Utility manholes.
- k) Vessels.

2.3 Hazard Assessment

1) If a worker will enter a confined space to work, a competent person(s) will be assigned to prepare a written, dated document which will:

- a) Identify existing or potential hazards to which the worker is likely to be exposed while in the confined space.
- b) Specify the type and frequency of inspections and tests necessary to determine the likelihood of worker exposure to any of the identified hazards.
- c) Specify who will perform the inspections and tests identified.
- d) Specify the safety and personal protective equipment required to perform the work.
- e) Identify the personal protective equipment and emergency equipment to be used by a worker who undertakes rescue operations in the event of an accident or other emergency.
- f) Identify emergency evacuation and communication requirements.

Where reasonably practical, affected workers shall be involved in the hazard assessment and in the control or elimination of the hazards identified.

3.0 SAFETY AND PROTECTION

3.1 Employers Responsibility

1) An employer must ensure that:

- a) The safety and personal protective equipment required is available to workers entering a confined space.
- b) A worker who enters, occupies or leaves a confined space uses the safety and personal protective equipment.
- c) The personal protective, emergency and rescue equipment required is available to workers undertaking rescue operations in a confined space.
- d) A communication system is established that is readily available to workers in a confined space and is appropriate to the hazards.
- e) Workers in a confined space are protected from hazards created by traffic in the vicinity of the confined space.
- f) Workers affected by the hazards identified in the hazard assessment report will be informed of the hazards and the methods used to control or eliminate the hazards.

2) An employer must ensure that all personal protective equipment (PPE), and emergency equipment required for use in a confined space is inspected by a competent person before workers enter the confined space to ensure the equipment is in good working order.

- a) Each employee is responsible for inspection of his or her basic PPE, documentation of inspection will be recorded on a sign out list.
- b) Employer shall ensure specialized PPE and emergency equipment will be inspected and maintained as per manufacturer's specifications, and a record shall be kept by the responsible Department.

3) An employer must ensure that written records of the inspections required by legislation are retained.

3.2 Protection – Hazardous Substances and Energy

- 1) An employer must ensure that workers within a confined space are protected by means of positive isolation against the release of hazardous substances or energy that could harm them.
- 2) An employer must ensure that a worker does not enter a confined space unless adequate precautions are in place to protect a worker from drowning, engulfment or entrapment.

3.3 Testing the Atmosphere

1) If the hazard assessment identifies a potential atmospheric hazard and a worker is required or authorized by an employer to enter the confined space, the employer must ensure that a competent worker performs a pre-entry atmospheric test of the confined space to:

- a) Verify that the oxygen content is between 19.5 percent and 23 percent by volume.
- b) Identify the amount of toxic substance.
- c) Identify the amount of flammable or explosive substance that may be present.

2) The employer must ensure that the testing required is performed using calibrated test instruments appropriate for the atmosphere being tested and the instruments are used in accordance with the manufacturer's specifications.

3) The employer must ensure that as often as necessary after the first time a worker enters the confined space, a competent worker:

- a) Performs and records the tests, and
- b) Identifies and records any additional hazards.

4) If tests identify additional hazards, the employer must control or eliminate the identified hazards. Any additional hazards identified must be included in the original hazard assessment.

3.4 Ventilation and Purging

1) If the atmospheric testing identifies that a hazardous atmosphere exists or is likely to exist in a confined space, an employer must ensure that the confined space is ventilated, purged or both before a worker enters the confined space.

2) If ventilating or purging a confined space is impractical or ineffective in eliminating a hazardous atmosphere, the employer must ensure that a worker who enters the confined space uses personal protective equipment appropriate for the conditions within the confined space.

3) If mechanical ventilation is needed to maintain a safe atmosphere in a confined space during the work process, an employer must ensure it is provided and operated as needed.

4) If mechanical ventilation is required to maintain a safe atmosphere in the confined space, the employer must ensure that:

- a) The ventilation system incorporates a method of alerting workers to a failure of the system so that workers have sufficient time to safely leave the confined space, and
- b) All workers must evacuate a confined space or use an alternative means of protection if a ventilation system fails.

3.5 Inerting

1) An employer must ensure that a confined space is inerted if it is not reasonably practicable to eliminate an explosive or flammable atmosphere within the confined space through another means.

2) If a confined space is inerted, an employer must ensure that:

- a) Every worker entering the confined space is equipped with supplied air respiratory protection equipment.
- b) All ignition sources are controlled.
- c) The atmosphere within the confined space stays inerted while workers are inside.

4.0 CLASSIFICATION OF CONFINED SPACE LEVELS

To reflect the relative hazards, and to ensure a consistent approach, confined space entries have been classified into Class A, Class B, and Class C. The classification of entry shall be based on the conditions present at the time of entry with consideration for potential changes of conditions as identified in the hazard assessment.

Note: As per OH&S Code Part 10-162(1) A person must not enter or work at a work area if more than 20 percent of the lower explosive limit of a flammable or explosive substance is present in the atmosphere.

4.1 Class A:

1) A confined space will be considered Class A if the entry is either the first or initial entry or *any* of the following apply:

- a) The hazards in the confined space or in its proximity are either not known or have not been determined

2) The hazards in the confined space include one or all of the following:

- a) Oxygen concentration is less than 19.5% or more than 23% by volume.
- b) Explosive or flammable atmosphere between 10% and 20% Lower Explosive Limit ("LEL").
- c) The area atmosphere exceeds the protective limits of air purifier respiratory equipment.

3) The following controls must be put in place for a "Class A" classified area:

- a) Will require an approved hazard assessment.
- b) Supplied breathing air available and worn.
- c) All Entrants and Monitors must be trained in the use of supplied breathing air equipment.
- d) A Confined Space Monitor in attendance at all times.
- e) A specific Rescue Plan which has been reviewed and approved.
- f) A valid Confined Space Entry Permit.
- g) A valid Class A Entry Tag hung at each entrance.
- h) An Evacuation Procedure.

Note: Any time a Class A entrance is left unattended the entrance must be barricaded physically and a "Danger, Do Not Enter" sign hung at the entrance.

4.2 Class B

1) A confined space will be considered Class B if all identified hazards are controlled and the following applies:

a) Oxygen concentration is between 19.5% and 23% by volume; and

2) Either of the following exists or is likely to exist:

a) Explosive or flammable atmosphere, less than 1% of the Lower Explosive Limit (of 10% LEL).

b) Or the concentration of toxic substances exceeds 50% of the Occupational Exposure Limit ("OEL").

3) The following controls must be put in place for a "Class B" classified area:

a) Will require an approved hazard assessment.

b) A Confined Space Monitor in attendance at all times (see note below).

c) A valid Confined Space Entry Permit.

d) A valid Safe Entry Tag hung at each entrance.

e) An Evacuation Procedure.

f) A valid Rescue Plan.

4.3 Class C:

1) A confined space will be considered "Class C" if all identified hazards are controlled, the potential for change is unlikely, and *all* of the following apply:

a) Oxygen concentration is between 19.5% and 23% by volume.

b) Concentration of explosive gases is less than 1% of LEL

c) Airborne concentration of toxic substances is less than 50% of OEL.

2) The following controls must be put in place for a "Class C" classified area:

a) Will require an approved hazard assessment.

b) A Confined Space Monitor may be required.

c) A valid Confined Space Entry Permit.

d) A valid Safe Entry Tag hung at each entrance.

e) An Evacuation Procedure.

f) A valid Rescue Plan.

Note: If the hazard assessment determines that a Confined Space Monitor is not required at the point of entry, a competent worker must be designated to be in communication with worker(s) in a confined space. (e.g. – co-worker, buddy system). The entry log must still be maintained.

5.0 ENTRY PERMIT SYSTEM

5.1 Entry Permit

- 1) A person must not enter a confined space without a valid entry permit.
- 2) An employer must establish an entry permit system for a confined space that:
 - a) Maintains a list of the names of each worker who enters the confined space.
 - b) Gives the location of the confined space.
 - c) Specifies the time during which an entry permit is valid.
 - d) Takes into account the work being done in the confined space.
 - e) Takes into account the code of practice requirements for entering, being in and leaving a confined space.
 - f) Ensures all required documents are collected and maintained for retention.
- 3) An employer must ensure that, before a worker enters a confined space, an entry permit is properly completed, signed by a competent person and a copy kept readily available at the confined space location

5.2 Entry Tag

Before any permit is issued for entry to a confined space, an Entry Tag must be completed and will contain the following information as a minimum:

- a) Equipment number, identification or description.
- b) Entry level.
- c) Checks completed (gas tests, temperature, cleanliness, etc.).
- d) Frequency of subsequent tests.
- e) Personal protective equipment required for entry.
- f) Name and signature of tester.
- g) Date and time of initial tests.
- h) On the reverse of the tag signature and time of subsequent retests will be recorded.

5.3 Class A

- a) A visually distinguishable salmon pink (Pantone 805) and white Class A Entry tag shall be used to identify the space as being IDLH. (See appendix)

5.4 Class B & C

- a) A green and yellow safe entry tag shall be used. (See appendix)

5.5 Signage for Confined Space

Whenever an entrance to a confined space is left unattended 3 types of signs are used as indications of the status of the space and the requirements for entry. (See appendix)

- 1) DANGER, DO NOT ENTER:

This sign overrides all other signs at entrances to confined spaces. When it is placed NO ONE is to

enter the space under any circumstances. This sign will be placed if an event occurs that could compromise the conditions in a confined space.

If entry is required Operations personnel must be contacted to evaluate the situation, test the atmosphere of the space, and remove the sign if everything meets the standards to enter and work. Utilities personnel are the only ones allowed to remove this sign.

For Class A entries the "DANGER, DO NOT ENTER" sign must be hung at the entrances every time the space is left unattended.

2) CONFINED SPACE MONITOR AND PERMIT REQUIRED FOR ENTRY:

This sign is used to signify that a space is safe to enter PROVIDED that the people authorized to enter have a valid permit to work and that there is a Confined Space Monitor present at the entrance when they enter. This sign can be removed by the Confined Space Monitor provided all the permit criteria are met and the Safe Entry Tag is valid and current. When the Confined Space is left unattended, provided the status of the confined space has not changed, this sign must be hung at the entrance by the Confined Space Monitor when leaving.

3) CONFINED SPACE PERMIT REQUIRED FOR ENTRY:

This sign must be used on a Class C entry, where a Confined Space Monitor is not required, to indicate that although there is a Safe Entry Tag on it, the space can only be entered with a valid permit.

6.0 CONFINED SPACE MONITOR

6.1 Class A & B Entry:

1) For every Class A and B confined space entry, a Confined Space Monitor will be assigned.

CONFINED SPACE ENTRY

2) The Confined Space Monitor will:

a) Be capable and equipped to summon rescue personnel, if required. A means of communication is mandatory.

b) Be in communication or visual contact with personnel inside the confined space at all times.

c) Initiate evacuation as necessary, and ensure proper signage is posted at the entrance(s) to the confined space.

d) NEVER leave the entry to the confined space with people inside unless properly relieved by another certified monitor.

e) NEVER enter the confined space for any reason.

f) After verifying all personnel have exited the confined space, ensure correct signage is in place prior to leaving the confined space entrance(s) unattended. (eg. breaks and end of shift)

g) Control the number of personnel allowed in the confined space, as identified by hazard assessment.

h) Maintain a Confined Space Entry and Exit log for the duration of the job. Entry and exit logs must be safely stored for record retention purposes.

i) Ensure Entry and Exit points are kept clear and clean.

- j) Maintain awareness of potential hazards in the vicinity of the confined space that may affect the health and safety of the worker(s) inside.

6.2 Class C Entry

Class C Entries may require a Confined Space Monitor as determined by the hazard assessment. If a Confined Space Monitor is not deemed necessary a competent worker designated by the employer must be in communication with the worker(s) in a confined space.

6.3 Entrant Tracking

For all Class A and B entries, and when there is a Confined Space Monitor on a Class C entry, all personnel who enter the confined space will sign in the Safe Entry Tag outside the space clipped to the ring or board provided at the entrance. Personnel are expected to enter and leave a confined space by the same entrance. If this is not possible, then they must return to their point of entry to sign out the Safe Entry Tag and inform the Confined Space Monitor as soon as they exit the confined space.

Note: This tracking method is not required when all personnel are visible at all times.

7.0 EMERGENCY RESPONSE

7.1 Rules

- 1) An employer must ensure that a worker does not enter or remain in a confined space unless an effective rescue can be carried out.
- 2) A worker must not enter or stay in a confined space unless an effective rescue can be carried out.
- 3) An employer must ensure that the emergency response plan includes the emergency procedures to be followed if there is an accident or other emergency, including the procedures in place to evacuate the confined space immediately.
 - a) When an alarm is activated.
 - b) If the concentration of oxygen inside the confined space drops below 19.5 percent by volume or exceeds 23 percent by volume; or;
 - c) If there is a significant change in the amount of hazardous substances inside the confined space.
- 4) An employer must ensure that an effective means of communication is in place to summon emergency response.

7.2 Retaining records

An employer must ensure that all records with respect to entry and work in a confined space, including entry permits, safe entry tags and entry/exit logs are retained for not less than:

- a) 1 year if no incident or unplanned event occurred during the entry; or
- b) 2 years if an incident or unplanned event occurred during the entry.

APPENDIX “1”

DEFINITIONS

1) “Accreditation” or “Accredited” means authorization, in writing, from the U of L to be a Training Provider of a Safety Training Standard. Accreditation may be withdrawn by the U of L and at any time. In order to be a Safety Training Provider of a Standard, an Organization’s Accreditation status must be current.

2) “OHS Department” means the of U of L Department that provide, in writing, endorsement for initial documents and approval for any revisions or exceptions to a Safety Training Standard and/or Campus Code of Practice.

3) “Confined Space”

“**Class A**” a confined space that presents a situation that is immediately dangerous to life or health (IDLH). These include but are not limited to oxygen deficiency, explosive or flammable atmospheres, and/or concentrations of toxic substances.

“**Class B**” a confined space that is not immediately hazardous to life or health, but has the potential for causing injury and illness, if preventive measures are not used.

“**Class C**” a confined space in which the potential hazard would not require any special modification of the work procedure.

4) “Confined Space Monitor” means a person defined in legislation as a “tending worker” adequately trained, capable of summoning rescue assistance and assigned to remain on the outside of the confined space while maintaining communication with those working inside.

5) “Evacuation Plan” means a pre-determined plan to evacuate the confined space should an alarm be activated, or if there is a significant change in or about the confined space that would affect the health and safety of those people working in the confined space. The Evacuation Plan shall be reviewed by all participants involved in a confined space entry.

6) “Flammable (Explosive) Atmosphere” means an atmosphere containing a flammable gas or vapor at a concentration between the lower explosive limit (LEL) and the upper explosive limit (UEL).

7) “Immediately Dangerous to Life and Health” (“IDLH”) means an oxygen deficient atmosphere or an atmospheric concentration of any harmful substance that poses an immediate threat to life or may cause irreversible or delayed adverse health effects or may interfere with an individual’s ability to escape from a dangerous atmosphere.

8) “Inerting” means intentional displacement of the atmosphere by a non-reactive gas (such as nitrogen) to an extent that the resulting atmosphere is noncombustible (oxygen levels reduced below that needed to support combustion) but thereby creating an oxygen deficient atmosphere.

9) “Initial Entry” refers to the first entry, performed or directed by the area owner, into the confined space to verify conditions and ensure the confined space is safe for subsequent “ongoing entries” to perform work.

10) “Isolation” means a process whereby the confined space is removed from service and completely protected against the inadvertent release of material by the following: blanking/blinding, misaligned sections of all lines and pipes, a double block and bleed system, lockout of all sources of electrical power and nuclear devices, blocking or disconnecting all mechanical, pneumatic, hydraulic linkages and sources of potential stored energy.

11) “Legislation” means all Provincial and municipal by-laws and regulations, orders, directives and decisions rendered by any ministry, department or administrative or regulatory agency relating in any way to the health and safety of workers in the Province of Alberta.

12) "Lower Explosive Limit" ("LEL") means the lower value of the range of concentrations of a substance, in a mixture with air, at which the substance may ignite.

13) "Members" means the member or subscriber Organizations of the U of L and includes their respective employees.

14) "Occupational Exposure Limit" ("OEL") means the maximum concentration of substances to which a person may be exposed for specific lengths of time as defined by relevant legislation.

15) "OH&S Act, Regulation, and Code" means the Occupational Health and Safety Act, Regulation and Code of the Province of Alberta (RSA 2000, Chap. 0-2, as amended) and includes all of the regulations passed under the Act from time to time.

16) "Organization (s)" means and includes any individual, corporation, partnership, firm joint venture, syndicate, association, government, governmental agency or board or commission or authority, and other forms of entity or organization.

17) "Purging" means the method by which gases, vapors or other airborne impurities are displaced from a confined space.

18) "U of L Campus Wide Code" means a Code of Practice, endorsed by the U of L OHS Department governing the practices, procedures and safety training standards, to be followed at each of the U of L Owner respective sites. These codes can be amended by the U of L from time to time.

Note: At any time should Legislation requirements change they shall take precedent over the U of L Campus wide code.

19) "Rescue Plan" means a plan developed that addresses rescue equipment, location of this equipment, Rescue Personnel requirements, means of communication, implementation of rescue and shall be reviewed by all participants involved in a confined space entry.

20) "Standard" means the minimum acceptable content requirements for a Training Provider's training program that is set out in a U of L Safety Training Standard, as amended by the U of L from time to time.

21) "Training Provider" mean those Organizations that have received Accreditation status, in writing, from the U of L to provide a Safety Training Program.

22) "Upper Explosive Limit" ("UEL") means the higher value of the range of concentrations of a substance, in a mixture with air, at which the substance may ignite.

APPENDIX “II”

CONFINED SPACE ENTRY

TAGGING SYSTEM

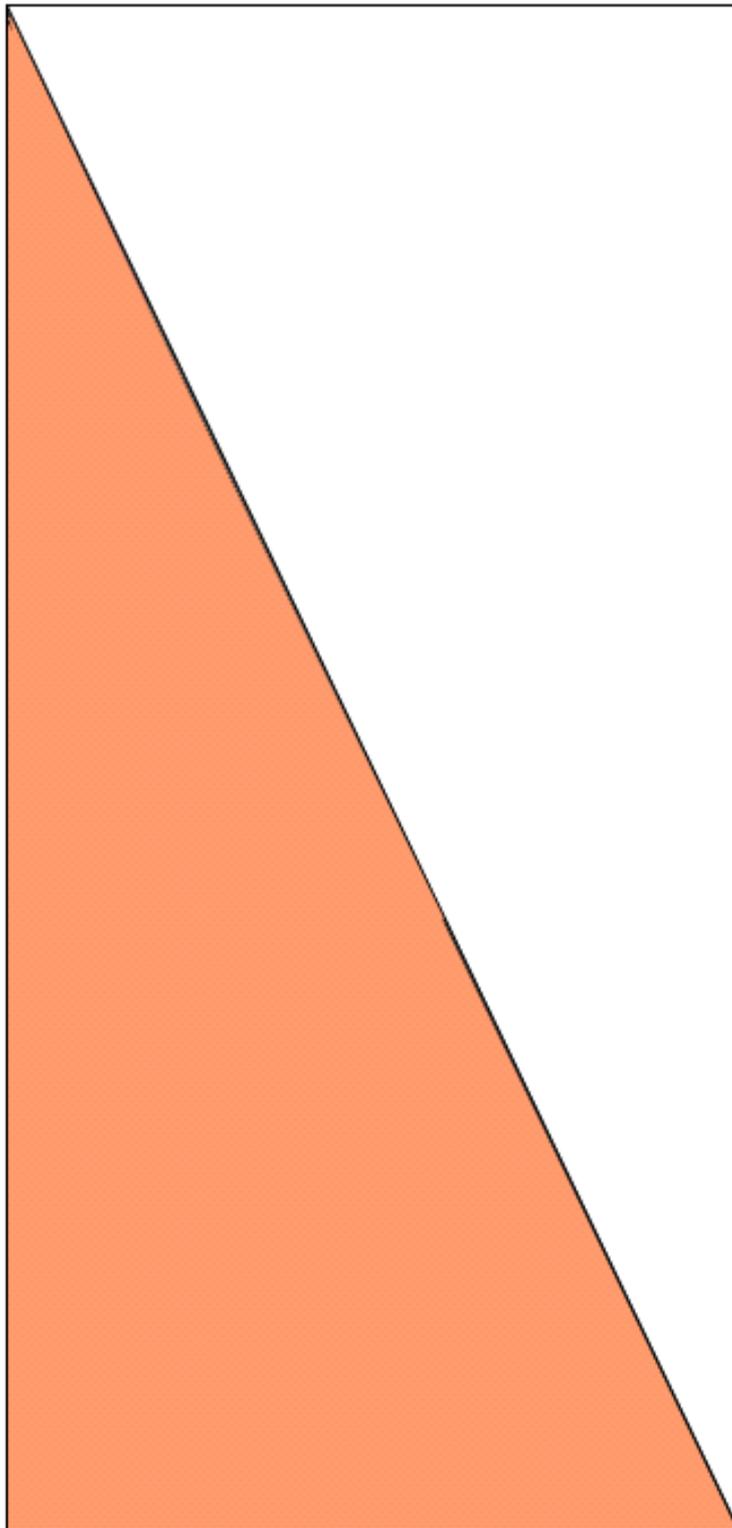
**CONFINED
SPACE
MONITOR
AND
PERMIT
REQUIRED
FOR ENTRY**

CONFINED SPACE ENTRY

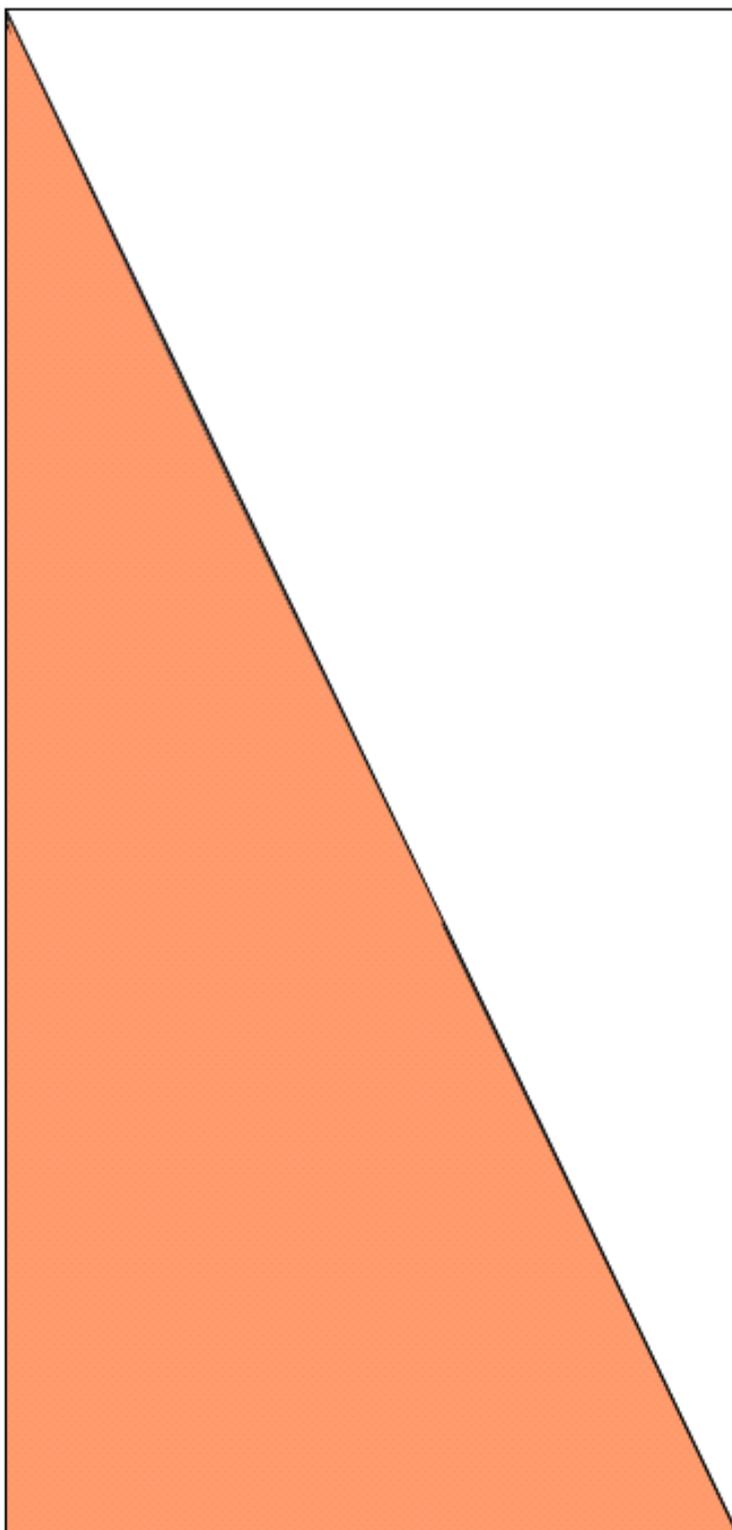




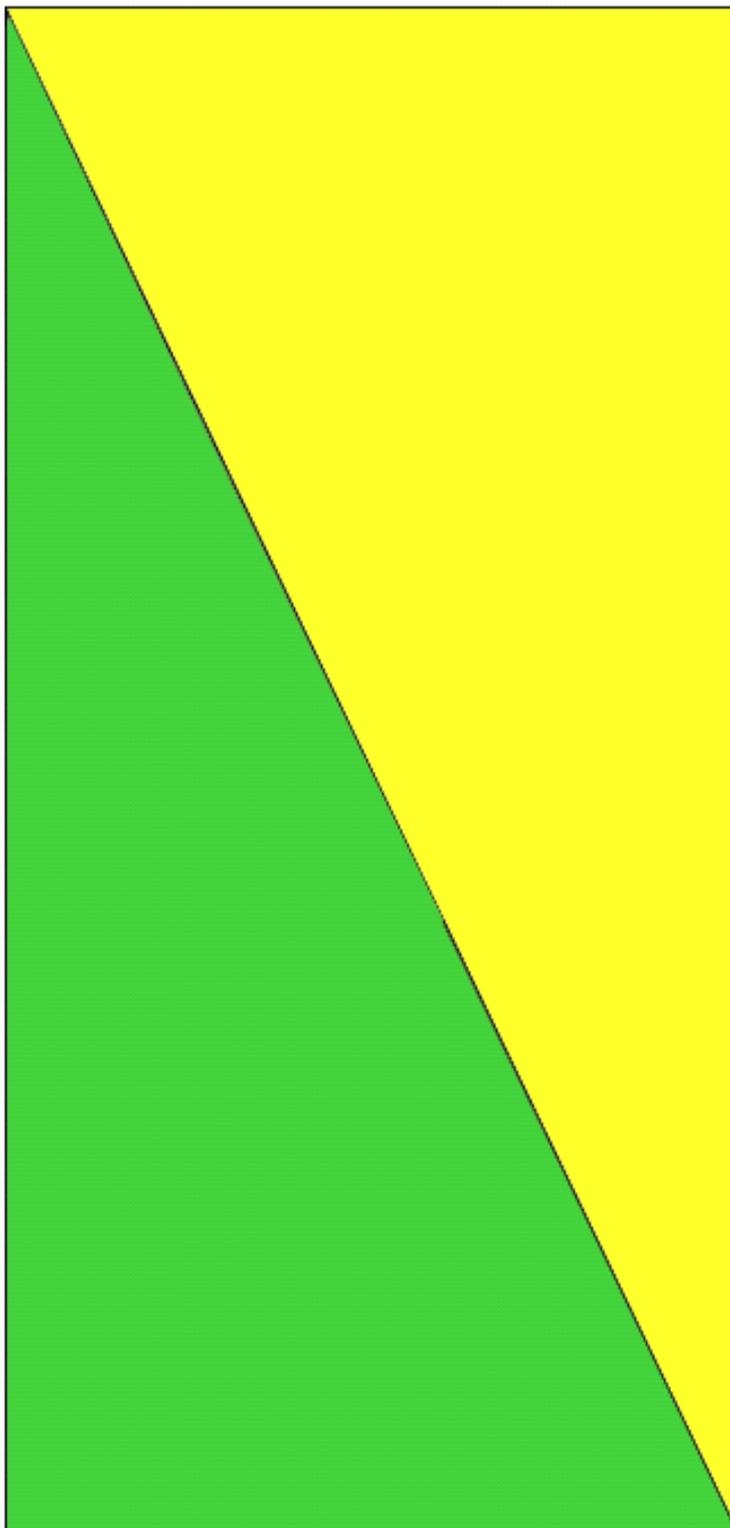
CONFINED SPACE ENTRY



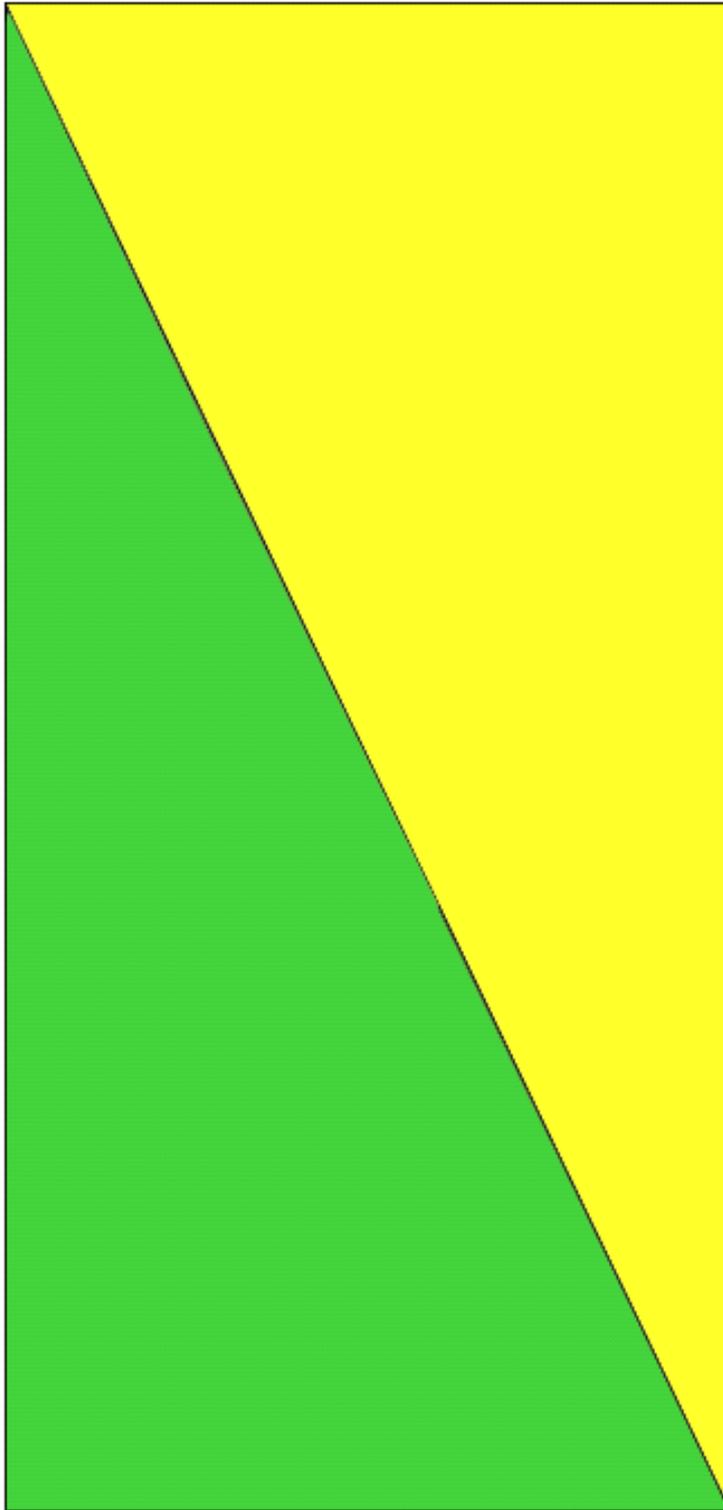
CONFINED SPACE ENTRY



CONFINED SPACE ENTRY



CONFINED SPACE ENTRY



UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

PROGRAM ADMINISTRATION

PROGRAM ADMINISTRATION OVERVIEW

MONTHLY SAFETY MEETINGS

The Planning & Capital Projects Department conducts safety meetings on a monthly basis, or as needed. The meeting format ranges from presentation videos, to an overview of safe work practices in relation to current issues or project work being carried out or coming up within the department.

The attendance sheet is signed by all present. As well, the minutes of the meeting are recorded on the attendance sheet. A copy of the attendance sheet can be found in this section.

The minutes from the safety meetings must be forwarded to the Executive Director of Facilities to review. The Executive Director must sign the minutes and return to the appropriate department. The Executive Director of Facilities must also attend a safety meeting for each of the departments on a yearly basis, recognizing the safety achievements of the employees.

WEEKLY DEPARTMENT MEETINGS

Each Monday morning Planning & Capital Projects employees meet to discuss the past week's work and any new work coming up. Any safety issues or incidents are discussed at this time.

PRE-JOB START UP MEETINGS

Prior to the start of any construction, renovation, or upgrade project, a pre-job startup meeting is conducted. It is at this time that the scope of the project is reviewed, a hazard assessment is conducted and hazard controls are implemented. The minutes from these meetings are recorded and forwarded to all parties present. A copy of the Pre-Job Start-Up Minutes Template can be found in this section.

If the University is the Prime Contractor, representatives from all of the Contractors / Trades must be present at this meeting. If the General Contractor is Prime, the Capital Projects Manager meets with the General Contractor, and it is up to the General Contractor to meet with, orient, and train the Sub-Trades. The responsibilities of Contractors and Prime Contractors are explained in greater detail in the Contractor Section of this manual.

INCIDENT TRENDS

Each time an employee is involved in an accident / incident, a form must be completed and sent to the coordinator of OH&S, as outlined in the Accident / Incident section of this manual. A copy of the report must go in the employee's personal file for record purposes and retained for three years.

An Incident Trend spreadsheet has been developed to track the amount of incidents each individual employee has had over the past year as well as the number of each type of incident occurring within the department. This information is used to determine where more training is required on an individual basis, as well as for the entire group, in order to provide a safer workplace for all.

When a new incident occurs, the type of incident is recorded along the top of the spreadsheet and the date of the incident is recorded in the corresponding space for the Employee. A sample of the Trend spreadsheet can be found in this section.

In the event that an employee of an outside contractor has and accident / incident on a U of L

worksite, a report form needs to be completed and forwarded in the same manner. A copy of the report must be kept on the project file. ***The results of these accidents / incidents are not accounted for on the Trends or Lost Time Days Spreadsheets or in the Lost Time Claims calculation as outlined in this section.***

LOST TIME DAYS

For the accidents / incidents resulting in lost time, the number of days is recorded on the Lost Time Days (LTD) Spreadsheet in the corresponding month for the employee. A ***Lost Time Day*** is defined as any regular scheduled work day that is missed due to an accident / incident occurring on the job.

LOST TIME CLAIMS RATIO

At the end of each year the Lost Time Claims (LTC) ratio is calculated based on the number of Lost Time Days in comparison to the amount of manhours recorded for that employment year. When calculating the LTC ratio, all employee's manhours are accounted for ie. Full-Time, Part-Time, Temporary, and Casual employees. Any absence from work that is not a result of an accident / incident is not accounted for in the manhours or Lost Time Day values ie. vacation days, sick days, days missed as a result of an injury outside of regular scheduled work.

EMPLOYEE EVALUATIONS

Once a year, Employees are evaluated on their job performance. Included in this evaluation Employee safety comprehension and compliance is addressed. The results recorded on the Trends Spreadsheet, is taken into consideration for the evaluation on safety issues.

The evaluation is reviewed with the Employee so they are fully aware of the results. Any feedback, concerns, or suggestions that the Employee may have is discussed at this time. A copy of the evaluation is sent to Human Resources to be placed on the Employee's file, and the Supervisor keeps a copy on file in the department. Employees are also given a copy.

DISCIPLINARY PROCESS FOR VIOLATION OF SAFETY POLICIES & PRACTICES

In the event that a Union Employee's actions are found to be in violation of the safety policies and practices outlined in the Health and Safety Program, the disciplinary process will follow the process outlined in the AUPE Agreement as stated under Article 13 – *Personal Files and Discipline*.

In the event that an APO's actions are found to be in violation of the safety policies and practices outlined in the Health and Safety Program, the disciplinary process will follow the process outlined in the APO Agreement as stated under Section 10 – *Progressive Performance Improvement*.

The disciplinary process for violation of safety policies for Contractors and their employees are outlined in the Prime Contractor and Contractor Documents.

LOST TIME CLAIMS – (LTC)

Lost time claims are a measurement of the number of lost time days in comparison with the amount of man hours logged over the claims year.

$$\text{LTC} = \frac{\# \text{LTC(days)} \times 200,000}{[\# \text{ Hours Worked / year}]}$$

ie.

17 lost time days
1,000,000 manhours / year

$$\frac{17 \times 200,000}{1,000,000} = 3.4 / 100 \text{ person years}$$

SAFETY MEETING MINUTES – CAPITAL PROJECTS

TOPIC: _____

DATE: _____ TIME: _____

NAME	SIGNATURE
John Claassen	_____
Spencer Court	_____
Jason Baranec	_____
Greg Lacey	_____
Doug Ross	_____
Gene Lublinkhof	_____
Brad Robinson	_____
Robin Schafthuizen	_____

Notes:

Recorded by:

John Claassen, Director
Planning & Capital Projects

Date Recorded

Approved by:

Doug Parker, Executive Director
Facilities

Date Approved

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

**PRIME CONTRACTOR DESIGNATION &
RESPONSIBILITIES**

PRIME CONTRACTOR DESIGNATION

OVERVIEW

In order for the General Contractor to be awarded Prime, the worksite must be able to be completely secured from public access. If the area cannot be physically isolated, the University of Lethbridge must act as Prime Contractor.

GENERAL CONTRACTOR - PRIME CONTRACTOR

If Prime Contractor Designation has been awarded to the General Contractor the following must be met:

- The Project Manager must conduct a Pre-job Start-up Meeting with the Prime (General) Contractor.
- The Prime (General) Contractor is to provide a hazard assessment for the job site.
- Site specific hazards that affect the interface zone between the job site and public areas are to be addressed at the start-up meeting.
- Minutes are to be kept for Safety start-up meeting for large projects employing a Consultant.
- The Prime (General) Contractor must then conduct a Pre-job Start-up meeting with all hired Sub-Trades. The minutes from this meeting must be signed and dated and a copy must be forwarded to the Project Manager to be kept on file.
- Copies of subsequent Tool-box meetings are to be recorded and forwarded in the same manner.

UNIVERSITY OF LETHBRIDGE – PRIME CONTRACTOR

When the University of Lethbridge is designated as Prime the following must be met:

- The Project Manager must conduct a Pre-job Start-up Meeting with the General Contractor (if applicable) and a Foreman from each of the Sub-Trades present.
- Site and Job Specific Hazards are to be addressed at this time, and any action required due to existing or potential hazards, are to be outlined at this time.
- The University of Lethbridge may require the contractor to provide written statements of safe work procedures.
- Personal Protective Equipment required on the job site, and for specific job tasks must be addressed at this time.
- The Prime Contractor (U of L) is then responsible for conducting any necessary subsequent Tool-box meetings. These are to be recorded and forwarded in the same manner.

Refer to and follow the Prime Contractor Requirements as found in this section. (Currently under review by RSS)

NOTE: The University of Lethbridge is NOT responsible for supplying Personal Protective Equipment to the Employees of Contractors / Trades working at the University.

PRIME CONTRACTOR REQUIREMENTS

Prepared by University of Lethbridge
Risk & Safety Services (R.S.S.)
August 2000
Latest revision November 2006
Safety & Risk Management

1. Introduction

These Requirements for Prime Contractors are a summary of the Occupational Health, Safety and Environmental legislation, and working procedures that apply to **all** Prime

Contractors; their employees, and their sub contractors and employees, while working on the University of Lethbridge (U of L) campus. The requirements are consistent with, and supplemental to, federal and provincial statutes and regulations governing Occupational Health, Safety and Environment in the workplace.

2. Owner's Responsibility

The University of Lethbridge is serious about owner responsibilities with respect to Occupational Health and Safety on the worksite. It is the responsibility of the owner to ensure that prior to offering Prime Contractor; the contractor is capable of accepting the prime contractor responsibilities. It is understood that the owner can never absolve their responsibility. If the owner notices a breach of legislation or U of L requirements the owner will notify the prime contractor's identified site safety personnel. If the breach constitutes imminent danger, the owner will speak directly to the employee and immediately contact the prime contractor's identified site safety personnel.

3. Prime Contractor's General Responsibilities

It is the Prime Contractor responsibility to formally ensure that its employees and sub-contractors are competent, proficient, and able to perform their work in compliance with the appropriate regulatory requirements, these Prime Contractor Requirements, and all other University of Lethbridge requirements which may apply to the particular job at hand. The Prime contractor will supply the Project Manager with a copy of the sign in sheet of the safety orientation for all their employees, sub contractors and subcontractor employees. The Prime Contractor must be able to demonstrate that it has an effective Occupational Health, Safety and Environmental program in place and functional prior to and for the duration of the job. The Prime Contractor must also ensure that all sub contractors have an effective Occupational Health, Safety and Environmental program in place and functional prior to and for the duration of the job.

4. Workers Compensation

The Prime Contractor must have current Workers Compensation. If applicable the Prime Contractor must have personal coverage. The U of L will obtain a certificate of clearance from WCB that will be placed on the project file. Sub contractors demonstrate their Workers Compensation is up to date and if applicable must demonstrate personal coverage. The Prime Contractor must supply all sub contractors' WCB certificate of clearance to the Project Manager for the project file.

5. Training and Certification

Prime Contractors and their employees must be trained in safe work practices. Depending upon the type of work required, and the location, in addition to Workplace Hazardous Material Information System (WHMIS) certification, training may include; Confined Space Entry, Transportation of Dangerous Goods (TDG), First Aid/CPR. The Prime Contractor must receive verification that all their subcontractor=s employees are trained. The verification is to be given to the Project Manager **24 hours prior** to project commencement and will be added to the Project File. Additionally if required, Prime Contractors must submit applicable up to date Material Safety Data Sheets (MSDS) to the Project Manager for review by the U of L R.S.S. Department representative. It is the responsibility of the Prime Contractor to ensure that all sub contractors submit applicable MSDSs to the Prime Contractor for review.

6. Hazard Assessment

Hazard assessment must be done **24 hours prior** to the project commencement. The

Hazard assessment is done in order to identify hazards and review remedial measures. The hazard assessment must address Working Alone. The hazard assessment must be copied to the Project Manager and will be included in the Project file.

7. Job Procedures

Safe work practices must be completed for any task with significant danger (i.e. craning units on to roof). If requested by the Project Manager the safe work practice must be submitted to for review purposes at least **24 hours prior** to the commencement of the job.

8. Employee Orientation

Before starting any job, Prime Contractors will participate in an orientation to be conducted in conjunction with R.S.S. and the Project Manager, U of L. The purpose of the orientation is to ensure, by review of this document, that the Prime Contractor is made aware of the U of L safety policies. The Prime Contractor is required to sign a form indicating they have attended the orientation, read and understood this document. It is then the responsibility of the Prime Contractor, by review of this document, to orientate all their employees, sub contractors and their employees. The orientation form for employees and for each sub-contractor will be given to the Project Manager and will remain on file.

9. Personal Protective Equipment

Protective clothing and equipment shall be worn when indicated by regulatory and University of Lethbridge requirements or as per review of Material Safety Data Sheet (MSDS) and physical hazards, and shall be supplied by the Prime Contractor, or sub contractor. General minimum requirements for workers or visitors are as follows:

- Eye protection: safety glasses, goggles, face shields are to be worn if there is any danger or potential danger to the eyes.
- Safety Boots: six or eight inch high boot with green triangle visible to outside of right boot. Boots must have a steel toe cap and depending on the job may also require a steel puncture resistant sole.
- Hard Hats: All hats must be CSA Class B or ANSI approved. Hats must not have drilled holes, deep scratches or defacing characteristics. Suspension must be intact and worn the correct way. Hard hats must not be worn backwards.
- Fall Protection: Fall restraint or fall arrest protection is required where a fall of 10' or more is possible.
- Respiratory Protection: Respiratory protective equipment must be worn for the specific task or hazard. Check the MSDS for specifics. The use of respiratory protective devices is mandatory when the worker is exposed to a hazard known to cause respiratory dysfunctions. Workers must be instructed in the proper fitting, use, cleansing, and storage procedures for all reusable masks, as well as disposable masks.
- Hearing Protection: Plugs or head-set type hearing protectors for high noise levels or prolonged noise exposure must be worn if the conditions warrant. All hearing protection must be CSA approved.
- Protective Clothing: All workers must wear t-shirts with sleeves at least 4" in length. T shirts are measured from the axilla.
- No muscle shirts, mesh shirts nor are tank tops permissible. T-shirts cannot have offensive writing.
- All workers must wear long pants.

10. Equipment and Tools

All equipment and tools required to complete a task undertaken must be in good condition, rated for the job at hand, and be supplied by the Prime Contractor and/or sub contractor. Any equipment that is faulty, or in disrepair must be removed immediately and repaired. All electrical equipment supplied by the contractor must have ground fault protection in accordance with CSA standards.

11. Worksite Safety Meetings

Worksite Safety (Tool Box) meetings will be held to discuss the work to be performed and to ensure that all personnel participating understand: the requirements and potential Occupational Health, Safety and Environmental hazards of the job, that the necessary safety and environmental precautions will be taken, and that all required safety and environmental equipment is available. The Prime Contractor shall cooperate with the U of L in conducting these meetings. Permanent records of the meetings will be maintained and copies provided to the Project Manager as part of the project file. The frequency of the Safety meetings will be at least bi-weekly, and more often as required.

12. Systems Interface

The Prime Contractor must contact the appropriate department prior to performing work on systems within the University. For example lock out/tag out contact Utilities.

13. Ventilation Requirements

The Prime Contractor and their employees shall ensure that all operations involving the production of vapors, mists, and dusts shall address ventilation requirements to ensure acceptable air quality levels at the worksite and area. The Prime Contractor and their employees will discuss the specific ventilation needs (closing off existing ventilation systems, provision of exhaust fans, etc.) with the Project Manager. If deemed necessary by the Project Manager, a written procedure will be provided by the Prime Contractor. Any ventilation system work requires the approval of U of L Utilities Department.

14. Lock Out/Tag Out

Prime Contractors must have and use acceptable lock out/ tag out procedures, which meet both regulatory and U of L requirements. The Project Manager will provide the Prime Contractor with a copy of the U of L Lockout/Tag out procedure. The Prime Contractor will advise the contractor and commit the personnel for lock out/tag out procedures.

15. Hot Work Permit

Prime Contractors and their employees shall adhere to the U of L hot work permit requirements. If hot work is involved the Project Manager will provide the Prime Contractor with the U of L hot work permit procedure.

16. Red Tag Permit

Prior to any work involving modification, additions, isolation and removal of the fire suppression system (i.e. building sprinkler system) the Prime Contractor must contact the U of L Utilities. The permit system must be carried out in accordance with the U of L Red Tag procedure.

17. Trenching and Excavation

Prime Contractors must contact the University of Lethbridge Utilities Department 24 hours prior to commencement of work involving trenching and excavation. The U of L Utilities department will locate and identify underground utilities

18. Fire Extinguishers

Should fire extinguishers be necessary the extinguisher will be provided by the Prime Contractor. The fire extinguisher shall be the type suitable for the job requirements.

19. Overhead Work

When working overhead, the area below shall be roped off or other equivalent measures taken to protect workers on the worksite. Signs reading "Danger-Workers Overhead shall be conspicuously posted. If conditions justify an observer, the observer shall be stationed to warn persons in the vicinity. The observer will be supplied by the Prime Contractor or sub contractor.

20. Asbestos

If asbestos is discovered the project is to be stopped immediately. No asbestos work removal is to be commenced until approval is obtained from U of L RSS Department. Any damage to asbestos containing materials must be reported to the Project Manager immediately. The Project Manager will notify RSS.

21. Mold Remediation

No mold removal is to be commenced until approval is obtained from U of L RSS Department. Should mold be discovered, the work must be stopped immediately, and the Project Manager must be notified. The Project Manager will notify RSS.

22. Emergency Numbers and Evacuation Procedures

The Project Manager will supply the Prime Contractor with a copy of the U of L site plan and emergency phone numbers. Also, Prime Contractors must submit emergency telephone numbers to the Project Manager. The numbers supplied must be functional 24 hours/day.

All emergency phone numbers will be posted in a prominent place on the job site.

If a fire alarm is sounded, Prime Contractors, their employees, sub contractors and their employees shall immediately stop operations, secure the area, and proceed to the fire alarm meeting area. The worksite is not to be re-entered until notification is provided via radio or an all clear bell is sounded.

If a serious medical emergency is encountered, the Prime Contractor, sub contractor, and/or their employees shall call **911** immediately to advise the Ambulance. Security **329-2345** must then be called and advised of the situation.

23. Reporting Incidents/Accidents

The Prime Contractor and their employees shall report any incidents/accidents and near miss situations to the Project Manager immediately after an incident/accident or near miss occurs. No matter how trivial, incidents/accidents and near miss situations must be documented on a Campus Accident/Incident Report by the Project Manager who will submit a copy to RSS. Confidentiality will be maintained.

24. Chemical Spills

If the Prime Contractor, sub contractor and/or their employees cause a chemical spill while performing their operations at the worksite they must immediately secure the area, call Security at **329-2345**, warn bystanders of the situation, and attempt to clear the area of all personnel.

25. Hazardous Waste

Any hazardous wastes produced as a result of the work performed by the Prime Contractor

shall be the property of the Prime Contractor. The Prime Contractor shall ensure that hazardous wastes are properly packaged, labeled and disposed of in accordance with all applicable regulations and guidelines.

26. Transportation of Dangerous Goods (TDG)

Prime Contractors must ensure they comply with the requirements specified in statutes regarding TDG.

27. Housekeeping

Good housekeeping practices must be followed at all times on all U of L work sites. Walkways and fire exits must be kept clear of stored materials, and all work sites must be left in a clean orderly fashion by the contractor at the end of each work day. Upon completion of the job a broom clean up is required.

28. Smoking

The U of L is a smoke free environment; smoking is permitted outside of the buildings only.

29. Verbal, Written, Gone

U of L has a progressive warning procedure for offenders of the Occupational Health and Safety Act and Regulations and/or the University Safety Policies. Any individual who does not comply with the Regulations and/or the University Safety Policies shall:

- For the first offence receive a verbal warning
- For the second offence receive a written warning from the Prime Contractor. A copy of the warning will be sent to the Project Manager and the RSS department.
- For the third offence be suspended from the job.

30. Workers' Right to Refuse

Section 35(1) in the current Occupational Health and Safety Act states no worker shall:

- (a) carry out any work if, on reasonable and probable grounds, if he believes there exists an imminent danger to the health or safety of that worker,
- (b) carry out any work if, on reasonable and probable grounds, he believes that it will cause to exist an imminent danger to the health or safety of that worker or another worker present at the worksite, or
- (c) operate any tool, appliance or equipment if, on reasonable and probable grounds, he believes that it will cause to exist an imminent danger to the health or safety of that worker or another worker present a the work site.

PRIME CONTRACTOR REQUIREMENTS

The Prime Contractor Requirements have been presented, read and understood by the following:

Project #

Project Description

Contracting Firm (please print)

Contractor's Signature

Date

U of L RSS Signature

Date

U of L Project Manager Signature

Date

Original: Contractor
Cc: Project file

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

SAFE WORK PRACTICES

AERIAL BUCKETS

PRETRIP INSPECTION

- Hydraulic oil
- Leaks
- Hydraulic lines & hoses (fittings & condition)
- Hydraulic cylinders (condition, leaks)
- Hydraulic cylinders pins and retainers
- Boom pins and retainers
- Boom for cracks and damage
- Loose bolts (wire lies)
- Cable condition
- Hand contact boom waxed weekly, cleaned with static cloth daily (minimum)
- Boom cradle (condition & safety switch)
- Boom lock and mount (bolts, cracks)
- Pistol grip control (air lines)
- Condition of lower controls (turrent)
- Rotation motor
- Turrent (loose bolts, leaks, welds and cracks)
- Rescue pack
- Boom rescue strap and O ring
- Emergency power switches (torrent, boom outriggers)
- outriggers (pins, welds & cracks)
- Outrigger pads
- Bucket condition (liner, cover)
- Bucket attachments (bolts, pins, cylinders)
- Bucket tilt lever locked (lay down lever)
- Keep deck clean (good housekeeping)

JIB

- Controls (condition)
- Air lines to pistol control
- Jib and keeper pins
- Winch line
- Winch line pulleys
- Jib position cylinder (bolts & condition)
- Hydraulic lines
- Jib load chart and angle indicator

SET UP

- P.T.O.engaged
- Brakes applied
- Use outrigger and boom selector
- Lower outriggers raising unit slightly off ground (pads as required).

OPERATING PROCEDURES

- Unlock boom

- Raise unit to top of pole using lower controls
- Lower unit to allow entry into bucket
- Enter bucket and hook-up lanyard
- Raise up to over center
- Lower to ground while over center
- Raise and move side to side
- Return over center and stow properly

ATTACHING CABLE CLIPS AND CLAMPING WIRE ROPE

GENERAL

- Wire the thimble to the rope at the desired point, then bend the rope around the thimble and secure temporarily by wiring the rope members together.
- First attach the clip farthest from the thimble and tighten (be sure the base of the saddle rests upon the live end of the rope and the "U" bolts on the short end.) All clips must be attached in this manner.
- The clip nearest the thimble goes on next. Do not tighten yet. If one or more additional clips are to be attached, place them at an equal distance apart between the clips already attached.
- Before tightening, place some stress on the rope to take up the slack and equalize the tension on both sides of the clip. (Do not apply too much stress or the clip attached in Step 1 will not hold). Tighten all clips.

Diameter of Rope (millimeters)	Number of Clips	Spacing Between Clips Center to Center (millimeters)	Torque (newton-metres)
6	2	38	20
8	2	51	40
10	2	57	65
11	2	64	90
12	3	76	90
16	3	102	135
19	4	114	176
22	4	133	305
25	4	152	305
29	5	178	305
32	5	203	488
38	6	229	488
44	7	267	628
50	8	305	881

BANDSAW

- **Wear appropriate PPE (Safety Glasses and Hearing Protection).**
- The saw guide must be adjusted within one-fourth inch of stock to be cut before power is turned on.
- Do not allow fingers to come closer than two inches to saw when cutting stock.
- Do not allow hands across the saw line when operating bandsaw.
- Do not stand at right hand side of bandsaw machine. A serious accident might result if saw should break.
- If necessary to back saw out of a long cut, power should first be turned off and machine allowed to come to a dead stop.
- Be sure the radius of your cutting is not too small for the width of the blade of the saw.
- Cylindrical stock must never be cut on bandsaw.
- Stock must not be cut on the bandsaw unless such material is firmly supported against downward thrust of the saw. Do not saw into the toe of a long bevel cut unless the toe is on the table.
- If bandsaw blade should break while machine is in operation immediately shut off power before changing blade. A rhythmic click may indicate a cracked blade. Shut off the machine and change out blade.
- If help is needed to support heavy or long work, the helper should never pull or guide the work. He supports the weight, the operator runs the machine.

CHOP SAW

- Safety glasses and hearing protection must be worn at all times when operating Chop Saw.
- Keep working area clean at all times.
- Inspect saw to ensure all guards are in place and cords, blades and switches are well maintained and in safe operating condition.
- Pick a clean area, hopefully 20 to 30' radius area, so the pipe can be turned freely without obstructions.
- Set up Chop Saw on a level base.
- Set up blocks approximately 10' back of power vise also on a solid level base. This is to hold opposite end of pipe being cut.
- Make sure power supply is properly grounded.
- Mark location on pipe to be cut and place in Chop Saw. Place cutting wheel on mark and pull trigger to start saw.
- If pipe being cut extends more than approximately 3' in front of chop saw you should also have blocks in front.

USE OF CLEANING SOLVENTS AND FLAMMABLES

Cleaning solvents are used in the day-to-day construction work to clean tools and equipment. Special care must be taken to protect the worker from hazards, which may be created from the use of these liquids. Wherever possible, solvents should be nonflammable and nontoxic.

The foreman must be aware of all solvents / flammables that are used on the job, and be sure that all workers who use these materials have been instructed in their proper use, and any hazard they pose.

The following instructions or rules apply when solvents / flammables are used:

- Use non-flammable solvents for general cleaning.
- When flammable liquids are used, make sure that no hot work is permitted in the area.
- Store flammables and solvents in special storage areas.
- Check toxic hazards of all solvents before use. Refer to Material Safety Data Sheets (MSDS).
- Provide adequate ventilation where all solvents and flammables are being used.
- Use goggles or face shields to protect the face and eyes from splashes or sprays.
- Use rubber gloves to protect the hands.
- Wear protective clothing to prevent contamination of worker's clothes.
- When breathing hazards exist, use the appropriate respiratory protection.
- Never leave solvents in open tubs or vats - return them to storage drums or tanks.
- Ensure that proper containers are used for transportation, storage and field use of solvents / flammables.
- Where solvents are controlled products, ensure all employees using or in the vicinity of use or storage are trained and certified in the Workplace Hazardous Materials Information System (WHMIS). Ensure all WHMIS requirements are met.

DEFECTIVE TOOLS

Defective tools can cause serious and painful injuries.

If a tool is defective in some way, **DON'T USE IT.**

Be aware of problems like:

- chisels and wedges with mushroomed heads
- split or cracked handles
- chipped or broken drill bits
- wrenches with worn out jaws
- tools which are not complete, such as files without handles

To ensure safe use of hand tools, remember:

- never use a defective tool
- double check all tools prior to use
- ensure defective tools are repaired

Air, gasoline or electric power tools, require skill and complete attention on the part of the user even when they are in good condition. Don't use power tools when they are defective in any way.

Watch for problems like:

- broken or inoperative guards
- insufficient or improper grounding due to damage on double insulated tools
- no ground wire (on plug) or cords of standard tools
- the on/off switch not in good working order
- tool blade is cracked
- the wrong grinder wheel is being used
- the guard has been wedged back on a power saw

USE OF DISK SANDER

- Select correct grade of abrasive sheet.
- Table fence and guide must be correctly adjusted and tight. The clearance between sanding disk and table or rest should not exceed one-sixteenth of an inch.
- Goggles must be worn.
- Sand only on the downstroke side of disk.
- Do not hold small pieces in hand. They have a tendency to rotate, with the attendance danger of pulling your fingers against the revolving disk. A few small pieces should be sanded by hand. For a large number, devise a jig to hold them securely.
- If you must leave sander before finishing the job, turn off the power.
- Stop sander to make adjustments.
- Never touch a moving sanding disk.
- Stop the sander by shutting off power and sanding a scrap piece of wood.
- Never operate the disk sander if the paper is loose. Report the condition to Instructor.
- Move the work about to avoid heating and burning a section of the paper.

USE OF DRILL PRESS

- **Wear appropriate PPE (Safety Glasses & Hearing Protection).**
- Never attempt to use a regular auger bit on the drill press or in the hand drill. Auger bits for this machine have the lead screw cut smooth and the square tang cut off.
- Clamp small pieces in a drill vise or clamp them to the table.
- Keep the table clean, but clean it with a brush. (Not with your hands)
- Wear a shop cap or tie up the hair when working around whirling machinery. Rings, wristwatches, and gloves should not be worn.
- Check to see that the chuck key, drift, and all wrenches are removed before starting the machine.
- Be certain your drills are ground in balance so that they do not tend to whip the work.
- Beware of the coasting machine.
- In using a shaping or routing attachment for the drill press, be sure to study the safety rules for the shaper.
- On deep cuts back out frequently to clean and cool the bit.
- Center punch for drill point. Use only straight sharp drills.
- Drill easily without forcing the bit.

ELECTRICAL SAFETY

Electricity is a powerful form of energy. If abused or used improperly, it can be hazardous, cause shock, start a fire or even kill.

Follow these precautions when working with electrically powered tools and equipment:

- Electrical repairs to tools and equipment, should only be performed by qualified individuals.
- Never use metal ladders near electric power lines.
- Rubber or plastic coated tool handles should be regularly inspected for cracks, cuts and wear.
- Double insulated tools require only two-pronged connections and should be clearly marked.
- Never stand in water when operating electrical equipment. If you must work in damp areas, use a ground fault circuit interrupter (GFCI). If one is not available, insulate yourself by wearing rubber gloves and rubber boots or stand on insulated platforms or mats.
- Before you start cleaning or adjusting a power tool, disconnect it from the power source.
- If an electrical piece of equipment malfunctions, disconnect and lock out the power source immediately and report the trouble to your supervisor. Make sure the power source is positively locked out when the equipment is being worked on.
- Tag all defective or damaged tools and return them for repair.
- Do not overload electrical circuits; this can cause a fire.
- Never put water on an electrical fire. Use the proper type of fire extinguisher such as one with an "ABC" classification.
- Never cut or remove the grounding prong from a plug.

FIRE AND USE OF FIRE EXTINGUISHERS

Good housekeeping is essential in the prevention of fires. Fires can start anywhere and at any time. This is why it is important to know which fire extinguisher to use and how to use it.

Always keep fire extinguishers visible and easy to get at. Fire extinguishers have to be properly maintained to do the job. Where temperature is a factor, ensure that care is taken in selecting the right extinguisher.

Types of Fires

Class A: These fires consist of wood, paper, rags, rubbish and other ordinary combustible materials.

Recommended Extinguishers

Water from a hose, pump type water can, or pressurized extinguisher, and soda acid extinguishers.

Fighting the Fire

Soak the fire completely - even the smoking embers.

Class B: Flammable liquids, oil, and grease.

Recommended Extinguishers

ABC units, dry chemical, foam and carbon dioxide extinguishers.

Fighting the Fire

Start at the base of the fire and use a swinging motion from left to right, always keeping the fire in front of you.

Class C: Electrical equipment

Recommended Extinguishers

Carbon dioxide and dry chemical (ABC units) extinguishers.

Fighting the Fire

Use short bursts on the fire. When the electrical current is shut off on a Class C fire, it can become a Class A fire if the materials around the electrical fire are ignited.

FLAMMABLE & TOXIC MATERIALS

Flammable Products

Certain products in use may contain solvent components such as xylene or propanol. These solvents have relatively low flash points and will ignite when exposed to sparks or open flames. The following guidelines must be observed:

- No smoking in or near the work area. Post "No Smoking" signs throughout the work area.
- Type ABC fire extinguishers should be located in easily accessible stations in the work area.
- No open flames or welding torches should be in the work area.
- Enclosed areas create explosive conditions. Use of explosion-proof fans to disperse the vapors, and bring in fresh air.
- Ascertain ventilation requirements prior to using hazardous materials.

Toxic Materials

Toxic or poisonous materials can be transmitted either by the inhalation of vapors, or contact with bare skin. Caution should be exercised when handling uncurled material or solvents.

- The specific vapor respirator required must be determined prior to starting.
- Wear goggles when mixing, or applying.
- Wear gloves, which extend 3/4 upwards the length of employee's forearm. Wear rubber gloves when washing tools with solvent.
- Wear long sleeve shirts and pants.
- Wear protective foot coverings, either rubber boots, or a plastic liner inside shoes.

FORKLIFT OPERATION

- Walk around the-forklift and check the following:
 - Proper spacing of forks for material
 - Fluid levels and fuel supply
 - Wheels/ tires for condition
 - Obstructions around the forklift
- Check back up alarm operation
- Check lights:
 - Headlights
 - Taillights
 - Revolving lights
- Start the forklift and let it warm up.
- Checks to see if all lights and gauges are operational on the control panel,
- Check operation of all moving parts.
 - Foot, parking and deadman seat brake
 - Clutch and gear shift
 - Steering
- Lift and tilt mechanism
- Check the working area for obstructions and other personnel.
- Move material around in a safe manner.

NOTE: Do not exceed the lifting capacity of the forklift at any time.

GRINDING

- **Wear appropriate PPE (Safety Glasses and Hearing Protection).**
- Check the tool rest for the correct distance from the abrasive wheel: maximum 1/8" or 3 mm.
- Replace the grindstone when adjustment of the rest cannot provide 1/8" or 3 mm clearance.
- If the wheel has been abused and ground to an angle or grooved, reface the wheel with the appropriate surfacing tool.
- Protect your eyes with goggles or a face shield at all times when grinding.
- Each time a grinding wheel is mounted, the maximum approved speed stamped on the wheel bladder should be checked against the shaft rotation speed of the machine, to ensure the safe peripheral speed is not exceeded. A grinding wheel must not be operated at peripheral speed exceeding the manufacturer's recommendation.
- The flanges supporting the grinding wheel should be a maximum of 1/3 the diameter of the wheel, and must fit the shaft rotating speed according to the manufacturer's recommendation.
- Bench grinders are designed for peripheral grinding. Do not grind on the side of the wheel.
- Do not stand directly in front of grinding wheel when it is first started.

HOIST LIFTING / LOWERING PROCEDURES

- Make sure the area around the hoist is clean and free of obstructions.
- Slowly drive the vehicle into the stall, aligning it squarely with the hoist. The centerline of the vehicle should be directly over the centerline of the hoist.
- Stop the vehicle when the rear tires drop into hoist cradle. Keep hoist cradles clean.
- Shift the transmission into neutral and activate the park brake. Shut off engine.
- Slowly raise the rear hoist making sure the lift arm is contacting the rear axle housing. Make sure nothing will get pinched between the lift arm and the housing.
- Once the weight is off of the rear wheels, position the front lift arm to contact the front axle or control arms.
- After inspecting all four contact points, slowly lift vehicle. KEEP VEHICLE LEVEL when hoisting. Raise until safety latches engage.
- Watch overhead clearance to avoid contact with fixtures.
- Position safety stands as required.
- Lower vehicle until it contacts safety stands.
- When the repair / inspection is complete, raise hoist slightly to remove weight from stands.
- Remove safety stands.
- Always make sure area under hoist is clear before lowering.
- Slowly lower hoist, making sure vehicle remains level.
- Once the hoist arms have settled into the floor, the vehicle can be moved.
- Check under and behind the vehicle before backing up.

HOUSEKEEPING

- Keep aisles, walkways and stairs clear.
- Do not block fire exits and fire fighting equipment with materials.
- Materials should be stored with adequate room between for easy access.
- Tools and materials should be cleaned up and put away in designated storage areas after a job is done and at the end of each workday.
- Keep all articles to be disposed of in a designated location and remove regularly.
- Clean up spills immediately in order to avoid a slipping hazard.
- Store flammable liquids in approved sealed containers away from open flame, sparks or sources of ignition.

HAND POWERED LIFTS, ROUSTABOUTS, AND HYJACKS

Winch or jacking devices are great for moving heavy materials or apparatus - they are safe too if the following points are observed:

- Check the equipment for defects before starting the work. Make sure that safeties, catches, brakes and hydraulic hoses are in working order and that there are no frayed cables or loose gears, cogs, or ratchets. Report all mechanical or hydraulic problems to your supervisor immediately - do not use a malfunctioning device.
- Familiarize yourself with the manufacturer's special instructions for safety. Review and check out emergency stopping procedures and load lowering requirements.
- Plan what you intend to accomplish in advance. Before you move a loaded lifting device that has casters or wheels for mobility, make sure the load is secure and the lifting mechanism is set at the lowest operating position. Only move loads over level and even surfaces.
- Do not exceed the device's capacity for lifting loads, heights and travelling limits. Block wheels and casters before lifting.
- Check the attachment points of the tackle blocks and make sure they are strong enough to support the load.
- Position the lift directly under the final position to where equipment or materials is to be raised.
- Never lift the load where it may come in contact with electric power lines, conduit or bus duct unless the electric service has been locked out.
- Check for balance and load distribution, to prevent the lift from tipping or overturning.
- Make sure that only properly instructed personnel operate the lifting device.
- Never indulge in horseplay or practical jokes with power lifting equipment.

USE OF METAL SCAFFOLDS

There are various types of metal scaffolds and they all have a right and wrong way to be erected.

The misuse of scaffolding is the cause of numerous serious injuries. Every worker who designs or constructs a scaffold should be competent and know what the manufacturer's specifications are for that type of scaffold.

The scaffold type, which will be the best suited for the job and capable of withstanding the loads to be imposed on it must be determined before the job begins.

Ensure that:

- The scaffold you intend to use is the correct one for the job.
- The location in which the scaffold is to be constructed is level or is capable of presenting secure footing by use of mudsills or some other device.
- The scaffold will be erected by a competent worker.
- Legislative and manufacturer's requirements have been complied with.
- Safe access and egress to both the scaffold and the general work area has been provided.
- Leveling adjustment screws have not been over extended.
- Tower scaffolds have outriggers or are guyed and have all component parts secured in place (i.e. cross braces, pins, lateral braces).
- Scaffold work platforms have a perimeter guardrail
 - Horizontal rail - 0.92 meters to 1.07 meters above the platform.
 - Intermediate rail - Horizontal rail midway between scaffold platform and top rail.
 - Toe board - Horizontal member at platform level no less than 140mm in height above the platform level.
- Scaffold planks are of number one grade materials with maximum spans of 3.1 meters on light duty and 2.3 meters on heavy duty with a maximum projection beyond the ledger of no more than 300 mm.

USE OF NON-POWERED HAND TOOLS

Common hand tools, which many people take for granted, frequently are the most abused. Misuse of hand tools can become a habit that will cause accidents.

Some of the basic rules governing the use of hand tools are as follows:

- Use the right tool for a job. Never use a makeshift or improper fitting tool. Refuse to use tools that aren't in first class condition and report those that give you problems to your supervisor.
- Use wrenches of the right size for the job. Face the jaws of an adjustable wrench in the direction of the pull.
- Make certain that pipe wrench jaws are sharp and chains in good condition so they will not slip.
- Use only tools in good condition. Clean all grease and dirt. Do not use tools with improper handles, including those that are cracked, broken or loose. Hammers or chisels with mushroomed or broken heads should not be used.
- Keep keen-edged blades sharp; store them safely when not in use. Store them with the sharp edge protected. This will help avoid cuts, as well as protect the sharp edge.
- Do not use a hammer with a hardened face on highly tempered tools such as a drill, file, die or jig. Chips may fly.
- Never apply a wrench to moving machinery; stop the machine, then remove all tools before starting it again.
- Never handle any tool in such a manner that you can be injured if it slips. Think about your movements and position your body accordingly.
- Always wear safety goggles when working with hand tools. You only get one pair of eyes.
- Don't carry hand tools in a way that will interfere with using both hands when climbing a ladder.
- Tools should not be put down on scaffolding, overhead piping, on top of step ladders, or other locations from which they could fall on persons below or into equipment.
- Workers carrying tools on their shoulders should pay close attention to clearances when turning so that they will not strike nearby fellow workers.

USE OF OXYGEN-ACETYLENE OR OXYGEN-PROPANE TORCH

Make sure you have access to a fire extinguisher before you start your cut.

- Open the valves of the cylinders slowly.
- Make sure the gauge of the acetylene cylinder does not exceed 15 psi. Drawing acetylene too quickly produces an unstable, explosive condition.
- The oxygen gauge should be set around 50 psi.
- Check the torch hoses and gauges for leaks, damage or deterioration. Never use a torch that leaks.
- Clear all combustible material away from the cutting area.
- Open the fuel valve on the torch (Propane or Acetylene). Light the gas.
- Slowly open the oxygen valve on the torch.
- Getting the right mixture of oxygen and fuel requires a little practice. Get help if you have never used a torch before.
- Before you start to cut, check the area once more.
- Make sure the hoses are clear of the cutting area.
- After the cut is complete, turn off the fuel valve on the torch first.
- After the flame is extinguished, turn off the oxygen valve on the torch.
- Close the cylinder valves.
- Keep the torch and hoses free from oil.

SURFACE PLANER

- **Wear appropriate PPE (Safety Glasses and Hearing Protection).**
- The dust collection should be hooked up and turned on to remove wood chips from the cutter head.
- Be familiar with the stopping mechanism of the machine. Know the location and method of operating the feed release and brake if one is furnished with the tool.
- Get in the habit of standing to one side of the infeed, out of line with the work.
- As the feed rolls take the work, **YOU LET GO**. Do not follow the work with the hands.
- For maximum safety, the shortest board to be run should be about two inches longer than the distance between the centers of the infeed and outfeed rolls.
- In feeding short pieces, be careful of fingers and thumb. The rolls sometimes tip short boards up a little as they go under, and the fingers may be pinched between the board and the table.
- If the board stops with the end on the infeed table, do not try to push it with fingers, jar it with a longer plank or shut down and lower the table.
- Examine wood for defects, such as spike knots, which might cause ends or short pieces to break off under pressure of the feed rolls. These pieces can be violently thrown out by the cutter head.
- **DO NOT SEND CROSS GRAIN THROUGH THE PLANER. THIS MACHINE IS INTENDED FOR PLANING WITH THE GRAIN.**
- If a board sticks under the cutter head, shut off the machine to avoid burning the knives. On machines not provided with a sectional infeed roll or a chip breaker, kickback fingers should be installed as a guard.
- Stock to be planed to thin dimensions should be placed on top of a slightly larger board and run through. In this way there can be no damage to the machine and very thin sections can be made.

PLASMA CUTTER

Obvious Hazards: burns, flash, foot injuries, electric shock

Safest Body Position: to the side of the piece being cut

The plasma cutter uses a combination of compressed air and an electric arc to cut metal. The greatest risk of injury is due to flying molten metal.

- Make sure the area is clear of combustibles and people before you start to cut.
- Safety goggles with a minimum #6 shade, gloves, steel toed boots, coveralls must be worn
- Connect the compressed air line to the back of the plasma cutter.
- Check to make sure the nozzle is in good condition before you turn the machine on.
- Turn on the power switch.
- Attach the ground clamp to the work being cut. Only materials that conduct electricity can be cut with the plasma. (steel, aluminum, copper, stainless steel, some types of cast, etc)
- With your goggles on, press the switch on the torch handle to check the condition of the tungsten insert. If the resulting arc appears favorable, lower the torch to within 1/8" from the metal surface. (use the wire guide attached to the torch head)
- With a uniform motion drag the torch along the desired cut line.
- Be aware of falling pieces of metal upon completion of the cut.
- Do not turn the power switch off until the compressed air has stopped flowing through the torch head. The air cools the tip for about one minute after use before it automatically shuts off.
- Turn off the power to plasma cutter.
- Carefully remove the air hose.

USE OF PORTABLE ARC WELDER

Portable arc welders are a piece of equipment that has to be treated like a vehicle. Do not operate them indoors.

- Be sure the machine is firmly attached to the transporting unit.
- Check all fluid levels, water, oil and gas to be sure they are at acceptable levels for operation.
- When fueling, DO NOT "lop off" the gas tank. Gasoline expands as the outside temperature rises. This may result in seepage and an ensuing fire.
- Do not fuel the machine while it is running.
- Be sure the radiator and gas caps are in proper working order and securely attached.
- Do a "walk around" to check for damage and obvious leaks.
- Any repairs should be done by qualified mechanics or technicians.
- Make sure all cables are wound securely when transporting.
- Ensure the side covers are kept closed to protect the machine from any damage from external objects and outside weather, as well as to protect the operator and others from the moving parts of the machine.

USE OF PORTABLE LADDERS

Ladders can be used safely if they are given the respect they deserve.

Before using any ladder, make sure that it is in good condition and is the right ladder for the job to be done.

- When setting up a ladder, secure the base and "walk" the ladder, up into place.
- The ladder should be set at the proper angle of one (1) horizontal to every four (4) vertical.
- Before using a ladder, make sure it is secured against movement.
- When in position, the ladder should protrude one (1) meter above the intended landing point.
- Workers shall not work from the top two rungs of a ladder.
- Don't overreach while on a ladder. It is easier and safer to climb down and move the ladder over a few feet to a new position.
- Always face the ladder when using it. Grip it firmly and use the three-point contact method when moving up or down.
- The minimum overlap on an extension ladder should be one (1) meter unless the manufacturer specifies the overlap.
- Keep both metal and wood ladders, away from electrical sources.
- Due to health and safety concerns, a step ladder is not loaned to any building occupant who has not received training approved by U of L Occupational Health & Safety department.

PROPER LIFTING PRACTICES - HOISTING

Evaluating the Load

Determine the weight of the object or load prior to a lift to make sure that the lifting equipment can operate within its capabilities.

Balance Loads

Estimate the center of gravity or point of balance. The lifting device should be positioned immediately above the estimated center of gravity.

Landing the Load

Prepare a place to land the load, lower the load gently and make sure it is stable before slackening the sling or chain.

- Select only alloy chain slings and NEVER exceed the working load limits.
- Make sure the hoist or crane is directly over the load.
- Use slings of proper reach. Never shorten a line by twisting or knotting. With chain slings, never use bolts or nuts.
- Never permit anyone to ride the lifting hook or the load.
- Make sure all personnel stand clear from the load being lifted.
- Never work under a suspended load, unless the load is properly supported.
- Never leave a load suspended when the hoist or crane is unattended.
- Inspect all slings thoroughly at specified intervals and maintain them in good condition.
- Inspect each chain or sling for cuts, nicks, bent links, bent hooks, etc., before each use. If in doubt, don't use it.
- Ensure that safety latches on hooks are in good working condition.
- Ensure that the signaler is properly identified and understands techniques of proper signaling.
- Make sure a tagline is used to control the load.

PROPER LIFTING TECHNIQUES

The three major causes of back injury are over-extension, poor lifting techniques and trying to lift too heavy an object. The following tips should help reduce the chances of injuring your back.

- Keep your back straight.
- Get as close to the object as possible to avoid over-extension.
- Place one foot slightly ahead of the other in the direction you intend to move the object.
- Bend your knees and get a good grip on the object.
- Lift with your legs.
- Move forward in the direction of your most forward foot to avoid twisting your back
- Reverse the procedure when placing the object down.
- If at all possible, keep the objects off of the floor, to reduce the strain of lifting in awkward positions.

To reduce the strain on your back while standing.

- Whenever possible, stand with one foot elevated.
- Change positions often.
- Interrupt long periods of standing by sitting whenever possible.

RADIAL ARM SAW

- Push the saw back against the stop before turning on the power. Be sure the blade is not touching any wood when power is turned on.
- Be sure the wood is firmly against the fence.
- Never put one piece of wood on top of another to cut them on this saw. The top piece may kick over the fence.
- Remember that this saw pulls itself into the work, and in some hardwoods it is necessary to hold back on the handle to prevent the saw from choking.
- Do not pull a coasting saw out and let it grab the edge of a board. This may damage the machine seriously.
- Avoid working across the saw line with hands or arms. This action is known as cross arming and must never be done.
- Avoid reaching over the saw line to pull stock into place for cutting.
- When using the saw in a ripping operation, be sure to feed against the cutting edge. Always check with the teacher before ripping with this machine.
- Never leave the saw hanging at the end of the arm. Push it back against the post ready for the next cut.
- Never use the moulding head without carefully studying the instructions for the shaper.
- If the saw carriage vibrates away from the post, the machine is out of order and should not be operated until the condition is corrected.

REPORTING RATTLESNAKES

What should you do if you see a rattlesnake?

- Observe but do not attempt to capture the snake.
- Contact the phone number below in the order listed until contact is made.
- **RATTLESNAKE REPORTING CALL SECURITY**
- ***Phone/Cell Number 329-2603 or 329-2345***
- If you are unable to contact Security for removal, the snake still reflects as a safety hazard and must be removed by U of L personnel. Contact Ian Wells (317-0733) to capture the rattlesnake.
 - The container holding the snake must be kept in the shade after capture as rattlesnakes are very heat sensitive.

Relocation of problem rattlesnakes

During summer months the number of rattlesnake sightings on campus increases significantly. The U of L reports these sightings to Reg Ernst who conducts studies and control activities for the City of Lethbridge. Reg indicates the main campus is not a safe site for either the snakes or campus occupants to interact. The City of Lethbridge wants to relocate any problem rattlesnakes. A problem rattlesnake is defined as any rattlesnake found on roads, walkways, around buildings, or areas frequently used by people.

Relocating rattlesnakes is a delicate issue, and considering the potential danger in working with poisonous snakes, it is necessary to have a professional do the removal. Proper relocation involves moving the snake to an area with a suitable wintering den.

Please exercise caution when walking around campus, particularly in the coulees, as snakes are occasionally sighted. Rattlesnakes are not aggressive and given a choice will retreat rather than strike.

Although some people may find them loathsome, rattlesnakes are a naturally occurring species in a properly functioning prairie ecosystem such as we have around Lethbridge. They are practically harmless and will only strike if extremely provoked or stepped on. They play a very important role in the control of rodents and thus reduce the spread of diseases such as hanta virus.

Rattlesnakes are the color of dry prairie grass and have a very well-defined, triangular-shaped head. They may or may not possess rattles. Lethbridge is also home to the bull snake which imitates the rattlesnake by coiling up and shaking its tail, but it does not actually have a rattle. Bull snakes are not poisonous.

If you see a rattlesnake, walk slowly away from it. Give the snake plenty of room to escape from you. Notify Security at 329-2345. They will have a specialist relocate the snake to a natural habitat.

In Alberta, rattlesnakes are blue-listed which means they have undergone declines in population or habitat and may be at risk.

Please remember, it is illegal to kill rattlesnakes, possess rattlesnakes or their parts or damage occupied den areas. Many people do not realize that there are significant charges and fines for killing a rattlesnake in Alberta.

RIGGING

General

Rigging looks like an easy operation that requires no particular skill or experience. But if you have an idea that just anybody can do it, you're on the wrong track. Too many men have lost fingers or hands or have suffered more serious injuries because they thought, "Anybody can do that".

Here are some do's and don'ts to remember:

- Name one member of the crew to act as a signalman, and instruct the equipment operator to recognize signals from that person only. The signalman must be careful not to order a move until he has received the "all ready" signal from each member of the crew.
- Each rigger must be sure he's in the clear before he gives an "all ready" to the signalman. When you have positioned the sling or choker you're using, release it, if possible, before you give the "all ready" signal.
- If you must hold the sling or choker in position, be sure your hand is clear of pinch points. In fact, your hand should be far enough away so there's no possibility of a frayed wire catching your glove and jerking your hand into a pinch point. (Of course, frayed cables should never be used.
- Watch out for the roll or swing of the load. Since it's almost impossible to position the hook exactly over the load center, there will almost always be a swing or roll. Anticipate the direction of the swing or roll and work away from it.
- Never place yourself between material, equipment or any stationary object and the load swing. Also, stay away from stacked material that may be knocked over by a swinging load.
- Never stand under the load, and keep from under the boom as much as possible. Chances are that nothing will break, but something might.
- Look over the place where the load is to be set. Remove unnecessary blocks or other objects that might fly up if struck by the load.
- When lowering or setting the load, be sure your feet and all other parts of your body are out from under. Set the load down easily and slowly so that if it rolls on the blocking, it will be a slow shift that you can get away from.
- Identify the designated signalman by the use of distinctive vests, armllets, etc.
- Use tag lines to control the leads.

SAFE HANDLING OF COMPRESSED GAS CYLINDERS

Following are some of the recommended procedures for safe handling and storage of compressed gas cylinders:

- Never drop cylinders or permit them to strike each other.
- Avoid dragging or sliding cylinders - even for short distances. Use a cylinder truck.
- Do not use cylinders as "rollers" for moving material or other equipment.
- Cylinders should be kept in designated storage areas when not in use with protective cap screwed in place.
- No part of a cylinder should be subjected to a temperature more than 125°F.
- Cylinders should not be permitted to come in contact with sparks or flames, electrical apparatus or circuits.
- Never tamper with safety devices on cylinder regulating valves.
- Use a regulator when connecting cylinders to systems of lower pressure ratings.
- Use properly fitting wrenches to connect regulators to gas cylinders. Connections specified to be hand-tight should be made hand-tight only.
- Close the valve on empty cylinders to leave some positive pressure in the cylinder. Replace the protective cap and mark and label the cylinder "empty".
- Do not store full and empty cylinders in the same area.
- Make sure that cylinders are stored upright and secured with strap or chain.

USE OF STEP LADDERS

As with all ladders, make sure that the Step Ladder is in good condition, and is the right ladder for the job to be done.

- Step Ladders are to be used only on clean and even surfaces.
- No work is to be done from the top two steps of a Step Ladder, counting the top platform as a rung.
- No work is to be done from the back side of the Step Ladder.
- When in the open position ready for use, the incline of the front step section shall be one (1) horizontal to six (6) vertical.
- The Step Ladder is only to be used in the fully opened position with the spreader bars locked.
- Tops of Step Ladders are not to be used as a support for scaffolds.
- Don't overreach while on the ladder. Climb down and move the ladder over to a new position.
- Only CSA Standard ladders will be used.
- Due to health and safety concerns, a step ladder is not loaned to any building occupant who has not received training approved by U of L Occupational Health & Safety department.

CIRCULAR TABLE SAW

- **Wear appropriate PPE (Safety Glasses and Hearing Protection).**
- The guard must be kept down over the saw while machine is being operated.
- The saw blade should not be raised above the table more than absolutely necessary to make the cut (slightly above depth of material being cut).
- A push stick must be used when ripping narrow pieces of lumber (mounted on saw).
- The clearance block must be fastened to fence when cutting off short pieces of stock. Never adjust fence until saw is at a dead stop.
- Fingers must be kept clear of track of saw, and hands never allowed to cross saw line in advance of the end of the board while machine is in operation.
- Never attempt to clear away scraps close to the saw with their fingers. If necessary to move them, they should be pushed away with a stick.
- The dado head must be taken off the saw arbor after use.
- When helping to "tail-off" the saw, never pull on a board being ripped. Hold up board, and allow operator to push stock through saw.
- Cylindrical stock must not be cut on circular saw.
- Never lower pieces of stock down over the saw.
- Do not rip stock without using the ripping fence, or crosscut stock without using the sliding crosscutting fence.
- See that no fence or setup will be in line of saw before starting work or turning on power.
- Be sure that saw on tilting arbor saw will clear on both sides when sawing angles, before power is turned on.
- The edge of a board, which is run on the ripping fence, should be straight. Avoid ripping through loose knots or checks where large splinters must be cut loose and thrown by the saw.
- Stand a little to one side of the saw line so that any kickback will go past. Avoid letting wood hang between the fence and the saw.
- Warped or twisted lumber that does not lie flat on the table may cause a kickback.
- Drop the blade when not in use.
- Clean up the saw dust on and around the saw to prevent a slipping hazard.
- Discuss the different blade types and their uses.
- Discuss the cutting list of material.
- Use the proper blade for the material you are cutting.
- Be sure your table top is free of debris before running material across the table saw; this will prevent damage to your material being cut.

TRENCHES & EXCAVATIONS

- Employees shall not enter trenches or excavations more than 1.5 meters in depth unless:
 - the walls of the excavation have been cut back to less than 1.5 meters in accordance with Occupational Health and Safety Regulation; or
 - Temporary protective structures such as an approved cage or proper shoring are in place.
- The site supervisor shall ensure that:
 - the spoil pile is kept a minimum of one meter from the edge of excavations deeper than 1.5 meters; and
 - heavy vehicles or objects are kept away from the excavation a distance equal to the depth of the excavation unless the shoring has been certified as being able to withstand such weights.
- Employees installing shoring, stringers or bracing shall use a ladder and work downward from the top of the excavation, installing each brace in descending order.
- Employees removing shoring, stringers or bracing shall use a ladder and work upward from the bottom of the excavation, removing each brace in ascending order.
- Employees shall not place or stack tools / material near the edge of the excavation where their falling could cause injury to the employees in the excavation.
- Near plant sites, monitor air quality including O₂ content and explosive limits before entering trenches.
- Within operating plants, treat as a confined space.

USE OF CHAIN SAWS

Chain saws are used for many jobs in construction. Since this tool was primarily meant for use in the logging industry, it can be an unfamiliar tool to some workers.

Workers must be trained in its safe use before using a chain saw.

This training must include a minimum of the following elements:

- The proper personal protective equipment to be worn is set out by the manufacturer and Occupational Health & Safety Legislation.
- Fuelling of the saw must be done in a well-ventilated area and not while the saw is running or hot.
- An approved safety container must be used to contain the fuel used along with a proper spout or funnel for pouring.
- The correct methods of starting, holding, carrying, or storage and use of the saw as directed by the manufacturer must be used.
- Ensure that the chain brake is functioning properly and adequately stops the chain.
- The chain must be sharp, have the correct tension, and be adequately lubricated.
- When carrying / transporting a chain saw the bar guard must be in place, the chain bar must be toward the back and the motor must be shut off.
- The chain saw must not be used for cutting above shoulder height.
- Chain saws will comply with CSA Standards 262.1-M-77.

USE OF COMPRESSED AIR

Air powered tools in construction range from stapling guns to jack hammers. If not treated with respect, these tools can become a powerful enemy rather than a servant.

- Compressed air must not be used to blow debris or to clear dirt from any worker's clothes.
- Compressed air must not be used to blow dust, chemicals, metal filings, etc. from work surfaces. Surfaces should be swept clean.
- Ensure that the air pressure has been turned off and the line pressure relieved before disconnecting the hose or changing tools.
- All hose connectors must be of the quick disconnect pressure release type with a "safety chain / cable".
- Wear personal protective equipment such as eye protection and face shields, and ensure other workers in the area are made aware of or have restricted access to the hazard area.
- Hoses must be checked on a regular basis for cuts, bulges, or other damage. Ensure that defective hoses are repaired or replaced.
- A proper pressure regulator and relief device must be in the system to ensure that the correct desired pressures are maintained.
- The correct air supply hoses must be used for the tool / equipment being used.
- The equipment must be properly maintained according to the manufacturer's requirements.
- Follow manufacturer's general instructions and comply with legislated safety requirements.

USE OF ELECTRICAL EXTENSION CORDS

Extension cords are one of the most abused and neglected items on the job site. They are run over, stretched, pulled, twisted and exposed to all the elements. They have been the cause of more accidents than the tools for which they are used.

The following recommendations should be observed whenever extension cords are used:

- Prior to use, inspect cords to ensure that:
 - The insulation is intact around the plugs at both ends of the cord.
 - The pins on the plugs are not broken or burned.
 - The outer jacket of the cable is intact along its entire length.
- Extension cords should be replaced or repaired when a defect is found.
- Do not assume that everyone is able to repair or replace plug caps. All personnel should be educated to recognize the importance of properly wired circuits.
- Use only cords that are rated for outdoor use on construction jobs. These industrial cables (types S, SO, SOW) are oil, water, and abrasion resistant.
- Never unplug any cord by pulling the cable.
- Never lay out a cord in any area where it could be damaged by vehicular or pedestrian traffic or where materials could fall or be piled on it.

USE OF EXPLOSIVE / POWDER ACTUATED FASTENING TOOLS

There are a number of tools utilizing an explosive charge in use throughout the construction industry to drive fastenings.

The manufacturers of these devices provide detailed instructions regarding their use and maintenance. These instructions, along with the legislation specifically set out for their use, shall be closely adhered to at all times.

The following general recommendations apply to all explosive/powder actuated tools.

- Only properly trained and qualified operators are to use this type of tool. The user shall possess proof of this training issued by the manufacturer, authorized dealer/distributor, or other competent source.
- The tool must be CSA standard approved for "Explosive Actuated Fastening Tools".
- The tool should be loaded just prior to use with the correct load for the job anticipated. Tools should never be loaded and left to sit or be moved to an alternate work site after being loaded.
- The tool should never be pointed at anyone, whether loaded or unloaded. Hands should be kept clear of the muzzle end at all times.
- Explosive/powder actuated tools should always be stored in their proper lockable boxes.
- Explosive/powder actuated tools must never be used in an explosive atmosphere.
- When used, the tool must be held firmly and at right angles to the surface being driven into.
- Eye protection must be worn by the operator. Where there is a danger of spalling, full-face protection must be worn. Hearing protection is also to be worn in confined areas.
- To prevent free-flying studs, ensure that the material being driven into will not allow the stud to completely pass through it (ie, glass block, hollow tile etc.).
- Manufacturers' recommendations should be consulted and followed whenever there is a doubt about the material being driven into, maintenance procedures or load strength to be used.
- Always be aware of the other workers. Where a hazard to other workers is created by this operation, signs and barricades identifying the hazard area are mandatory.

USE OF HAND HELD POWER CIRCULAR SAW

This type of power hand tool is one of the most commonly used in construction. Because of this common use there are numerous accidents due to thoughtless acts.

The following are the minimum accepted practices to be used with this saw.

- Approved safety equipment such as safety glasses or a face shield is to be worn.
- Where harmful vapours or dusts are created, approved breathing protection is to be used.
- The proper sharp blade designed for the work to be done must be selected and used.
- The power supply must be disconnected before making any adjustments to the saw or changing the blade.
- Before the saw is set down be sure the retracting guard has fully returned to its down position.
- Both hands must be used to hold the saw while ripping.
- Maintenance is to be done according to the manufacturer's specifications.
- Ensure all cords are clear of the cutting area before starting to cut.
- Before cutting, check the stock for foreign objects or any other obstruction, which could cause the saw to "kick back".
- When ripping, make sure the stock is held securely in place. Use a wedge to keep the stock from closing and causing the saw to bind.

USE OF PORTABLE GRINDERS

Abrasive wheels can cause severe injury. Proper storage of new wheels, proper use of wheels and proper maintenance of wheels must be observed.

- Familiarize yourself with the grinder operation before commencing work.
- Ensure proper guards are in place and that, safety glasses, face shields, gloves and safety boots are worn when using portable grinders.
- Never exceed the maximum wheel speed (every wheel is marked). Check the speed marked on the wheel and compare it to the speed on the grinder.
- When mounting the wheels, check them for cracks and defects, ensure that the mounting flanges are clean and the mounting blotters are used. Do not over tighten the mounting nut.
- Before grinding, run newly mounted wheels at operating speed to check for vibrations.
- Do not use grinders near flammable materials.
- Never use the grinder for jobs which it is not designed for, such as cutting.

USE OF POWER TOOLS

All power tools are designed for unique applications, they have their limitations and can create potential hazards when improperly used. Here are some points to remember when using power tools:

- The operation and repair of any power tool must be restricted to experienced, trained, authorized personnel.
- Select the proper tool for the job. The size of the power tool to be used is based on both the limitations of the tools themselves and the amount of work to be done.
- Always be alert to potential hazards in the area such as debris, damp floors or combustible materials. In wet areas, use insulated platforms, rubber mats, rubber gloves and rubber boots for an additional factor of safety.
- Make sure all power tools are of the double-insulated type or they are properly grounded. If the tool is equipped with a three-prong plug, use it as it is meant to be used. Electrical circuits intended for power tools should be provided with ground fault circuit interceptors (GFCI's)
- Appropriate protective clothing should be worn at all times. Avoid wearing loose clothing or jewelry that can catch in moving-parts. Wear safety glasses, hearing protection, and / or a dust mask if the operation requires.
- Be sure not to handle a power tool in a manner that can injure you if it slips. Think about your movements and position your body accordingly. Keep proper footing and balance at all times. Avoid over reaching.
- Never rest a power tool against the body when loading or making adjustments. Use brushes, vacuuming equipment or special tools to remove chips or sawdust. Secure work using a clamp or vice when practical. Never apply a power tool to a moving object.
- Keep guards in place and in working order. Don't remove or wedge the guard out of the way. If the guard has to be retracted, use the handle on the guard.
- Beware of accidental start-up. Make sure the switch is OFF before plugging in the cord and before investigating a power loss. Do not carry a plugged-in tool with your finger on the switch.
- Have all power tools serviced by a professional if it shows the slightest defect or is not running properly.

USE OF POWER TOOLS (cont.)

- Clean your tools after you're finished with your work. Make sure keen-edged blades, drill bits, routers, etc. are sharp, regularly maintained and stored in a dry secure place where they won't be tampered with.
- Don't set the tool down or leave it unattended until all moving parts stop.

USE OF PROPANE

Since propane is heavier than air and invisible, it is a special concern when it is used on the job-site.

All installations and use of this product on the job-site must comply with the Government Legislation set out for its safe use.

Suppliers delivering the product or setting up the equipment at the site must be part of the safe work practice.

- Nylon slings must be used in a "choker" fashion when loading, off-loading or lifting propane tanks.
- "Lifting lugs" provided on tanks are not to be used. Slings are to be wrapped around the shell of the tank.
- Tank valves and regulators are to be removed from the tank prior to any movement of the tank.
- Crane hooks shall be equipped with a "safety latch".
- All trucks, cranes or equipment used to handle propane tanks must be equipped with a fire extinguisher appropriate for the size and type of tank being handled.
- Except in an emergency, any movement or repositioning of tanks, shall be performed by a competent worker.
- Tanks are not to be heated to increase flow.
- When in use, propane bottles are to be securely held in an upright position.
- Tanks are not to be hooked up and used without proper regulators.

USE OF TIGER TORCHES

Tiger torches, although valuable to a job-site, are sometimes misused in a manner that can make them dangerous.

Tiger torches are only to be used for preheating of piping etc. prior to welding.

- When a torch is used, an adequate fire extinguisher must be present.
- Torches are not to be used for heating of work areas or thawing of lines and equipment, etc., when not in use.
- Ensure that the propane bottles are properly shut off.
- Fuel lines are to have regulators.
- Propane bottles shall be secured in an upright position.

WELDING IN AWKWARD POSITIONS

Make sure you have access to a fire extinguisher.

Before you start to weld, make sure you are not going to flash or burn anyone in the immediate area. Take precautionary measures with shields.

Check the area often during welding to ensure no fire has started in the area.

Welding under vehicles:

- Always plan an escape route before you attempt to weld under a vehicle.
- Do not squeeze into tight spots with limited access without a spotter to help you out should a fire occur. Never weld in confined spaces without reviewing the proper procedure.
- Never lay directly under the weld area unless you are fully protected with welding leathers.
- Always be aware of the fuel tanks when welding under a vehicle.
- Make your position as comfortable as it allows avoiding unnecessary strains. For prolonged jobs, exit often to check for smoke or fire in the area.

Welding in high places:

- Always plan an escape route in case of fire. If an escape route is difficult, have a spotter available in case of an emergency.
- Always use a ladder or scaffold if the weld area is out of reach. Avoid having to hold on with one hand and welding with the other. Make sure you have a safe platform to work from.

WELDING, CUTTING AND BURNING

Work involving welding, cutting and burning can increase the fire and breathing hazard on any job, and the following should be considered prior to the start of work.

- Always ensure that adequate ventilation is supplied since hazardous fumes can be created during welding, cutting or burning.
- Where other workers may also be exposed to the hazards created by welding, cutting and burning, they must be alerted to these hazards or protected from them by the use of "screens".
- Never start work without proper authorization.
- Always have fire fighting or prevention equipment on hand before starting welding, cutting or burning.
- Check the work area for combustible material and possible flammable vapours before starting work.
- A welder should never work alone. A fire or spark watch should be maintained.
- Check cables and hoses to protect them from slag or sparks.
- Never weld or cut lines, drums, tanks, etc. that have been in service without making sure that all precautions have been carried out and permits obtained.
- Never enter, weld or cut in a confined space without proper gas tests and a required safety lookout.
- When working overhead, use fire resistant materials (blankets, tarps) to control or contain slag and sparks.
- Cutting and welding must not be performed where sparks and cutting slag will fall on cylinders (move all cylinders away to one side).
- Open all cylinder valves slowly. The wrench used for opening the cylinder valves should always be kept on the valve spindle when the cylinder is in use.

UNIVERSITY OF LETHBRIDGE
FACILITIES

HEALTH & SAFETY PROGRAM

PERSONAL PROTECTIVE EQUIPMENT

“INFO SHEET” FOR EYE & FACE PROTECTION

GENERAL INFORMATION

This PPE is designed to protect the worker from such hazards as:

- flying objects and particles,
- molten metals,
- splashing liquids, and
- ultraviolet, infrared and visible radiation (welding).

This PPE has two types. The first type, "basic eye protection", includes:

- eyecup goggles
- monoframe goggles and spectacles with or without side shields

The second type, "face protection," includes:

- metal mesh face shields for radiant heat or hot and humid conditions
- chemical and impact resistant (plastic) face shields
- welders shields or helmets with specified cover
- filter plates and lens

Hardened glass prescription lens and sport glasses are not an acceptable substitute for proper, required Industrial safety eye protection.

Comfort and fit are very important in the selection of safety eyewear. Lens coatings, venting or fittings may be needed to prevent fogging or to fit with regular prescription eyeglasses.

Contact lens should NOT be worn at the work-site. Contact lens may trap or absorb particles or gases causing eye irritation or blindness. Hard contact lens may break into the eye when hit.

Basic eye protection should be worn with face shields. Face shields alone often aren't enough to fully protect the eyes from work hazards. When eye and face protection is required, advice from the OH&S office, Material Safety Data Sheet (MSDS) or your supplier, will help in your selection.

For more information, look at:

Alberta's O. H. & S. Act, Regulation & Code and
CSA Standard "Industrial Eye and Face Protectors" 294.3 - M1982.

Do

- ensure your eye protection fits properly (close to the face)
- clean safety glasses daily, more often if needed
- store safety glasses in a safe, clean, dry place when not in use
- replace pitted, scratched, bent and poorly fitted PPE (damaged face/eye protection interferes with vision and will not provide the protection it was designed to deliver).

Don't

- modify eye/face protection
- use eye / face protection which does not have a CSA certification (CSA stamp for safety glasses is usually on the frame inside the temple near the hinges of the glasses)

Eye Protection For Welders

Welders and welders' helpers should also wear the prescribed equipment. Anyone else working in the area should also wear eye protection where there is a chance they could be exposed to a flash.

“INFO SHEET” FOR FOOT PROTECTION

General Information

Safety footwear is designed to protect against foot hazards in the workplace. Safety footwear protects against compression, puncture injuries, and impact.

Safety footwear is divided into three grades, which are indicated by colored tags and symbols.

The tag color tells the amount of resistance the toe will supply to different weights dropped from different heights.

The symbol indicates the strength of the sole. For example, a triangle means puncture-resistant sole able to withstand 135 kg (300 ft. lbs.) of pressure without being punctured by a 5 cm (2 inch) nail. For more information, look at Alberta's O. H. & S. Statute and Regulations or CSA Standard "Protective Footwear" 2195-M1981.

In construction, it is recommended that only the green triangle grade of footwear, which also gives ankle support, be used.

Your choice of protective footwear should always over protect, not under protect.

Do

- choose footwear according to job hazard and CSA Standards.
- lace up boot and tie laces securely; boots don't protect if they are a tripping hazard or fall off.
- use a protective boot dressing to help the boot last longer and provide greater water resistance (wet boots conduct current).
- choose a high cut boot to provide ankle support (less injuries).

Don't

- wear defective safety footwear (i.e., exposed steel toe caps).
- under protect your feet or modify safety footwear.

"INFO SHEET" FOR HEAD PROTECTION

General Information

Safety headwear is designed to protect the head from impact from falling objects, bumps, splashes from chemicals or harmful substances, and contact with energized objects and equipment.

In construction, the recommended type of protective headwear is the Class B hard hat which has the required "dielectric strength". There are many designs but they all must meet the CSA requirements for Class B Industrial head protection.

Most head protection is made up of two parts:
the shell (light and rigid to deflect blows)
the suspension (to absorb and distribute the energy of the blow)

Both parts of the headwear must be compatible and maintained according to manufacturer's instructions. If attachments are used with headwear, they must be designed specifically for use with the specific headwear used. Bump caps are not considered a helmet. In Alberta they can only be used when the only hazard is where a worker might strike his/her head against a stationary object.

Inspection and Maintenance

Proper care is required for headgear to perform efficiently. The service life is affected by many factors including temperature, chemicals, sunlight and ultraviolet radiation (welding). The usual maintenance for head gear is simply washing with a mild detergent and rinsing thoroughly.

Do:

- replace headgear that is pitted, holed, cracked or brittle
- replace headgear that has been subjected to a blow even though damage cannot be seen
- remove from service any headgear if its serviceability is in doubt
- replace headgear and components according to manufacturer's instructions
- consult OH&S or your supplier for information on headgear.

Don't:

- drill, remove peaks, alter the shell or suspension in any way
- use solvents or paints on the shells (makes shells "break down")
- put chin straps over the brims of Class B headgear
- use any liner that contains metal or conductive material
- carry anything in the hard hat while wearing the hard hat

“INFO SHEET” FOR HEARING PROTECTION

General Information

Hearing protection is designed to reduce the level of sound energy reaching the inner ear.

The "rule of thumb" for hearing protection is: use hearing protection when you can't carry on a conversation at a normal volume of voice when you are 3 feet apart.

Remember this is only a rule of thumb. Any sound over 80 dba requires hearing protection. Hearing loss can be very gradual, usually happening over a number of years.

The most common types of hearing protection in the construction industry are earplugs and earmuffs. If you choose to use the other types of hearing protection, ask your safety supplier or RSS office for further information.

It is important to have different styles of hearing protection available. Different styles allow a better chance of a good fit. Each person's head, ear shape and size is different. One style may not fit every person on your crew. If hearing PPE does not fit properly or is painful to use, the person will likely not use it. If the hearing protection is not properly fitted, it will not supply the level of protection it was designed to deliver.

Most earplugs, if properly fitted, generally reduce noise to the point where it is comfortable (takes the sharp edge off the noise).

If your hearing protection does not take the sharp edge off the noise, or if workers have ringing, pain, headaches or discomfort in the ears, your operation requires the advice of an expert.

Workers should have their hearing tested at least every year, twice a year if they work in a high noise area.

OH&S NOISE REGULATION – EXPOSURE LIMITS

TABLE 1
OCCUPATIONAL NOISE LEVEL EXPOSURE LIMITS
(Figures to be prorated if not specified)

<u>Exposure Level (dBA)</u>	<u>Duration</u>
82	16 hours
83	12 hours
84	10 hours
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 min
100	15 min
103	8 min
106	4 min
109	2 min
112	1 min
115 and greater	0

Where applicable, values have been rounded to nearest whole digit

TABLE 2
SELECTION OF HEARING PROTECTORS

<u>Maximum Noise Level (dBA)</u>	<u>CSA Class of Hearing Protector</u>
85-89	C
90-95	B
96-105	A
Greater than 105	A plug + A or B muff

TABLE 3
PERMISSIBLE BACKGROUND NOISE CONDITIONS
FOR AUDIOMETRIC TESTING

<u>Octave Band Centre Frequency</u>	<u>Maximum Levels (dBA)</u>
500	30
1000	30
2000	37
4000	47
8000	52

****For more information refer to Occupational Health & Safety Noise Regulation***

"INFO SHEET" FOR RESPIRATORY PROTECTION

General Information

Respiratory protection falls into two major categories. The first category is Air Purifying Respirators (APRs) which are particle (dust) chemical cartridges but NO visor plate. The second category is Atmosphere Supply Respirators, including self-contained breathing apparatus (SCBA), air line systems and protective suits that completely enclose the worker and incorporate a life support system.

Only APRs will be dealt with here. The second category of respirators requires much more specific information and training. If you need to use Atmosphere Supplying Respirators, you should get expert advice.

APRs

There are two basic types of APRs:

- disposable fibre type with or without charcoal or chemical filter "buttons" and
- the reusable rubber face mask type with disposable or rechargeable cartridges.

The choice depends on your job, labor, cost, and your maintenance facility.

It's Important to remember that APRs are limited to areas where there is enough oxygen to support life. APRs don't supply or make oxygen.

The service life is affected by the type of APR, the wearer breathing demand, and the concentration of airborne contaminants. When an APR is required, consult the Material Safety Data Sheet (MSDS), OH&S or supplier for the exact specifications for the APR.

Facial hair can prevent a good seal and fit of an APR: One to three days growth is the worst. Follow the manufacturer's instructions to the letter regarding the mask, filters, cartridges and other components. Workers who must use respiratory protection should be clean shaven.

An APR is only as good as its seal and its ability to filter out the contaminants it was designed to filter.

Combination Respirators

This type of APR combines separate chemical and mechanical filters. This allows for the change of the different filters when one of them becomes plugged or exhausted before the other filter (usually the dust filter plugs up before the chemical filter). This type of respirator is suitable for most spray painting and welding. For more information check the:

- Material Safety Data Sheet (MSDS)
- OH&S Act, Regulation & Code
- the local OH&S office
- the safety equipment supplier

For more information, look at:

Alberta OH&S Act, Regulation & Code
CSA Standards "Compressed Breathing AID" Z180.1 - M1978
"Selection, Care and Use of Respirators" 294.4 - M1982
Chemical Hazards Regulation (Alberta Reg. 8/82)

Do

- train workers very carefully in the APR's use, care and limitations
- ensure that respirators are properly cleaned and disinfected after each shift, according to the manufacturer's instructions
- dispose of exhausted cartridges and masks in sealed bags or containers
- keep new, unused filters separate from old, used filters
- monitor APR use; they are useless just hung around the neck
- replace filters when breathing becomes difficult.

Don't

- use for protection against materials which are toxic in small amounts
- use with materials that are highly irritating to the eyes
- use with gases that can't be detected by odor or throat or nose irritation
- use with gases not effectively halted by chemical cartridges regardless of concentration (read the cartridge label)
- use respirators or masks if the serviceability is in doubt ,
- use APRs where oxygen content in the air is less than 18 % or 18 kilopascals (partial pressure or greater)

“INFO SHEET” FOR FALL PROTECTION

General Information

As outlined in the AHRE Occupational Health and Safety Code; Part 9 Fall Protection;

- 139 (1)** An employer must ensure that workers use a fall protection system at a temporary or permanent work area if
- (a)** a worker may fall 3 meters or more, or
 - (b)** there is an unusual possibility of injury if a worker falls less than 3 meters.

Employers must develop a fall protection plan where the above is true, to include the following;

- 143 (2)** A fall protection plan must specify
- (a)** the fall hazards at the work site,
 - (b)** the fall protection system to be used at the work site,
 - (c)** the procedures used to assemble, maintain, inspect, use and disassemble the fall protection system, and
 - (d)** the rescue procedures to be used if a worker falls, is suspended by a personal fall arrest system or safety net and needs to be rescued.

Full body harness systems are to be used to provide workers working at heights above ground level with freedom of movement and protection from falls. These devices will arrest a fall and absorb some of the shock of the fall. The systems are usually worn around the body and attached to a lanyard, fall arresting device or rope grab. Better quality systems usually have some form of shock absorber in the system.

A lifeline should never be used as a service line. The only time a lifeline becomes a load bearing line is in the event of a fall. At all other times it should be just slack enough to permit free movement on the service lines.

It is very important to get quality advice in the selection, purchase and maintenance of your fall arresting equipment.

Please refer to the following CSA and ANSI Standards when selecting equipment;

- 145 (1)** Harnesses: CAN/CSA-Z259.10-M90 (R1998), *Full Body Harnesses*
(3) Lanyards: CAN/CSA-Z259.1-95 (R1999), *Safety Belts and Lanyards*
(4) Shock Absorbers: CAN/CSA-Z259.11-M92 (R1998), *Shock Absorbers for Personal Fall-Arrest Systems*
(5) Connecting Components: CAN/CSA-Z259.12-01, *Connecting Components for Personal Fall Arrest Systems (PFAS)*

Do

- obtain expert advice before purchasing a fall arresting device
- properly train and practice with the system you decide to use
- use webbing type harnesses instead of leather harnesses
- use only the manufacturer's components for replacement parts
- inspect carefully before each use (inspection to be performed by a trained worker)
- have the harness fitted snugly to the worker using the system
- ensure that the anchor points are secure and able to support the load In the event of a fall
- follow the manufacturer's instructions on care and use
- ensure all lines used with the systems have thimbles
- use only the proper safety rated fastenings with the system
- use a full body harness with shock absorber whenever possible

Don't

- modify, change or put additional holes in the harness or hardware
- jerry-rig the system
- use the system for any other than its intended use
- use the lifeline for a service line