

**CPSRA001a - General Laboratory Risk Assessment COVID-19 Addendum
Cover Sheet**

Date	Amendment	Author	Date approved
01/07/20	RA approved		01/07/20
14/07/20	Updated shared office policy	PDM	15/07/20
24/07/20	Updated language in opening paragraph for clarity	PDM	24/07/20
17/08/20	Updated policy for teaching in LJ, visitors/contractors and PPE requirements	PDM	

CPSRA001a - General Laboratory Risk Assessment COVID-19 Addendum

This form must be reviewed by a competent Assessor for any procedure/system of work carried out by staff, undergraduates, postgraduates, postdoctoral workers or visitor before an attempt is made at the procedure/system of work.

In addition to the general laboratory activities described in CPSRA001, additional precautions must be taken during the period of COVID-19. The risks and mitigation measures for access to research laboratories in the School of Chemical & Physical Sciences are detailed below.

(A) Environment

(1) General

- Moving around the building
- Moving around the laboratory
- Moving equipment
- Use of doors.
- Use of toilets.
- Use of Display Screen Equipment (contamination of keyboards/mouse/peripherals).
- Provision of water after shutdown period.
- Waste management.
- Poor housekeeping.
- First Aid

(2) Hygiene and Welfare

- Poor hygiene – not washing hands or changing gloves can result in a spread of virus particles.
- Touching of face with chemically contaminated gloves if people become accustomed to wearing clean gloves in a non-laboratory environment.

(B) Materials

(1) Chemicals

- Chemical containers potentially contaminated if touched with bare hands/contaminated gloves.
- Requesting support in the event of a chemical spill/runaway reaction.

(2) Solvents

- Solvent containers potentially contaminated if touched with bare hands/contaminated gloves.

(3) Use of cryogenic materials

- Communal PPE used to dispense cryogenic materials.

(4) Consumables/waste through stores

- Chemicals/consumables must be collected from stores.
- Waste must be dropped off at stores/refuse bins.

(C) Equipment

(1) Personal Protective Equipment (PPE)

- Use of non-chemical appropriate PPE in a chemical laboratory (face shields etc.).

- Storage of lab coats could spread virus contamination between users.
- Accessing gloves from communal boxes.

(2) Communal Laboratory Equipment

- Communal laboratory equipment that includes, but is not limited to, rotary evaporators, fridges/freezers, balances, glassware, solvent system and auto-column are fomites.

(3) Glassware, sharps and other communal consumables

- These are in a communal store and are fomites.

(4) X-Ray Diffractometers

- The diffractometers and computer peripherals are fomites.
- See also DSE.

(5) Nuclear Magnetic Resonance Spectrometers and Mass Spectrometry

- The spectrometers and computer peripherals are fomites.
- See also DSE.

(6) Spectrometers and analytical instrumentation

- The spectrometers and computer peripherals are fomites.
- See also DSE.

(7) Compressed gases and cryogenic liquids

- Compressed gases and cryogenic liquids are stored by the loading bay of the CSL, which means they must be transported to the laboratory that requires them.

(D) People

(1) Individual offices

- Might encourage non-essential people to come in.
- See use of doors.

(2) Shared offices

- Small enclosed spaces with communal surfaces which can act as fomites.

(3) Break periods

- Where can researchers go during this period?

(4) Research Laboratories

(5) Access

(6) Possible/Confirmed COVID-19

(7) Visitors/contractors

(E) Teaching

(1) More students/staff in the building

- There will be larger numbers of people moving around the building

(2) Teaching rooms/labs will not have permanent occupants

- In research labs the same occupants use the space/equipment every day. In teaching assigned rooms there will be different people using the spaces on an hourly/daily basis

Risk Mitigation

(A) Environment

(1) General

Moving around the building

- A one-way system will be instituted within the Lennard-Jones building.
- There are two doors into the foyer of the building, one will be designated entrance and the other exit.
- See attached plan ([Appendix 2](#)) for the detail of the transit system.
- Signs will be placed around the walls to remind users to maintain social distancing.
- The lift in the Lennard-Jones building is not to be used for general personnel but for cylinders and trolleys only.
- If any person requires the use of the lift for mobility reasons then a personalised action plan must be agreed with the school safety advisor prior to their entrance in the building.

Moving around the laboratory

- Each laboratory will have an action plan suited to its individual layout.
- The laboratory floors will be marked with tape to indicate passage directions, waiting zones etc. to enable social distancing to be maintained.
- Users should ideally remain at the designated workstation for the majority of their time in the lab, i.e. facing their fume hood bench and not facing others. They should not congregate in one area.

Moving equipment

- Some equipment needs to be moved by more than one person, as a result of being too heavy/bulky for one. In these cases social distancing will not be possible, so additional PPE must be worn.
- Users must wear appropriate face coverings when in close proximity (<2 m). See PPE.

Use of doors

- The Lennard-Jones building has a mixture of doors with and without handles.
- Doors without handles maybe opened by foot if suitable fixings can be fitted.
- Doors with handles will be cleaned regularly by Housekeeping where appropriate.
- Laboratories will remain locked with key fob access to ensure security of chemicals/materials/biological samples.
- Laboratory door handles will be cleaned by researchers on an hourly basis on a rota system to be enforced by the duty academic.
- The duty academic for each area will ensure that any fire doors that have been propped open to minimise touching will be closed in the event of a fire alarm.

Use of toilets.

- Toilet access will be limited to ensure social distancing can be maintained.
- Toilets that are open for use will be clearly indicated on the floor plan ([Appendix 2](#)).

Use of Display Screen Equipment (contamination of keyboards/mouse/peripherals).

- Cleaning supplies will be provided for each computer.
- Users will wipe down the peripherals before and after every use or use the clean gloves supplied.

Provision of water after shutdown period.

- The water taps in the building have not been touched since the start of lockdown so there is a danger of Legionella bacteria.
- The technical staff will ensure that all taps have been run.

- In the event of the water testing contract not taking place, each laboratory will ensure that the taps within are run for 2 mins at the start of every week. This will be overseen by the duty academic.
- The technical staff will ensure that all non-laboratory taps (e.g. toilets) will be run for 2 mins every week.

Waste management

- Communal bins, particularly those with swing lids represent a fomite.
- Cleaning staff will remove all swing lids to ensure easy placement of material into bins.

Poor housekeeping

- Cluttered laboratory benches make it challenging to clean down surfaces, so benches must be kept as clean as possible.
- Surfaces will be cleaned down twice a day, to be ensured by the duty academic.

First Aid

- Provision of first aid will be in line with the university's policy toward first aiders.
- The Faculty of Natural Sciences will ensure that there is always one first aider on campus who is familiar with a laboratory environment. A duty rota for these first aiders will be made available to the duty academics, so that they know who to call.
- In the event of an emergency it is acceptable for first aiders to be within 2 m, in line with UK government advice.

(2) Hygiene and Welfare

- Researchers will wash their hands regularly throughout the day for >20 s.
- The school policy is for laboratory gloves to be worn in line with the main general laboratory risk assessment (CPSRA001), i.e. in laboratories. This is to limit the risk of accidental chemical contamination by encouraging the wearing of gloves throughout the building.
- Hand sanitiser points have been distributed throughout the Lennard-Jones building.
- If someone identifies a need to wear protective gloves outside the laboratory through their personal self-assessment then they must be of a different style and colour to those worn in laboratories (i.e. clear/transparent is ok, they should not be green/blue).

(B) Materials

(1) Chemicals

- Gloves are to be worn when handling chemical/reagent containers. These will then be treated as chemically contaminated and must not be used to touch faces, phones etc.
- In the event of an emergency (spillage, runaway reaction etc.) the duty academic will be summoned. Ideally one person will deal with the situation whilst maintaining social distancing. Where this is not possible, in line with government advice on accidents they may be <2 m apart, but must pay attention to sanitation measures immediately after this.

(2) Solvents

- Gloves are to be worn when handling chemical/reagent containers. These will then be treated as chemically contaminated and must not be used to touch faces, phones etc.

(3) Use of cryogenic materials

- A dedicated person will be nominated to fill liquid nitrogen from the main tank outside stores. This person will be issued with their own PPE that is not to be used by anyone else.
- For local dispensing, cleaning supplies will be provided to wipe down the handles before and after dispensing.

(4) Consumables/waste through stores

- Stores will operate a pre-ordering system where consumables must be pre-ordered.
- Pre-arranged materials will be left in a location unique to each laboratory.
- Waste will be arranged to be dropped-off/collected in a similar contactless manner.
- Any deliveries will be taken from Stores by whichever technician is in the building on the day and left in an agreed area within the Lennard-Jones building for collection by the end user. At no point are staff to access any area of Stores in person.
- If any bottled gasses or liquid nitrogen is required, this is to be communicated to the appropriate technician, ideally the day before but otherwise by email or radio on the day.
- Other consumables such as solvents and other chemicals should be requested by email the day before and will be put on a trolley just inside the required lab. It is expected that all waste will be put on a different trolley and this will be taken away.

(C) Equipment

(1) Personal Protective Equipment (PPE)

- Only chemically appropriate equipment will be allowed in chemical laboratories to ensure that users do not feel a false sense of security, i.e. face shields must be of a chemical resistant standard.
- Each user will be issued with two laboratory coats – one to be worn, one in reserve
- Lab coats will be rotated on a weekly basis.
- Users will be issued with two lockers for lab coats – one for “clean”, one for in use.
- There will be no sharing of lab coats or storage to ensure that lab coats are kept separate.
- Disinfectant will be made available to users to clean their lab spectacles on a daily basis.
- It is expected that users will wear gloves for the majority of activities in the laboratory, including but not limited to, handling containers, communal equipment etc. They will treat gloves as being chemically contaminated and not touch their skin, face or mobile phones etc. when wearing gloves.
- In line with general practice, researchers will change their gloves regularly.
- Each user will be given their own box of gloves, so that they can access them without touching a communal box.
- Any facial PPE (i.e. face shields) shall be distributed on an individual basis, named and not used by anyone other than that individual. These must be clearly marked and stored separately.

(2) Communal Laboratory Equipment

- Communal laboratory equipment will only be touched whilst wearing gloves.
- Fridges/freezers must be opened using fresh, clean gloves. Items stored in fridges/freezers should be wiped clean before being stored, where appropriate to the nature of the item's contents.

- For items such as rotavaps, the handles and dials etc will be cleaned pre- and post-use, in addition to the cleaning outlined in the standard procedures.

(3) Glassware, sharps and other communal consumables

- Glassware will be cleaned thoroughly before being put away. Users must wear clean gloves to return glassware to their storage location.
- At all other times, glassware will be treated as being chemically contaminated, so appropriate gloves must be worn.
- Communal consumables will be treated as chemically contaminated. Gloves must be worn and treated as chemically contaminated – no touching of skin, phones etc.

(4) X-Ray Diffractometers

- The diffractometers will operate on a ½ day booking system.
- Users will clean before and after their booking.
- Computer peripherals that can be disinfected will be supplied and used.
- Local rules must be followed.
- See also DSE.

(5) Nuclear Magnetic Resonance Spectrometers

- The laboratories containing this equipment will be operate on a “one-in, one-out” policy, with a maximum of two-occupants
- Undergraduates (with the exception of research project students working in the Lennard-Jones – e.g. MChem students) will not have access to LJ1.53. Staff/demonstrators will load samples instead.
- Cleaning products will be provided for the height adjustment tube. Users will clean this pre- and post-use.
- Spinners must not be touched with bare hands (this is a standard requirement anyway). Samples should be held by the tube, placed in the spinner in the rack, placed in the height adjustment tube and then placed in the auto-sampler, all whilst holding the tube only.
- One person will empty the auto-sampler each day. They will wear clean PPE to do so.
- See also DSE.

(6) Spectrometers and analytical instrumentation

- Minimal contact is to be made with instruments.
- Users will clean instruments before and after use.
- Local rules must be followed.
- See also DSE.
- LJ1.52 will be open to undergraduate students and research students alike. A clear room booking system should be implemented to ensure that there is clear separation between the two user groups. Undergraduates should not use this room to access the Lennard-Jones building.

(7) Compressed gases and cryogenic liquids

- Compressed gases will be transported by appropriate trolley in line with school guidelines.
- Trolleys will be cleaned before and after use.
- It is generally appropriate for two people to move a cylinder – one to move the cylinder, one to open doors.

- Where possible, door wedges should be used to temporarily open doors whilst cylinders are in transit. These should not be left in doors to avoid compromising fire safety.
- Where door wedges are not possible, both people involved in transporting cylinders should wear a face shield and follow guidance related to moving equipment.

(D) People

(1) Individual offices

- The risk to individual office users is low, but to prevent unnecessary people in the building access to individual offices will be limited to those who have been deemed essential to be on campus by their line manager. Examples of this include the duty academic for each laboratory.
- No meetings are to be held in offices.
- The only person allowed in the office is the office user.

(2) Shared offices/communal spaces

- Shared offices will be considered on a case-by-case basis. Where it is possible for social distancing to be maintained then they may be approved for opening by the safety committee or its Covid-19 working group.
- Shared offices that are too small for social distancing will operate under reduced occupancy or will remain closed.
- Staff who occupy a shared office that is deemed too small for social distancing to occur will be assigned to a new office. These will be in LJ0.24, LJ1.01, LJ1.20, and LJ1.27.
- PhD students/PDRAs will be provided with lockers for their belongings.
- Communal spaces, such as the foyer seating will remain closed to use.
- LJ1.25 has been set up for social distant meetings/breaks with cleaning product provided to wipe down surfaces before and after use.
- The kitchen will be open to use the instant boil tap, but fridges are not to be used. These will be marked off with tape. Cleaning products will be provided to wipe down the instant boil/water taps.
- The kitchen will be a one-person entry system – entry will be via the corridor and exit via the meeting room.
- The microwaves will be available for use.
- Users must provide a personal mug/glass. There will be no use of shared tea/coffee/mugs/spoons etc.

(3) Break periods

- Researchers will spend break periods either outside on campus or in their own vehicles. They may use LJ1.25.

(4) Research Laboratories

- Research laboratories will have an action plan that has been approved by the Head of School.
- All researchers must attend a virtual briefing before returning to campus.
- All researchers must read and sign their laboratory action plan, a self-assessment indicating fitness to work and this risk assessment before returning to campus.
- Laboratory personnel density will be kept to a minimum through shift patterns as detailed in the laboratory action plan. Researchers will only be present in the Lennard-Jones building during their shift.

- Weekly shifts for each laboratory must be made available to the school safety advisor. In the event of someone developing COVID-19 symptoms, the school safety advisor will be able to inform those on the same shift to self-isolate.
- Each laboratory will have a duty academic responsible for the safety of the laboratory. This academic must be present either in their laboratory or personal office during their shift.
- The laboratory action plan must detail how equipment that has been turned off for an extended period of time will be brought back online.
- Staff and students will only have access to a laboratory if they have read and signed the agreed action plan for that laboratory
- Action plans must be updated in Sep 2020 to take into account changes of occupancy with regards to project students.

(5) Access

- Staff and students will only work hours that have been agreed with the supervisor/Head of School
- Staff and students will only enter rooms which have been agreed with the Head of School, if they wish to work in other areas, further permission must be sort.
- Any deliveries will be taken from Stores by whichever technician is in the building on the day and left in an agreed area within the Lennard-Jones building for collection by the end user. At no point are staff to access any area of Stores in person.
- Anyone who is not from CPS whether working for the university or otherwise must contact a technician using the radio by the main entrance before entering further into the building it will then be decided if it is safe for them to carry out their proposed work safely.

(6) Possible/Confirmed COVID-19

- For the purposes of contact tracing research laboratories will inform the school safety advisor of who is on the work shift for each week in advance of the week.
- If someone demonstrates symptoms, they will inform the school safety advisor, who will then anonymously inform those on the shift so that they should all self-isolate in line with government advice.
- The individual who demonstrates symptoms will inform the school safety advisor of the outcome of a COVID-19 test (if any) that they have, so that their contacts may be informed of a confirmed (or not) case.

(7) Visitors/contractors

- Visitors/contractors must obey the social distancing/PPE requirements of the location where they are working.
- They must leave contact details and the date/time they are present in the school with the school safety advisor for the purposes of contact tracing.

(E) Teaching

(1) More students/staff in the building

- From September there will be an increased number of staff and student in the Lennard-Jones building than during the “research” period of the summer 2020. In line with the university policy on public spaces it will become recommended that face coverings are worn in the “public spaces” of Lennard Jones (eg corridors/kitchenette/meeting spaces

etc) from Monday 14th September. These face coverings may take the form of masks or visors at the wearer's discretion.

- Staff and students should still not hold meetings in staff offices. Meetings should ideally take place electronically (eg telephone/MS Teams).
- LJ1.25 will be set aside for socially distanced meetings that can be held "in public". Cleaning supplies will be provided to sanitise the tables.
- LJ0.09 will be set aside for pastoral meetings that must be held in private. Cleaning supplies will be provided to sanitise the tables.

(2) Teaching rooms/labs will not have permanent occupants

- In the Lennard-Jones the only rooms that are available for teaching are the physics project labs (LJ0.35, LJ1.17, LJ1.73), forensics science lab LJ1.70, analytical lab (LJ1.52) and the lecture theatre LJ1.75. The PC lab LJ0.26 is considered to be part of the CSL (it will have its own one-way system).
- Chemistry and forensic science project students who would usually be based in research laboratories will still be based in research laboratories.
- LJ1.75 will have an isolated one-way system where students enter through the lecture theatre fire escape and exit through the fire escape next to the toilets by LJ1.80. Students should not enter the wider Lennard-Jones building.
- As there are no pool rooms in the Lennard-Jones building available for teaching other than LJ1.75, the only students needing access to Lennard-Jones should be those in the research/project labs. Therefore, the front doors can remain card access (with access granted to project students), this will allow for a contact log to be maintained and minimise the amount of people in the building.

Signature of Assessor:

Dr P D Matthews 28/05/20

Signature of Staff/Student:

Name of Staff/Student (print):

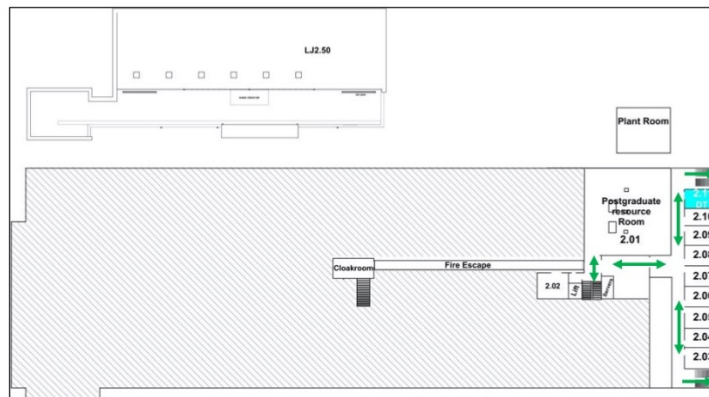
Appendix 1: Glossary of Terms

Term	Meaning
Carcinogen, carcinogenic	May, if inhaled or penetrates the skin, induce uncontrolled cell division forming a tumour which is malignant (cancerous).
Corrosive	May destroy living tissues on contact and leaves burns.
Explosive	Reacts suddenly, unpredictably and very violently releasing a lot of energy in a short period of time.
Flammable (also Extremely Flammable, Highly Flammable)	Burns easily – see PM005 - Solvents for further detail.
Harmful	If inhaled, ingested or penetrates the skin will have an adverse effect on health.
Irritant	A non-corrosive substance which through immediate, prolonged or repeated contact with the skin or mucous membranes can cause inflammation.
Lachrymator, lachrymatory	A substance which promotes tear formation.
Mutagen, mutagenic	May cause inheritable genetic defects.
Narcotic	May induce drowsiness, sleep or stupor or altered mental state through its chemical properties.
Oxidizing	Chemical that reacts, or facilitates reaction, with oxygen by losing electrons or facilitating loss of electrons.
Peroxidisable	Forms explosive peroxides.
Pyrophoric	Substance that spontaneously bursts into flames when exposed to air.
Sensitizer	May cause an allergic reaction if inhaled or in contact with the skin which will progressively worsen on further exposures.
Teratogen, teratogenic	Substance that interrupts or alters the normal development of an unborn child.
Toxic (also Extremely toxic, Highly Toxic)	If inhaled, ingested or penetrates the skin may involve extremely serious acute or chronic health risks and even death.

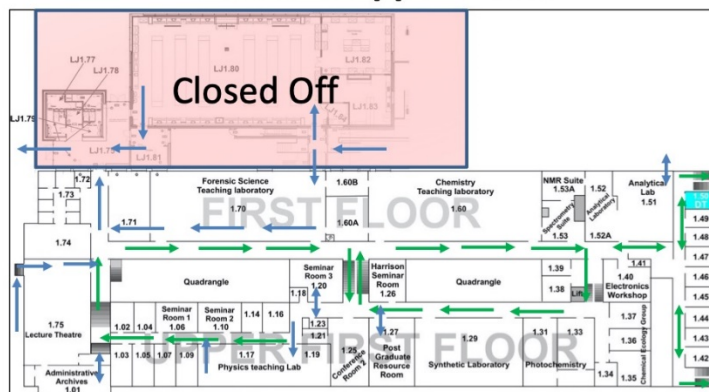
Appendix 2: Transit system for Lennard-Jones building during COVID-19 period

Lennard-Jones Laboratories

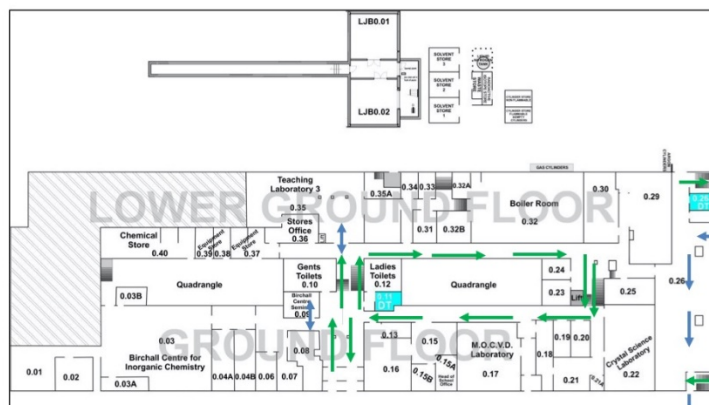
Second Floor



First and Upper Floors



Ground and Lower Ground Floors



Main Entrance