

User guide for Laboratorio di Ateneo

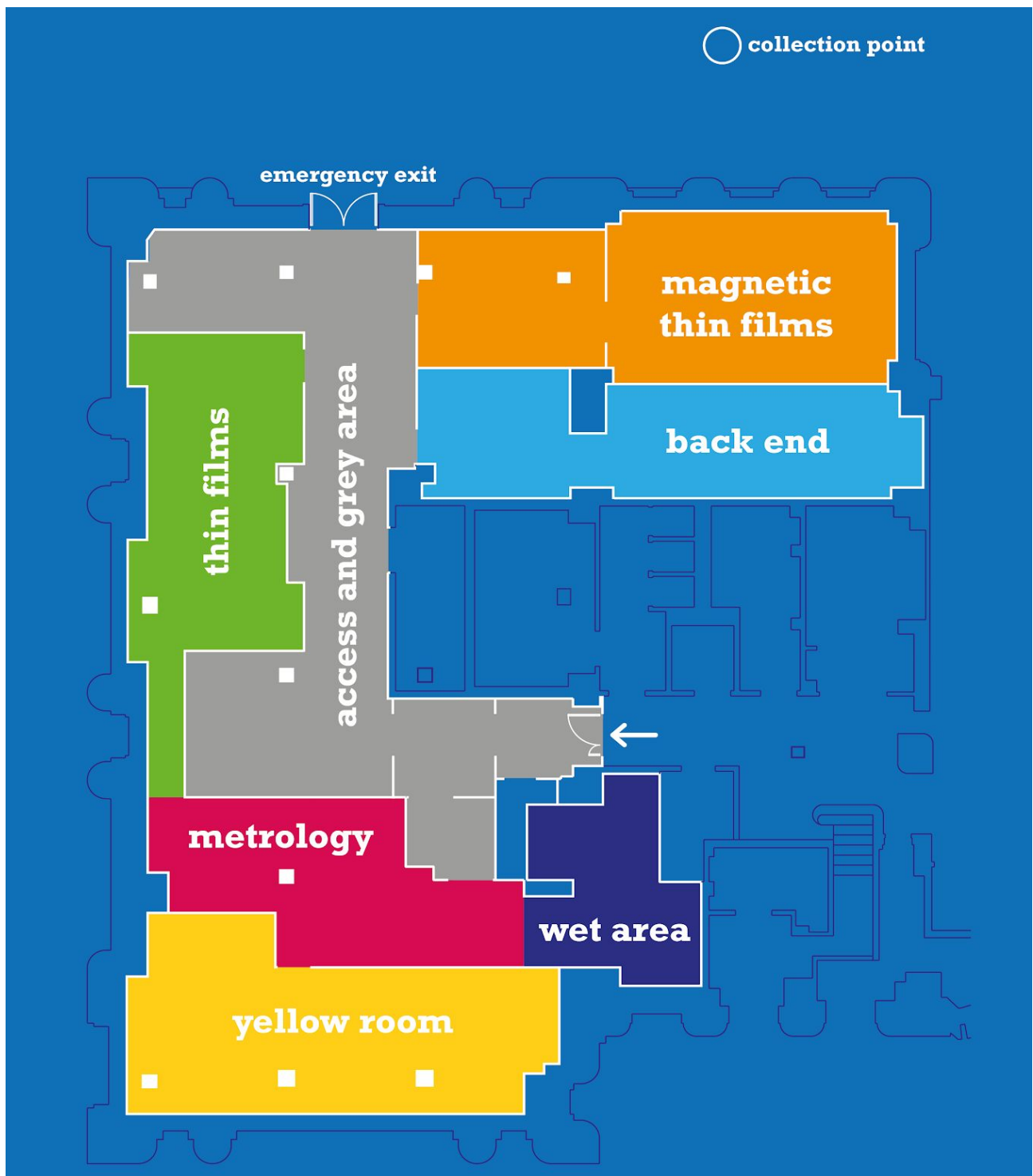
PoliFAB

Building 30, via G. Colombo 81, 20133 - Milano

**General instructions
for access and safety**

General description

PoliFAB is an PoliMi infrastructure under the direction of the Central Administration and General Manager of Politecnico di Milano, located in via G. Colombo 81, 20133 Milano, Building 30 in Campus Leonardo. In the laboratory, processes in the field of micro- e nano- fabrication of devices for several application are performed. The lab is configured as a service facility for users both internal to Politecnico di Milano and external. Those activities are performed within the normal research activity, including didactic laboratories for students. The activities are performed in a cleanroom of around 400 square meter, divided into two adjacent areas: a grey area (class ISO 8) and a white area (class ISO 6). The grey area comprehends: two changing rooms (air-lock) for access, a corridor, the magnetic thin films and back-end areas. The white area comprehends: the yellow room, the wet area, the metrology area and the thin films area. Below we show the cleanroom map, with the detailed internal division of spaces.



Outside of the cleanroom several areas where the technical facilities are located (centralized vacuum, liquid nitrogen tank, process cooling water system, gas storage rooms, compressed air, refrigeration systems, cleanroom air treatment facility, main electrical power supply and temporary trash storage). The access to these spaces is allowed only to the laboratory Staff and to maintenance personal. The only exception is for the liquid nitrogen supply, which is possible to only authorized users, after a dedicated training.

Access to building and cleanroom

The access to the cleanroom is allowed only to authorized users, after information regarding the general cleanroom rules and safety instructions and the use of an authorized badge card. **Opening hours of the building are: Monday-Saturday 8:00 - 20:00, while the cleanroom opening hours are: Monday-Friday 9:00-18:00.** This is to ensure the presence of at least a Staff person to manage the safety in the lab and of the facilities. To gain the access authorization, users must to pass a test which certifies their knowledge. The lab Staff will therefore inform the users and prepare the test. After the test will be accomplished, the user will sign the access registry and the PPE/DPI registry and will be officially authorized for the access. Users have to let the Staff know about the end of their working period. The control of access is performed by badge readers, placed in the different areas of the building 30. The validity of this authorization will be one year for the first access. At the end of this period, a renewal is necessary that will last for more 3 years and another renewal is needed after the 3 years have expired, which will last for 5 years. At each step, users must pass a different test. After passing the test, the users can be authorized to enter the controlled areas by the cleanroom Staff. To do so, a Politecnico card (any type) is needed. For external users, who do not possess a PoliCard, the Staff can supply a temporary card (TempPoliCard) after request. At the end of their stay, external users are requested to submit their temporary card. In case of damage or loss of the card, the Staff need to be informed immediately.

Two badge readers are installed at the cleanroom door: one to enter, one to exit. The door will be opened only after passing the badge, in both sense. Moreover, the anti-passback logic is present: an entrance signal must be followed by an exit signal and vice versa. Two subsequent entrance or exit signals are not allowed by the system. Therefore, it is mandatory to badge every time we enter/exit in/from the cleanroom. The system will also record for each users the in and out signals, for monitoring the presence in the lab and to quantify the working hours of each user.

Access to the cleanroom is permitted only after a suitable dressing procedure to be done in the first and/or second airlock, which are border regions between areas with different cleanness conditions (class). In order to keep the two different areas of the cleanroom at the respective cleanness class, it is mandatory to follow the dressing procedure reported below in the table. Materials and DPI for the dressing are available in the airlocks; for any necessity/question regarding the dressing, please consult the Staff. Users are warmly invited to maintain a high level of cleanness and order in the airlocks.

Area	Body	Feet	Head	Hands
Grey area (ISO 08)	Grey area suit	Overshoes	Cap	Gloves
White area (ISO 06)	White area suit	Tyvek overshoes	/	Gloves

The access to the white area (ISO 06) is allowed only through the second airlock, between the grey corridor and the metrology area. Exceptions are allowed only in case of emergency or in case of maintenance by the Staff. In both airlocks, a bench is present, which defines the border to the cleaner area. Users are requested to respect this limit. The introduction in the cleanroom of any material which is not cleanroom compatible is not allowed (paper, fibers, etc...). Every user/group is allowed to request a plastic box to maintain in order the material (samples, wafers, etc...) and a cleanroom paper notebook as a lab book to be used inside the cleanroom only. Nothing should remain on the cleanroom tables/space; everything has to be stored in order in the plastic boxes.

The Staff periodically/upon request organizes machine trainings in terms of safety and operation. Only after this training given by the Staff a user can operate a machine. No other user is allowed to train a new user on a machine. Machine reservation is mandatory and has to be made via the internet website of PoliFAB, after login. Please do not overbook a machine, as this may interfere with other users.

Personal Protective Equipment (PPE or DPI) must stay close to the machine that requires them, for example, glasses have to be left close to the wet benches.

Users must follow the rules contained in these documents, respect the safety rules and work in order to ensure the safety of themselves and of the colleagues.

Emergency

The emergency exit of the laboratory is placed at the very end of the corridor in the grey area and opens to the external area of the building. The collection point, in case of emergency, of the cleanroom users and, more in general, for all the users present at the basement is placed in the courtyard of the building, next to the gate towards via Pascoli. In case the emergency exit of the cleanroom is blocked or the access through it not possible, it is recommended to leave the cleanroom via the first air-lock, leaving its two doors open for the other users. The collection point can then be reached via the corridor outside of the cleanroom. The correct safety paths in case of emergency are indicated on the panels placed in the basement and in cleanroom. Users already present outside of the cleanroom can follow the same path described above.

In case of accident during the operations the users have to behave maintaining the highest safety for themselves and the others. Even in case of accidents without consequences to people or instruments users have to report about it to the cleanroom Staff. Users also have to keep the Staff informed about situations that can be potentially harmful for users safety or that are in disagreement with the instructions present in the present and in the other instruction and safety documents.

In case of Ammonia or Silane leak the gas detection system will give an acoustic and visual (red light on) alarm and users present in cleanroom and in the basement have to immediately leave their working place and, through the closest emergency exit, reach the collection point, in the courtyard (close to the gate to via Pascoli).

In case of fire, activate the fire alarm by the dedicated button and inform the Staff. If the fire alarm is heard, immediately leave the working place, evacuate through the closest emergency exit and reach the collection point. In case the emergency exit of the cleanroom is blocked or the access through it not possible, it is recommended to leave the cleanroom via the first air-lock, leaving its two doors open for the other users.

In case of outpouring of chemical agents, if the chemical is not dangerous and the quantity not significant, wipe and clean by cleanroom paper wipes present in every chemical bench, waste them in the appropriate waste bin and inform the Staff. If the agent is dangerous or the quantity significant, ascertain that the working place can be left in safety and call the Staff.

In case of health emergency, defined as any situation where one or more users show (even small) health problems, it is necessary to evaluate the danger. Only after a careful evaluation it is possible to proceed, helping the injured person(s). At the same time users have to inform the Staff. In the case of potential danger for other users, activate the fire alarm. If no Staff personal is available it is possible to call Portineria Centrale of Politecnico (2006) and, only if also there nobody replies, call 118.

Penalties

In case a user is found guilty of severe or repeated behavior against the content of these safety documents and, more in general, against the safety in a working area, the Staff will decide a proper penalty. The cleanroom access may be impossible for these users for a period of a certain duration, proportional to the misbehavior.