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. Complete this form, sign it (all PIs sign with members entering a lab space, including quick visits – add more signature lines as needed), and submit to John Madden (ampel.dir@ubc.ca) cc’ing Gary Lockhart (Gary.Lockhart@ubc.ca) in order to request approval for restarting research. APSC SBQMI members please also copy Andrea Damascelli (andrea.damascelli@ubc.ca) and Pinder Dosanjh (dosanjh@phas.ubc.ca) even if your space is not part of QMI (e.g. most of the APSC space in the Brimacombe extension is non-QMI. The magnet lab in the original building is QMI controlled space overseen by AMPEL). Please also cc your department head or appropriate departmental contact. Once this plan is accepted, complete and sign the 11th VPRI-Access Agreement (sent to you separately) and have it posted on each exterior lab door, along with this plan and the list of approved users. Applications are accepted immediately. The re-opening date will depend on approval of faculty level restart plans, in addition to the time taken to review applications. Additional forms and approvals are required by APSC – see the email from Walter Merida from June 1 2020.

If members of your team need to access other labs in Brimacombe or on campus, please contact those labs or facilities to make them aware and to find out about their procedures. They may need to add the names of your team members to their application forms.

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.

Standard hours of return: Phase I occupancy 7 AM to 6 PM Monday to Friday.

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
Department: Electrical and computer Engineering
Faculty: Applied Science
Building(s): Brimacombe
Lab(s)/workspace(s): QMI 163

Introduction to Your Lab
Provide a brief overview of your lab(s) and other used/shared facilities, current size of your group and your general research area (1-2 sentences). Please include typical numbers of visitors, summer students and others in your numbers, to give an idea of regular occupancy. Indicate if the lab space you are applying for is shared, or has instruments or tools that are shared. All PIs that share the space or supervise students and other researchers who share the space (e.g. who may come in to use an instrument even for a short period of time during phase I) must sign this form. Any researchers accessing the lab including students that share the space must also sign the access agreement below.

- Our lab (Takahata Lab) studies and develops micro/nanofabrication processes and micro-electro-mechanical systems (MEMS). Our current research projects include implantable microdevices, smart stents, active catheters and endoscopes, and wireless MEMS drug delivery devices. The lab in the Brimacombe (AMPEL/QMI) building is equipped with a variety of microfabrication equipment and device testing systems.

- Other shared facilities used by lab members
  - Advanced Nanofabrication Facility (ANF), 4th Floor Brimacombe
    - Access requires coveralls, masks and gloves. These items need to be allocated for each person by the facility or each person buys their own cleanroom outfit. Once the outfit is on, the area is on the equipment is safe of contact.
  - Shared facility at the CFET lab (Brimacombe 444)
    - Arrange with facility manager to schedule possible access and wipe down equipment with sanitary wipes before and after use.
  - Laser micromachining and mask aligner in Dr. Cretu’s lab (Brimacombe 442)
    - Arrange with facility manager to schedule possible access and wipe down equipment with sanitary wipes before and after use.

- Current group size: 9 members (+1 representing a typical number of visitors, summer students and others)

- The Takahata Lab is NOT a shared lab.

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.
Max number of people present in the lab (QMI 163) at any time: 3

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, comfort level has been checked to determine the working members for phase 1.

List the users of the lab space and the approximate number of hours per week in the table.

<table>
<thead>
<tr>
<th>Name</th>
<th>Hours/week</th>
<th>Status</th>
<th>Email</th>
<th>Mobile number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nabil Shalabi</td>
<td>40</td>
<td>Postdoctoral fellow, Lab Manager</td>
<td><a href="mailto:nabil.shalabi@gmail.com">nabil.shalabi@gmail.com</a></td>
<td>607-280-3364</td>
</tr>
<tr>
<td>Hashem Jayhooni</td>
<td>40</td>
<td>Postdoctoral fellow</td>
<td><a href="mailto:jayhooni@mail.ubc.ca">jayhooni@mail.ubc.ca</a></td>
<td>778-874-6156</td>
</tr>
<tr>
<td>Ryan Yang</td>
<td>20</td>
<td>MASc student</td>
<td><a href="mailto:ryanyang55@gmail.com">ryanyang55@gmail.com</a></td>
<td>604-401-0968</td>
</tr>
<tr>
<td>Yang Yu</td>
<td>20</td>
<td>MASc student</td>
<td><a href="mailto:yuyang1054@gmail.com">yuyang1054@gmail.com</a></td>
<td>236-865-5509</td>
</tr>
</tbody>
</table>

Provide actual numbers and percentage of previous i.e. 1/3 of ‘normal’ operations
Outline who remains working remotely and who you’ve requested back to work and why
Provide a list of all lab members and members of other groups that you anticipate working in the lab space during this period, along with an estimate of the number of hours per week. Note that standard hours of opening in Brimacombe will be 7 AM to 6 PM M-F.

Users of the lab are listed below. Nabil Shalabi and Hashem Jayhooni will work all weekdays. Ryan Yang will work in one half of a week, and Yang Yu will work in the other half of the week, i.e., they will not overlap (refer to the schedule table in #4).

Prioritized projects to be conducted by the above members

(A) Side-viewing endoscopic probe with distal MEMS micro scanner (CIHR):
This research project requires prototyping and operation testing of the above device using microfabrication techniques and measurement tools in our lab. For the required tasks, two members (Hashem Jayhooni and Yang Yu) will work for this project during this phase.

(B) Smart ureteral stent (CIHR-NSERC):
This research project requires microfabrication and testing of the micro pressure sensor chip for the above implant device, and this will be performed in our lab and the AMPEL clean room. One member (Nabil Shalabi) will work for this project during this phase.

(C) Wireless MEMS drug delivery device:
This research project requires microfabrication and testing of the microfluidic-pump structures integral to the above device, and this will be performed in our lab and the AMPEL clean room. One member (Ryan Yang) will work for this project during this phase.
Prioritization is made for the projects or individuals having compelling immediate needs of lab access and experiments that involve (i) short-term deadlines/constraints, (ii) academic program requirements, and/or (iii) commitments with external parties. These criteria have been applied to select the above projects (while fulfilling the defined max occupancy in the lab) among all the current activities in my group.

In particular, project A involves (i) for prototyping and demonstration for full patent filing with pending due as well as time constraint for technology transfer and (iii) with the CIHR operating grant program, project B involves (i) for prompt patenting of our invention via prototype demonstration that has been delayed and (iii) as the CIHR/NSERC Collaborative Health Research Project with an industrial partner (Boston Scientific), and project C involves (ii) for the particular member to resume his experimental work and tests for finishing his thesis/program which has been delayed.

Members who remain remote and will not work in the lab for phase 1:

- Kenichi Takahata (PI, Professor)
- Mohab Hassan (PhD Student)
- Madeshwaran Selvaraj (PhD Student)
- Victor Bednar (PhD Student)
- Mohammad Reza Yousefi Darestani (PhD Student)
- John Kim (Undergraduate student)

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)

- **Research related**
  - Chemical work in fume hood (acid, base and solvent work)
  - Microfabrication equipment (including thin film deposition system and micro electrical-discharge machine (EDM), laser microwelder, and electroplating)
  - We have the lab operation manual to safely manage these factors.

- **COVID-19 related**
  - All equipment requires 1 person to operate only and we have protocols to clean equipment between users if sharing is required.
  - For project A, part of the prototyping work will involve technology transfer from the senior member (Dr. Hashem Hashem) to the junior member (Yang Yang), which will include the work with closer distancing than 2 m where the junior member will be trained by the senior member for transferring detailed experimental methods and process techniques. The phase 1 is the time that the senior member must focus on this time-sensitive prototype work significantly delayed by the research curtailment due to the two time-constraint situations a) full (post provisional) patent filing due with experimental proof via
prototype demonstration and data collection and b) financial limitation in continuing the senior member appointment. The project in phase 2 will need to focus on testing of the established prototype which also will require a similar transfer work for testing methods and techniques while attempting to secure the senior member’s presence. These situations collectively make phase 1 be the only chance that the junior member can absorb from him for prototyping transfer required for the project.

To reduce the time of closer distancing, the above transfer work will be done through a remote way (but within the lab) where possible and effective. In this, while the senior member is doing a certain step in one station, the work is captured by a video camera that is observed by the junior member at another station in the lab (e.g., captured by a video camera connected to a remote PC monitor in the lab via cable or wifi). They then switch for demo by the junior member being evaluated by the senior member via the camera to check the proper transfer.

To mitigate risks for the work that cannot be done remotely as above, the senior member will be assigned to identify the exact process steps and their schedules each week, and this will be shared with the junior member, the Lab Manager and the PI. In addition to wearing the PPEs required for the particular process step on the regular basis, as well as following the hygiene and health monitoring protocol as described in the Brimacombe instructions, it will be mandatory for them to wear masks, face shields, goggles, gloves and lab coats for the particular steps to minimize any potential COVID-19 related risk.

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 the AMPEL Director ([AMPEL-Dir@ubc.ca](mailto:AMPEL-Dir@ubc.ca)) Please also cc the Local (Brimacombe) Safety Committee Co-chair, Gary Lockhart ([Gary.Lockhart@ubc.ca](mailto:Gary.Lockhart@ubc.ca))
- 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.
- Please also post a paper copy on your door (UBC SRS/Worksafe requirement) along with a statement of the maximum occupancy
- Involvement of local safety team
  - Safety was discussed in detailed emails and direct communication with AMPEL building director (John Madden) and Safety office (Gary Lockhart).
Attended Townhalls with the building safety officer and community to identify and determine safety protocols for phase 1.

- Communication with lab members
  - Our Lab operation manual was updated to incorporate the COVID-19 section on the related safety information and shared with the lab members.
  - They were communicated via email to find out their comfort level and immediate needs for returning to the Lab, to identify those who need access in phase 1.
  - The lab members selected for phase-1 research have reviewed through the Safety Plan instructions of Brimacombe building and signed for their acknowledgement.

- Publish the safety plan
  - The Safety plan of my lab is being communicated with the corresponding lab members with the approved version of this document. Hardcopies of the approved lab plan and the building plan will also be made available in the lab space for their quick access. In addition, the first day of phase 1, the Lab Manager is going in alone to post signage in and outside the lab of safety checklist and procedures. An online google calendar has been created to track occupancy and usage of tools. All members with lab access will have access to these documents.

### 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.

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
- You may use google calendar or similar to schedule lab use.

Occupancy scheduling/rescheduling
- The PI determines the time frame that each approved member can use per week while communicating with each, and the Lab Manager will manage the implementation. Every week an email goes out to schedule the lab use using an online spreadsheet. From Monday to Friday, each day is split into two slots (7 am to 12:30 pm, and 12:30 pm to 6 pm). Members need to indicate the day and slot they need to use with the needed equipment/space.
- Only 3 members (representing 1/3 of the group size) will be allowed at any time, however, a lower occupancy will be prioritized via adjustment as much as the schedule permits.
- The following table shows the regular schedule to start with and will be adjusted on a weekly basis. The Lab Manager will review the schedule and contact corresponding members for any rescheduling. Determined schedule will be posted on the lab door weekly. This schedule is enforced using the online google calendar with exact time in and time out for each member.

<table>
<thead>
<tr>
<th>Lab member</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Shalabi (lab manager)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>H. Jayhooni</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>R. Yang</td>
<td>NOT ON CAMPUS</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Y. Yu</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>NOT ON CAMPUS</td>
</tr>
</tbody>
</table>

Schedule for QMI 163, Phase 1, June 2020
Working alone policy
  
  First, we will arrange the schedule to avoid working alone situation (as in the above). If/when this has to happen due to unforeseen causes, our lab has a work-alone protocol with the buddy system integral to our lab operation manual, with which a working individual establishes two-way communication (text, phone, or email) with the Lab Manager or another remote member who periodically checks the status of the individual, with the communication frequency depending on the nature of the work that is categorized as light, light/moderate, and moderate/intensive (as defined in the lab manual). A summary of these three work types in relation with our projects and check-in rule to be used is described below (another work type, intensive, is NOT allowed for working alone even with the buddy system). A remote member who is in the same building (e.g., Lab Manager staying in the clean room) will be the prioritized contact to establish the communication. To minimize risks, working with hazardous chemicals will be limited as much as possible.

- **Light**: This level of monitoring involves establishing two-way communication (email/text from the person in charge of monitoring and reply by the person in the lab) at the beginning and end of the work period, as well as at 4-hour intervals in-between. It applies to low-risk activities such as microscopy, electronic characterization, and building low-power instrumentation circuitry.

- **Light/Moderate**: This level of monitoring involves establishing two-way communication at the beginning and end of the work period, as well as at 2-hour intervals in-between. It applies to low-to-medium risk activities such as standard chemical processing with low-hazard chemicals (like acetone, methanol and isopropanol), light mechanical work (involving movement of objects with a weight of <15 lbs, e.g., assembling a small desktop apparatus), etc. It also include operation of parylene coater.

- **Moderate/Intensive**: This level of monitoring involves establishing two-way communication at the beginning and end of the work period, as well as at 1-hour intervals in-between. It applies to medium-to-high-risk activities such as chemical processing with medium-hazard chemicals (e.g., photoresists and developers) and working with lasers. Operations of micro-EDM, electroplating station, and dry-film laminator are included in this level.

- **Intensive**: This applies to high-risk activities such as use of hydrofluoric acid and other high-hazard/toxic chemicals such as copper etchant, working with high-power circuits, heavy mechanical work (involving the movement of parts of >15 lbs), etc. In this case, working alone is NOT permitted, i.e., physical presence of someone within the lab who can respond to an emergency situation is required.)
COVID-19 Lab Safety Plan Brimacombe Template 2 June

If two-way communication fails at any point (the person working in the lab does not reply to the monitoring email within 10 minutes), the person in charge of monitoring the situation must call the cellular phone of the person in the lab. If this call is not answered or returned within 10 minutes, campus security (604-822-2222) must be notified and asked to check on the situation. In either case, an email should also be sent to the group and the building warden, explaining the circumstances.

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

- You may wish to use the floor maps in the appendix of the Brimacombe Phase I Safety Plan that is being distributed along with this document
- 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

- Our work space and traffic plan is illustrated on the floor plan shown in the next page. The Lab facility has a main room (QMI 163) and 2 internal rooms with doors (163A and 163B). The max occupancy for the Lab is 3 at any time.
- This is achieved by having one work station in the main room 163, second one in 163A, and third in 163B as illustrated. The doors will remain open to minimize doorknob touching.
- A backup station will be placed in the main 163 room that is at least 2 m apart from the other stations in the room. This station is used to manage traffic in the case of any additional movement is needed. The flow between stations is indicated in arrows with 1 person at a time.
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.

- An ethanol-based cleaning product has been suggested in the Brimacombe cleaning plan. This or a similar product (or self-made solution) in squirt bottles, plus paper towels or similar, should be suitable for disinfecting surfaces. We also recommend hand sanitizer and/or soap and water (where possible) for frequent hand washing in each lab.
- 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).
- (Can you do the cleaning immediately?)
- 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).

- Based on a weekly access schedule, the Lab Manager will assign the members including himself who will be in the lab each day for sanitization of the high-contact points as outlined below. The protocols will be posted as a checklist at the entrance for one assigned member to complete before and after each of the morning and afternoon slots. This will be described using signage too. In addition, each member who uses a certain tool will perform sanitization for touch points of the particular tool before and after the use. Our lab has antibacterial wipes (and has also purchased disinfecting spray) for these purposes.
- Areas of high contact
  - Doorknobs
  - Bench area
  - Shared testing equipment (e.g., impedance analyzer, LCR meter, multimeter, soldering iron, and microscopes)
  - Shared manufacturing equipment (e.g., 3D evaporator, Parylene coater, and EDM)
  - Shared chemical equipment (e.g., bottles, chemical hood, water system, and sink area)
  - Any area that is touched or worked with by lab member (cabinets, shelves, chairs, computers, etc.)
- Cleaning supplies and training
Disinfecting wipes and spray will be used to sanitize stations (station will be at the main entrance and inside internal rooms 163A and 163B).

The Lab Manager will give a demo of the cleaning procedure online on the first day of reopen (as described in #9).

- Hygiene supplies
  - Soaps are available at the sink areas of the lab. We also have hand sanitizers to be provided in the lab. The location of these supplies along with reminders for hand washing and sanitizing will be indicated with signage in the lab.

- Waste will be disposed in garbage bins located next to each station. For COVID-19 related disposal PPEs (masks, gloves), for increased safety of handling by janitors, we will designate one trash bag for their disposal and seal it to be included in the main trash at the end of each day.

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).
   
   - 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
   - Shared equipment will be assigned based on need. For the equipment that more than one person needs (e.g., microscopes) a schedule is set with sanitation rules before and after the use as described in the previous section.
   - We regularly store small/mid-size equipment within shelves and will maintain this condition to minimize unnecessary contact with those tools.
   - The lab is not be used to provide office like functions. Only computer work associated to manufacturing or testing is permitted.
   - Any of these tools and computers (especially keyboards and mice) in the lab will be sanitized before and after use by the particular user.

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
   - This is typically used in situations where you cannot avoid getting within 2 m – as in supermarket checkouts. Of course, you may want to use this in other situations as well.
   - The lab is large enough with two internal rooms with doors to separate individuals with 2-m distancing. That is enough to keep students apart when using specific equipment. For detailed space use plan, refer to #5.
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

- 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
- UBC is developing training videos – hopefully these will be available next week.

- The importance of fundamental practices (like hand sanitizing, staying home when having suspicious symptom, physical distancing, wearing PPEs, etc.) and building specific protocols has been communicated with all the lab members using the Brimacombe building safety plan while providing relevant information and website links. This will be further enhanced for the members who will work in phase 1 using the safety plan of our lab once it is approved. These particular members need to sign on the document to pledge their compliance to the plan and protocols as defined before their restart happens. In addition, the lab operation manual has been updated to include the COVID-19 section and shared with the lab members. These preparation activities will have them ready to successfully complete the safety online training once it becomes available.

- Training for the members working in phase 1 for procedure specific to our lab is planned to happen on the first day of reopen.
  - The Lab Manager goes in alone in the morning and sets up the lab with all necessary procedures, documents, stations, PPE and everything in the documents.
  - Once this is done (by noon or so), the lab manager in the lab has a zoom video meeting with the other 3 members and the PI online. He then goes through a live training showing how to enter the lab after going through the checklists, describing each work station, outlining PPE rules.
  - We can then have live feedback from everyone to address any confusion, concerns, or needed adjustments.
  - Finally, the members on schedule for that day can come in. This way they will be well prepared, comfortable, and trained directly to our facility.

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.
• 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.

• Not all details will be relevant to your particular space. But would be good to know how multiple people will be able to move around e.g. in a long narrow space while maintaining distance.

• Checklists on the door of the lab before entering detailing procedures
• Signs inside the lab for workstations, cleaning stations, and procedures
• Tape on the ground to indicate workstations and flow directions
• Signs in the lab to remind 2-m distancing, PPE wearing, sanitizing, and hand-washing.

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.


The Brimacombe BERP will be available in the new lobby and will be posted on the website.

• The Safety Plan document and the Safe-Return-To-Work Instructions of the Brimacombe building indicating the new procedures and reporting of COVID-19 incidents have been shared with the lab members. We will follow the guideline and procedures described in them. All the members selected to conduct lab work in phase 1 have signed on the acknowledge form of the instructions document to confirm their understanding and adherence of the procedures.

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.
• Suggest you refer to the monitoring and enforcement section of the Brimacombe Phase I Safety Plan for a list of floor wardens and the procedures for monitoring. These Wardens, along with Gary and Pinder, may be able to help monitoring - but you likely will want to assign one or more senior lab members if you (the PI) will not be present in the lab regularly.

• As discussed, the Lab Manager (Dr. Nabil) will be responsible for scheduling and ensuring the occupancy limitation through a google calendar and will report the status and update to the PI. He is schedule to be in the lab all weekdays (refer to #4). Close monitoring of day-to-day lab condition will also be conducted by him. Any
concern will be raised to the PI (and Brimacombe building wardens as necessary) and adjustments to procedures will be made to ensure the workplace safety.

Section #6 – Personal Protective Equipment (PPE)

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>Nitrile gloves</td>
<td>All our works involve micro/nano-fabrication processes and need these gloves at all times.</td>
</tr>
<tr>
<td>2</td>
<td>Lab coats</td>
<td>These coats are used mainly for chemical work and wet process, and for the technology transfer work in project A.</td>
</tr>
<tr>
<td>3</td>
<td>Face shields</td>
<td>These shields are needed for hazardous chemical work, and for the technology transfer work in project A.</td>
</tr>
<tr>
<td>4</td>
<td>Safety glasses</td>
<td>These glasses are needed for chemical and mechanical work, and for the technology transfer work in project A.</td>
</tr>
<tr>
<td>5</td>
<td>Non-medical masks</td>
<td>Members have agreed to wear these masks when there are more than 1 person in the lab space.</td>
</tr>
<tr>
<td>6</td>
<td>Chemical resistant safety gloves</td>
<td>These gloves are used for hazardous chemical work.</td>
</tr>
<tr>
<td>7</td>
<td>Chemical apron</td>
<td>The apron is used for hazardous chemical work.</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
- Note that UBC does not require the use of non-medical masks, but will allow them to be worn. Non-medical masks are not considered PPE. N95 masks (Medical and Non-medical) are not recommended by UBC unless needed because of the type of work you are doing. Please refer to UBC guidelines found on the SRS website linked above and in the Brimacombe Safety Plan.

- Each member will be assigned their own personal set of PPE that they will use alone. The PPE that is one-time use (i.e. gloves, non-medical masks) will be disposed in the trash. Items that need washing (lab coats) can be taken in closed bags for washing independently by each lab member.

Researcher Agreement

Please have all those who will enter your lab during Phase I (including the PI if applicable) sign the statement on the next page. Keep a copy in the lab as a record. PIs should sign the page that follows the researcher agreement.

- Signed forms of the requested members are included from the next page.
I, ___________Kenichi Takahata________________, agree to comply with all safety protocols in place in AMPEL while conducting research and scholarly activity on the UBC-Vancouver campus. I understand that permission to conduct on-campus research, scholarship and creative activity is limited to those who require on-site resources, and cannot work remotely.

I confirm that safety protocols to address the following issues are available and have been implemented in rooms and spaces bearing this notice (indicative list):

1. In keeping with guidance from the Provincial Health Officer:
   a. Personnel will stay at home if they are sick with cold or flu symptoms
   b. Physical distancing: all people present in this space will respect physical distancing by keeping two meters (six feet) away from one another at all times;
   c. Personal hygiene: regular hand washing, covering coughs and sneezes
   d. Regular and thorough cleaning, particularly of high-touch, high-traffic points;
2. Personal protective equipment: Any PPE required to undertake this research is available to meet the needs of the people present;
3. The maximum number of personnel in ROOM # _QMI 163_ at any one time will be no more than (complete 1 form for each room)
   3 People
4. Space is left for the PI and/or Department to add unique elements of the safety protocol for this space.

ACKNOWLEDGEMENT
By signing this form, I acknowledge that the health and wellbeing of our university community is paramount, and we will follow guidance from the Provincial Health Officer, the University, WorkSafe BC, and other relevant authorities.

I also acknowledge that:
• Failure to uphold the commitment confirmed here could result in the loss of research access privileges.
• Non-compliance in my research setting could jeopardize the ability of on-campus activity to continue during the COVID pandemic.
• It is my responsibility as the Principal Investigator to ensure that I along with all faculty, staff and students engaged as part of my research activities are aware of and comply with the relevant COVID-19 and other safety protocols.
• Only those people essential for the activity to be performed in this space will be asked to return to work;

Kenichi Takahata
Name
Signed
June 4, 2020
Date

Department / Faculty Approval
John Madde, AMPEL Director
Name
Signed
8 June 2020
Date

*Please ensure a signed copy of this form is sent to the director of AMPEL (AMPEL.dir@ubc.ca), and that a copy is posted in plain view on any room, lab or other space accounted for by this Agreement.
SAFE-RETURN-TO-WORK AGREEMENT
THE BRIMACOMBE BUILDING

Signature line for researcher (faculty, student, research staff, post-doc etc.) and administrative staff acknowledgment

I ___________________________ have read and understand the additional precautions being taken during this time, as outlined in the Brimacombe Phase I Safety Plan, my lab’s Workspace Safety Plan. I have read and agree to abide by the safety plans, and to undergo training that will be required by UBC once it is put in effect (we anticipate video training that all those entering the building will be required to complete):

RESEARCHER/ SIGNATURE
or STAFF

DATE __________ 3 June 2020

SUPERVISOR/ SIGNATURE
or DIRECTOR in case of PIs

DATE __________ June 4, 2020

Signed

Supervisor is to keep a copy of this document in the lab and/or accessible electronically from the lab, in case of Local Safety Committee, SRS or WorkSafe BC audit.
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. For shared labs, please add the number of signature lines needed to cover all PIs who intend to have researchers use the space, e.g. including for students who will visit for a short period of time to use an instrument.

<table>
<thead>
<tr>
<th>Date</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>June 4, 2020</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Kenichi Takahata</td>
</tr>
<tr>
<td>Title</td>
<td>Professor</td>
</tr>
<tr>
<td>Name</td>
<td>John Madden</td>
</tr>
<tr>
<td>Title</td>
<td>AMPEL Director</td>
</tr>
</tbody>
</table>

Department/School Head/Director Approval

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steve Wilton</td>
<td>Director</td>
<td>8 June 2020</td>
</tr>
</tbody>
</table>

Signature

Signed
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.