



**Concrete Lab
Level 2, Rankine Building**

CODE OF PRACTICE

The adoption and practice of good safety procedures is of paramount importance for both the health and safety of fellow workers, and for the integrity of the fabric of the Concrete Lab.

1. Lab Safety Management Responsibilities

- 1) **Everyone** has a role in protecting the health and safety of both other lab users and themselves, and thus should be familiar with the **School's Safety Manual**.
- 2) **Academic Supervisors** take full responsibility for the health and safety of their own group's research activities, and consequently must ensure their staff and students are familiar with both the content of this **Code of Practice** and the **School's Safety Manual** and apply its requirements.
- 3) No research activities shall be carried out in the Concrete Lab, Level 2 Rankine Building, without the prior permission of the **Lab Responsible Person**. The role of the Lab Responsible Person for the Concrete Lab is specified in **Appendix A**, in accordance with the **School's Safety Manual**.
- 4) No work shall be carried out until a **Risk Assessment** has been conducted by the research staff/students, **approved by their Supervisor** and the **Director of Safety**, and acknowledged by the **Lab Responsible Person**.
- 5) An **electronic copy** of the approved Risk Assessment shall be sent to the Lab Responsible Person to be kept as record (note that this can be done using the online risk assessment system). A hard copy of the approved risk assessment shall be displayed next to the relevant research rig and equipment for inspection. The procedures of the preparation of Risk Assessment are summarised in **Appendix B**.
- 6) **All lab users** should make themselves aware of the **general safety procedures** highlighted in the School's Safety Manual and of the location of safety equipment in the lab.

These are:

In case of emergency, dial telephone number: **4444 (internal), 0141 330 4444 (external)**

Emergency exits are located in the lab or via the main building

The **fire extinguisher** is located at the entrance of the Structures Lab on level 2 of the Rankine Building.

First Aid kits are at the entrance of the Structures Lab on Level 2 of the Rankine Building.

- 7) Work outside normal office hours (including weekend working) requires the permission of your supervisor. This can be given by an e-mail trail for audit purposes in the event of an accident and can be for multiple or extended periods of time. If permitted, the out-of-hours working book located in the foyer of the Rankine building must be signed and

the time recorded on arrival and the time of departure. Potentially dangerous operations **must never** be undertaken out-with normal hours **unless a second responsible person is present**. (Please read the safety regulations in the School's Safety Manual for more details.)

2. Practice of General Activities

- 1) The experimental area must be **kept tidy and clean**. This is **NOT** the responsibility of the cleaners. Good housekeeping must be maintained by the lab users and be monitored by the responsible person of each area (see Appendix C).
- 2) **Food and drink are not permitted in the lab.**
- 3) The **walkways** and **marked out** sections of the floor leading to the fire exit must remain clear. Under no circumstances should lab equipment be stored in the route from your place of work to the fire exit route. If things are possibly impeding your exit then you should either move them, contact the person who placed them there, or inform both the Lab Responsible person and your supervisor.
- 4) Access to switch boxes and valves must remain clear and must not be blocked by equipment.
- 5) Dedicated storage cupboards and areas must be used. Windowsills should not be used as storage areas.
- 6) Equipment must be placed in appropriate locations to safe-guard its integrity, minimise potential damage and to allow other researchers access to it.
- 7) Once experimental work has been completed and the experimental setup is no longer required, the **experimental area must be cleared** in preparation for other experiments and researchers.
- 8) If it is necessary to remove equipment from the lab, permission must be given by your supervisor and the Lab Responsible person. If necessary, seek assistance with moving heavy items.
- 9) If equipment breaks down or is not working, report the fault to your supervisor and the lab guardian immediately.
- 10) A fault with the fabric of the room, such as a lighting failure, should be reported through the Maintenance Request portal found on the Estates and Commercial Services webpage, <http://www.gla.ac.uk/services/estates/>.

3. Covid-19 measures

Guidance from the HSE, UK Government and Scottish Government to manage the risk related to Covid-19 pandemic must be applied to the Concrete Lab. These include physical distancing, frequent hand washing and hygiene measures, cough etiquettes and face covering in enclosed public space. Considerations for codes of practice and risk assessment for the James Watt School of Engineering can be found here (<https://www.gla.ac.uk/schools/engineering/informationforstaff/safety/>)

- 1) Physical distancing within the Concrete Lab means a maximum capacity of 2 people.
- 2) Demand to use the lab will be managed by the Lab Guardian in collaboration with the Safety Coordinator. Collaboration will be required between lab users, supervisors, PIs and the lab guardian to establish a rota where necessary. Impact on the overall capacity of Rankine building will be reviewed by the Technical Services Manager.



- 3) Lab users must wash their hands regularly and wipe workstation surfaces, materials, and equipment at the start of their work and before leaving.
- 4) Emergency support (First Aiders and Fire Area Officer) might be constrained due to Covid-19 restriction on building capacity. Task risk assessments need to be reviewed to include the above measures and to review with personnel through the risk assessment, which work can be safely undertaken with reduced access to emergency support. A Covid-19 risk assessment template can be found here (https://www.gla.ac.uk/media/Media_723618_smx.docx).

4. Practice of Hazardous Activities

- 1) **Electrical connections** between different devices or equipment should be safe. If in doubt, speak with technicians in the Electronics Workshop (Rankine Room 712A).
- 2) To minimise **trip hazards**, extension cables should be plugged into the closest socket and avoid crossing pathways. If crossing a pathway is totally unavoidable then, only as a temporary measure, the cable must be secured to the floor and covered with a suitable (commercially supplied) floor cable cover, cable protector, floor cable tidy to prevent tripping hazards.
 - i. Once equipment is not in use, it must be turned off and any extension cables used should be tidied to a suitable location.
 - ii. Leads and plugs should ONLY be used on the allocated item of equipment and should NOT be switched between equipment
 - iii. All equipment plugged into university outlets must be PAT tested (contact the electrical workshop for testing).
- 3) To minimise the risk of **falling objects**, no equipment or lab materials should be kept on top of cupboards and file cabinets.
- 4) Ear protection should be used when appropriate.
- 5) If you are unsure how to correctly use an item of equipment, seek assistance from an appropriate responsible person(s) (see Appendix D).

Appendix A duties of the Lab Responsible of Concrete Lab (Rankine Building Level 2)

According to the School's Safety Manual, the **Lab Responsible is responsible for implementing safety policies in Concrete Lab on a day-day basis.**

1. Considering the particularity of Concrete Lab, the specific duties of its Lab Responsible is listed as below:
 - 1) to maintain the Code of Practice (CoP);
 - 2) to ensure the lab users keep their area in tidy and clean condition;
 - 3) to ensure each activity (experimental rig/equipment) has a Risk Assessment before work commences;
 - 4) to coordinate actions according to the School's Director of Safety's report / instructions following inspections;
2. **The appointment of the Lab Responsible**
 - 1) The Head of I&E Research Division, in consultation with the academics of the lab, appoints the Lab Responsible of Concrete Lab.
 - 2) The Lab Responsible of Concrete Lab reports to the Head of I&E Research Division.

Appendix B: Procedures of the preparation of the Risk Assessment

1. PDRAs and PG/UG students are responsible for formulating Risk Assessments on a day-day basis. For potentially hazardous activities, in addition to assessing the risks, the risk assessment form should include a standard operating procedure/method statement (and/or instrument manual) as an appended document.
2. Whilst the preference is for the persons undertaking the practical work to make their own risk assessments, it is permissible to use the on-line multi-user risk assessment forms for activities that will be undertaken by groups of people. However, in this case, each person involved in the practical work must sign the multi-user form online and a strict regime of user training should be in place that encompasses both the risks associated with the work as well as the practicalities of undertaking it.
3. Academic supervisors should assist the PDRAs and PG/UG students in preparing the risk assessment (this would typically be the case for less experienced PDRAs and PG/UG students). They should **ensure** foreseeable risks have been identified and adequate mitigation measures have been provided to reduce them as far as possible.
4. The academic supervisors should then approve the risk assessment form online (or ask for further information to be added); the Lab Responsible should also acknowledge (on-line) that the risk assessment has been completed, to indicate that as far as they can see, this activity does not conflict (in safety terms) with other activities in the lab. The Lab Responsible can also ask for further clarifications/additions concerning the procedures involved to be made, if necessary.
5. After the risk assessment has been approved/acknowledged by the supervisor and Lab Responsible/Lab Guardian, the School's Director of Safety approves, seeks further clarifications, or (exceptionally) rejects the risk assessment if there are clearly hazards that cannot be sufficiently mitigated.
6. An e-copy of the **approved** Risk Assessment should be sent to the Lab Responsible by the PDRA or PG/UG student that originated the assessment (n.b. pdf's of the online form can be made by using the Print to PDF option available in most browsers)
7. A hard copy of the approved Risk Assessment and standard operating procedure should be kept or displayed next to the relevant experimental rig or equipment.
8. The Lab Responsible approves the start of activity after receiving the **approved** Risk Assessment.
9. If there is any substantial change to the people or research activity as stated in the Risk Assessment, it **MUST** be revised accordingly, and pass procedures 1-7 as above.

Appendix C: Responsible Person of Areas in the Concrete Lab

It is acknowledged that the allocation of space in the Concrete Lab evolves due to staff changes, the start of new projects, and the closure of old projects. Therefore, this document needs to be updated regularly to capture such changes.

The current responsible person for the concrete lab is Peter Grassl.

Appendix D: Information concerning equipment and rigs

This part of the document provides information about the main equipment in the concrete lab. Before any of the equipment in the concrete lab is used, training has to be completed. Safety shoes with steel cap and lab coat must be worn for all activities in the concrete lab.

D.1 Concrete Mixer

Will only be operated by approved and suitably trained users. Safety goggles and gloves have to be worn to avoid skin and eye contact with cement dust and fresh concrete. The dust extraction pipe has to be attached to the mixer during operation. Ear protection has to be worn. Loose hair or loose clothing should be avoided so that it does not get trapped in the mixer.

D.2 Vibration Table

Safety goggles, gloves and ear protection must be worn to avoid skin and eye contact with fresh concrete. Cylinder, cubes and other formwork filled with fresh concrete can be very heavy. Two people should be used to lift larger filled formwork from the vibration table. Attention should be paid that formworks do not fall of the table during vibration.

D.3 Concrete and Mortar Saw

Will only be operated by approved and suitably trained users. Safety goggles, gloves and ear protection must be worn. Loose hair or loose clothing should be avoided so that it does not get trapped in the mixer.

D.4 Bending test machine and compression test machine

Will only be operated by approved and suitably trained users. Safety goggles, gloves must be worn.

D.3 Curing tank

Gloves must be worn when concrete specimens are placed in the curing tank to avoid skin contact with curing water.