

# Research Resumption Planning Document

School of Engineering

May 21, 2020

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# 1. Research Resumption Planning Document

## *Purpose*

This document serves as a guideline for providing information to the School of Engineering (SoE) staff, faculty, students, researchers and administrators on Phase 1 of research un-curtailed. This Phase involves return of up to 30% of building occupants to facilitate limited resumption of critical research activities.

This documents makes use of available guidelines and regulations published by provincial and federal health agencies. With the rapidly developing guidelines at UBC and elsewhere, this document will be constantly updated.

The guidelines proposed in this document conform to UBC general policies, Faculty of Applied Science guidelines, as well as WorkSafe BC and Centre for Disease Control recommendations. Also, the Northern Territories (NT) Worker's Safety and Compensation Commission guidelines for COVID-19 return to work policies have been utilized.

## 2. Planning Leadership Team

### *Members and Roles*

This document and guidelines have been prepared by SoE leadership members overseeing research and SoE operations. The team will establish an SoE Research Resumption committee (RRC) which will review all document and request by faculty to resume research during Phase 1. The committee consists of:

Dr. Rehan Sadiq, Associate Dean

Dr. Mina Hoorfar, Director

Dr. Lukas Bichler, Associate Director – Research

Mr. Alec Smith, Laboratory Manager

All approved project will be also reviewed by SoE Safety Lead (Mr. Praveen Rajan), with consultation and guidance from UBCO Health & Safety office (Ms. Cherie Michels).

### *Purpose*

The role of the committee is to outline the minimum requirements to researchers which will need to be met in order to be considered for granting of a permission to resume research in SoE during Phase 1. When all minimum SoE conditions are met, the researcher's request will be provided to VPRI for final approval.

The SoE RRC will have jurisdiction over the research labs, teaching labs or common technical support areas in the SoE area of Engineering and Management Building (EME) – Tower 2.

Given that the EME building has a physical separation from the Management Faculty and Engineering faculty by the Richard Hallisey Atrium, the guidelines in this document pertain to the Engineering portion of EME building only.

### 3. Faculty-level guiding principles and responsibility sharing

The VPRI guiding principles for the resumption of research (Version: May 6, 2020) include:

- The health and well-being of faculty, students and staff is paramount
- The orders, notices and guidance of the Provincial Health Officer will be followed
- Permission to conduct on-campus research and scholarship can only be granted to those who require on-campus resources and cannot conduct this work remotely
- There will be a phased and coordinated approach across each campus
- Phased resumption of activity may need to be reversed and stricter curtailment conditions imposed in response to public health guidance or changes to the situation on our campuses
- If an employee has a concern about returning to work, they will have an opportunity to discuss that with their supervisor, Human Resources, and their employee group as appropriate
- Equity will be considered in evaluating how to plan and conduct research resumption

In addition to these guiding principles, additional guiding principles are put in place in the School of Engineering, and include:

- The Principal Investigator (PI) will be responsible for preparing the application for resumption of research activities, and must take responsibility for the execution, monitoring and dealing with arising issues pertinent to the plan.
- The PI must complete Risk Assessment and Worksite Precaution document, which must accompany the application for research resumption.
- The PI must complete the Field Level Risk Assessment document, which must accompany the application for research resumption in a particular research laboratory.
- The SoE RRC will prepare the Field Level Risk Assessment form to identify safety measures and procedures needed to be put in place in the EME building and common areas.
- The Procedures provided in this document seek to provide an outline on:
  - How SoE and its members will control the risk of exposure
  - Actions to limit and control methods and procedures
  - Training of workers
  - Procedures on dealing with situations when exposure to COVID\_19 may have occurred

## 4. Contextual Information

SoE research activities for all engineering programs (Mechanical, Civil, Electrical and Manufacturing Engineering) take place on the ground floor, main level (1<sup>st</sup> floor) and 2<sup>nd</sup> floor of the EME building. Graduate student space and faculty offices on the 3<sup>rd</sup> and 4<sup>th</sup> floors, are not intended to be incorporated into the policies outlined in this document for Phase 1 of the research uncurtailment. SoE recommends that all students and faculty who are able to continue working remotely will continue to do so until further notice.

SoE faculty members who conduct research activities in buildings not administered by SoE will have to comply with the procedures, guidelines and protocols of corresponding faculties where the labs are located.

Within the EME buildings, there are no shared research labs with other departments or faculties.

As of May 21, 2020, the SoE has fully curtailed research activities and only two exemptions were granted to-date:

- 1) Dr. Jian Liu: Exemption to access a glovebox with Li-metal and other chemicals. The glovebox needs regular atmosphere monitoring for safety reasons.
- 2) Dr. Ray Taheri: Exemption to access the makerspace for community-driven fabrication of face shields for healthcare workers.

The SoE leadership team has carried out a survey in April 2020, which revealed the following:

- ~50% of faculty members have an urgent need to partially restart research activities in order to:
  - Graduate students on the verge of completing their degree
  - Reinstate cash-flow from industry sponsored projects
  - Carry out COVID related research
- ~70% of graduate students take public transit to reach the UBCO campus
- ~60% of students would be working in shared labs
- ~40% of research work requires group work (2+ students)
- ~30% and ~50% of faculty members are in need of immediate and long-term supply, respectively, of PPE and cleaning supplies

An audit of the SoE research areas has been completed and the maximum number of occupants in a given space has been identified.

			Assuming 1 occupant per aisle of benches	Requested increase
<b>ROOMS</b>				
Room	Researchers	Room Size (approx)	Maximum Number of Allowed Occupants	
Level 0				
0212	Eskicioglu	1200	4	
0211	Sediako/ Uhl / Arjmand		1 for each researcher	
0204	Roberts	800	2	
0207	Hoorfar	1200	4	
0201	Liu / Milani / Hoorfar / Roberts	100ea	Liu 2, Roberts 1, Hoorfar 1, Milani 1	
0254	Siddiqua	500	2	
0256	Rteil/Alam/Bichler/Sediako	4000	4	+4 RA +1 Tech
Level 1				
1205	Bichler	600	2	
1209	Bichler / Li / Sediako	1000	Bichler / Sediako 2, Li 2	
1213	Roberts	800	2	
1215	Foulds	400	1 (external to the clean room)	
1216	Mohammadi / Golovin / Hoorfar	1200	Hadi 1, Golovin 1, Hoorfar 1	+3
1212	Milani and Uhl	1200	4	
Level 2				
2211	Najjaran	1000	4	
2215	Thomas J/M Zarifi	800	Johnson 1, M Zarifi 1	
2217	Holzman	800	2	
2219	Lovegrove	800	2	
2218	Kheirkhah	800	2	
2216	Chau / Markley	800	Chau 1, Markley 1	
2212	Seethaler / Eberle / Wang	1200	Seethaler 1, Eberle1, Wang 1	
Totals			57	

Therefore, during a single day, the maximum number of researchers who could occupy the EME labs would be < 60 persons. This corresponds to ~ 20% of graduate student population in SoE.

The remainder of persons available to reach the 30% SoE building occupancy load would include technical and support staff of SoE.

## 5. Prioritization of Access

The RRC will use decision making process leading to granting of permission to resume research activities during Phase 1 of research uncurtailment based on the following criteria:

- Specific type of research activity involved
  - Simple experiments (e.g., loading samples into a test set-up, remote experiments)
  - Complex experiments (e.g., conducting experimental work)
- Numbers of researchers involved
  - Single user (work alone procedure will be required)
  - Multi-user
- Availability of cleaning supplies and PPE
- Nature of the laboratory / facility (e.g., single-user or multi-user room)
- PI career stage (ECRs will be given priority in multi-user facilities)
- Equity, Diversity and Inclusion considerations
- Urgency for graduate student work completion
- Urgency for funding reinstatement
- Urgency for COVID\_19 related research

The criteria for Phase 2 will follow a similar scoring rubrick, but with different weights given to the various categories. As of May 21, limited information about Phase 2 has been provided, and thus planning for this stage will be initiated as soon as additional clarity on the intent and limitations of Phase 2 uncurtailment will be known.



Scoring Rubrick for Phase 1

	<b>Criteria</b>	<b>Score</b>
<b>Specific type of research activity involved</b>	Simple experiments (e.g., loading samples into a test set-up, remote experiments) SCORE = 1  Complex experiments (e.g., conducting experimental work) SCORE = 3	
<b>Numbers of researchers involved</b>	Single user (work alone procedure will be required) SCORE = 1  Multi-user SCORE = 5	
<b>Availability of cleaning supplies and PPE</b>	Available SCORE = 1  Currently not available SCORE = 3  Very high demand on PPE SCORE = 5	
<b>Nature of the laboratory / facility</b>	Single-user room SCORE = 1  Multi-user room SCORE = 5	
<b>PI career stage (ECRs will be given priority in multi-user facilities)</b>	ECR SCORE = 1  Established PI SCORE = 3	
<b>Equity, Diversity and Inclusion considerations</b>	PI or topic address EDI SCORE = 1  PI or topic do not address EDI	

	SCORE = 3	
<b>Urgency for graduate student work completion</b>	<p>Students involved need to complete critical research in order to graduate within the next two terms SCORE = 1</p> <p>Students involved need to complete critical research in order to graduate within the next three terms SCORE = 3</p> <p>Students involved need to complete critical research in order to graduate within the next year SCORE = 5</p>	
<b>Urgency for funding reinstatement</b>	<p>Research must be reinstated in order to renew cash-flow from industry / funding agencies SCORE = 1</p> <p>Research is not directly related to cash-flow from industry / funding agencies SCORE = 5</p>	
<b>Urgency for COVID_19 related research</b>	<p>Research directly addresses COVID-19 priorities and / or is funded by government programs focusing on COVID-19 SCORE = 1</p> <p>Research does not directly address COVID-19 priorities and / or is not funded by government programs focusing on COVID-19 SCORE = 3</p>	
<b>TOTAL SCORE (LOWER IS BETTER)</b>		

## 6. Building / Facility Considerations

### Pre-return Tasks

- a. The SoE technicians will establish a traffic flow and produce signage that will direct traffic through the lab wing. Old signs that were posted on three floors entering the lab wing will be replaced with new signage.
- b. Facilities has already placed signage on the elevators.
- c. Clipboards will be purchased and attached to each research lab. This will indicate the maximum number of research students allowed in the lab.
- d. Tables for signing in, signing out and cleaning of any lab equipment when leaving will be indicated on the sheets.
- e. All technicians, students, PIs and research staff will be required to review and complete the WorkSafeBC COVID-19 Safety plan (May 20, 2020 version)



covid-19-safety-plan-pdf-en.pdf

### Initial Safety Audit and Establishment of New Procedures

- a. All areas within the lab will have an initial audit. This will include a survey of the research and teaching labs as they were left.
- b. All areas will have new signage put in place. Any research that is authorised to continue will have a clipboard on the door with a checklist and the research plan outlined by the PI.

### Ticket System

- a. Ticket system to initiate an opening of a research lab – new help topic on ticket system  
Ticket will have a standard response and will cover
  - Type of work
  - Number of students
  - Hours of work
  - PPE required
  - Safety audit based on research request

- b. Based on dialogue in ticket, traffic flow will be identified and there will be a paper checklist on the outside of the lab door

## Common Areas

The common areas in the EME building during Phase 1 include:

1. Technician's shared office space:
  - a. The SoE technicians will be re-arranged to allow for appropriate social distancing in offices
  - b. Some SoE technicians will also be temporarily relocated to laboratory alcoves (e.g., room EME1209 has a special alcove, EME1209A, where a technician can sit with minimal exposure)
  - c. Additional areas will include: EME 1207, EME 1220 and EDL 003.
2. Delivery area
  - a. Gas delivery by Praxair will continue as is. Compressed gas cylinders will be mandated to sit for at least 3-days before being allowed to be picked-up, unless gasses are needed urgently (and cylinders will be wiped with alcohol).
  - b. Mail delivery area will be staffed by technician who will oversee receipt and distribution of mail / packages to research labs
3. Machine shop
  - a. The machine shop will take orders via the ticket system as before.
  - b. There will be minimal interaction between students – parts will be made by machinists
  - c. Limited meetings can take place to finalise or clarify drawings.
  - d. The machine shop will need to inform students and professors with a sign on the door that: No students or professors are allowed in the shop. Doors will be locked at all times.
  - e. For new jobs that come in: Place a cart out side the double doors for students to put their material on. All material that comes into the shop will be wiped down.
  - f. All drawings will be submitted via ticket system or email. No hand drawings are to be accepted. All directions to the job should be included with the work request.
  - g. If we need to meet with a student to discuss a job we would like the student to wear appropriate PPE. We will follow the same PPE requirement along with keeping a social distance out side the shop in the hall way.
  - h. All machines will need to be wiped down before use and after use. Any hand tool or power tool will also need to get wiped down after use. Machinists will need to wear gloves doing this so as to not cross contaminate.

- i. If other technicians will be working in the machine shop they will need to follow these guide lines to work in the shop.
  - j. Machinists will wash hands on a frequent basis and only wear gloves when needed.
  - k. Hours to be worked set by UBC.
4. Structures Lab / High Head
- a. All research activities scheduled in the structures lab will require a ticket
  - b. The crane will be locked out and scheduled by the technicians using the ticket system
  - c. Any research in the undergrad area will need to be specified in the ticket and coordinated with the technicians
5. Autoclave and Water System
- a. The autoclave and water system will not be accessed by students. A ticket can be entered for any requests and the technicians will provide the researchers with water and glassware or run the autoclave.
6. Fumehood booking
- a. Shared fume hoods should be booked using Qreserve.
  - b. Any researcher that would like to book the fume hood in EME 1207 will book the entire classroom. If the classroom needs to be used for research, the fume hood must be booked.
7. Clean Room
- a. Work requests will be managed via the ticket system. User meetings will be booked for public areas whenever possible, private meeting requirements will be managed on a case by case basis while ensuring both the users and technical staff are protected at all times.
  - b. Traffic flow must be one direction at a time since the entry/exit corridor is less than 2m wide. This is the only pinch point of concern to the operation of this lab.
  - c. Hours: 900-330, extra 30min block at the beginning and end of each day to facilitate sanitation/inspection of the facility.
  - d. Salto access to 1215 will be closed to all users except techs in order to manage the room count. Access will be reviewed as the requests for the clean room are responded to.
  - e. Clean room should be limited to 2 people max.
  - f. Only 1 user at a time in the gowning area.
  - g. 1215 general area should be max 1 person.
  - h. All deposition will be performed by technicians only.
  - i. Recurring users will have a set of clean room attire assigned. Any attire used by occasional users should be laundered before going back into circulation (coveralls-launder, hoods-launder, boots-likely don't require laundering)
  - j. Technicians will assign garment pieces and track them.

- k. If clean room is being used, general area should be closed to use. There's no way for clean room users to maintain separation from general users while exiting the facility. Exceptions to this might be possible with proper consultation between techs and users.
- l. Equipment booking will have an increased emphasis to assist with managing user time bookings (spin coater, mask aligner, heat press etc). Booking system **MUST** be used.
- m. We currently have enough gloves and masks to operate the clean room facility for at least a few weeks. Longer or shorter depending on usage. Gloves and surgical masks are the primary consumables that may run out.
- n. If there is a large amount of occasional users, it could result in a large bill for laundry services.
- o. Users will be coached on sanitary equipment use – Always assume it's dirty, wipe it down before start and when you finish.
- p. Risk in the clean room itself is quite low because masks and gloves are already a standard, managing people entering and exiting the area will be the biggest concern.
- q. Custodial staff is prohibited from entering the clean room so techs will have to manage sanitizing the clean room and its vestibule.
- r. Clean room is already video monitored and that can be used to watch room usage.

### **Points of Access to Building and Access Control**

The entry to the EME building will be through main entrance door (Across from ADM building). From this common entry point, students will be directed either to:

- a. Ground level (main stairway down to Hallisey Atrium)
  - a. Access to High Head Area
  - b. Access to Machine shop and technician areas
  - c. Access to Exit on south side
- b. Main Level (Level 1)
  - a. Access to labs EME1205, 1209, 1213, 1215, 1216, 1212
  - b. Access to Exit stairs to south side
- c. Upper Level (Level 2)
  - a. Access to labs EME2211, 2215, 2217, 2219, 2218, 2216, 2212
  - b. Access to Exit stairs to south side

All students will be exiting through the stairs and exit doors to the south side of the building.

Each floor has separate male and female washrooms. These washrooms are located at the end of the hallway, just before the south Exit from the building.

### **Undergraduate / Graduate Learning and Teaching Spaces**

Teaching laboratories are not expected to be utilized during Phase 1 of research uncurtailment. The only exception is EME1207, a chemistry lab, where a common fume hood is installed. This room will be staffed by an SoE technician (in alcove). The technician will be controlling access into the room and managing work in the fume hood.

### **Anticipated Start-up and Building / Facility Maintenance Issues**

There are no major building or maintenance issues expected with start-up operations. Prior to start-up, series of pre-return tasks and initial safety audit will be implemented:

#### **Pre-return Tasks**

- a. The SoE technicians will establish a traffic flow and produce signage that will direct traffic through the lab wing. Old signs that were posted on three floors entering the lab wing will be replaced with new signage. Facilities has already placed signage on the elevators.
- b. Clipboards will be purchased and attached to each research lab. This will indicate the maximum number of research students allowed in the lab and have columns for signing in, signing out and cleaning of any lab equipment when leaving.

#### **Initial Safety Audit and Establishment of New Procedures**

- c. All areas within the lab will have an initial audit. This will include a survey of the research and teaching labs as they were left.
- d. All areas will have new signage put in place. Any research that is authorised to continue will have a clipboard on the door with a checklist and the research plan outlined by the PI.
- e. SoE technicians will carry out job safety analysis with PIs upon receiving a request to resume work during Phase 1.



JOB-SAFETY-ANALYS  
IS-FORM-1.pdf

- f. The PIs and SoE technicians will complete a COVID-19 Exposure Control Plan for each laboratory workspace where research is to resume.



Exposure-Control-Plan-  
COVID-19-Temp

## **Signage and Directional Guides**

Traffic flow in the lab wing will be outlined by signage on all access doors. Generally, traffic will flow into the three main entrances and exit by the zero floor on the south side.

## **Hand Sanitizer Stations**

Facilities to install hand sanitizing stations at the three entrances to the lab wing.

SoE may have access to commercial disinfectant available (aside from UBC vendors, e.g., Fisher Scientific). This disinfectant will be provided to researchers in order to clean common areas / benches / instruments.

## **Training on General Safety**

All SoE faculty, research assistants (Grad and Undergrad), PDFs, technicians, etc, must complete lab safety and orientation pertinent to general lab safety and specific lab safety to each workspace.

The following form will be used and will require PI to sign-off, as well as SoE lab manager and SoE safety technician. All returning students will have to re-take the safety training. At this point, the students, PI and SoE technicians will go over COVID-19 related issues and cleaning procedures. Once training is completed, the PI, student and SoE representative will sign-off on the document and Salto Access will be granted.



Procedures-Lab-access-requests-200121



## 7. Campus Services

UBC VPRI has provided the following two documents outlining janitorial and cleaning protocols. These documents will be reviewed with PIs and research staff prior to starting any work.



COVID-19-PPE-Guidance\_final.pdf



SRS-OHS-SWP-001-General-Surface-Clean

Cleaning supplies and PPE will be procured via UBC common / streamlined system.

During the SoE survey, questions regarding the need for support from UBC Facilities, Security or other core campus services revealed that majority of the Phase 1 research would be self-contained in a given laboratory and there was minimal need for additional support. SoE Technical Staff would facilitate any support needs using the SoE Ticketing System.

## 8. Safety Protocols

### Common Spaces and Wet/Dry Labs

The Centre for Disease Control has developed a comprehensive guidance for cleaning and disinfecting public spaces, workplaces, businesses schools and homes. The following document will be provided to all PIs for guidance on safety and cleaning protocols in order to avoid transmission within the EME building.



Reopening\_America  
\_Guidance.pdf

### Administration and Shared Teaching / Research Spaces

All SoE members will be encouraged to follow CDC recommendation in wearing a face covering (non N95 face mask). The following posters and guidelines will have to reviewed by PIs and adhered to.



prevention-H(1).pdf



sick-with-2019-nCo  
V-fact-sheet.pdf



cloth-face-covering.  
pdf

### Signage for safe use of spaces

The following posters will be printed and posted in each laboratory and in common areas. This poster was developed by CDC specifically for manufacturing sectors, which are similar to SoE research labs.



manufacturing-com  
panies-fs.pdf

## 9. Scheduling and Calendaring

The existing SoE Ticketing System (OS Ticket) will be used for all experimental work and tracking of PIs, students and research activities during Phase 1.

All SoE faculty members, students and staff may register for free in this system. All SoE technicians are already trained and currently use this system.

The OS Ticket portal allows for sharing of technical drawings and documents, which will help reduce the need for personal contact between researchers and technical staff.

<https://osticket.ok.ubc.ca/apsc/>

## 10. Campus Resources / Access Required

To be provided by VPRI.

## 11. Reporting non-compliance

To be provided by VPRI.

