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
- Communications Resources
- UBC Research Resumption webpage
- WorksafeBC

Section #1: Lab information

Department
MATERIALS ENGINEERING

Faculty
CERAMICS GROUP (UBCeram)

Building(s)
FRANK FORWARD BUILDING

Lab(s)/workspace(s)
LAB 106 & LAB 108

Introduction to Your Lab

As of May 1, 2020 UBCeram consists of 9 members including 3 PhD students, 1 visiting professor and 1 summer student (May-Aug 2020) under supervision of Professor Tom Troczynski, plus 3 Adjunct Professors (one spending about half day/week in our lab). There are three designated lab rooms in FF (106 & 108A, 108B) with 5 workbenches for the group members (2 workbenches in room 106 & 3 workbenches in rooms 108A,B). Room FF106 has a separate entrance from the hallway, and FF108A,B have another entrance. FF106 and 108 are connected by a door-way. The research in the labs focuses on processing, microstructure and properties of ceramics for variety of applications. The lab activities include use of powders, wet chemicals and high temperature furnaces.
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.

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.*

- **UBCeram lab** operates in three relatively large rooms: FF106 ~40m², FF108A ~60m², FF108B ~50m²; FF106 and FF108A,B have separate door entrances from the hallway; we are therefore confident that there is enough space for proper distancing of 2 people / room at any given time.

- The 1/3 of staff would be 3 people, primarily PhD students. One of them (Maryam Yaghtin) is scheduled to finish her program in Dec 2020. Another (Shubham Jain) will be finishing in the Spring of 2021. Ido Koresh will be finishing his PhD in the Spring of 2022. They need lab access to complete the research work and cannot limit to work at home. The Summer Student (Nick Provezzano) has been hired to accelerate lab work performed by Shubham Jain such that he will be able to graduate in 2021. However at this stage I Nick will not be allowed in the lab and will work from home. Amir Yaghtin is a visiting professor from Iran, and is from the same household as Maryam Yaghtin.

- Maximum of 3 persons will be allowed in the labs at the same time including both labs FF106 (1 person) and FF108A (1 person) and FF108B (1 person).

- The two 3-person groups will include: Group I: M. Maryam Yaghtin, Amir Yaghtin, Ido Koresh. Group II: Shubham Jain, Maryam Yaghtin, Ido Koresh. EITHER Group I OR Group II will be allowed to enter the lab in any given day, according to the schedule.

- Each person has been assigned their own specified workbench (see the lab schematic appended in the Appendix).

- Scheduled time slots will be implemented to avoid overlap during work hours in the labs.

- Common areas include spaces where chemicals are stored, aisles and casting area. Personnel will be instructed to be present in the common areas one at a time maintaining 2 meters social distancing.

- The time slot is 7am-6pm (FF108B) for all rooms.

- 2-3 people from UBCeram intend to also work outside UBCeram (other labs in FF, the FF XRD lab, the FF SEM lab, and other UBC departments (EOS, CIVIL, Ampel, CHBE), according to the schedules, distancing and other rules in the "guest" labs. Needed access to other labs in FF: 1. polishing lab (2nd floor, covered by the FF building safety plan), 2. XRD/SEM lab (4th floor, covered by the FF building safety plan), 3. Ed Asselin’s lab for DSC-TGA test (3rd floor; 2-3 times only needed, to be coordinated with Professor Asselin), 4. Marek Pawlik’s lab for surface tension test (4rth floor, Mining department; 2-3 times only needed, to be coordinated with Professor Pawlik).

- The draft plan has been discussed with all the potential users for comments and incorporated their input.

- All UBCeram members have been notified that coming back to the lab is voluntary. If they feel uncomfortable doing so they may stay home. Coming back is voluntary.

- Students and staff have been informed that they are free to discuss their concerns with the supervisor.
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).

<table>
<thead>
<tr>
<th>Research related hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chemicals-related hazards includes chemicals which are corrosive, irritant in nature ex. NaOH, HCl, HNO\textsubscript{3} etc. and toxic</td>
</tr>
<tr>
<td>• Flammable chemicals including acetone, methanol, propanol etc.</td>
</tr>
<tr>
<td>• Furnaces operating at high temperatures</td>
</tr>
<tr>
<td>• No heavy machinery related hazard is present</td>
</tr>
<tr>
<td>• No new or unusual lab hazards pertain. The supervisor and the group have longstanding experience in mitigating the lab hazards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Covid-19 related hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There is enough space in the labs (ie we have very large labs) to maintain social distancing</td>
</tr>
<tr>
<td>• Casting area might require 2 persons at a time, but 2m distance can be readily maintained along with the use of proper PPE</td>
</tr>
<tr>
<td>• 2 people from the same household will work on the same workbench (not at the same time)</td>
</tr>
<tr>
<td>• Contact with commonly touched surfaces and equipment. Hygiene measures will be in place to minimize this hazard.</td>
</tr>
</tbody>
</table>

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.

This document was prepared and agreed with participation of all UBCeram staff and is submitted to LST for review. It has also been reviewed by the department head.

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/)

| • All your personnel who will be returning will be provided with the plan and required to read it. |
| • Require users to read the building safety plan (a draft was sent out; not yet finalized) |
| • Supervisor (Tom Troczynski) and lab manager (Shubham Jain) and will go over the plan with lab users prior to work beginning, e.g. in a Zoom meeting. |

Section #3 – Hazard Elimination or Physical Distancing

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

- A scheduled time slot system will be implemented to allow maximum of three people at the same time in each of the 3 rooms of the UBCeram labs
- The time slots will involve 1 full day (7am-6pm)
- Sign in/out processes will involve paper sign up sheets on lab door coupled with an online scheduling and record
- The pre-existing working alone procedures will be practiced. In addition, some procedures are identified that will not be allowed while working alone.
- The scheduling and tracking will be performed by Shubham Jain

### 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

- Person working in lab 106 will enter/exit from entrance door in 106 and person working in lab 108A,B will enter/exit from entrance door in 108B (see the schematic attached)
- Each person will be working on their assigned workbench (> 2-meter distance) and if required to move into the common area will maintain a distance of at least 2 meters from the other persons. Personnel will have been instructed to yield right of way to people already in te common areas.
- Lab maps will be shared as illustrated in the schematic illustrations in the Appendix with perimeters around assigned workspaces/benches/instruments and common areas.
- Person working in lab 106 will be using the sink in lab 106 and same goes for the sink in lab 108A,B.
- Office area access will be restricted to only person at a time.
- Use of desks will be limited to brief times for work directly in aid of the research, e.g. calculations for lab work.

### 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.
- High-touch surface areas including doors knobs and benches will be cleaned and sanitized at the start and end of the work period i.e. 4 times a day.
- Handwashing for 20 seconds is mandatory at the time of entering the lab and prior to exiting from the lab, as well as frequently during the day. Hand washing is required after touching commonly accessed areas and tools/equipment.
- Workbenches and any equipment in use will be sanitized before and after use.
- Tools or equipment brought to a workbench will be washed and sanitized before and after use.
- Signage will be posted indicating if equipment is ready to be used or not
- Signs and markings (such as tape on the floor) specifying 2-meter distance would be posted in the common areas
- Cleaning supplies will be obtained from the Frank Forward stores room.
- Surfaces and equipment/tools will first be cleaned with soap and water followed by disinfecting using one of disinfectant wipes, disinfectant spray plus paper towels or 0.5% bleach solution and paper towels.
- Plastic lined waste containers will be used to collect spent wipes or paper towels. Bleach-soaked paper towels will be rinsed in a sink before disposal.

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)

- Small equipment such as weighing scales and magnetic stirrers would be assigned to each individual separately for their personal usage in the lab
- Heavy common equipment such as furnaces will be assigned based on an as-needed basis and the surfaces or parts likely to be touched/handled will be cleaned and sanitized before and after use.
- There is no equipment in the lab that can be removed. All equipment and supplies are needed in aid of the research.

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
- There is no necessity of physical barrier installation at this moment considering the large lab space for the number of people permitted in the lab at any time.
- While researchers will be assigned work areas where they will be mainly present, they need to be able to move around the lab to access equipment and supplies. However, the lab space is large enough that this can be readily done while maintaining >2 m separation. Physical barriers would impede that movement.
- Fumehoods / air ducts will operate constantly to improve airflow through the 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 Preparing COVID-19 Infection in the Workplace online training and orientation to your specific safety plan

- Online group meetings will be scheduled on a weekly basis and will be conducted to inform and discuss with all the group members regarding the safety requirements, need for any specific measures and to address problems.
- Employees with respiratory illness symptoms or who feel sick will strictly be asked to stay at home.
- Signage regarding preventive measure against COVID-19 and emergency contacts will be posted in the labs.
- All personnel returning to the lab will be required to take the SRS COVID-19 safety training course. Certificates of completion will be collected by the lab manager.
- An online safety training session will be conducted to review the building safety plan and the lab safety plan.
- If someone in the lab develops even mild symptoms of a respiratory illness UBC first aid will be called (for UBC employees, 604 822 4444) or 911 if the illness is serious (then UBC first aid will be called next). If he/she is not an employee either 911 will be called if it is serious or 811 (BC Nurses Hotline) for advice.
- All these processes will be documented and kept in records.

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.

- Protective measure and protocols (washing your hands, cover your cough, maintain physical distance and how to prevent infection) against COVID-19 will be posted at the entrance of the labs (FF106, 108).
- Areas around sinks will have signage for hand washing guidelines and social distancing protocol.
- Status of equipment, tools (ready to use or not ready to be used) will be posted next to each equipment areas.

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.


An amended BERP is posted on mtrl.ubc.ca > Safety, i.e. http://mtrl.sites.olt.ubc.ca/files/2020/05/May-29-2020-Building-Emergency-Response-Plan-MTRL.pdf. Personnel will be apprised of changes to the revised BERP during safety training as outlined in Section 9. The number of people anticipated back in the Frank Forward building during Phase 1 return will be roughly 30. The great majority will be graduate students and some research staff, such as postdoctoral fellows. The building emergency director, deputy building emergency director and floor wardens will, for the most part not be on site. Rotations of researchers into the building will mean that it is highly unlikely that a suitable number of people will be in the building consistently, 5 days per week, to be able to enlist alternate floor wardens. Returning researchers will be instructed, as per the modified BERP: "In the event of a fire alarm sounding all occupants are instructed to immediately turn off heat sources, close room doors and evacuate..."
the building when a fire alarm sounds. Use the stairs only. Social distancing is not required inside the building during an evacuation; the key is to evacuate as quickly as safely possible. Once outside the building go to the assembly area (north courtyard). At this point, maintain a separation of 2 m between others. Stay there until permission is given by attending emergency personnel to re-enter the building.

Emergency procedures for responding to someone in the lab with onset of respiratory illness symptoms or serious respiratory illness symptoms have been described in Section 9.

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).

- Lab manager (Shubham Jain) would be responsible for implementing and monitoring compliance with the plan. In absence of Shubham, Maryam Yaghtin will monitor the compliance.
- A representative from the faculty or LST will be doing weekly checks to ensure requirements are being met.
- PI weekly checks will be done in addition to the on-line group meetings
- Researchers who have concerns may contact the supervisor, the department head or the JOHSC (Heli Eunike is the representative).

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></td>
<td>Nitrile gloves</td>
<td>Dealing with corrosive chemicals and oxides and COVID-19: small, medium, large; 100 pairs/month estimated</td>
</tr>
<tr>
<td></td>
<td>Face shields or safety goggles</td>
<td>Dealing with corrosive chemicals and oxides and prevention against COVID-19; total of 10 shields</td>
</tr>
<tr>
<td></td>
<td>N95 masks / surgical face masks</td>
<td>Dealing with corrosive chemicals and oxides and COVID-19; 100 / month estimated</td>
</tr>
<tr>
<td></td>
<td>Hand sanitizer</td>
<td>Washing hands after lab activities and prevention against COVID-19: 1 bottle / room / month</td>
</tr>
<tr>
<td></td>
<td>Disinfectant wipes</td>
<td>Cleaning equipments and workbenches as a measure against COVID-19: 1 pack per room / month</td>
</tr>
<tr>
<td></td>
<td>Lab coats</td>
<td>Dealing with corrosive chemicals and oxides and COVID-19: we have already in the lab</td>
</tr>
</tbody>
</table>

Departmental disposal procedures will be followed
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 19, 2020
Name (Manager or Supervisor): Tom Troczynski
Title: Prof

Department/School Head/Director Approval

Daan Maijer, Dept. Head
Name, Title
Date: June 20, 2020

Signature
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.
University of British Columbia
Department of Materials Engineering
Frank Forward Building

Employee/student daily login form

Please complete this form daily upon coming to work. Forward the form to Michelle Tierney (mtierney@apsc.ubc.ca)

Your name: ____________________________________________

Date: ____________________/2020

Time ____________ AM / PM

1. Do you have any of the following symptoms today?
   A fever? Yes ___ No ___
   A new or worsening cough? Yes ___ No ___
   New or worsening shortness of breath? Yes ___ No ___
   New or worsening sneezing? Yes ___ No ___
   A sore throat? Yes ___ No ___
   Chills? Yes ___ No ___
   A runny nose? Yes ___ No ___
   New muscle aches? Yes ___ No ___
   A headache? Yes ___ No ___

2. Have you been outside of Canada within the last 14 days? Yes ___ No ___
3. Have you been in contact with anyone who has COVID-19 Yes ___ No ___

If you answered yes to any of the above you need to stay home: do not come to work.
**Frank Forward Building**

Daily inspection checklist to check for compliance with the COVID-19 workplace safety plan. Post completed inspections in a prominent area in the lab.

**Supervisors may modify as needed**

Room ________________

Name of person doing the inspection _______________________________________________________________________

Date ______________________

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes/No?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are people keeping 2 m or more separation?</td>
<td></td>
</tr>
<tr>
<td>Are people washing hands after touching common/shared surfaces?</td>
<td></td>
</tr>
<tr>
<td>Are people washing hands after handling common/shared tools or equipment?</td>
<td></td>
</tr>
<tr>
<td>Are people cleaning common/shared tools after use?</td>
<td></td>
</tr>
<tr>
<td>Has the daily login and self-assessment form been completed by all occupants?</td>
<td></td>
</tr>
<tr>
<td>Are only people scheduled to be in the room present?</td>
<td></td>
</tr>
<tr>
<td>Are common surfaces being cleaned at the start of the day?</td>
<td></td>
</tr>
<tr>
<td>Were common surfaces cleaned at the end of the previous day?</td>
<td></td>
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</tbody>
</table>