

This guide (available in English only) is a help sheet for all safety officers/assistants in the HCI building for the proper way to conduct personal safety instruction for new employees and students. All of the following information is to be conveyed personally to all new staff & students before they start work in their laboratories. New staff and guests who do not work in the laboratories need only to be informed about points 1,2, 4 and 6 (concerning the offices).

Specific dangers and risks in certain working groups that require special appropriate behaviour and safety measures must be added to this general safety introduction.

More information is available at



www.su-management.ethz.ch

www.toxlab.ethz.ch

www.c174.ethz.ch

www.safetyparcours.ethz.ch

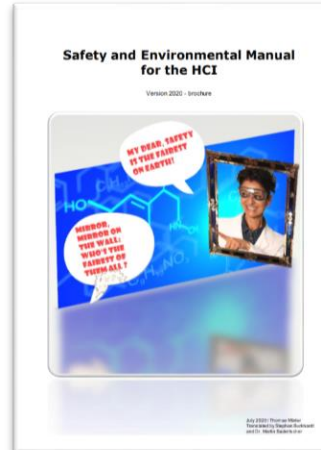
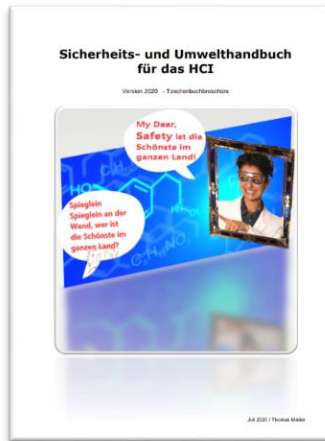
E-Mail: chab-safety@chem.ethz.ch

Content:

1. **Safety- and Environment Manual for the HCI**
2. **Alarm**
3. **Goggles – Eyewash**
4. **Emergency and Evacuation**
5. **Emergency Cabinets**
6. **Rooms and building ventilation**
7. **Operating instructions**
8. **Waste Management**
9. **Tox-Lab D312**
10. **Central distillation room D310**
11. **Tox-Lab C174**
12. **Information for students**
13. **Recreation areas**
14. **Location of the defibrillators**
15. **Confirmation for the receipt of the safety introduction**

1. Safety- and Environment Manual for the HCI

All employees and students will receive the following paperback brochure (available at the HCI-Shop in German and English), a brief description of the Safety and Environmental Handbook for the HCI Version 2020. In this brochure, the QR code or link is provided that leads to the complete edition of the Safety and Environmental Handbook version 2020.



The Safety- and Environment Manual for the HCI should be read attentively and staff must be capable of implementing the most important work and emergency organisation rules. The manual does not only include the emergency and safety organisation but also the maintenance management. The maintenance management explains who is responsible for which technical problems and whom to report them to. Be aware that pregnant women must contact cabs@ethz.ch before starting work in the laboratories.

Contact addresses:

- Contact address for questions concerning the occupational safety in the laboratories: cabs@ethz.ch
- For accident/incident reports contact cabs@ethz.ch and chab-safety@chem.ethz.ch
- Accident form for the insurance (in case of medical treatment/hospital); Link: <https://ethz.ch/services/en/service/safety-security-health-environment/accidents-damage/incidents-causing-damage.html>
- For technical defects and all other concerns contact the e-mail hotline available for all staff members from HCI chab-safety@chem.ethz.ch. Please report them briefly in a clear and comprehensible way.

Old versions of SHE-manuals, laboratory rules, etc. must always be disposed.

2. Alarm (note the separate emergency leaflet)

- **Emergency alarm tel. 888.** In case of an acute emergency (meaning not only fire or severe injuries but also theft, assault or serious threats) you must immediately contact the emergency number/alarm centre **888** (which is accessible from all telephones in the building). In case of minor injuries, if the first aid kit with the bandage from the emergency niche is not sufficient, the alarm centre **888** should be contacted. They, in turn, will call the HCI first aid staff. Please take into consideration that communication in English could be limited with the alarm central staff. Alarm centre number via mobile or external phone lines (24 h): **044 342 11 88**
- **If the communication via 888 fails**, call the Swiss emergency numbers directly: **144** (ambulance) in case of serious injuries and health threats, **117** (police) in case of offence or assault, **118** (fire brigade) in case of fire and explosion, **145** (toxicology-centre) in case of poisoning. **112** is the international emergency telephone number that can be dialled free of charge to reach emergency services (ambulance, fire and rescue, police).



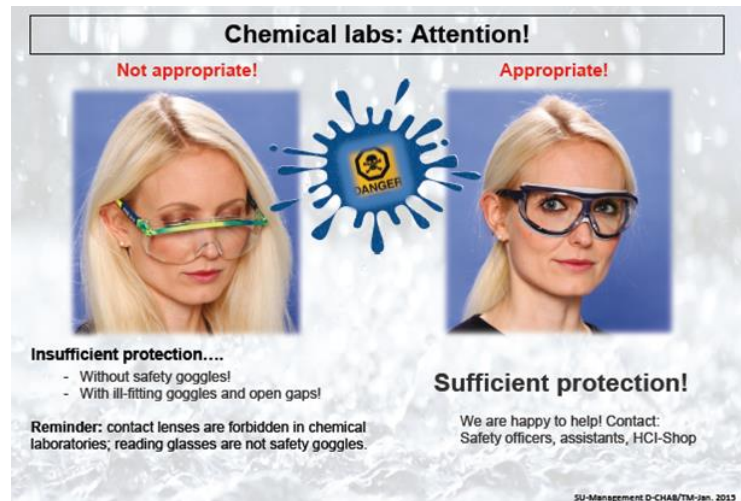
- **Hospitalisation:** As soon as the alarm centre receives information about a **severe injury/poisoning**, the ambulance 144 will be called immediately and automatically as well as the HCI first aid staff. The person who raised the alarm must meet the ambulance staff at the bus stop or delegate someone to do so while the others take care of the patient. In case of non-acute cases in which you need to see a doctor or go to the hospital, a taxi can be arranged. The taxi fare (requiring a receipt) will be reimbursed afterwards by the SU-Management D-CHAB (via chab-safety@chem.ethz.ch).
- On the last page, **the locations** of the **defibrillators** are listed.

3. Goggles and Eyewash

- Goggles

The wearing of safety glasses is mandatory. Contact lenses are not permitted even while wearing safety glasses. ETH employees can apply for optically adapted safety glasses via the SSHE department.

There is evidence that standard protective goggles are not suitable for some people, especially those with narrow faces, as there are open gaps in the goggles that leave the face vulnerable to chemical sprays and spills. For employees/students who work with particularly hazardous liquids, the so-called "diving goggles" are available in the HCI shop. The "diving goggles" should be worn if there is a risk of splashing during work.



Fit and quality check of safety goggles: Before new employees and students can work in the laboratories, the safety officer or assistant must check the fit and quality of their safety goggles. The safety officers and assistants should specifically check whether there are any open gaps when wearing the safety glasses where liquid could splash in the face. In case of poor fit of the goggles, a better version must be purchased in the HCI shop.

- Eyewash

Note (Prevor Eyewash not present): **A contaminated eye** must always be rinsed with water for at least 10-15 minutes! Two-helper method: One person holds the contaminated eye open while the other flushes the eye with water.

Note: Even if the victim is no longer complaining after sufficient eyewash, a medical follow-up in the eye clinic is obligatory.

Prevor Eyewash if present (Diphotérine solution):

This kind of eyewash only works when used immediately after an incident. The small (50ml) bottle must be used in the first 10 seconds after an incident. Hence, it is advisable to carry this bottle with oneself at all times, especially when performing dangerous experiments. After application of the Diphotérine solution the eye should be rinsed with water as described above (in order to ensure that the eye is washed sufficiently). The attendance of instruction courses, announced by the SU-Management, is recommended.

In our emergency cabinets, you will find large eyewash bottles (see picture below). These must be used within 1 minute following an incident.

Note: If the Prevor eyewash bottle is not available, never wait to rinse the contaminated eye with water until someone has found it.

The description for this product can be found on the internet; Link: www.prevor.com



4. Emergency and Evacuation

- Emergency niches

In the corridors of the HCI-building emergency niches are located at regular intervals. In the finger buildings the emergency niches are located in the south and north parts of the corridors on every floor. Additional but smaller emergency niches are positioned in the middle of the corridors, in the stairwell.



Content of emergency niches:

- 2 x 5 kg fire extinguishers CO₂ (tip: 1x 2 kg fire extinguisher CO₂ is placed in each laboratory unit)
- 1 fire blanket
- 1 box with sand (for example against alkali metal fire)
- small first aid kit (if this should be empty or incomplete, please report this via the “Meldeportal” of Immobilien Services)
- full body shower
- eye shower
- telephone (only in the emergency help points in the north and south parts of the corridor)
- hose-on-reel extinguisher (water)
- fire brigade alarm button (if activated, the fire fighters will come irrevocably)

- Smoke alarm

There are smoke/fire detectors located in all rooms of the HCI building. They detect smoke or fire, for example extinguished candle smoke (Christmas, birthday celebrations) or food that has been

forgotten in the oven (in the recreational rooms). In cases of grossly negligent behaviour causing a false alarm, the costs for the fire brigade (CHF 2000) have to be paid by the person/s responsible. It is possible that the detectors react to the outbreak of liquid gases and steams (e.g. autoclave). The use of tightly installed units that regularly emit steams should be cleared up with the house service.

- Evacuation

Important notice: The use of headphones or sound systems that block all external sounds can increase the risk of accidents. Therefore listening to music with such devices is not permitted, e.g. when driving in traffic, and should also be avoided in the laboratory and in the workshop. With the safety and environmental manual for the HCI version 2020 as well as the personal safety introduction instructions, all persons must be informed with immediate effect that in such cases they themselves are responsible if they cannot perceive an alarm as a result.

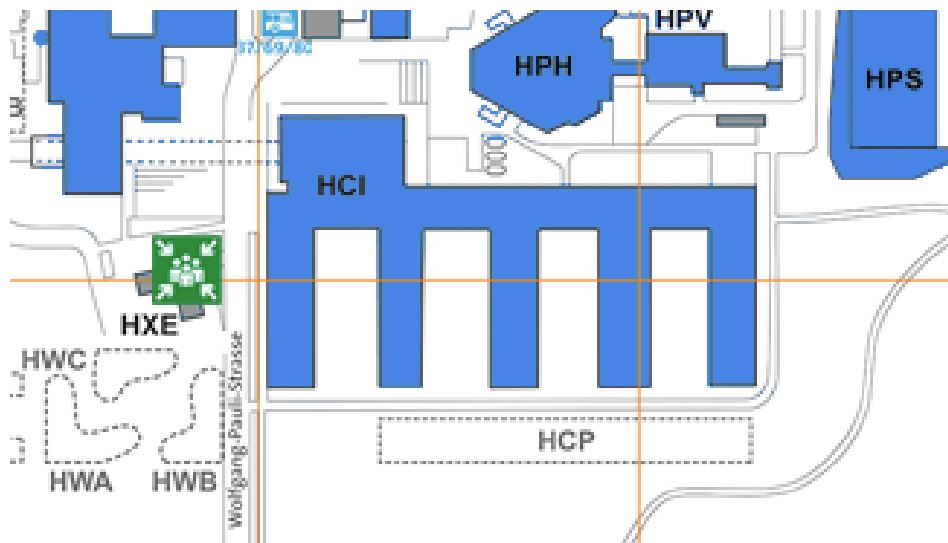
- In case of a **serious incident**, anyone can set off an evacuation of a part of the building (if needed) via the telephone number **888** (e.g. in case of an outbreak of toxic gas).
- In case of an evacuation you will hear announcements broadcast from the loudspeakers. As there are no loudspeakers in the laboratories, the **evacuation helpers** must demand all people to leave the building.
- **Evacuation bags:** evacuation bags are located in the southern parts of the corridors on every floor of the finger buildings. You will find the evacuation plan and the evacuation set in the EVAK-bags.



- **In case of an evacuation**, follow the escape route signs. The use of elevators is not allowed. Everybody is obliged to assist disabled or injured people who cannot use the stairs as long as you don't endanger yourself. Rooms locked with a key are considered to be empty and will be not checked by the evacuation staff. Please also note that in case of an evacuation the fire doors are retracted in the corridors. This changes the perspective in the corridor and people can get puzzled.



- The assembly point for the HCI in case of evacuations:



5. Emergency Cabinets

- Stationed Emergency Cabinets

In the event of an incident, each person has to decide for him or herself whether or not he/she want to help. Those who decide to stay and help must first protect themselves by wearing the proper gear. In each building, there is an emergency cabinet stationed in the corridor with various emergency materials for helpers. The key to the emergency cabinet is in the red box next to it. Simply break the glass and take the key. It is everyone's duty to inform the Alarm Central (888) in case of an emergency. Helpers must secure the event scene with caution tape to control unauthorized entry until the medical/rescue staff has arrived. It must be ensured that spectators do not hinder the rescue work.

Location of Emergency Cabinets:

HC1: In the middle side corridor of the big laboratory D118

HC2: In the side corridor, next to D212

HC3: In the side corridor, next to D312

HC4: In the side corridor, next to E412

HC4: In the side corridor, next to H412

HC5: In the side corridor, next to F512

Inventory of Emergency Cabinet:

- Orange box containing Diphotérine eye shower, Afterwash and Diphotérine spray
- Protection of respiratory tracts: Military gas mask (may only be used by people who have been instructed to wear gas masks) and particle filter mask
- For injuries: First aid kit
- For HF contamination: HF-Emergency kit and Hexafluorine eye shower
- Protection against heat/fire: Fire-resistant gloves
- Protection against contamination: Disposable protective jumpsuits and various protective gloves
- Combating of chemical spillage: High efficient absorption material for chemicals, absorption mat/barrier tape, special absorption powder for HF, quicksilver spillage-kit, plastic bags/empty boxes for contaminated elements
- Patient care: civil-protection blankets, rescue blankets
- Optional: work-specific protective material

Note: After every incident, you MUST contact both of the following email addresses: cabs@ethz.ch and chab-safety@chem.ethz.ch.

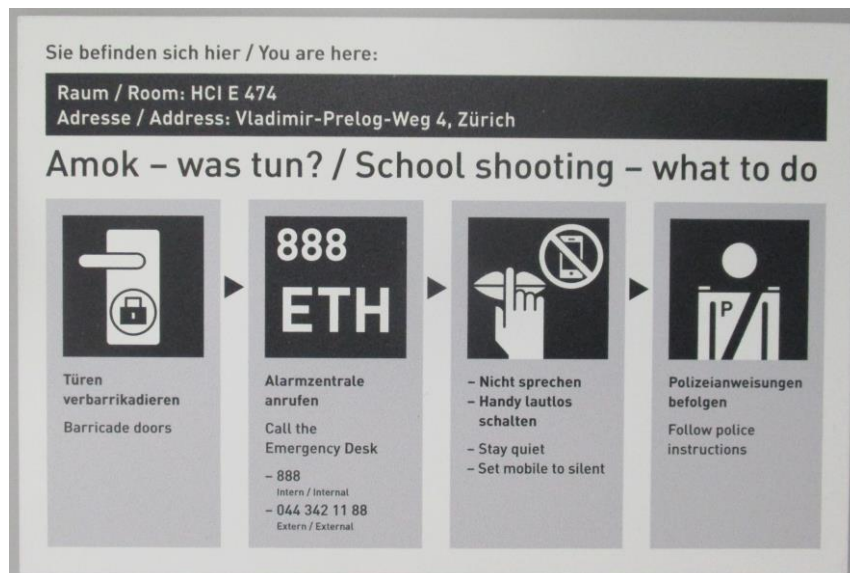
6. Rooms and building ventilation

- The building ventilation system

In general, on every floor (facing south) the offices are situated on the left and the laboratories on the right. Only the laboratories are connected to the building ventilation system, the offices are not. The building ventilation is basically not air-conditioned and not dehumidified. The offices are fitted with air-conditioning of limited capacity. Many laboratories as well as some offices (in general PC rooms) have autonomous ceiling recirculation air cooling devices (= ULK = Umluftkühlgeräte) for air-conditioning. These ULK are only installed in the laboratories if tools and units produce a waste of heat and overheat the premises or if the high temperature is likely to cause danger.

- Laboratory unit

- **Ventilation system:** Every laboratory has an extensive autonomous ventilation system (the pneumatic ventilation system is not accessible for the users as it is located in the vertical duct (Steigzonenschacht). The pneumatic ventilation permanently regulates the ventilation balance in the laboratory. There is a light negative pressure in the standard laboratories at all times which means that all kinds of accidents stay in the laboratory area and do not spread further in the building. Laboratories with sensitive optic have a slight over-pressure, which minimises the dust emission. For this reason, the laboratory and balcony doors must not be left open for prolonged periods. The consequence would be a collapse of the entire pneumatic ventilation system and the spread of accidents all over the building. In case of an accident (including the emission of foul smells) the laboratory staff must be evacuated. **In case of an accident**, it is strictly forbidden to open the laboratory and balcony doors for ventilation.
- **Dangerous chemicals or chemicals with emissions of foul smells:** It is forbidden to carry out dangerous experiments or experiments with emissions of foul smells in the standard laboratories. For these purposes, special laboratories are available (e.g. the toxicology laboratory, the high pressure laboratory and the central distillation room).
- **Panic locks:** The locks in student and seminar rooms allow doors to be closed from the inside in the event of an amok situation, so that the offender cannot open them from the outside.




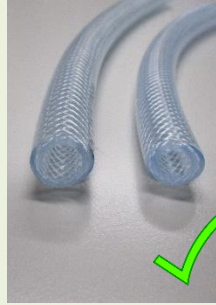



- **Precautions against theft:** If there is no staff present in the laboratory, the door must be locked. ETH is not responsible for stolen or missing private property.
- **Eye wash station/fire extinguisher:** The eyewash is integrated above the washbasin and is removable. It must be washed at least once a week in order to prevent the water in the shower from spoiling or contaminating. In the laboratory there is also a 2 kg CO₂ fire extinguisher.

- **Fume hoods:** If the fume hoods are closed (window down), less exhaust ventilation is used which is also ecological. Open fume hoods need more exhaust ventilation. It is necessary for the fume hood unit to have a normal and safe working hygiene. If this is not the case, the laboratory service staff may close off the workplace until a solution is found.
- **Workplaces:** Workplaces require a normal and safe working hygiene. If this is not the case, the laboratory service staff may close off the workplace until a solution is found.
- **Escape balconies:** This is the primary escape route throughout the whole building. Standing on the balcony is allowed (except in laboratories for student courses), but the doors must always be closed. It is forbidden to leave things on the escape balconies; they will be removed and disposed by the laboratory at the cost of the person/s responsible. Everybody in the building is obliged to draw attention to others if doors are open or things are being placed in an obtrusive manner on the balcony.
- **Washbasin:** It is forbidden to dispose chemicals and foul-smelling compounds in the washbasins.
- **Floor drains in the standard laboratories in the HCI building:** There is a floor drain in each lab, which was covered with a metal plate in nearly all rooms by the Dept. of Operations in 2021. The floor drain is directly connected to the wastewater tank. If the siphon underneath has dried out and the metal cover is missing from the floor drain, odours from the wastewater system can be drawn into the lab air due to the negative pressure in the lab and cause odour emissions. If you notice this situation, please report this event via "Meldeportal" (building services).



- **Cooling water module/cooling water-emergency switch:** The cooling water modules are unfortunately in poor technical condition. If water suddenly breaks out of these cooling water modules due to unsecured cooling water hoses, close the main cooling water valve immediately. It is placed in the vertical duct (Steigzonenschacht) in the corridor in front of the laboratory unit and is indicated with a red dot. The cooling water valve itself is also marked with a red dot. Close the valve if the water breaks out. You can open the door with your personal laboratory key.

Proper tubing of cooling water systems

Allowed	Allowed	Allowed	Forbidden	Forbidden
PVC-tubes	PVC-tubes with mesh	Polyurethane tubes	Silicone tubes	Vacuum or natural rubber tubes
				

- **Problems, incident, technical defects or need for advice** must be only reported via email to **chab-safety@chem.ethz.ch**. Technical problems with fume hoods and media columns are to be described including the laboratory, fume hood and/or media column number. Before writing to the chab-safety hotline or Meldeportal, try to find a solution in the Safety- and Environment Manual for the HCI.

7. Operating instructions

- The **operation of safety-relevant infrastructures** is increasingly being explained via videos. Use existing **QR codes** or visit our website www.su-management.ethz.ch

ETH zürich

SU-Management

News Sicherheit Bedienungsanleitungen Dienstleistungslabore QR-Code Video Portal



Startseite > Bedienungsanleitungen

Bedienungsanleitungen



Handling media column



Training video LN2 filling station for tanks



- Problematic Gas Module

With the gas module, you can only set the gas pressure but not the gas volume. For exact gas volume regulations, metering valves (pictured below) are available at the HCI shop. These must be attached to the gas module. One of the most common incidents is over-pressure, which occurs when glass devices are directly attached to the gas module. (see the Safety Handbook, Version 2020)



- Protection Against Excess Pressure in the Apparatus

Several accidents at the HCI, which have nearly ended in worst-case scenarios, have been caused by over-pressure of gas pipes or as a result of over-pressure accumulation in various apparatus. Therefore, we urgently suggest the use of safety valves for all hazardous and pressure delicate apparatus. In particular, we recommend the safety valves from "Lorch" which are obtainable in different variations on www.lorch.de.

The safety valve can, among other things, be installed easily on Lüdi-fittings. There is for example the safety valve type 2108 for neutral gas and vapour, opening at 0.3 bar over-pressure (check the website for details). Applications: Over-pressure protection of gas pipes in flash-chromatography-columns, over-pressure protection of gas pipes in alkali metal distillation, over-pressure protection in cases of failure of the gas modules or gas amount regulator in the media column etc. The safety valve should not be applied with vacuums (e.g. the Schlenk line).



The Lorch safety valve can be ordered directly from the laboratory specialist shop. The Lüdi-fittings can also be obtained from the HCI-shop.

8. Waste Management

- **Disposal in the laboratories** is an issue that the staff/students do not like. Because this topic is so unpopular, there are many risks present that could cause accidents.



- The disposal guide for waste management can be found in the Safety and Environmental Manual for the HCI Version 2020 Chapter 8; Link: www.su-management.ethz.ch



- **Solvent waste disposal cupboard**

In these solvent waste hazard cabinets, the solvent waste is collected in 10 L canisters (electrically conductive), separated between halogen-free or halogen-containing. Filled waste canisters (for labeling, see the Safety and Environmental Manual for the HCI Version 2020) must be closed – as long as there is no sign for a chemical reaction or overpressure formation – and transported using a transport trolley with a collection tray to the special waste disposal point. If a canister shows any sign of chemical reaction or overpressure formation, it must be placed in a laboratory hood without any experiments. For further instructions, CABS (cabs@ethz.ch) from the SSHE department must be contacted. If an uncontrolled reaction occurs with a potential of bursting the canister, inform 888. For more details, see the Safety and Environmental Manual for the HCI Version 2020.



Users of these solvent waste hazard cabinets must ensure that

- the drain funnels with overflow protection are correctly and tightly screwed onto the waste canisters
- the canisters with the funnels are correctly placed in the safety drip pan in the hazard cabinet
- the earthing clamps are correctly attached to the drain funnels
- the cabinet drawer is kept clean
- any solvent spills are cleaned up immediately
- Solid materials (e.g. silica gel, slag, glass fragments, syringe needles, magnetic stirring rods) as well as acids, bases, special poisonous substances etc. must never be disposed in the solvent waste canisters!
- All liquids that have special risk and/or odor emission potential (e.g. butyl lithium, benzyl chloride, mercaptane, thioles, etc.) must never be disposed of in the solvent waste canisters.
- Dangerous liquid waste must always be disposed by using a dedicated canister (available in different sizes up to 10 L) and be placed in a well ventilated location for interim storage, e.g. in a laboratory hood where no experiments are running.

- In case of technical issues or any deficiencies, immediately contact our e-mail hotline chab-safety@chem.ethz.ch.

9. Tox-Lab D312 www.toxlab.ethz.ch

- **For dangerous experiments** please use the toxicology laboratory D312. In order to work there or to book a fume hood, register online:
 - Open the link www.toxlab.ethz.ch
 - Log in (if registered) or register as a new user
 - After the log in: book the desired fume hood and describe the planned work briefly
 - Your enquiry will be confirmed automatically by e-mail
 - As soon as your enquiry has been checked and approved by the lab safety team, you will receive a confirmation by email.
- **Note:** If you are planning dangerous experiments in the tox lab, you must first submit a **risk assessment**. The SU management or SSHE department will check this. Only after this has been checked and approved by us may you use the tox lab.

10. Central distillation room D310 www.distillation.ethz.ch

- The **central distillation room** for distillation of the technical solvents in 10 litre scales is available for all staff of the HCI. In order to be allowed to work in the distillation room you need special instruction from the Superuser.

11. Tox-Lab C174 (contains a bio lab BL2) www.c174.ethz.ch

- For **dangerous biological experiments** please use the toxicology/cytostatic laboratory C174. In order to work there or to book a fume hood, register online:
 - Open the link www.c174.ethz.ch
 - Log in (if registered) or register as a new user
 - After the log in: book the desired fume hood and describe the planned work briefly
 - Your enquiry will be confirmed automatically by e-mail
 - As soon as your enquiry has been checked and approved by the lab safety team, you will receive a confirmation by email.
- **Note:** If you are planning dangerous experiments in the BL2 or cytostatic lab, you must first submit a **risk assessment**. The SU management or SSHE department will check this. Only after this has been checked and approved by us may you use the BL2 or cytostatic lab.

12. Information for students

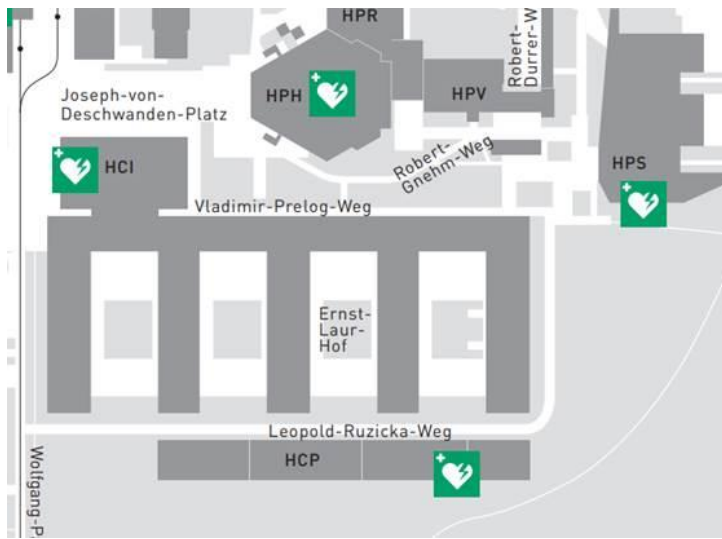
- **All students will receive the information leaflet from the HCI-shop.** The leaflet includes the regulations on taking over / leaving the laboratory as well as the settlements.

13. Recreation areas

- **Roof terrace HC2:** For all staff in the HCI, the roof terrace of HC2 on the J-floor is available. The roof terrace is covered and the railing is secured with artificial glass. There is a couch and a barbecue, as well as benches and tables. Large events must be reported to the house warden in advance. It is forbidden to grill in the entrance to the corridor as the smoke could trigger the fire alarm. Access to the roof terraces of HC1, HC3, and HC4 is forbidden. Access to the HC5 is only possible if agreed upon by the D-MATL.
- **Recreation rooms:** There are recreation rooms with a kitchen and a washbasin on all floors in the middle of the finger corridor (via crossing the middle stairwell corridor).

14. Location of the defibrillators in HCI

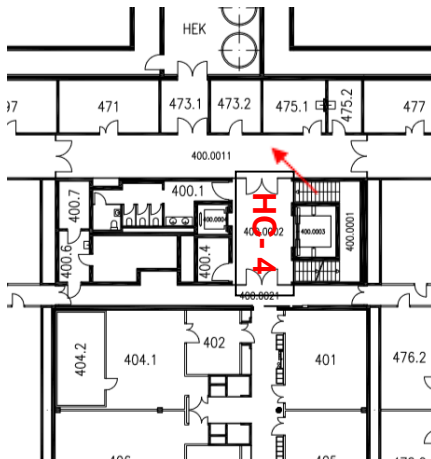
HCI E 30:



HCI D 379.1:



HCI E 473.2:



15. Confirmation for the receipt of the safety introduction

Empfangsbestätigung für die persönliche Sicherheitseinführung:

Arbeitsgruppe _____

Hiermit bestätige ich (Vorname, Nachname) _____

den Erhalt der persönlichen Sicherheitseinführung am _____

von (Vorname, Nachname) _____

Ort / Datum Unterschrift des Arbeitnehmers _____

Hinweis: Die unterschriebenen Bestätigungen werden durch die jeweilige Arbeitsgruppe archiviert.

Acknowledgement of receipt for personal safety induction:

Workgroup _____

I hereby acknowledge (first name, last name) _____

the receipt of the personal safety briefing _____

from (first name, last name) _____

Place / Date Employee's Signature _____

Note: The signed confirmation is stored in the respective workgroup.