COVID-19 Workspace Safety Plan

Use of this template: All light italicized grey font are instructional and should be removed in the final version of this Plan. The Plan must be approved within your <<Department>> or <<Faculty>> before activity can resume in the workspace. Any modification of the requirements outlined in this template must contact Safety & Risk Services for approval.

Updated June 8, 2021.

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/.

Name of Building (if applicable) Brimacombe
Address of Building (if applicable) 2355 East Mall
Work Space Location (Rooms and/or description of space. For high head and other large rooms that are shared, indicate the area for which you are applying. You may cover multiple rooms and spaces – e.g. CRN high head plus new wing – or submit separate forms for each space.) Rm 063

Introduction
This lab contains three instruments, a Zeiss SEM and a Nanoindenter and a Tescan SEM-FIB enter. The Zeiss SEM is used heavily by many groups, the nanoindenter is currently used by only one person Shuheng Li. The Tescan SEM-FIB is still under installation and will be used by a limited number of users during this restart phase. The Zeiss SEM is managed by an electron microscopy technician, Heli Eunike. The Tescan SEM-FIB is managed by the senior scientific manager of the quantum material electron microscopy center, Alan Maigné.

The maximum room occupancy requested for this room is 2. Details follow.

Reference Documents:
The following guidance documents and resources on the Safety & Risk Services (SRS) COVID-19 Website were used in the development of this workspace plan:
BERP, Phase 1 Brimacombe building plan, available at Brimacombe reception and at www.ampel.ubc.ca as of June 8th. List any other relevant guidance documents or resources used for your work space plan.

- A layout of the room showing possible occupancy and access door is joined to this document (Room 63 occupancy.pdf)

General Procedure:
The following general procedures align with guidelines set by the BCCDC to prevent the spread of COVID-19. Please describe how some or all of the methods below will be used in your lab:

- **Updated**: Room 063 will be limited to occupation by two persons at a time through the Phase 2.
- Gloves and non-surgical masks will be used at all times, to be put on outside the room and taken off after leaving the room.
- The entrance door handle will be sanitized upon entry, and after leaving, by each user using wipes outside the room.
- Users will limit contamination of surfaces and stay at their respective workstations for their sessions.
- Only high priority and superusers will be able to use the equipment, to reduce risk and reduce inter use sanitation.
- Spray bottles and wipes will be available at each instrument and outside the entrance door.
- Instrument control desk surfaces will be sanitized with a spray bottle when beginning and ending work.
- In addition to SEM and nanoindenter use, Rm 063 is accessed daily by Nanofab staff to check gas bottle pressure and change when needed. Because access to the service room require walking through the whole room, no users should be in the room whenever a Nanofab staff go there until his work is finished. This access will be booked, as for the SEM.
- Whenever a user exits the room and another one comes in, 10 minutes should be allowed to the room to have time to do 1 full room air exchange until the new user come in.
- Use of the equipment in room 063 require users to move around the FIB-SEM (blue) and the Zeiss SEM (red) and the nanoindenter (green) to load sample. As shown in the attached mapped, 2 m diameter circle has been drawn to represent user positions during operation/loading and maintenance. To ensure that a minimum distance of 2m is maintain at all time, users should reposition themselves in the room to maintain the distancing when needed. For example, during the loading of sample in the FIB-SEM (blue circle), Zeiss SEM operator (red circle) should move away from his station toward the nanoindenter. Same restriction applies when sample is loaded in the Zeiss SEM and a user is present at the nanoindenter work station.
- Requalification of users on equipment and support of users will be time limited and managed with a reduction of users on other equipment when this work is undertaken, e.g. by Alan Maigné, Heli Eunike, and Shuheng Li.

**Zeiss SEM**

- The SEM contains multiple surfaces that may become contaminated between users. Where possible, users will be asked to bring their own tools, including tweezer and keyboard. Items that must be shared, such as the SEM control panel, mouse, joystick and instrument access handles, will be sanitized by the user before they begin work, and when they are finished with the session using spray bottles and wipes provided by the lab.
Nanoindenter
- The nanoindenter shall be used in an automated fashion where possible, with access to the instrument typically limited to changing samples or indenter tips.

Tescan SEM FIB
- The instrument has a small user base during this period.
- Training session will be limited to key user and will be done through remote control.
- Experiments on the Tescan SEM-FIB will be done remotely. Users will access room 63 only for loading/unloading the sample and maintenance.
- Users are asked to bring their own tools, including tweezer and keyboard and mouse. A USB hub is installed on the desk next to the microscope for easy connection.

Workspace Activities:
The following safety plans must be followed:
Regulations of room access will be posted on the door of 063, as will the schedule for the week, each week printed out fresh by Heli.

Direction of Travel
When the second user enters the room, they must:
1. Put on the appropriate PPE and then knock on the door to signal the first occupant of the room.
2. The first occupant will signal to the second user when they are ready.
3. The first user will, if needed, move to clear a 2m path for the second user to enter the space and access the instrument they need.

When a user needs to move away from the control space of their instrument (e.g. to leave the room) they should signal the other user and wait for the other user to clear a 2m free path for exiting the space.

Zeiss SEM
- The following sanitization procedure will be followed for the Zeiss SEM, at the beginning and end of a period of work:
  - Spray-sanitize SEM door handle
  - Spray-sanitize desk surface and chair
  - Wipe-sanitize SEM control panel, mouse and joystick.
- Each user will have a plastic bag or box, kept in 063, where they will keep their keyboard, mouse, and tweezers. At the beginning of their usage time they will take the keyboard and tools out of the bag, attach the keyboard to the computer and begin work. The keyboard and tools will be packed up at the end of the session.

Tescan FIB-SEM
• The following sanitization procedure will be followed for the Tescan SEM-FIB, at the beginning and end of a period of work (loading or unloading of the sample):
  o Spray-sanitize SEM door handle
  o Spray-sanitize desk surface and chair
  o Wipe-sanitize the USB hub on the desk

• Each user will have a plastic bag or box, kept in 063, where they will keep their keyboard, mouse, and tweezers. At the beginning of their usage time they will take the keyboard and tools out of the bag, attach the keyboard and mouse to the USB hub on the desktop and begin work. The keyboard and tools will be packed up at the end of the session.

• After loading of the sample, the user will have a quick look at the sample to ensure that the right sample has been loaded and that no issue occurred. The user will then leave the room to go to his remote station.

• Data will be accessible through remote access and downloadable directly to your remote station. No physical contact needed to the computer

Nanoindenter

• Sanitization of the desk surface and used chair will be done after each session. No sanitization of the keyboard and mouse nor the nanoindenter as long as only Shuheng Li is using the equipment.

• If service engineer or other users use the equipment, complete sanitization of the touched area of the nanoindenter and keyboard and mouse should not be shared.

• A Working Alone Program is attached. The hazards present in the room require check-ins every 4-8 hours. To ensure safety working alone, the status of the user will be confirmed once midday and once at the end of the day. This confirmation will take the form of the emailed sanitation forms when users leave, or an in-person check-in by Heli Eunike or a designate in the case that no confirmation documents were received. In case of a problem Campus Security will be called.
Personal Protective Equipment (PPE):
After applying the Hierarchy of Controls to meet COVID-19 requirements, the following activities will require personal protective equipment:

<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>Non-surgical mask</td>
<td>At all times, to reduce surface contamination</td>
</tr>
<tr>
<td>2</td>
<td>Fresh nitrile gloves</td>
<td>At all times, to reduce surface contamination of potential pathogens as well as to keep finger oils off the instrument.</td>
</tr>
</tbody>
</table>

Communications Plan
- Complete safety documents will be posted on the door to 063. As well, paper documents detailing safety protocols upon arrival and departure will be filled out and signed each session, including check-off’s of the sanitation procedure followed. Cell phone photos of the documents will be taken by the lab member and emailed to the Heli and to Joshua Folk immediately upon leaving 063, after each session.
- Booking of the SEM will take place as always via our booking system, monitored by Heli. Booking access for 2/3 of the users will be restricted during the Phase 1 restart.
- Heli Eunike, Alan Maigné and Joshua Folk will approve of the weekly room schedule before the beginning of the work-week, including possibly requiring users to modify their booking times to ensure maximal safe access by all groups. The approved schedule will be posted on the room door Monday morning.
- The Zeiss online booking system is centred on managing access to the Zeiss.
- Use of the GaFIB and Nanoindenter require an email to be sent to alan.maigne@ubc.ca, and copied to heli.eunike@ubc.ca, jfolk@qmi.ubc.ca and ben.britton@ubc.ca. Between them, there is a shared calendar is maintained to reduce overlap and support users, and a physical copy will be printed on the outside of this room at the start of each week.

Monitoring
Joshua Folk and Heli Eunike are responsible for monitoring compliance with the plan. Eunike will be working remotely, but Eunike will be on-site and will confirm that protocols are being followed by random checks at the door to 063 (requiring just a brief opening, but room entry).

Emergency Procedures:

Building Emergency Response Plan (BERP)
Provide location (website, internal drive location, poster boards etc.) and purpose of the document e.g. copy available at reception, and also soon at www.ampel.ubc.ca.
Signatures:
I confirm that this Safety Plan has been shared with research personnel who will be accessing this space both through email and will be made available as a shared document. Staff can either provide a signature or email confirmation that they have received, read and understood the contents of the plan.

Name (Manager or Supervisor)  John D Madden
Title  Director
Signature

Name (AMPEL)  Joshua Folk (contact details below)
Title  Associate Professor
Signature

Name (PHAS Department)  Colin Gay
Title  Department Head
Signature

Faculty and Staff Occupying Work Space (please indicate approximate weekly hours of access)

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kashif Masud Awan</td>
<td></td>
</tr>
<tr>
<td>(8hrs/wk)</td>
<td></td>
</tr>
<tr>
<td>Matthias Kroug</td>
<td></td>
</tr>
<tr>
<td>(9hrs/wk)</td>
<td></td>
</tr>
<tr>
<td>Xiruo Yan</td>
<td></td>
</tr>
<tr>
<td>(2hrs/wk)</td>
<td></td>
</tr>
<tr>
<td>Maryam Yaghtin</td>
<td></td>
</tr>
<tr>
<td>(occasional)</td>
<td></td>
</tr>
<tr>
<td>Casimir Kuzyk</td>
<td></td>
</tr>
<tr>
<td>(occasional)</td>
<td></td>
</tr>
<tr>
<td>Mohammad Reza</td>
<td></td>
</tr>
<tr>
<td>(4hrs/wk)</td>
<td></td>
</tr>
<tr>
<td>Ayse Arkaz</td>
<td></td>
</tr>
<tr>
<td>(4hrs/wk)</td>
<td></td>
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<tr>
<td>Silvia Folk</td>
<td></td>
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<tr>
<td>(6hrs/wk)</td>
<td></td>
</tr>
<tr>
<td>Andrew Zang</td>
<td></td>
</tr>
<tr>
<td>(5hrs/wk)</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Role</td>
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<tr>
<td>--------------------------</td>
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</tr>
<tr>
<td>Zhijun Zhang</td>
<td>occasional</td>
</tr>
<tr>
<td>Sabyasachi Roy</td>
<td>occasional</td>
</tr>
<tr>
<td>Sudipta Patra</td>
<td>occasional</td>
</tr>
<tr>
<td>Mohammad Khalifa</td>
<td>(2hrs/wk)</td>
</tr>
<tr>
<td>Shujeng Li</td>
<td>(6 hrs/wk, nanoindenter)</td>
</tr>
<tr>
<td>Ali Abdullah Hussain</td>
<td>(6 hrs/wk, Tescan FIB)</td>
</tr>
<tr>
<td>Warren Pool</td>
<td>(PI, no usage expected, Nanoindenter)</td>
</tr>
<tr>
<td>Alan Maigné</td>
<td>(supervisor)</td>
</tr>
<tr>
<td>Heli Eunike</td>
<td>(supervisor)</td>
</tr>
<tr>
<td>Joshua Folk</td>
<td>(PI, no usage expected)</td>
</tr>
</tbody>
</table>

**Appendix**

Please link to any maps, pictures, applicable UBC Guidance documents and other regulatory requirements referred to in document.

*Brimacombe key map and High Head map may be useful to help describe procedures for your lab. They were attached to an email on May 29th from AMPEL.dir@ubc.ca.*