COVID-19 Workspace Safety Plan – Lab Specific

This workspace safety plan will assist Principal Investigators who wish to continue or resume research activities in their lab. This plan will include a review of activities to be undertaken in the lab to ensure effective controls are in place to prevent the spread of COVID-19. Principal Investigators are responsible for ensuring this document reflects current government guidance and notices which can be found, along with information about UBC’s response to the pandemic at https://covid19.ubc.ca/.

This plan must be reviewed by your Local Safety Team, and signed by your Unit Head/Director. Once complete, the plan can be submitted with your online application to return to research.

Resources to Consult
The following guidance documents and resources were used in the development of this plan:

- Preventing Exposure
- Personal Protective Equipment
- Physical Distancing Guidelines
- Reporting COVID-19 Exposure
- Communications Resources
- UBC Research Resumption webpage
- WorksafeBC

Section #1: Lab information

<table>
<thead>
<tr>
<th>Department</th>
<th>Mechanical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>Applied Science</td>
</tr>
<tr>
<td>Building(s)</td>
<td>CEME, High Head</td>
</tr>
<tr>
<td>Lab(s)/workspace(s)</td>
<td>CEME1050, High Head (Independent building)</td>
</tr>
</tbody>
</table>

Introduction to Your Lab

**CEME1050:** Machine tool research laboratory with a closed engineering office. The laboratory has 3 machine tools, each operated by a student for experiments. The laboratory also houses 8 students in CEME1050 with work stations. Two research engineers occupy the office and one of them is the safety officer of the laboratory. In total, the laboratory houses 13 people. See Figure 1 for the layout of the laboratory.

**High Head:** The laboratory area has 2 large machines, each operated by a student or an engineer. There are two closed offices inside the laboratory building. One office houses an engineer and a graduate student, and the other office houses 4 graduate students. There are usually 4 students who conduct experiments on 2 machine tools in the laboratory area. In total, there are 10 people in the laboratory building. See Figure 2 for the layout of the laboratory.
Section #2 - Risk Assessment

1. Lab/workspace Occupancy (under proposed COVID-19 operations)
List the number of people that will be present in your lab/workspace at the same time. List this by every room/lab/workspace you occupy.

![CEME 1050 Layout](image)

**Figure 1** CEME1050 Layout with 2m radius work areas. Any overlapping area will not be occupied at any time.
CEME 1050: The laboratory is reorganized to have maximum 3 students at a time to conduct experiments. There is more than 3 m distance between each experimental station. The students will come to the laboratory only to conduct experiments by appointments. Non-experimental research will be conducted at their homes.

Instead of 2, only one research engineer will remain in the office (CEME1050A). The other engineer will be housed in CEME1050 laboratory space isolated from others with a safe distance. The number of people will be reduced from 13 to 5 in the large laboratory with an office. The occupancy will be 38% at most but less than 1/3\(^{rd}\) most of the time.

High Head: The student will be removed from the engineer’s office (Room 1), and only the engineer will remain who is in charge of the building (i.e. laboratory) as a safety officer. The other office (Room 2) will have only 1 student as opposed to 4.

Two machines are close to each other, therefore only one of the two machines will be used by one person at a time to ensure safe distance. No one is allowed to use any machine without the presence of a second person in the laboratory or offices 1 and 2. The number of people will be reduced from 10 to 4 in a large laboratory with two closed offices.

The occupancy will be 40% at most but less than 1/3\(^{rd}\) most of the times. This is an independent building with a large laboratory space, two closed offices, and three exits, see Figure 2 for the layout.

![Figure 2 High Head plan](image)

Confirm that you have discussed each employee’s comfort level with returning to work and have addressed any concerns, or will require further assistance in doing so. Any worker (staff, students,
Faculty, post docs, research associates, technicians and other research personnel) who has concerns about returning to work on campus can request an exemption to his/her supervisor.

Yes, I had explained the rules to all students and staff. Except at the scheduled experimental activities, the graduate students will work from home. We already made arrangements so that they can access to the computers in the laboratory from their home.

2. Hazard Identification
Describe what hazards exist in your lab/workspace; both research-related (chemicals, heavy machinery) and COVID-19-related (areas that require closer personal interaction, equipment/instruments that cannot maintain social distancing i.e. that require >1 person to operate)

We have industry standard rotating machineries which have metal and heavy duty plexiglass covers. The users are not exposed to any moving and rotating parts of the machine. It is a standard rule to use safety glasses and no-one is allowed to use any machine without the presence of at least a second person in the room for emergency assistance while keeping at least 3 m distance.
We don’t have any hazardous chemicals in our research labs.

3. Employee (HQP, research staff, other) Input/Involvement
Detail how you have involved frontline workers (HQP and research staff) and Joint Occupational Health and Safety Committees (JOHSC) and/or Local Safety Teams (LST) in identifying risks and protocols as part of this plan.

CEME1050: The safety officer is Research Engineer (staff) [REDACTED] who will stay in a closed, dedicated office within the laboratory.

High Head: The safety officer is Research Engineer (staff) [REDACTED] who will stay in a closed, dedicated office within the laboratory.

The layouts of both laboratories are shown in Figures 1 and 2.
Describe how you will publish your plan (online, hardcopy) and otherwise communicate workplace health measures to employees. Guidelines from SRS are available here: https://srs.ubc.ca/covid-19/health-safety-covid-19/working-safely/

The following signs will be posted on each door and work stations

- Safety posters recommended by UBC such as 2m social distance, cover your cough, hand wash
- Disposable safety masks with virus protection are ordered and will be available in the labs. The students will also be recommended to buy reusable masks for daily use. Face masks are mandatory to be used during experimental work and when there is another person nearby, regardless of safe distance. The limitations of using non-medical masks will be notified to all the laboratory members by posting signage and notifying them in online weekly meetings.
Disposable latex gloves are purchased and will be available in the labs. They need to be used during experiments in the labs.

Face shields for each individual are purchased and will be available in the labs. They must be used on top of the face mask when another person is nearby for discussions.

Disinfectant sprays, wipes and hand sanitizing liquids have been purchased for each laboratory.

Each student and staff is requested to buy a white, cotton laboratory coat for personal use in the labs. The coat must be taken to home for cleaning.

Each lab already meets safety requirements set by UBC which are other than COVID 19.

Your plan must be approved by your Head/Director

Final plans will be posted to UBC’s COVID-19 Safety Plan website. An alert noting the plan availability and link to this final posting must be included on the main root site of your department or faculty.

Section #3 – Hazard Elimination or Physical Distancing

The following general practices shall be applied for all UBC buildings and workspaces:

Where possible, workers (HQP, research staff, others) are instructed to work from home.

Anybody who has travelled internationally, been in contact with a clinically confirmed case of COVID-19 or is experiencing “flu like” symptoms must stay at home.

All employees are aware that they must maintain a physical distance of at least 2 meters from each other at all times

Do not touch your eyes/nose/mouth with unwashed hands

When you sneeze or cough, cover your mouth and nose with a disposable tissue or the crease of your elbow, and then wash your hands

All employees are aware of proper handwashing and sanitizing procedures for their workspace

Supervisors must ensure large events/gatherings (> 50 people in a single space) are avoided

Supervisors must ensure that all workers have access to dedicated onsite supervision at all times; via their own presence, members of safety committees, campus security or other. When working alone, HQP and staff must be aware of working alone procedures and how these have been adapted for COVID-19.

All staff wearing non-medical masks are aware of the risks and limitations of the face covering they have chosen to wear or have been provided to protect against the transmission of COVID-19. See SRS website for further information.

Note transportation/vehicle guidelines if applicable: 1 Person per vehicle, unless the vehicle is large enough to maintain 2m between occupants.

4. Scheduling

For those required or wanting to resume work at UBC, detail how you are rescheduling employees (e.g. shifted start/end times) in order to limit contact intensity at any given time at UBC.

One research engineer designated as a safety officer will always remain in the dedicated office in each laboratory.
Each student who needs to conduct an experiment will apply to reserve a time slot in the laboratory. The nature of the experiment, the equipment and instruments, and the period of experiments will be specified. Each instrument will be cleaned with a sanitization spray and wiped before and after their use. The activities will be logged at the designated space in the laboratory computer space. The safety officer will check the safety preparations before each experiment, and will also inspect the cleaning of the station after the experiments are finished. Sign-in and sign-out sheets will be posted behind each door to record the activities in the laboratory.

Without prior permission and schedule, no other person will be allowed to the labs by the designated safety officers.

The following students and postdoctors will be scheduled to conduct experiments with a priority based on their graduation.

### Research lab to be accessed: High Head

<table>
<thead>
<tr>
<th>Name</th>
<th>email</th>
<th>tel</th>
<th>Expected graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Has the highest priority. He is the safety officer of the building.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>Nov. 2020</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Nov 2020</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Sept.2021</td>
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<tr>
<td>5</td>
<td></td>
<td></td>
<td>May 2022</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>Dec. 2021</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>May 2023</td>
</tr>
</tbody>
</table>

### Research lab to be accessed: CEME 1050

<table>
<thead>
<tr>
<th>Name</th>
<th>email</th>
<th>tel</th>
<th>Expected graduation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Has the highest priority. He is the safety officer of the laboratory area.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>(Needs to have Ph.D. thesis exam in September 2020)</td>
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<tr>
<td>3</td>
<td></td>
<td>2119</td>
<td>Nov 2021</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Sept.2021</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>May 2024</td>
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</table>
Note: Research engineers will act also as safety officers in each laboratory and monitor the access and safety, and the use of instruments. Each will remain in their dedicated, closed offices. Students who finish their experiments will not be allowed to come back to the laboratory at least for 14 days.

Discuss your working alone procedures and how they will be adapted for this safety plan. Also describe how you will track those entering/leaving work i.e. sign in/sign out process

- At this time shift-work is not permitted
- Sign in/out processes can range from paper sign up sheets on lab door to 'fob' system with online tracking
- Coordinate starts/ends within shared labs (e.g. lab shared with two other research groups) to remain below the lab’s maximum occupancy

5. Occupancy limits, floor space, and traffic flows
APSC recognizes that labs are dynamic environments and it may be challenging to adhere to physical distancing guidelines. Nonetheless, controls must be in place to keep personnel spaced at least 2m apart at all times. Clear communication of this to employees, monitoring of implementation, in addition to physical controls (signage) are needed.

As such: Using floor plans and/or photographs of your lab/workspace:
1) Identify and list the rooms and maximum occupancy for each workspace/area;
2) Illustrate a 2 meter radius circle around stationary workspaces/benches/instruments and common areas or equivalent approach to social distancing; and
3) Illustrate one-way directional traffic flows

CEME 10509 has two exit doors at two ends. High head laboratory has two exit doors and one very large bay exit. The work stations will be kept at least 2 m away from each other. See Figures 1 and 2 for the layouts.

- Set up directional movements so people are moving in one direction of travel if possible
- Where fire code and function allow, prop doors between communicating spaces open to limit the need to touch doorknobs. Alternatively, consider installing hands-free door foot openers, auto door sensors, or door openers that can be activated by elbow.
- How have you reduced occupancy in your workspace/lab, especially high-traffic areas such as hand-washing areas? Did you use the 25-33% range?
- Are you able to separate incoming and outgoing worker entry/exit?
- Consider changes to accommodate 2m distancing on shared instruments, frequently-used materials & reagents, common areas, offices

Section 4 – Engineering Controls

6. Cleaning and Hygiene
Detail the cleaning and hygiene regimen required to be completed by HQP, research staff and the PIs for common areas/surfaces (Custodial has limitations on cleaning frequency, etc.).
Outline specific cleaning processes and schedule for high-touch equipment, specialized/sensitive equipment or other unique circumstances to your lab/workspace. Detail how and what types of cleaning products and disposal options you will provide. If possible, include cleaning stations/infrastructure on your lab photos/plan.

Each instrument will be cleaned with a sanitization spray and wiped before and after their use. Each laboratory has a hand wash basin and soap provided by UBC. We also purchased hand sanitizers, wipes and disinfectant sprays for each laboratory.

- Cleaning and sanitization are crucial to maintain a safe lab/workspace. Provide as much detail as possible on your cleaning plans i.e. when, who, how, provide a checklist, etc. Identify and discuss what surfaces/areas need to be cleaned.
- Discuss how you plan on providing the required supplies and training (in addition to that provided by UBC SRS). Consider signage i.e. ‘ready for use’ vs ‘needs cleaning’, having ‘hot zones’ for smaller equipment/tools (bins to collect soiled equipment so others don’t use it).
- In dry labs and office areas where sinks are not available, place hand sanitizer stations adjacent to exit doors and signage suggesting the use of sanitizer after touching shared items such as knobs, printers, keyboards, etc.
- Discuss how you will ensure safe disposal of used cleaning supplies and if applicable, any hazardous waste needs (from previous operations or adapted to new plan).

### 7. Equipment Removal/Sanitation

Detail your appropriate removal of unnecessary tools/equipment/access to areas and/or adequate sanitation for items that must be shared that may elevate risk of transmission, both research-related (i.e. instruments, tools) and general (i.e. coffee makers in break rooms)

- Coffee makers will be removed from the labs.
- Instruments and tools will be stored in closed cabinets and drawers which is already a common practice in our labs.
- We already have computerized sing out and sign in of all instruments in our labs.
- Each instrument has a UBC label on it. They will be sanitized before and after each use.

- Consider assignment of key pieces of equipment and label with the name of the assigned employee. Consider especially larger pieces of equipment that require >1 person to operate.
- If equipment cannot be individually assigned, then consider and explain your sanitation regime (or reference it above)
- Consider closing breakrooms or limiting access via a sign-up sheet

### 8. Safety Infrastructure Requests (Partitions, Plexiglass installation)

Describe any needs for safety infrastructure i.e. physical barriers, plexiglass installation required for your lab/workspace and if possible include them on your photos/room plan.

- Refer to Worksafe’s “Designing Effective Barriers” guidance

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**Section 5 – Administrative Controls**
9. Communication & Training Strategy for Employees
Describe how you (the PI) have or will communicate the risk of exposure to COVID-19 in the workplace to your HQP/research staff/other employees and the safety controls in place to reduce such risk. PI, safety officers and all students will complete the Preventing COVID-19 Infection in the Workplace online training and orientation to our specific safety plan. There will be UBC approved announcements and signs posted in the labs. The safety precautions, rules and actions to be taken will be periodically announced to all members during our weekly, on-line meetings and will also be distributed by e.mail memos.

Detail how you will ensure that all employees successfully complete the Preventing COVID-19 Infection in the Workplace online training and orientation to your specific safety plan

- Outline the expectations for all employees returning to the workplace and describe how an employee would raise concerns
- Clearly indicate that employees with symptoms MUST stay home
- How have you adapted to new risks in terms of training for existing and new staff
- All processes must be documented

- Each employee and student must complete “Preventing COVID-19 infection in the workplace” training program set by UBC.
- Each laboratory will have sign-in and sign-out log sheets at the entrances. The name, date, hours, and the experimental instruments used will be recorded by each person working in the laboratory. Each person will also enter the information on the designated log book of the laboratory on the web.

10. Signage
Detail the type of signage you will utilize and how it will be placed (e.g. floor decals denoting one-way walkways and doors, ‘cleanliness state’ of equipment/instruments, hand-washing guidance). See WorksafeBC for signage guidelines and templates.

- The laboratory will not be used as an office space anymore, and there is a safe distance between each experimental station. The floors around the stations will be marked with circles and rectangles with 2m distances.
- UBC designated decals (safe distance; hand wash-sanitization; the use of face masks-face shields and latex gloves; cleaning the instruments with the provided disinfectants before and after their use) will be placed at the entrances and work stations.
- No food and drink will be kept in the laboratories. Food – drink recycle boxes will be removed from the laboratories. Instead, the recycle boxes available just outside the labs will be used.

- Use decals: In spaces where one direction of travel can be assigned, assign a clockwise direction of travel using tape on floors for people to move around safely, otherwise practice walking on the right and yielding to oncoming traffic.
11. Emergency Procedures & Reporting
PIs must ensure that all employees entering the lab should be aware of the Building Emergency Response Plan (BERP) and have access to it. If applicable, detail your strategy to amend your lab’s emergency response plan procedures during COVID-19.

- Emergency procedures for CEME1050 and High Head Labs are already posted on the doors with all contact numbers including safety officers and PIs.
- Emergency procedures for COVID 19 or otherwise will be posted on each door as provided by UBC.
- COVID 19 exposures will be immediately reported to Contact Safety and Risk Services at 604-822-2029 or email ready.ubc@ubc.ca. The contacts will be posted on the emergency procedures of each laboratory.
- The Building Emergency Response Plan (BERP) and BERP amendments for Rusty Hut, including the HHL and CEME can be found at http://safety.mech.ubc.ca/resources/”. All accident and incident reporting will be submitted at www.cairs.ubc.ca.


12. Monitoring
Describe how you will monitor your workplace (supervisor, departmental safety representative, other) and update your plans as needed; detail how employees can raise safety concerns (e.g. via the JOHSC or Supervisor).

- Identify the person(s) responsible for implementing and then monitoring compliance with the plan.

CEME 1050: Research Engineer- staff, is the safety officer
High Head: Research Engineer- staff, is the safety officer

Section #6 – Personal Protective Equipment (PPE)

13. Personal Protective Equipment
UBC has a central process for purchasing PPE. Describe what PPE you will require for your lab.

<table>
<thead>
<tr>
<th>#</th>
<th>Type of PPE</th>
<th>Activity and PPE Use Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disposable face masks</td>
<td>Precaution to avoid receiving and transmitting COVID 19 from mouth and nose. (Purchased already). They will always be used during experiments.</td>
</tr>
<tr>
<td>2</td>
<td>Disposable latex gloves</td>
<td>To avoid hand contact with surfaces used by others. They will always be used during experiments. (Purchased already)</td>
</tr>
<tr>
<td>3</td>
<td>Disinfectant sprays</td>
<td>To sanitize surfaces used by individuals. Each instrument will be cleaned before and after use with disinfectant spray (Purchased already).</td>
</tr>
<tr>
<td>4</td>
<td>Sanitizing wet wipes</td>
<td>To clean hands. (Purchased already)</td>
</tr>
<tr>
<td>5</td>
<td>Face shields</td>
<td>To protect the face and eyes against COVID 19 virus. They must be used in addition to face masks if there is another person within 2m. (Purchased already for each student/staff in the laboratories).</td>
</tr>
</tbody>
</table>

- If applicable list any other protective controls such as access to showers/laundering facilities
- Discuss how you will safely dispose of soiled PPE
Acknowledgement

I confirm that this Safety Plan has been shared with all workers (HQP, research personnel, etc.) who will be accessing this space both through email and will be made available as a shared document. Workers can either provide a signature or email confirmation that they have received, read, and understood the contents of the plan.

Date: June 2, 2020
Name (Manager or Supervisor): Yusuf Altintas
Title: Professor

Department/School Head/Director Approval

Steve Feng, Department Head 
Name, Title: 
Date: June 7, 2020
Appendix

Please attach any maps, pictures, departmental policies or risk assessments applicable UBC Guidance documents, where necessary, and other regulatory requirements referred to in document.

APSC specifically requests photographs of your current lab layout, as well as your proposed usage layout i.e. where HQP will work, what areas will be closed off, where signage will be placed, etc. If floor plans of your lab/shared workspace is available, please append these as well.