

FACILITIES USE, ACCESS AND SAFETY POLICY

MATERIALS SCIENCE AND ENGINEERING (MSE)

In accordance with University Policies 1005 (Health and Safety Policy), 5615 (Safety and Security) and 5620 (Access Control: Key Control), the MSE safety/laboratory use policy has been put in place:

1. To ensure that a minimum level of safety training has been met by users of MSE facilities.
2. To ensure that users of MSE facilities have become acquainted with the MSE emergency action plan (EAP) for the building(s) in which they are working.
3. To ensure that users know and understand specific hazards and/or procedures associated with specific equipment and/or chemicals in each laboratory per the Chemical Hygiene Plan maintained in proximity to the Materials Safety Data Sheets (MSDS) for that lab.
4. To exercise due diligence in maintaining a safe working environment in MSE facilities for all students, faculty and staff.
5. To reduce incidents of instrument abuse.

It is required that all MSE faculty, staff and students become familiar with University Policies 1005, 5615 and 5620. These documents are available on the MSE website under "Facilities."

SAFETY

All MSE employees and all users of MSE facilities are required to read the Emergency Action Plan document in the MSE website (below) and to provide a compliance form (which is to be signed by their immediate supervisor. Note that, if the employee changes supervisors, a new signed compliance form is required. This form then is supplied to the MSE office staff (Ms. Cindy Purdue, 213 Holden Hall). Faculty signing off on EAP forms for their students must themselves have met the training and compliance requirements.

<http://www.mse.vt.edu/Portals/9/facultyuploads/folz/MSE%20EAP%20december%2015%202010.pdf>
(<http://www.mse.vt.edu/Portals/9/facultyuploads/folz/MSE%20EAP%20Compliance%20Form.pdf>)

Each laboratory, research and teaching, must have a current Chemical Hygiene Plan (CHP), http://www.ehss.vt.edu/programs/HCM_program_online.php It must include the most up to date CHP, EAP, Standard Operating Procedure (SOP) for each hazard in the lab (includes equipment and chemicals), signature sheets that indicate those who have been trained for each SOP, and the most recent inspection from the Facilities Manager and/or Safety Officer and from EHS along with the PI's response to this inspection.

Additionally, all users of MSE laboratories (including those not eligible for keys/access codes) are required to take the Environmental Health and Safety Services (EHS) general laboratory safety training. This training is offered in MSE seminars early each fall semester. This course also may be taken on-line through the Virginia Tech Environmental Health and Safety Services (EHS) office. The on-line course, entitled "Laboratory Safety - Lab Workers, Grads, Post Docs," is located on the EHS website under (http://www.ehss.vt.edu/detail_pages/training_details.php?training_id=481, go to site, then to "training", "class schedule & registration", "chemical safety", "general laboratory safety .. Offered on line"). Upon completion of the training, evidence of compliance in the form of a certificate issued by EHS or a copy of the on-line test score from the Scholar website is to be provided to the MSE Facilities Manager/Safety Officer.

The decision as to whether graduate students may work alone in laboratories is up to the discretion of their faculty supervisors. It is required that ALL students and employees not work alone if handling

particularly dangerous materials or machinery (for example, chemicals such as hydrofluoric acid or perchloric acid, or machinery such as large hydraulic presses or very high temperature furnaces). A list of “highly hazardous chemicals” is provided in the link below. Per Ms. Rachel Layman, University Chemical Hygiene Officer, Environmental Health Safety Services,

*"Serious hazards and risks can result when laboratory personnel work alone in the lab with hazardous chemicals. The EHSS department highly recommends no one work alone with hazardous materials in the lab, but recognizes some circumstances may warrant such. Therefore, when working alone with hazardous chemicals is necessary, prior approval must be obtained from the PI after thorough discussion of the hazards and controls that will be in place are discussed among the PI and the student. **Working alone is not permitted for certain particularly highly hazardous chemicals as defined by OSHA :** (https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9761&p_table=STANDARDS) or physical hazards which can result in serious injury or death."*

MSE POLICY ON LABORATORY SAFETY INSPECTIONS

The MSE Department requires that the Facilities Manager/Safety Officer annually inspect each and every laboratory under MSE' supervision, for safety compliance. After each inspection, the responsible faculty for the inspected laboratory is notified, via a written report, of the safety concerns that were found. The faculty member is required to address those safety issues in written to the Facilities Manager/Safety Officer from the PI to such safety inspection report is placed on file.

Once this internal inspection of all the laboratory facilities has been performed, the EHS Department is requested to do an official inspection of the same laboratories on their own schedule. Again, written records are provided to the faculty member supervising each lab and a copy is kept of the inspection reports. The corresponding responses from the faculty supervising each laboratory to the EHS Department are also filed.

REQUEST FOR ACCESS TO TEACHING AND RESEARCH LABS

All those individuals requesting keys/access codes to any MSE general use laboratories (teaching labs), research laboratories and office space assigned to MSE will satisfy these requirements outlined under SAFETY in addition to completing the respective access request form (for MSE or Non-MSE users). The site addresses are:

(http://www.mse.vt.edu/Portals/9/facultyuploads/folz/MSE_Facilities_Key_Request_Form_MSE_Personnel_April2010.pdf) or

(http://www.mse.vt.edu/Portals/9/facultyuploads/folz/MSE_Facilities_Key_Request_Form_NON-MSE_April2010.pdf).

Once they are completed, they are to be submitted to the MSE Facilities Manager/Safety Officer in collaboration with the Laboratory Manager review the evidence of required training and of minimum safety requirements and sign those that are approved. The applicant then provides the form to the MSE office staff (Ms. Cindy Purdue, 213 Holden Hall) who then issues the keys and/or access codes. **Access requests will only be approved for graduate students if the faculty members signing off on the forms have met the compliance requirements (safety and EAP).**

In addition to general access, in order to use departmental equipment, users must complete the Laboratory Use Approval Form:

(http://www.mse.vt.edu/Portals/9/uploaded%20content/MSE_Laboratory%20Use%20Approval%20Form.pdf).

This form ensures that faculty members are aware of the experiments their students are proposing to perform in departmental equipment and that the users have thought through the potential issues that could arise in conducting the experiments, e.g., spills, offending odors, etc. It also will let the parties concerned know the periods of time over which they may use the equipment. Note that all MSDS sheets associated with materials to be used in the experiments must be attached to the approval form before equipment supervisors will sign off on the procedures. The MSE Facilities Committee requires that PIs incorporate a form such as this one into their own research laboratories.

There are three notable differences in the approval processes for specific codes/keys: (a) the Teaching Laboratories (148, 150, 154 and 156 Randolph Hall) and the X-Ray Diffraction Laboratory (124 Holden Hall), (b) VT-FIRE (Virginia Tech Foundry Institute for Research and Education, Kroehling Hall), and (c) the space in 2090 Torgersen Hall.

a) The access code for the Teaching laboratories and the X-Ray Diffraction Laboratory must have the additional approval of the MSE Laboratory Equipment Manager (Dr. Thomas Staley) before it will be released to users. Only then will the codes be released to the users by the MSE safety officer or laboratory equipment manager. Possession of access codes and/or keys to these spaces shall be added to the user's access request form, maintained by the MSE Safety Officer.

b) The keys to the VT-FIRE building must have the approval of the VT-FIRE Director (A. Druschitz) and will be checked out to users by the Director. Possession of access codes and/or keys to these spaces shall be added to the user's access request form, maintained by the MSE safety officer.

c) The key to Torgersen 2090 will be issued by the building manager of Torgersen Hall upon approval from the MSE Safety Officer. Possession of access codes and/or keys to this space shall be added to the user's access request form, maintained by the MSE safety officer.

If any faculty member wishes to provide access to their research laboratories for graduate students or faculty who are not in MSE, the faculty will be responsible for these individuals, including damages due to negligence or violations of correct safety procedures as taught in the EHS training. All individuals from outside MSE will comply with the documentation outlined above and will complete a "Non-MSE Access Request." Keys and/or access codes will be issued to successful non-MSE applicants for a period of one year, after which they must re-apply.

Keys and access codes will not be provided to undergraduate students for any MSE space. Undergraduates are defined to be those students who have not yet completed all the coursework required to satisfy the B.S. level degree. Therefore, five-year M.S. students will be allowed to have keys and access codes once they have completed all their 4000 level courses. Faculty members, staff members and graduate students will not divulge the access codes or give a key to any undergraduate student, as agreed upon and signed on their access request forms. If a faculty member chooses to open their research laboratories to undergraduate researchers, they must provide supervision for these students at all times while in their labs. Supervision is defined to be

- Presence in the laboratory by a knowledgeable graduate student or faculty member if the undergraduate student is working with particularly hazardous materials or dangerous equipment.
- Presence in the building with knowledge of the undergraduate student's activities when conducting general research that does not involve hazardous materials or dangerous equipment. If the faculty member or graduate student leaves the vicinity of the laboratory, the undergraduate student is to leave the laboratory as well.

Users shall return all keys issued to them by the MSE front office staff for each individual space before either graduating or leaving the MSE department. Keys are to be returned to the MSE front office staff, not the faculty supervisor. Return of all keys will be added to the graduate students' graduation check sheet and must be returned prior to signing off on their graduation. Laboratory access codes will be changed periodically to allow for better control of the appropriate user lists and to enhance security and safety of the spaces. Please note that, if these key management steps are not followed, it may be necessary for the department to collect a monetary deposit for each key issued.

If a user damages a piece of equipment (that is maintained by the department) through negligence or abuse (not normal wear and tear), the faculty signee is responsible for the cost of repairs. Depending on the nature of the safety violation or facility abuse, the MSE facilities committee may recommend that access is revoked for the individuals involved. Multiple violations will result in permanent suspension of access.

Approved by the MSE Internal Advisory Committee
Effective Date:

Last Update: April 6, 2016/Suchicital