COVID-19 Workspace Safety Plan – Lab Specific

Use of this template: All light italicized grey font are instructional and must be removed before final copy is approved.

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
- UBC Research Resumption webpage
- WorksafeBC

Section #1: Lab information

<table>
<thead>
<tr>
<th>Department</th>
<th>Chemical and Biological Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>Applied Science</td>
</tr>
<tr>
<td>Building(s)</td>
<td>CHBE building, PPC, AMPEL</td>
</tr>
<tr>
<td>Lab(s)/workspace(s)</td>
<td>CHBE145, 171 &amp; 508, PPC116, AMPEL-HHL</td>
</tr>
</tbody>
</table>

Introduction to Your Lab

My group shared the use of CHBE171 and 508 with Profs. Lim, Ellis and Grace. We also operate some prototype units in high head labs of CERC (CHBE145), PPC (PPC116) and AMPEL, sharing with other users. My group currently consists of total 18 researchers: 2 PhD students, 3 MASc students, 6 postdoctoral fellows, and 7 visiting PhD students and scholars. My research mainly on fluidization and chemical reactors for biomass conversion to biofuels/bioenergy in close collaboration with local industry. I am currently leading two major programs: CFI-Biorefinery, and WED/Bioalliance-Renewable natural gas, which set clear deadlines and deliverables.

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.
**COVID-19 Safety Plan Template**

**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.**

<table>
<thead>
<tr>
<th>In total, 7 researchers are prioritized to return to work in the lab, either to finish their thesis experiment so as to graduate by the fall (Emma/Rachel), to complete an over-due collaborative project (Justin), to meet tight deadlines of sponsored projects (Lei and Na), or to accommodate those visiting students (Wenya/Xurui). Other 11 researchers will remain working remotely.</th>
</tr>
</thead>
</table>

**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)

Hazards in those labs may include: exhaust gases generated from reactors, installation and modification of the equipment, shared use of equipment. All equipment will be restricted to one person per day. Disinfection will be carried out thoroughly between shifts of users. Rooms 171 and 508 are more than 50 m², with a maximum of 2 persons at any time to strictly maintain 2-m social distancing. Equipment in high head labs of CERC, PPC and AMPEL are well distanced from other equipment, and will be operated by one person at a time.

No hazardous chemicals will be used in all tests. All exhaust gases will be ventilated. Installation and modification of the equipment at PPC/AMPEL/CERC will be performed by CHBE workshop technicians or contractors.

**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.

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/](https://srs.ubc.ca/covid-19/health-safety-covid-19/working-safely/)

- 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

- All equipment will be restricted to one person per day.
- Disinfection will be carried out thoroughly between shifts of users.
- Rooms 171 and 508 are more than 50 m², with a maximum of 2 persons at any time to strictly maintain 2-m social distancing.
- Equipment in high head labs of CERC, PPC and AMPEL are well distanced from other equipment, and will be operated by one person at a time.
- All exhaust gases will be ventilated.
- Installation and modification of the equipment at PPC/AMPEL/CERC will be performed by CHBE workshop technicians or contractors.
- Transport to UBC will be by walk and bicycling, since 6 of those selected researchers are living at campus and 1 nearby.
- Besides lab coat, safety goggles, sanitizer bottles, wet wipes and non-medical masks will be provided to all labs, and masks are recommended in shared space and public space.

The following general practices will be applied as well:

- 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.

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.

- AMPEL HHL (400 m2) (High head lab, with our unit well isolated in a corner near the exit door):
  Fluidization unit: Monday to Friday

Sign-in/out sheets will be posted on the door or unit recorded by each Friday. The HHLs of CERC/AMPEL/PPC, coordination will be made among all users to minimize the 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 metre radius circle around stationary workspaces/benches/instruments and common areas or equivalent approach to social distancing; and
3) Illustrate one-way directional traffic flows

- Researchers will follow the traffic direction set in each building and shared labs to minimize personal contacts.
- For 171 (70 m2) and 508 (55 m2), the maximum occupancy is 2, working on separate units with minimum 2 m distance all the time. See attached schematic diagram, one will work on unit 1 and the other on area 2 for catalyst preparation. The two labs usually have 5-6 people work at a time on different units, but now limited to 2.
- For high head labs of CERC/PPC/AMPEL, only one researcher will work on a single piece of equipment, with a floor space of more than 25 m² (No floor plan is attached) with large open space for traffic to maintain social distancing, as shown in the schematic diagrams. Usually 3-4 people will work on those pilot scale units, but now restricted to one.
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.
COVID-19 Safety Plan Template

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).

- Researchers will maintain a clean work environment. All tools or items should be sterilized if borrowed or shared with other researchers in the lab.

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.

- All researchers will work on designated corner with 2 m social distancing well respected. No plan to install partitions in all those labs.

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.

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.

- I have had two online meetings with all students, including those selected to return to work and others on the risk of covid-19 exposure, and how to mitigate the risk related to transport to UBC and working in the lab. All those 7 researchers have fully prepared.
- All those researchers will take the necessary UBC training and follow all guidelines and policies.

10. Signage
Describe 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.

- Travel direction for each lab has been discussed and implemented for each lab and will be marked on the ground.
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.


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).

- I will implement and monitor the compliance, with the assistance of Siduo Zhang, the manager for the WED project.

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>Lab coat</td>
<td>Wear all time in the lab by every researcher. Stored safely after use.</td>
</tr>
<tr>
<td>2</td>
<td>Gloves</td>
<td>Wear in the lab per needed when running experiment. Stored safely after use</td>
</tr>
<tr>
<td>3</td>
<td>Safety goggles</td>
<td>Wear in the lab when running experiment. Stored safely after use.</td>
</tr>
<tr>
<td>4</td>
<td>Non-medical masks</td>
<td>Wear in public space and, recommended, in the lab with more than one person. Stored or disposed safely after use.</td>
</tr>
<tr>
<td>5</td>
<td>Disinfectant</td>
<td>Sanitizer stations, sterilizing wet wipes. Disposed safely after use.</td>
</tr>
</tbody>
</table>

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 4, 2020
Name (Manager or Supervisor): Xiaotao Bi
Title: Professor

John D Madden, AMPEL Director
Signed: 11 June 2020
Department/School Head/Director Approval

Charles Haynes, Head of CHBE  
Name, Title  
Date

Signature

X
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.