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ExxonMobil Lawrence G. Rawl Engineering Practice Facility Safety and Operations Manual

It is the goal of the staff of the ExxonMobil Lawrence G. Rawl Engineering Practice Facility (REPF) to provide a safe, educational, productive, and exciting environment for engineering students to extend their education through hands-on and mind-on projects in a “real-world” environment. We seek to allow freedom and flexibility while maintaining a safe and pleasant learning environment. It is crucial that all students engaging in the activities of this facility be mindful of their own safety as well as the safety and enjoyment of those around them.

Pertinent Policies of the University of Oklahoma

All students using the REPF are required to be enrolled and in good academic standing, attend safety training annually, spend three hours training in the machine shop, sign proper paperwork have read and be familiar with the following documents. Behavior while in the REPF should reflect the requirements of these policies at all times.

University of Oklahoma Student Code of Conduct – http://studentconduct.ou.edu/

Do Not Prop Doors Open
Personal Property
Personal property left in the Rawl Engineering Practice Facility will be taken to surplus or recycling. This includes but is not limited to furniture, bicycles, kitchen appliances, personal tools etc. Cars and motorcycles left inside the building will be subject to tickets and be towed.

Fire Prevention/Hazardous Materials

The machine shop, practice bay areas, and bench lab areas contain chemicals, materials, and processes that are flammable or can cause fire. With some simple guidelines fires can be prevented easily, maintaining a safe environment. The guidelines below should be followed at all times to reduce the likelihood of fire.

1. There is NO SMOKING allowed in the practice facility.
2. All hazardous materials requiring a safety data sheet will be checked in at the machine shop. Any of these items found that have not been checked in or stored properly will be disposed of.
3. Any processes which require heat, or an open flame should be conducted with extreme caution. Always make sure to clear the area of fumes and substances that may ignite.
4. Before any welding or use of an open flame, an audible warning should be used to notify all shop patrons to stow flammable materials in the fire cabinet.
5. Always store flammable materials in the designated fire storage cabinets.
6. When using flammable materials such as solvents, oils, etc. be sure that containers are not left open or unattended.
7. Be sure to expeditiously contain and clean any spilled flammable materials.
8. Any rags or towels which have come in contact with flammable materials should be disposed of in the proper waste containers (marked Flammable). DO NOT mix flammable materials with regular shop trash.
9. Never dispose of hazardous materials by way of trash or drain.
10. Any empty containers which held flammable materials should be sealed or cleaned before disposal.
11. Batteries should be properly stored in the bay area. Batteries should not be in the basement storage.
12. Tires may be stored in the basement storage and can be disposed of when no longer needed. Tires need to be inventoried annually.
13. Material Safety Data Sheet (MSDS) must be in the MSDS book. MSDS must be followed when storing or disposing of hazardous materials.

Fire Response

Although the facility is equipped with fire detection and extinguishing systems, patrons should attempt to contain and extinguish fires as soon as they are detected. The facility is equipped with manual fire extinguishers which are located by exit doors along with the fire pulls (alarms). Please familiarize yourself with the location of fire extinguishers and fire pulls. When extinguishing fires, remember the following:

1. For a fire to exist three elements are required:
   a. Fuel Source – Combustible material
   b. Heat – A temperature at or above the ignition point of the fuel
   c. Oxygen – An oxidizer to provide oxygen for combustion. Keep in mind this does not have to be air.

   To extinguish a fire, you must remove at least one of these three elements.
2. There are many types of fires. Use of the incorrect type of extinguisher can increase the risk of injury and cause the fire to spread. Make sure that you have the right extinguisher for the materials you are working with. OU fire Marshall will assist with this.
   a. Class A fires occur in ordinary combustible materials such as wood, rags, cardboard and trash. Class A extinguishers use water to reduce the temperature around the combustible material and displace the air which is oxidizing the fire. Do NOT use Class A/Water extinguishers on any other type of fire.
b. Class B fires occur in flammable liquids such as solvents, oils, grease, paint, etc. Typically, extinguishers used for Class B fires are CO2 or Dry Chemical. These extinguishers are designed for Class B only, Class C only, or both Class B and C. Make sure that the extinguisher is labeled Class B before using on a flammable liquid.

c. Class C fires occur in electrical connections, breaker panels, motors, and electrical wiring. Class C extinguishers are non-conductive. NEVER use water to extinguish an electrical fire. ALWAYS shut off the electrical current before attempting to extinguish the fire.

d. Class D fires involve combustible dry chemicals and metals like magnesium, potassium, and sodium. Class D extinguishers are used ONLY for class D fires.

e. Class K fires involve vegetable oils, animal oils, and fats. They are typically only found in kitchens. Class K extinguishers are used only for class K fires.

Fire Evacuation

If a fire becomes uncontrolled, the first step is to notify the occupants of the building to evacuate. This is done by activating the building fire alarm system. Also, the individual aware of the fire should notify others on the way out of the building and steer them away from the fire location. Upon being aware of a fire alarm all occupants should calmly proceed to the nearest fire exit and carefully exit the building. DO NOT use elevators to exit the building. Locate stairwells and proceed to the ground floor to exit. Occupants should group together in an area away from the building and wait for the fire department to arrive and search the building. Our gathering area is on the south side of Sarkeys east of Jenkins. Keep roads and fire lanes clear for emergency vehicles. It is only safe to enter the building after the fire department has given the all clear.

Severe Weather

The City of Norman maintains a citywide civil defense warning siren that will be sounded in the event of a tornado warning. In the event this happens you should take precautions and move to the basement/tunnel area for safety.

Material Hazards Communication

Materials/chemicals requiring safety data sheets must be checked in at the REPF machine shop office with a copy of the material safety data sheets turned in for record. Materials/chemicals found that have not been checked in may be sent to hazmat for disposal. The machine shop office can assist in disposing of hazardous materials. Please do this periodically throughout the year.

Painting

Painting will be done outside of the building. No painting allowed inside the Rawl Engineering Practice Facility. Proper PPE needs to be worn when painting or handling paint.
The University of Oklahoma Health & Safety Policy affirms OU’s commitment to the safety of its employees, our students and visitors, and the Norman community. OU complies with occupational safety and environmental regulations mandated by city, state and federal agencies. It is OU’s responsibility to provide our students with a safe work environment for their educational activities.

It is each student’s responsibility to conduct your educational tasks in a safe manner by complying with the following shop rules. These basic safety rules are for your benefit and apply to all University shop facilities. In addition, you are required to comply with all other safety policies, rules, procedures and guidelines established by the academic unit under which you are enrolled.

- If you need help, ask your Instructor or Shop Supervisor.
- Never use defective equipment or work in unsafe conditions. Always report any unsafe conditions and accidents in the shop to your Instructor or Shop Supervisor.
- No personal projects will be done in any OU shop.
- Alert your Instructor or Shop Supervisor and get first aid immediately for any injury.
- Do not touch moving objects or any part of a machine that is moving (belts, pulleys, chucks, cutters, etc.)
- Do not lean against any machine.
- Clean the chips from a machine with a brush—not a rag or bare hands.
- Do not try to repair electrical parts or damages. Report them to the Instructor or Shop Supervisor.
- Never remove any lockout tags from power sources. Always check with your Instructor or Shop Supervisor when you find a lockout tag.
- Check electrical cords before you plug them in.
- Do not run over cords with dollies or carts.
- Turn off the power before leaving a machine or tool.
- When you are in doubt about anything, ask your Instructor or Shop Supervisor.
- You must comply with all of OU’s safety policies, rules, procedures and guidelines.
- Eye protection is required at all times in the shop area.
- Gloves will be worn when handling equipment/materials with sharp edges or wood that splinters. (The use of gloves when working with moving machinery is generally discouraged—while they may prevent minor injuries to hands/fingers, they greatly increase the risk of being pulled into machinery.)
- When more than one student is working with a machine, only ONE student should operate machine switches.
- Only the operator should turn the machine on or off...where two are operating a machine, the one handling the work or feed controls should tell the other when to activate switches.
- Guards and safety devices on machines will never be removed.
- Guards and safety devices will be adjusted properly before starting a machine or tool.
- Repair and maintenance of machines will be done only by OU employees—no students are allowed to do this. Machines under repair or maintenance will be tagged and locked out to notify you that they are not available for use.
- Correct, properly fitting wrenches (for nuts, bolts, and objects to be turned or held) will be used.
- Tools and/or work will not be left on the table of a machine even if the machine is not running.

**General Safety and Operating Procedures**

The safety of all persons in the REPF should be the first priority of everyone working and observing the practice activities. The following list should be used as a reminder of the concepts taught during the safety orientation and qualification check.

1. A copy of this Safety and Operations Manual will always be available in the Machine Shop and the REPF web page.
2. Competition team members shall be required to attend safety training, sign waiver and release of liability, talent release, and safety operating agreement pledging that they will follow the guidelines herein. Take the online safety quiz with a score >70. They will also be required to complete the training session of a minimum of 3 hours associated with the area and/or equipment they wish to use. You are not allowed to use equipment that you have not been trained to use.
3. **DO NOT PROP DOORS OPEN**
4. Each piece of equipment in the machine shop, bays, and bench labs have specific safety and operating guidelines posted on the wall near the equipment or on the container or tool box. Those guidelines shall be followed at all times in addition to the guidelines contained within this document.
5. **Students** in the machine shop and practice bays must be familiar and understand the safety manual and sign waiver and release of liability and wear eye protection.
6. Each person using machine shop equipment must be individually trained by REPF Coordinator or shop personnel. If ANY team member is observed violating any REPF rules, they will be asked to leave until they meet with the REPF coordinator. Corrective action will be discussed, and the team members retrained as required.
7. Any misuse of shop/bay/lab space or equipment will be corrected with a 3-warning disciplinary policy. The policy is as follows:

   **Warning 1:**
   The student will be notified by the Engineering Practice Coordinator that they have violated the operating agreement. The student will be given a verbal warning and thorough explanation of why they are being warned and what the consequences of further violations will be. At that time the student is on a two-week probation. If after two weeks the student has not violated the agreement again they will be placed back on a zero-strike level.

   **Warning 2:**
   If during the first warning probation the student violates the operating agreement, the student will be notified again by the Engineering Practice Coordinator that they have violated the operating agreement. The student will be placed on two-week suspension. The student will relinquish their card swipe access and be required pass the appropriate training session again before being allowed to use the facility. Once the student has completed the training session and two weeks has elapsed since the initial suspension the student will be placed on a two-week probation at the two strike level, followed by a two week probation at the first warning level.

   **Warning 3:**
   If during the two-week probation at the second warning level the student is found to violate the agreement again the student will be suspended from using the facility for the period of one year. At the end of that period the student may submit an application to the Coordinator to be allowed to gain Engineering Practice Facility privileges again. If
approved, that student will be required to take all training sessions again before gaining access.

8. In the event of any chemical spill (acids, bases, organic solvents, oil, etc.) the following actions shall be taken:

**If the spill is isolated to the floor only:**
- Notify the REPF Coordinator
- Locate the spill cleanup kits in the Machine Shop Tool Crib
- Notify other facility users of the spill by placing signs around the area
- Contain and clean the spill using appropriate materials/methods
- Dispose of the spilled material in the proper fashion. REPF Coordinator will dispose of Hazardous materials

**If the spill is on a person:**
- Notify the EP Coordinator
- Determine the type of chemical. If the chemical is acidic, alkaline, caustic, or otherwise an irritant, proceed to the eyewash station/chemical shower and flood the affected area for several minutes.
- If the chemical IS NOT alkaline, caustic, or otherwise an irritant, clean the affected area with soap and water to remove the spill.
- If a person is unable to locate the eyewash station/chemical shower, they should notify those around them and other patrons should help that person to the station. Those giving aid should be cautious of the chemical involved and be careful to not affect themselves.

9. In the event of an injury, persons aiding the injured person should use the following steps:
- Determine the severity of the injury. If the injury is serious call 911 immediately after stabilizing the situation.
- If the injury involves equipment in operation, turn the equipment off.
- If there is a blood spill, or any other bodily fluid, latex gloves should be used before administering aid. (See Blood Borne Pathogen Information Packet) Do not clean up a blood spill unless you have been specifically trained to do so.
- In the event of a blood spill or spill of any other bodily fluid, notify the Coordinator as soon as the situation has been stabilized.
- First aid kits are available in the machine shop and practice bays.

10. For safety, clothing appropriate to a shop environment shall be worn at all times. Items which are not allowed include but are not limited to the following:
- Open-toed shoes/sandals
- Jewelry (rings, bracelets, earrings and watches should be removed; necklaces tucked into clothing, etc.)
- Shorts
- Long hair (long hair must be tied back behind head)
- Hanging clothing/tattered clothing (clothing which hangs, or which is tattered and presents a fire hazard or might be caught in equipment shall not be worn)
- Revealing, offensive, or otherwise inappropriate clothing shall not be worn

**Manual Mill and Lathes** - Currently will be used during staffed hours or by appointment (Key checkout).
**CNC Mill** - Currently will be used during staffed hours or by appointment. (Key checkout).
**CNC Plasma** - Currently will be used during staffed hours or by appointment (Key checkout).
**CNC Router** - Currently will be used during staffed hours or by appointment (Key checkout).

1. Key can be checked out in the machine shop. The machines will stay locked.
2. User should wear earplugs and dust mask on CNC Router.
3. User is responsible for cleaning the machines during and after use.
4. Make sure machines are turned off after use.
5. Give a detailed time period that you plan on using the machines.
   Failure to follow the above rules will effect your ability to use it later.

Machine Shop Safety and Operating Procedures

1. The machine shop will be open for student observation from 8:00am to 5:00pm Monday thru Friday with restricted access during lunch from noon to 1:00pm. Shop will be open extended hours during the semester. The machine shop will be locked and accessible by card swipe after hours to agreed upon users (every team member will not have access). We do require there be at least 2 people (buddy system) working in the machine shop. Each competitive team participant will be granted card swipe access to bay area and shop only if he/she satisfies all of the following requirements:
   A. is enrolled and in good academic standing (Grades are checked) with the University of Oklahoma
   B. completes Safety Training (safety manual); and
   C. Take online quiz
   D. log 3 hours with the Machine Shop Staff and sign proper paperwork

You are responsible for safety and security while in the Machine shop, labs, and bay area inside the Rawl Engineering Practice Facility

2. All individuals working or observing in the machine shop should familiarize themselves of the location of fire extinguishers, first aid equipment, and fire exits at all times.

3. Approved protective Eyewear Protection must be worn in the machine shop/bay area at all times.

4. Sandals and other open-toed shoes are strictly prohibited.

5. Before entering the shop, all persons shall remove jewelry, secure loose clothing, and tie back long hair. Clothing must be appropriate to the shop environment.

6. No person is allowed to operate equipment in the machine shop alone 2 people are required (buddy system). Another person must be within reach or within a safe communicable distance to provide help should a problem arise.

7. No person may operate any machine shop equipment including hand tools while under the influence of alcohol, narcotics, or any prescription or non-prescription drug which might affect their ability to do so in a safe and alert manner.

8. No person may operate any machine shop equipment while excessively stressed, tired, or effected by illness.

9. Do not move, disconnect or work on equipment. Shop personnel will maintain and repair equipment.

10. All aisles and walkways shall be kept clear of clutter. Backpacks and other personal belongings should be stored in lockers on the first-floor south side of the building or in the machine shop office.

11. Every individual who uses the machine shop and practice bays is responsible for cleaning up before leaving EVERY DAY.

12. Housekeeping: YOU ARE RESPONSIBLE FOR CLEANING UP THE MESS YOU MAKE! Privileges may be revoked for failure to clean area or equipment that you use. Sweep and pickup after yourself. Lack of housekeeping is a safety hazard.

13. All tools and other items that are used need to be returned to their designated place by the individual that is using them before he or she leaves the shop. If a tool is left out at the end of the day the individual checking the tool out may receive disciplinary action.

14. Personal tools must be approved by the REPF Coordinator before being used in the REPF. The student bringing the tool will be responsible for oversight of the tool. Certain tools may not be allowed in the REPF due to safety issues.

15. Compressed gas cylinders shall always be stored chained to a storage rack or chained to a piece of equipment on which they are being used. Before transport, the cylinder cap shall be screwed on and no
fewer than two people shall move the cylinder. When disconnecting cylinders make sure the main valve of the cylinder is OFF. Before attaching a regulator to a cylinder, slightly open the main valve and let it seep slowly while attaching the regulator. This is to clear dust which may become lodged in the threads and cause a dangerous leak once the regulator under pressure.

16. All individuals working or observing in the machine shop must conduct themselves in a manner conducive to safety and learning.

17. Some of the machines will be locked out and a key may be checked out for use during staffed hours.

Practice Bay Safety and Operating Procedures

1. The practice bays will be open to all students for observation from 8:00am to 5:00pm Monday thru Friday.
2. Each competitive team participant will be granted card swipe access to bay area and shop only if he/she satisfies all of the following requirements:
   A. is enrolled and in good academic standing (Grades are checked) with the University of Oklahoma
   B. completes Safety Training (safety manual); and
   C. log 3 hours with the Machine Shop Staff and sign proper paperwork

You are responsible for safety and security while in the Machine shop, labs, and bay area inside the Rawl Engineering Practice Facility.

3. All individuals working or observing in the machine shop should familiarize themselves of the location of fire extinguishers, first aid equipment, and fire exits at all times.

4. All aisles and walkways shall be kept clear of clutter. Backpacks and other personal belongings should be stored in lockers on the first-floor south side of the building or in the machine shop office. The practice bay area is not intended for storage. Items not being used should be removed and stored.

5. The practice bay area is intended to house and display competitive projects. The team is allowed two previous years’ projects that are still operable, and the current project that is being built all work areas shall be kept clean, useful and presentable.

6. Every individual who uses the practice bays is responsible for cleaning up before leaving EVERY DAY. The REPF Coordinator will examine the facility every morning and any students who have left messes overnight will receive disciplinary action.

7. Housekeeping: YOU ARE RESPONSIBLE FOR CLEANING UP THE MESS YOU MAKE! Privileges may be revoked for failure to clean area or equipment that you use. Sweep and pickup after yourself. Lack of housekeeping is a safety hazard.

8. Observers should wear proper clothing and eye protection at all times.

9. Approved protective eyewear must be worn in the practice bays at all times.

10. Anyone working or observing in the bay area is required to wear attire and safety equipment appropriate to the activities within and condition of the practice bay. (e.g. closed-toed shoes and eye protection during grinding or when machined metal chips are present)

11. All operations which involve machine shop equipment including hand tools must be conducted in accordance with the Machine Shop Safety and Operating Procedures located herein, regardless of where in the facility these operations take place.

12. Compressed gas cylinders shall always be stored chained to a storage rack or chained to a piece of equipment on which they are being used. Before transport, the cylinder cap shall be screwed on and no fewer than two people shall move the cylinder. When disconnecting cylinders make sure the main valve of the cylinder is OFF. Before attaching a regulator to a cylinder, slightly open the main valve and let it seep slowly while attaching the regulator. This is to clear dust which may become lodged in the threads and cause a dangerous leak once the regulator is under pressure.

13. Individuals working in the practice bay areas should be mindful of their proximity to other workers and observers at all times and adjust their activities accordingly.

14. All operations which involve machine shop equipment including hand tools must be conducted in accordance with the Machine Shop Safety and Operating Procedures located herein, regardless of where in the facility these operations take place.

15. All individuals working or observing in the practice bay area must conduct themselves in a manner conducive to safety and learning.
16. All painting will be done outside of the building with care.
Bench Lab Safety and Operating Procedures

1. The bench labs are accessible by card swipe only.
2. Members of the competitive teams occupying the labs will be granted access thru ID card readers at all hours.
3. All individuals working or observing in the bench labs should be mindful of the location of fire extinguishers, first aid equipment, and fire exits at all times.
4. All aisles and walkways shall be kept clear of clutter. Backpacks and other personal belongings should be stored elsewhere. The bench labs are not intended for storage. Items not being used should be stored elsewhere.
5. The bench lab area is not intended to house and display competitive projects. All work areas shall be kept clean and presentable. Every individual who uses the bench labs is responsible for cleaning up before leaving EVERY DAY. The REPF Coordinator will examine the facility every morning and students who have left messes overnight will receive disciplinary action.
6. All operations which involve machine shop equipment including hand tools must be conducted in accordance with the Machine Shop Safety and Operating Procedures located herein, regardless of where in the facility these operations take place.
7. All individuals working or observing in the bench lab area must conduct themselves in a manner conducive to safety and learning.
8. All individuals are required to wear safety glasses and proper clothing.

Bay Area Operating Procedures

This includes anywhere in the Rawl Engineering Practice Facility where working with hazardous products that require respirators, proper clothing and eye protection is to be used.

It extremely important that those using the facilities of the Rawl Engineering Practice Facility to practice safety and protect themselves against hazardous materials that may be used. Due to the danger and exposure of the materials and products used in these areas strict precautions need to be taken at all times. Material Safety Data Sheets (MSDS) are available for the known products that are used in these areas. The Material Safety Data Sheets of the materials that you use have the precautions listed that should be followed and the proper Personal protective equipment (PPE) that will minimize exposure to hazards and injuries. The bay that houses the concrete canoe team and CNC router should practice precautions at all times when entering the bay. The concrete canoe team uses Portland cement, microspheres, and fly ash and other hazards in this area. CNC router is used to cut wood, MDF board and foam all of which can cause inhalation hazards. The material safety data sheets listed have personal protection regulations that must be followed. Team members are responsible for making themselves aware of the MSDS sheets and the personal protection regulations that must be followed. This includes respiratory protection, skin and eye protection. This bay also has an area to lay up carbon fiber, sand molds or anything that creates dust or may stain the floor. Due to the nature of the products used in this area and other areas you are required to wear NIOSH approved respirators, ANSI approved eye protection, and appropriate clothing. The goal of the REPF is to practice safe measures against possible inhalation, eye contact, and skin contact.

Dynamometer Testing Room Safety and Operating Procedures

1. All individuals conducting testing in the dyno room must wear appropriate hearing and eye protection. Hearing protection must consist of ear plugs, earmuffs or both. This hearing protection will be provided by the REPF Coordinator.
2. If there are safety issues or concerns regarding safe use of equipment in the dyno room, the faculty advisor, team safety officer, and the REPF coordinator will meet to discuss a plan to address the concerns.
3. The test plan should include the following:
   I. General test summary
   II. Fire safety precautions including emergency evacuation procedure
   III. Mechanical failure safety precautions including emergency engine shutdown
   IV. Pre-run mechanical inspection check list
   V. Start-up check list
   VI. Test procedure check list
   VII. Shut-down check list
   VIII. Post-run mechanical inspection check list
   IX. Room clean-up check list

4. Any testing done in the dyno room must be reflected in the test plan. Unauthorized testing of any kind will result in loss of dyno room privileges.

5. This area is not to be used as storage. It is a work/testing area only.

Designated Safety Officer Certification Procedures

1. Each team will select up to two (2) team members who will act as safety officers for the teams’ operations in the REPF machine shop. These members must have been a team member for at least one year prior to being selected as a safety officer.

2. The safety officer must be approved by the REPF Coordinator and will be responsible for their team safety. The training session will be a comprehensive lesson on all REPF rules and procedures as well as shop equipment safety, operation, cleaning, and basic maintenance. safety officer will be required to:
   a. Receive verbal instruction on the safety, operation, cleaning, and basic maintenance of each machine.
   b. Observe the operation of each machine by the REPF Coordinator.
   c. Explain to the REPF Coordinator the operation of the machine.
   d. Demonstrate the ability to operate the machine at an above average level.
   e. Log a minimum of three hours (required by all new team members ) in the machine shop during staffed hours to gain card swipe access

3. Safety officers will act as a point of contact between team members and the REPF Coordinator.

4. A bi-weekly meeting will be required With the REPF coordinator to discuss safety issues . 10 minutes unless more time is needed.

5. Safety officers will be responsible for all team members conduct while in the REPF. Therefore, if a team member is observed in violation of a rule the member will be asked to leave until a meeting can be arranged between the Safety officers, the member, and the REPF coordinator. The REPF coordinator will explain the situation to the trainer, explain what rule was broken, and explain how to correct the problem. If necessary, the disciplinary policy will be used, and strikes will be given. The safety officers will then be expected to brief the entire team regarding the rule which was broken, and the corrective action required.

6. If it becomes apparent that the safety officer has not adequately satisfied his or her requirements as trainer, the REPF coordinator will explain the required corrective action and allow sufficient time for the safety officer to show improvement. If the team and safety officer do not show sufficient improvement, the REPF coordinator will ask the team to designate a new safety officer that safety officer will have to go through the same certification process.

Project Testing

Due to the nature of the projects (e.g., vehicles) built in team projects in the REPF, certain specific safety measures shall be taken when testing or operating these projects in and around the REPF or at an agreed upon location. All testing must be done with the prior permission of the Engineering Practice Coordinator and Team Faculty Advisor. The project removal form must be signed by the team faculty advisor and completed and turned into the REPF Coordinator before the project is taken from building. All participants shall wear appropriate safety equipment/clothing, as prescribed by the event rules that govern the national or international contest for which the product is being prepared. For the driver of a vehicular product, wearing of a bell helmet is mandatory in all cases. The project must be operated within the contest operations envelope.
1. Projects being tested
   a. For team member(s) operating the project, shall be clearly identified and their names and contact information listed on the project removal form
   b. Other team members that are present to witness testing must also be listed on the project removal form
   c. Project must pass inspection by Faculty Advisor and REPF Coordinator. All safety systems must be fully operational (i.e. brakes, drive systems, etc.) This inspection must be signed off on the project removal form by REPF Coordinator and Faculty Advisor
      a) Time, location, date, name of competition team for which the project is being tested shall be listed on the project removal form
      b) OU Norman Campus Waiver and Release of Liability form shall be signed.
      c) Is insurance required? Circle one: Yes no
d) If insurance is required, the insurance rider shall be attached to the project removal form.

2. Test Site(s) must be agreed upon by Faculty Advisor and REPF Coordinator.

3. A member of the REPF staff shall coordinate, if necessary, with OU Police to assure that the area remains clear of traffic.

4. Testing in or around the Engineering Quad will be considered on a team need but will be discouraged.

5. Other testing – Any testing in or around the REPF involving hazardous projects (e.g. ignition/combustion sources rotation mechanics, drivetrains, propellers, excessive noise, etc.) shall be performed in a manner similar to vehicular testing as described herein.

New Project Approval/Safety Certification Process

Any new projects that are to take place in the Engineering Practice Facility must go through a new project approval and safety certification process. That process has been outlined below. No projects may proceed in the REPF unless this process has been followed and completed to the satisfaction of the REPF coordinator. The REPF coordinator and REPF staff members always have the right to cease operations on any project which is viewed as unsafe, regardless of whether the project is following all REPF rules.

1) Initial project discovery/discussion
   a. Advisor contacts REPF to notify of desired project
      i. Email/bay application/phone call, etc
      ii. Information gathering by REPF Coordinator
      iii. Discussion with REPF Faculty in Residence
   b. REPF Committee notified of project
      i. Project discussed in REPF Operating Committee meeting
      ii. Merits/Drawbacks discussed
      iii. Project priority agreed upon
      iv. Space allocation discussed and agreed upon
   c. Advisor notified of approval/denial of bay space
      i. If denied, advisor is informed of the reasons for denial of space in REPF, and given the opportunity to reapply for the following year
      ii. If approved, advisor is notified of space allocation and initial Safety Certification meeting is scheduled

2) Safety Certification
   a. Initial meeting is held to discuss safety aspects
      i. REPF coordinator and faculty in residence outline safety concerns
      ii. Advisor allowed to respond and discuss safety concerns
      iii. REPF coordinator, faculty in residence, and project advisor agree upon list of safety requirements which must be met for project to proceed. REPF staff may also recommend design/testing changes in addition to any required design modifications and testing.
      iv. Date of second safety certification meeting is agreed upon
b. Safety Certification schedule discussion
   i. Advisor and team develop certification testing plan to meet safety requirements given by REPF.
   ii. REPF coordinator and faculty in residence review safety certification plan and make changes with advisor until a certification plan and schedule are agreed upon.
   iii. Safety certification plan should include a basic outline of design and testing to comply with safety requirements. A schedule of testing and inspection dates should be created and coordinated with REPF staff.
   iv. Before any testing, the REPF coordinator should be notified and given a thorough test plan. If the coordinator feels it is necessary to oversee the test, it will be scheduled in advance. All other testing may be done at the convenience of the team, with approval from coordinator.

c. Certification process
   i. Once a schedule is agreed upon, the team will proceed with their project, completing all required testing and inspection at the scheduled intervals. If at any point during the project an inspection is not passed, or a test is not completed and passed, the team must cease all further work on the project until that safety issue is resolved. If the team can complete work unrelated to the system or component undergoing the test or inspection, that work may be allowed by the coordinator.
   ii. At the end of the season, a set of safety rules will be agreed upon based on the testing and inspection done during safety certification. These rules will be published and kept in the REPF.

3) Project Approval
   a. At the end of the first year for a project, the REPF staff will meet to discuss the project. If the REPF staff feels the project is still valid and has been operated in a safe manner, the REPF staff can give the project the approval to continue operating under the safety rules agreed upon during safety certification. Modifications to these rules and further testing and inspection can be required if the REPF staff deems necessary.

Important Contact Phone Numbers

Police: 911
Fire Department: 911
Medical Emergency: 911
Oklahoma Poison Control Center: 1-800-222-1222

Jimmy Cannon Engineering Practice Coordinator
Office: 405-325-6844
Cell: 405-740-2834
(Emergencies Only)

Jackie Foos Outreach and Recruitment Director
Office: 405-325-3445
Bay Use/Application and Information Form

ExxonMobil Lawrence G. Rawl Engineering Practice Facility

Competitive Team Bay/Space Use Agreement in the REPF. Teams will not have bay/machine shop/bench lab access until:

1. This application is completed and turned in to Jimmy Cannon (REPF COORDINATOR). If you have any questions, please contact Jimmy Cannon at jimmyray@ou.edu.
2. Safety training is completed (annually). This can be scheduled to be done as a team. Individually it will have to be scheduled with the REPF Coordinator (Jimmy Cannon Rm 175 or at jimmyray@ou.edu.)
3. A minimum of 3 hours completed in the machine shop when it is staffed by REPF employees.
4. The REPF Safety Quiz must be completed. (Can be found on the REPF Homepage)

REPF Bay Rules and Expectations

1. Purpose of Rules and Expectations
   - The Rules and Expectations are to set guidelines for teams to use in their respective organizations.
   - The Rules and Expectations are to insure the safety of individuals, protection of the CoE facility, define use of the space, and to provide penalties for violations. The Rules and Expectations are not all inclusive and are subject to change. Teams will be notified of changes.

2. Responsibilities
   - Providing name of team and faculty advisor
   - Providing list of team members, their contact information and student ID numbers for card swipe access
   - Assign a Safety Officer to communicate with EPF Coordinator
   - Assign a bay /storage organizer to communicate with EPF Coordinator
   - Insure doors are not propped open. This is for safety and security reasons.
   - Team leader is in charge of teams operating
   - Be enrolled and in good academic standing at the University of Oklahoma. Grades will be checked before card swipe is granted. The grades will be checked throughout the academic year.

3. Inventory
   - All flammable liquids must be stored in Yellow Flammable Cabinets
   - All items requiring a MSDS sheet must be checked in at the Machine shop office(engineering practice coordinator)
   - All items not in current use shall be stored in storage areas(b-18 or area between machine shop and bays)
   - A current inventory of flammable liquids shall be turned in to EPF coordinator to be kept on file for fire marshal
   - MSDS shall be followed for proper hazardous material storage
   - Bays should be kept as work areas not storage areas
   - Housekeeping is a safety issue!

4. Safety
   - Training shall be completed by team members before access will be granted
   - A minimum of three hours in the machine shop must be completed and you must complete the REPF access Safety Quiz that is on the college of engineering website before card swipe access will be granted
   - Safety eye glasses shall be worn inside the bays and machine shop.
   - Appropriate clothing shoes must be worn(Covered in training session)
5. **Organization** is important in the REPF. The REPF is used daily in recruiting. Prospective students as well as business leaders, and various other people tour this facility periodically.

- Keeping bay and machine shop picked up and clean contributes to a safe environment
- Keeping bay and machine shop picked up contributes to a more productive work environment
- Keeping storage areas picked up and organized keeps us from ordering things we already have

6. **Storage** is limited at the REPF. We will work with your team and faculty advisor to assist in your storing needs.

- We have storage in the basement room B-18
- We have storage in between bays and machine shop.
- These areas are to be managed by the teams, but REPF Staff will take an active role in assisting with storage and organization of bay area.

7. **Machine Shop:** Always wear appropriate protective equipment

- Machine shop/bay areas will be available 7 days a week 24 hours a day once training is complete and card swipe access has been granted.
- Keys will be checked out for some of the machines that are locked
- **CNC mill and CNC plasma machine will be used during staffed hours only**
- It is imperative that you understand how to operate the machine that you are wanting to use.
- If you are not sure how to use a tool or machine, ask someone employed in the REPF.
- The shop is staffed Monday–Friday 8-5 and most days until 9:00pm during the week when semester starts. Most Saturdays during the semester. Appointments may be made during staffed hours.
- You can contact me at jimmyray@ou.edu or 405-740-2834 with questions or concerns about the shop.

If the above guidelines cannot be followed your card swipe access privilege may be revoke as well as removal from the team.

**Hazardous materials/chemicals must be checked in at the machine shop office and SDS turned in for records.**