

FAHAD BIN SULTAN UNIVERSITY SAFETY MANUAL

2024 - 2025

This safety manual is a guiding document for the University Health, Environment, and Public Safety Program. It contains information lays responsibilities and roles of departments and persons to ensure the safety of all FBSU students, employees, visitors, and contractors. Each employee, student, and faculty member is responsible for adhering to the rules included herein. Questions about the content of this manual should be directed to the Office of Health, Environment, and Public Safety.

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1. Introduction

The administration at Fahad Bin Sultan University (FBSU) has established a Public Safety department to be part of the Facilities and Project Management Unit (FPMU) and aptly named it the Health, Environment, and Public Safety Dept. (HEAPS). This department is tasked with all issues relating to public safety by maintaining a clean, healthy, and safe environment.

2. Overview

2.1. Health

A main cause of workplace injury, illness, and incidents is the failure to identify present or possible hazards. An effective safety and health program is an ongoing proactive program where hazards are continually identified and assessed. In this context, Health refers to lack of injury, and a main purpose of the HEAPS dept. becomes allowing all people to enjoy the same degree of protection from health hazards.

A. Health hazards exist in all environments and may be divided into separate categories:

1. Chemical Hazards:

Include the use of chemicals (such as cleaning materials), pesticides, which could cause skin irritation or corrosion.

2. Physical Hazards:

May include excessive heat, cold, high amounts of noise, electric shock, etc.

3. Biological hazards:

Such as mold or fungi growth, stinging insects, animal or bird droppings, or airborne diseases. Sewage and human blood are also categorized as biological hazards.

B. Health hazards may also be divided in 4 different classes from most to least serious:

1. Toxic Hazards:

Substances that can cause life-threatening effects, even with limited exposure and/or in small amounts. Employees must avoid all contact with the skin, and breathing in or swallowing such substances.

2. Harmful Hazards:

Substances that may result in long-term health effects, even with limited exposure. Employees must not swallow, breathe, or come in contact with these substances.

3. Corrosive Hazards:

Corrosive substances can cause skin burns or may result in permanent damage to a person's eyes. Consequently, it's important for employees to avoid contact with their eyes or skin,

and to avoid breathing the vapors, and to wear proper PPE to avoid exposure to these substances.

4. Irritative Hazards:

Exposure to such substances may result in irritation or result in some mild toxicity. It's imperative that such substances be kept away from the eyes or the skin, and steps must be taken to prevent release into the environment.

2.2. Environment

Many products and practices may harm the environment in which people live and work, which consequently negatively affect their health and wellbeing. Substances that may have harming effects to soil, or the ozone layer are examples of environmental hazards. Lack of safe and adequate supply of water for drinking and/or personal hygiene, and poorly cleaned and/or disinfected facilities are also examples of environmental hazards. Additionally, noisy, dusty, and/or poorly lit environments will have adverse effects on people's wellbeing and productivity. The HEAPS dept. strives to identify such hazards to properly deal with them in a timely and efficient manner.

2.3. Public Safety

Identifies public safety risks, in addition to describing and enforcing the safety responsibilities for members of the university community and visitors to university-owned or -occupied property.

3. Mission, Vision, & Values

3.1. Mission

The mission of the HEAPS Department at FBSU is to provide a hazard-free safe learning and working environment through meticulous planning and timely delivery of needed services that support the University's vision, mission, and stated goals and objectives, and promote a university-wide Safe-Campus culture.

3.2. Vision

Providing an exceptionally safe and healthy environment to a continually growing and expanding community while adhering to the highest ethical and professional safety standards.

3.3. Values

- High quality, timely, dependable service
- Honesty, Integrity, and Transparency
- Open communication with stakeholders
- Continual review and improvement

4. Goals & Objectives:

4.1. Goals

The HEAPS Dept. strives to ensure proper application of safety codes and regulations set forth by the Dept. of Civil Defense, the Ministry of Labor, and the Ministry of Education. The Dept. aims to accomplish its mission and vision by pursuing the following goals:

- Establish a campus-wide culture of awareness and responsibility.
- Promote a positive and safe work environment while minimizing potential hazards.
- Provide needed services to assist in the attainment of the University goals and objectives.
- Provide leadership in developing and supporting high quality programs that allow students, faculty, and staff to protect themselves from potential hazards they may encounter at the University.
- Provide guidance and ensure effective and cooperative relationships with students, faculty, staff, and visitors so that a safe, environmentally sustainable, learning environment is achieved and maintained.
- Maintain positive communication with related governmental agencies and ensure processes are in place to maintain compliance with local and national safety and environmental requirements and regulations.

4.2. Objectives

The HEAPS Dept. sets out to achieve its main goals by implementing the following objectives:

- Establish:
 - ✓ A primary contact with local and state officials (i.e. fire department, fire marshal)
 - ✓ An environment that's free from the threat of physical harm, property damage and disruptive activity.
- Provide:
 - ✓ Safety rules and procedures
 - ✓ Fire prevention and safety services.
 - ✓ Campus-wide Emergency Response Planning
 - ✓ Personal protective equipment for technicians and workers
 - ✓ Training and awareness programs related to environmental health, compliance, and safety.
- Manage & Maintain:
 - ✓ Proper lighting
 - ✓ Laboratory safety
 - ✓ Environmental compliance
 - ✓ Chemical inventory system

- ✓ Firefighting and fire alarm equipment
- ✓ Indoor air quality
- ✓ Pest control application and the handling of various chemicals.
- ✓ The application of safety rules and procedures to everyday campus life.
- Conduct:
 - Periodic safety audits
 - Ventilation system test and balance
 - Safety data collection, analysis, and sharing
 - Personal protective equipment evaluations and training
 - Training and awareness seminars for the FBSU community
 - Chemical product safety review, training, and record maintenance
 - Fire drills & fire safety training with hands-on fire extinguisher training
 - Mechanical and electrical systems preventive and corrective maintenance.

5. Dept. Structure

To accomplish its mission, vision, and stated goals and objectives, the HEAPS Dept. is made up of:

- Management Team: tasked with setting safety rules and procedures, communicating and coordinating with higher administration, taking necessary steps leading to full compliance with the national authorities' specifications on Public Safety, leading training and general safety drills, and publishing and disseminating safety information and posters.
- Supervisors: tasked with recognizing hazards and resolving them through a team of male and female workers, reporting to the Management Team any misuse of safety equipment, disorderly conduct by contractors or by the university general public, as well as any infractions or conditions that could pose a threat to public health and safety.
- Technical Team: tasked with corrective as well as periodic preventive maintenance of safety equipment in order to ensure system readiness and effectiveness whenever the need arises.
- Workers: tasked with carrying out the day-to-day duties of keeping areas clean, dry, and free of debris and hazards under the close observation of the Field Supervisors and the Management Team.

6. Responsibilities

The HEAPS department cannot do it alone. All have to do their part. Safety of any institution is not the responsibility of a designated individual, group, or department. It is a shared responsibility

where everyone plays his/her role in realizing the ultimate goal: a safe, healthy, and enjoyable learning and working environment for all.

6.1. The Public

As public safety is a group effort, and as a chain is as strong as its weakest link, the primary responsibility for everyone's safety lies with each and every individual at FBSU. While deans, directors, and/or dept. heads are responsible for implementing the safety program within their units, all faculty, staff, and students are responsible for:

- Complying with FBSU safety rules and procedures.
- Attending applicable safety training programs and or seminars.
- Reporting hazards, unsafe conditions, or accidents to designated supervisors.

6.2. College Heads and Unit Directors

College Heads and Unit Directors are responsible to the University for ensuring that risks to the environment arising from their units' activities are properly identified and controlled in conformity with university policy. They are also responsible for promoting environmental awareness and good practice integral to their units. They must ensure that:

- Environmental issues are included in appropriate local policies that are disseminated throughout the College/Unit.
- There is an annual College/Unit Environmental plan including aims and objectives that are specific, measurable, achievable, and realistic, and that these plans have clear deadlines for completion.
- Consideration is given to the environmental impact of all activities under their control and, as may be required by University Policy, an environmental impact assessment is carried out. Appropriate action is taken to eliminate or control those identified impacts, in particular to:
 - ✓ Minimize waste.
 - ✓ Minimize energy use.
 - ✓ Minimize hazardous discharges if any.
 - ✓ Consider impact of purchases.
- There is effective consultation and co-operation with staff and students within their units that and arrangements exist for raising environmental matters.
- Suitable monitoring and review arrangements are introduced to ensure University Policy and Unit rules are being adhered to.
- Proper arrangements are made for the segregation and collection of waste in conformity with applicable University policies.

Depending on department or unit needs, Heads and Directors may appoint Environmental Coordinators who will be responsible for coordinating with the HEAPS Dept. to implement the University's Environmental Policy in line with the College's or Unit's environmental plan.

6.3. Public Safety and Emergency Committee

This committee, formed from various academic and administrative departments, is established to proactively address safety issues, promote awareness, ensure compliance with regulations, and foster a culture of safety at FBSU. The responsibilities of this committee are:

- Overseeing the operation and performance of the HEAPS Dept.
- Ensuring emergency preparedness by:
 - ✓ Setting dates for evacuation drills, supervising their execution, reviewing overall performance, and working towards enhancing the results.
 - ✓ Developing and continually reviewing comprehensive emergency management plans.
 - ✓ Approving and adopting the emergency plans with the higher administration.
 - ✓ Naming the various implementation teams at the various university facilities and their responsibilities.
 - ✓ Monitoring and evaluating safety programs
- Holding regular safety meetings to address issues such as:
 - ✓ Reviewing incidents as soon as they occur, deriving lessons learned from those incidents, and ensuring proper actions are taken to prevent their reoccurrence.
 - ✓ Discussing safety initiatives
 - ✓ Discussing feedback from various stakeholders

6.4. Supervision

Persons in supervisory positions have special responsibilities regarding risks to the environment. They must ensure that adequate consideration has been given to these risks and that appropriate action is taken to eliminate or control them. In cases of uncertainty, expert advice should be sought through the HEAPS Dept.

6.5. The General Supervisor

The General Supervisor is responsible for leading safety efforts and supervising the implementation of emergency plan as well as coordinating with team members and subgroups. His duties include:

- Taking responsibility for issuing evacuation orders.
- Coordinating with safety officers for the best implementation of the emergency plan and the overcoming of obstacles, should there be any.
- Allocating people to proposed assembly areas in case of emergency.

- Leading groups and individuals of the emergency plan and dealing with all risks that occur immediately upon being informed of this and until the arrival of official service teams.
- Coordinating with the floor and building safety officers and supervisors and assembly point officials to follow up on the progress of evacuations.
- Contacting the Civil Defense authorities immediately, as needed, upon determining the type of emergency.
- Allowing occupants to return to the building at the end of the emergency.
- Preparing incident reports detailing the incident, the measures taken, response time, and any other pertinent issues and submitting them to the Public Safety and Emergency Committee.
- Conducting ongoing reviews of operations and processes to identify potential hazards, risks and control measures that should be implemented to reduce these risks.
- Training people on implementing safety policies and procedures, dealing with dangers, using fire-fighting devices and equipment, and executing safe and speedy evacuations.
- Set additional instructions for specialists to operate and deactivate the automatic alarm system.
- Keeping records of safety equipment, their current condition and maintenance requirements, a list of selected floor supervisors, firefighting groups, evacuation and rescue groups, conducting drills on mock accidents, training courses, previous accidents and activities, and meeting minutes.

6.6. Safety Supervision Officer

The Safety Supervision Officer is the person responsible for ensuring compliance with the set health and safety guidelines. He may be responsible for a single area or floor, or for an entire building. He reports to the General Safety Supervisor and advises on safety measures, conducts risk assessments, and enforces preventative measures. His duties include:

- Ensuring that health, safety, and environmental policies are followed.
- Following the proper procedures for reporting infractions, accidents, and injuries.
- Assisting the general supervisor in identifying, assessing, and documenting hazards, risks and control measures for a specific operation or process.
- Regularly inspecting all exits, escape routes and stairs and passage ways to ensure they are obstacle-free and in proper working order.
- Ensuring that necessary prevention measures are followed and safety equipment are properly used at various worksites.
- Following up on the periodic inspection and maintenance of fire safety systems and keeping proper records of all such inspections and maintenance and ensuring the readiness of all such equipment.

- Providing needed support to emergency teams and services.
- Setting up and supervising temporary work areas.
- Supervising the safe handling, storage & disposal of hazardous materials, if any.

7. Safety Equipment

7.1. First Aid Kits & Medical Help

For minor injuries, First Aid kits are available inside every lab and workshop. The kits are stocked with band aids, sterilizer pads, bandage rolls, medical adhesive tape, etc. and are periodically checked and refilled.

In case further help is needed, the Medical Clinic is available all day long to offer services to the university public. The Clinic is staffed with a nurse and an Emergency Room doctor. In case of a medical emergency, students and employees are directed to call for an ambulance at the numbers listed at the beginning of this document.

7.2. Emergency Lights and Signs

As the main electric system may get damaged during a fire, escape pathways, exits, and exit signs are lit using separate battery emergency lights that turn on when the power goes out.

7.3. Personal Protective Equipment

Personal protective equipment, "PPE", is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses resulting from contact with chemical, electrical, mechanical, or other workplace hazards. Such equipment may include items such as gloves, safety glasses, safety shoes, earplugs, hard hats, dust masks, vests, and overalls.

A. Safety Glasses, Goggles, and Face Shields

Tools and equipment that create chips, sparks, or dust present potential eye hazards. These types of eye hazards are generally controlled by Safety Glasses, Goggles, and Face Shields. Workers eye/face protection must be regularly checked to make sure they are not broken or scratched, and are the correct type for the hazard. At a minimum, they must be worn by anyone using hand or power tools.

B. Safety Shoes

All technicians and cleaning staff are required to use overalls and safety shoes at all times, as they offer protection against falling items, and are slip resistant. In some cleaning applications, such as cleaning the fountains, workers may use rubber knee-high boots, to further protect them from acids and other solutions and chemicals.

A. Hard Hats/Safety Helmets

Hard hats are required when working in areas where there is a potential for injury to the head from:

- Falling objects.
- Bumping into structures, pipes, etc.

General Hard Hat Care:

- A hard hat must be replaced if it sustains an impact, even if signs of damage are not visible.
- Hard hats should not be:
 - ✓ Altered for any reason as these alterations may lower the intended level of protection.
 - ✓ Exposed to extreme temperatures for prolonged periods of time.
 - ✓ Drilled for added ventilation.
 - ✓ Stored in direct sunlight.
 - ✓ Worn with the shell tilted to one side.

B. Gloves

As different types of gloves offer varying protection against different hazards, careful selection must be made to properly suit the application.

- Disposable latex or vinyl gloves: good for protection against infections
- Rubber gloves: offer good protection against many chemicals
- Leather gloves: protect hands from sharp objects, friction, splinters, and welding.
- Insulated gloves: protect against scolding hot and cold temperatures
- Electrical safety gloves: provide electrical safety applications of up to 36,000 volts and protection against cuts, abrasions and punctures

C. Safety (High Visibility) Vests

Reflective safety vests are required for technicians working in construction sites, traffic areas, and during emergency response.

D. Earmuffs & Earplugs

Noise is an occupational hazard that can affect workers' hearing and cause numerous health problems, and diminish the quality of work. The basic PPE for protecting from noise are earmuffs and earplugs.

Earmuffs should totally cover the ears, fit tightly and have no gaps around the seals. Hair, glasses, hats, etc. shall not interfere with the seal. Seals and insides should be kept clean. Headband should not be overstretched as the tension is crucial to protection.

Earplugs go right in the ear canal, not just across it. Operators should practice fitting them, clean hands before handling them, and should not share them. Some types are single use, others can be re-used and even washed.

E. Respiratory Protection

Airborne contaminants are often kept in check through proper ventilation. In laboratories, volatile materials are dealt with inside or under fume hoods. In applications where airborne contaminants are abundant and/or cannot be adequately controlled, various types of masks maybe used.

- Cloth masks: May protect persons nearby from wearer's respiratory emissions (speaking, coughing, and sneezing)
- Surgical masks
 - ✓ Protect persons nearby from the wearer's respiratory emissions (speaking, coughing, and sneezing).
 - ✓ Protect the wearer against large droplets, splash and/or aerosols.
 - ✓ Provide infection control, in clinical settings or with potentially infectious materials
- Dust masks: May protect against dusts, fumes, mists, and allergens
- N95 respirators:
 - ✓ Filter at least 95% of airborne particles
 - ✓ Reduces particles both inhaled and expelled by wearer
 - ✓ May have an exhalation valve option that makes it easier to exhale and reduce moisture build up.
- N99 and N100 respirators:
 - ✓ Filter at least 99% and 99.97% of airborne particles respectively.
 - ✓ Offer highest rated filtration efficiency for disposable respirators.
- Cartridge respirators: protect against variety of particulates, vapors, dust, mists, fumes, or a combination of these, depending on cartridge used.

7.4. Fire Alarm System

A fire alarm system is a system designed to detect, alert occupants, and alert emergency forces (if so equipped) of the presence of fire, smoke, carbon monoxide, or other fire-related emergencies. Fire alarm systems may include smoke detectors, heat detectors, and manual fire alarm activation devices (pull stations). All components of a fire alarm system are connected to a fire alarm control panel (FACP).

A fire alarm uses various technologies to detect fires. Smoke detectors for example are meant to alert you as quickly as possible to a smoke or fire emergency. Photoelectric smoke detectors on the other hand are ideal for detecting smoke from smoldering fires. Ionization smoke alarms detect smoke from fast, flaming fires. For best protection, all types of detectors should be used. Once a

fire is detected, the alarm sounds its sirens informing people of the danger and signaling to leave the premises. Strobe lights are also used to visually signal the presence of an alarm. In case the alarm does not automatically go off, one can set off the alarm manually by using a pull station. In addressable systems, the FACP actually tells the location of the tripped pull station or the detector detecting the fire.

FACP should be checked regularly to clear any faults that may appear. A service tag shall be placed at each FACP detailing checkup and service history.

A. False Alarm

As a false alarm may be caused by a dirty detector, bad installation, faulty equipment, etc. it is essential to rely on reputable trustworthy contractors to properly install the system, and on well-trained technicians to maintain it periodically.

False alarms may also be caused by people intentionally setting the alarm off without due cause. Due to its impact on everyone's safety, tempering with fire alarm equipment is a serious offense that will subject offenders to disciplinary or even legal action, especially if the tempering results in serious injury or harm.

When the fire alarm goes off:

- Take the fire alarm seriously every time
- Assume it is a real alarm, and evacuate the building
- Wait for further instructions

B. Fire Fighting System

B.1 Principles of Fire

Solids and liquids do not burn. Gaseous substances pyrolysed (decomposed from a solid material through heating) actually burn and not the solids themselves. Equally, vapors at the surface of a liquid are actually what burn, not the liquids themselves.

For a fire to burn, three components must be present:

- Fuel: solids, liquids, gases, oils and fats; practically everything may be fuel to a fire.
- Heat: acts on a fuel to start a chemical reaction that produces the needed flammable vapors.
- Oxygen: a fire must have oxygen to burn and will not burn with it.

Obviously, removing one or more of these components from the equation, will immediately extinguish the fire. Below are some the ways to control these three components and ultimately extinguish the flames:

- Water:
 - ✓ Has the most efficient cooling action and is best for Class A fires.

- ✓ May spread the liquid and worsen the situation with Class B fires.
- ✓ Can cause an explosion with Class C fires.
- ✓ Can lead to electrocution with Class E fires.
- ✓ Will cause a violent reaction with Class F fires
- Powder:
 - ✓ Smothers fires by forming a barrier between the fuel and the source of oxygen.
 - ✓ As powder is an efficient cooling agent, there is a small chance that fires may reignite.
 - ✓ The chemicals in the powder react with the fire producing CO₂, a noncombustible gas, creating a barrier between the fire and oxygen.
 - ✓ Can be used on electrical panels of up to 1000 V
- Gas (CO₂):
 - ✓ CO₂ is stored in cylinders as a liquid under high pressure.
 - ✓ When released:
 - It expands into a very cold gas that cools the fire.
 - It smothers the fire by displaces the oxygen near the fire as CO₂ is heavier than oxygen.
- Foam:
 - ✓ Foam smothers the fire by forming a blanket over the burning liquids (or solids) depriving them of needed oxygen.

Below is a summary of firefighting materials and their applications:

	Solids	Electrical Equipment	Flammable Liquids	Flammable Gases	Oils & Fats
Water	✓	✗	✗	✗	✗
Powder	✓	✓	✓	✓	✗
Gas	✗	✓	✓	✗	✓
Foam	✓	✗	✓	✗	✗

B.2 Fire Extinguishers

Portable, manually operated, fire extinguishers are the most common method of extinguishing a fire. Timely reaction to a developing fire prevents incidents from developing into large-scale disasters. When fires become uncontrollable by this method, fixed fire suppression systems should be activated. A service tag shall be placed on each Fire extinguisher detailing routine checkup history.

When To Use

Use a portable fire extinguisher when:

- The fire is confined to a small area, for example a trash bin
- The fire is not spreading.

- The area has been cleared of people.
- The room is not filled with smoke.

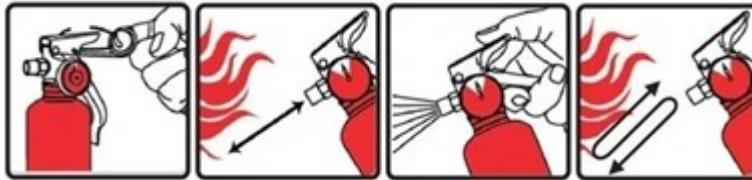
What To Use:

Various types of fire extinguishers exist based on the fuel source of the fire which are classified as:

- Class A: Fires involving solid, usually organic, materials.
- Class B: Fire involving flammable liquids (e.g. alcohol) or liquefiable solids (e.g. rubber, wax,)
- Class C: Fires involving gases (e.g. methane, propane, ...)
- Class D: Fires involving metals (e.g. magnesium, lithium, ...)
- Class E: Fires involving electric equipment.
- Class F: Fires involving cooking oils and fats.

How To Use:

- Hold the extinguisher upright and pull the pin
- Aim the nozzle at the base of the fire, not the top of the flame.
- Squeeze the trigger to release the firefighting agent
- Sweep the nozzle from side to side



B.3 Water Hose Cabinets

A standby fire hose is required on every floor of every building. Water hoses have a standard length of 30m with the water stream reaching up to an additional five to seven meters. Water hoses shall be kept stowed in a Dutch-rolled position and housed in special cabinet. Typically located in easy to access areas, individuals can use them to combat Class A fires. Water hoses should never be used to fight electrical or oil and grease fires. When utilized appropriately, the fire hose effectively cools down the burning material below its ignition temperature and thoroughly saturates the materials, preventing re-ignition. The water hose must be inspected for wear or damage regularly and after each use. Valves and nozzles should regularly be inspected for leaks and maintained properly. A service tag shall be placed on each cabinet detailing routine checkup and service history.

B.4 Fire Suppression Systems

A fire suppression system is an active automatic system that tries to detect and fight fires before they get the chance to spread and get out of control. Upon detecting heat, a sprinkler system is activated causing the area to be doused the area with water (or other firefighting agents) to cool it down (in the case of water) and extinguish the fire. In some other instances, like computer labs or server rooms, the detectors will activate the deployment of CO₂ or other gases (FM200 for example) that will extinguish the fires as previously explained. In kitchens, foam may be deployed automatically to fight grease and oil fires.

The water sprinkler system is tied to water pumps via a network of pipes where water is kept under pressure. In FM200 systems for example, the gas is kept under pressure in liquid form in special tanks. FM-200 fire suppressant does not displace oxygen and therefore is safe for use in occupied spaces without fear of oxygen deprivation. As the gas comes in contact with the fire, a chemical reaction occurs reducing the temperature of the burning material, hence extinguishing the fire. The gas is dispensed as a colorless electrically non-conductive vapor. The dispensed gas is clear, does not obscure vision, and leaves no residue. An FM200 system is the fastest fire protection and fire extinguishing system available. When fire is extinguished this quickly (within seconds), it means less damage, lower repair costs, and an extra margin of safety for people.

8. Environmental Safety Guidelines

8.1. Safe Comfortable Lighting

Poor lighting can lead to eye-strain, fatigue, headaches, stress, and accidents from trips and falls. On the other hand, too much light can also cause safety and health problems such as “glare” headaches and stress. Both can lead to mistakes at work, poor quality, and low productivity.

Light bulbs come with a lumen rating, whereas light intensity in a room is measured in Lux. 1 Lux is the illumination of a one-meter square surface that is one meter away from a single candle. Hence the equation:

$$1 \text{ lux} = 1 \text{ lumen/m}^2.$$

Below are typical light levels in typical work areas:

- Hallways/Toilets: 80 Lux
- Kitchens: 100 Lux
- Corridors, Lobbies, Staircases: 200 Lux
- Office, classroom: 300 - 500 Lux

To properly illuminate a room, using the typical values above as a guide, multiply the number of bulbs by the sum of the lumens of all the bulb, and divide that number by the total area (in m²). To light up a 20 m² office with 400 lux using a number (x) of 4000 lumens lights,

$E = 400 = x * 4000 / 20$ hence $x = 2$ meaning

The above equation means that we need two 4000 lumen lights.

The actual lux will be slightly less than 400 as the surface to be illuminated is more than 1 meter away from light source.

Light comes in different colors, also known as temperatures, measured in degrees Kelvin. Suitable lighting color temperature influences occupant's mood. For higher productivity, bright white, i.e. high temperatures, increases people's enthusiasm and hence is best suited for classrooms, exam rooms, and offices. Warm colors, i.e. lower temperatures, foster a sense of coziness and comfort, and are best suited for break rooms and lounges.

Common illuminance-level mistakes that should be avoided:

- Over-lighting or under-lighting a space.
- Using the wrong color temperature for the lighting fixtures.
- Placing light fixtures too close or too far from the surface.

For most comfortable glare-free lighting:

- Make sure rooms are not too dark nor too bright.
- Maximize the use of natural light.
- Use shades.
- Avoid shadows.
- Reposition lighting fixtures and workstations/desks
- Ensure regular cleaning and maintenance of lights, windows, and shades.

In case of fire or smoke, visibility gets poorer, and hence the importance of proper lighting in all areas, especially escape routes, stairs, and exits.

8.2. HVAC

Workplaces that are too hot or too cold can be a risk to employees' health and safety if not properly controlled. Employees may feel less alert, tired, ill, or having other medical conditions. Optimum comfort for office work is between 18°C and 24°C, depending on the time of year, clothing, and personal human factors.

Equally important to the room temperature, is ventilation of the workspace. An inadequately ventilated office environment or a poorly designed ventilation system can lead to the buildup of a variety of indoor air pollutants which adversely affect the occupants' health and wellbeing. The ventilation system should introduce an adequate supply of fresh outside air into the office and capture and vent pollutants to the outside. A general guideline of 20 cubic feet of outside air per minute/per person for an office environment. This is a sufficient amount of air to dilute building contaminants and maintain a healthy environment.

To ensure optimal system performance and minimal energy costs, ventilation filters must be periodically cleaned and replaced as needed.

A. Construction Dusts

The general public at FBSU must be protected against hazardous construction dusts, as regularly breathing such dusts can lead to serious diseases like lung cancer, asthma, Chronic Obstructive Pulmonary Disease (COPD), and silicosis. These diseases cause permanent disability and early death. COPD means that the lungs have been gradually and permanently damaged, making for poor quality of life. COPD develops slowly, with 15% of COPD cases caused by exposures at work. To protect workers from construction dusts, proper respiratory, eye, and face protection must be used. As for COPD:

- Smoking is the major cause of COPD. It makes work-related COPD worse.
- Workplace substances that cause COPD may also worsen a person's asthma.
- Construction workers in particular are at a higher risk of developing these diseases.

Examples of construction tasks that produce harmful dusts are:

- Cutting paving blocks, tiles, etc.
- Chasing concrete and raking mortar
- Cutting roofing tiles
- Scabbling or grinding
- Cutting and sanding wood
- Sanding taped and covered plasterboard joints

B. Noise

Noise in the workplace is an occupational hazard that can not only affect workers' hearing, but also can cause fatigue, stress, trouble sleeping, cardiovascular disorders, and diminish the quality of work. Certain noise levels can affect concentration, hinder verbal exchange, or prevent workers from perceiving warning signs. Sensitivity to noise varies amongst individuals. Noise pollution at FBSU emanates mainly from lawnmowers and lawn trimming equipment. Other noise sources include hammer drills used to break asphalt or concrete during installations or service of underground installations. Hearing damage caused by exposure to noise is permanent and incurable. As hearing loss is often gradual due to prolonged exposure to noise, operators of loud machinery or equipment must wear hearing protection whenever in noisy environment. Hearing is considered to be at risk from a level of 80 decibels during an 8-hour working day. If the instantaneous level is extremely high (over 135 decibels), any exposure, even of very short duration, is dangerous.

C. Cleaning & Chemical Products

Cleaners, sanitizers and disinfectants are defined as follows:

- Cleaners remove dirt through wiping, scrubbing or mopping.
- Sanitizers contain chemicals that kill bacteria on surfaces. They are not intended to kill viruses. Areas, like toilets and food preparation areas, require cleaning with the use of sanitizers.
- Disinfectants contain chemicals that destroy or inactivate bacteria, viruses, and microorganisms that cause infections.

D. Safe Work Practices

Employees must be trained on safe work practices and provided with safe working conditions for using cleaning chemicals. Safe work practices include:

- Warning workers against mixing cleaning products that contain bleach and ammonia;
- Training workers on the cleaning chemicals that must be diluted and how to correctly dilute them;
- Thoroughly reviewing and training workers on the use, storage and emergency spill procedures for cleaning chemicals;
- Reviewing the proper protective equipment needed, such as gloves and goggles, and providing the proper protective equipment to the workers using cleaning products;
- Ensuring that all containers of cleaning products and chemicals are properly labeled to identify their contents and hazards;
- Operating ventilation systems as needed during cleaning tasks to allow sufficient air flow and prevent buildup of hazardous vapors;
- Properly washing up after using cleaning chemicals.

9. Public Safety Action Plan

9.1. Fire Risk Assessment

The HEAPS Dept. oversees the execution of the Fire Risk Assessment and shares its findings with the Public Safety and Emergency Committee. The Aim of this Assessment is to:

- Identify the fire hazards.
- Identify people at risk.
- Evaluate, remove, or reduce the risks.
- Record your findings, prepare an emergency plan and provide training.
- Review and update the fire risk assessment regularly.

The HEAPS Dept. is responsible for:

- Producing and regular review of the plan
- Informing occupants about the identified risks.
- Putting in place, and maintaining, appropriate fire safety measures.
- Providing the university public with information, fire safety instruction, and training

9.2. Orientations, Seminars, & Publications

At the beginning of every semester, an orientation session is held for all students and staff members, new and old alike. Among other topics, the orientation discusses health, the environment, and public safety issues, the dos and don'ts, and how everyone can play his/her part in making the university a safe community for all. The orientation also lays out the gravity of tempering with safety equipment, the dangers of that such irresponsible actions, and the disciplinary measures that face offenders.

On top of that, the HEAPS Dept. holds seminars in cooperation with the Civil Defense Dept. where participants can hear directly from officers about fire safety and the consequences of conforming to or ignoring public safety regulations and procedures.

On the other hand, publications, posters, and alerts about personal and public safety measures are disseminated at least once a semester reminding the university public to always be on the lookout for unattended, unannounced, or untreated hazards, to report hazards and incidents to the HEAPS Dept. for speedy resolution, and to always consider their safety and the safety of others in all their actions and interactions.

9.3. Fire Drills

Fire drills are coordinated internally through Public Safety & Emergency Committee. When holding mock fire drills, the Civil Defense also gets invited to participate in overseeing the administration of such drills. The purpose of such fire drills is to familiarize people with evacuation routes and practices as well as measure and analyze the public's response and performance and preparedness to emergency situations. The goal of this practice is to:

- Promote a quick, orderly, and safe evacuation of the individuals while avoiding the risk of injuries resulting from panic-induced chaos.
- Instill in people a natural automatic response whenever fire alarms sound, so that everyone safely evacuates the area in orderly safe fashion.

Employees assigned to emergency supervisory roles shall receive training in fire safety, exit and evacuation plans, and their duties during an emergency. They shall receive this training at their orientation and annually thereafter.

9.4. Housekeeping

All university areas, indoors and outdoors alike, must be kept free of debris, trash, and other materials that could create a health or fire hazard and cause an accident. Wet/sticky floors are a hazard to public health and safety. The Housekeeping Dept. makes diligent efforts to keep floors, stairs, and walkways clean and promptly deal with spills and leaks. Caution signs are used when floors are wet or are being mopped warning people of the present danger. Items blocking pathways or exits are immediately removed to ensure everyone's safety. Not allowing trash bags to pile up, they continually get collected and promptly moved outside and placed in their designated dumpsters. Dumpsters are emptied on a daily basis by an authorized contractor. Mechanical and Electric rooms must be kept clean at all times and may not be used for storage.

9.5. Cleaners Training

Workers dealing with chemicals in general must be trained on their Health and physical hazards. Training shall include:

- Proper handling, use and storage of all cleaning chemicals being used
- Dilution procedures of when and how a cleaning product must be diluted before use
- Proper procedures to follow when a spill occurs;
- Personal protective equipment required for using the cleaning product, such as gloves, safety goggles and respirators;
- Emphasizing the dangers and hazards of mix different cleaning chemicals together.
- Wash hands with water after working with a cleaning chemical, especially before eating, drinking or smoking.

9.6. Maintenance

A. Electrical Maintenance

Electrical Maintenance and repair must only be conducted by trained personnel who know how to safely use the electrical equipment. The use of adequate PPE is mandatory. Electrical equipment and installations must be checked regularly to prevent electrical hazards.

- Overheating or melting outlets or extension cords shall be replaced immediately.
- Cracked switches making arcing noises
- Enough sockets should be available and should never be overloaded.
- Equipment that appears to be faulty must be removed immediately.
- Electrical equipment shall be maintained as necessary, and should be immediately removed if:
 - ✓ The plugs are damaged
 - ✓ The cable is repaired with tape and/or internal wires are visible

- ✓ Burn marks or stains are present

B. HVAC Maintenance

- HVAC systems should receive periodic cleaning and filters should be changed on a regular basis on all ventilation systems.
- Office machinery should be operated in well-ventilated areas or areas with 7-10 air changes per hour. Photocopiers should be placed away from workers' desks.
- Office equipment should be cleaned/maintained according to the manufacturer's recommendations. Properly maintained equipment will not generate unhealthy levels of pollutants.
- Special attention should be given to special operations that may generate air contaminants (such as painting, pesticide spraying, and heavy cleaning).

C. Auxiliary Generators

The main auxiliary generator is programmed to automatically start, within a minute of a power outage. Along with powering the main university servers, it feeds the firefighting equipment during those outages, guaranteeing their operation. The other auxiliary generator at the College of Medicine feeds the ventilation systems and refrigerators of the Dissection Lab. It is therefore crucial to ensure the auxiliary generators' readiness through periodic maintenance. It ensures the generators' efficiency, durability, and safety of operation, minimizing any risk of failure. Periodic checks should include the following:

- Generator is physically in good condition
- Display panel is in good condition.
- Diesel is available and diesel tank free of leaks.
- Suitable fire extinguisher and sand buckets in ample quantity available nearby.
- Generator area is neat and clean, free of leakage, spillage, etc.
- Availability of Diesel fuel
- The status of fluids, belts, batteries, and hoses
- Cleaning the generators

In general:

- Proper signage for the generator should be displayed
- Diesel tank shall be separated from the generator, fenced off, and with proper cautionary signage displayed.
- Containment basin should be made available under the diesel tank to ensure leaks will be contained and will not spill over to the road nearby.
- Only service personnel are allowed inside generator room which must be kept locked to prevent unwanted traffic or vandalism.

- Only trained and authorized staff are allowed to perform maintenance or repair activities.
- Proper periodic maintenance of diesel generator, fluids, batteries, belts, etc. shall be performed and logged.
- Generator must be regularly run with load for at least 15 minutes at a time.
- All original documentation including service registration forms, model and serial number nameplates, drawings or diagrams, spare part lists, maintenance schedules, and manuals must be kept in a good condition as they may be needed during any service or repair activity.

D. Lubricants

SAE 15w40 oil is used as the engine oil of choice as it provide protection in temperatures that range from -15 degrees to over 40 degrees Celsius. Along with the oil filter, the Engine oil is to be replaced once a year (based on our usage).

E. Radiator Coolant

The cooling system is critical for preventing the generator from overheating. Regularly inspect the radiator, coolant levels, and hoses. Clean the radiator fins from dust and debris, and replace the coolant at the recommended intervals to prevent corrosion and maintain proper temperature regulation.

Coolants are mixtures of water, antifreeze and any other chemicals for several purposes. The main purpose of using this mixture is cooling the engine, preventing engine failures related to overheating, and keeping the engine running at optimal temperatures. The addition of antifreeze and other chemicals prevents the cooling water from freezing as well protects the cooling system against corrosion.

F. Batteries

Diesel generators use batteries to start the engine, so it's vital to check their condition regularly. Inspect for corrosion on terminals, clean them, and ensure they are properly charged.

G. Fire & Safety Equipment Maintenance

FACP

Regular inspections and maintenance are conducted on the fire alarm control panel (FACP) to identify and address any issues in a timely manner. This includes checking for and resetting any faulty alarms, as well as replacing faulty batteries or power supplies.

Smoke/Photo/Heat Detectors

FACP faults as well as false alarms may be caused by dirty or malfunctioning detectors. Periodic preventive Maintenance will ensure all faults are cleared and all detectors are in proper order.

Fire Suppression System

Ensure that the fire suppression system is always equipped with sufficient gas to respond to any fire incident promptly. Additionally, it is recommended to incorporate regular maintenance and inspection for the automatic fire suppression system as part of the internal maintenance schedule. Whenever deficiencies are found, appropriate corrective action is taken immediately. This inspection shall include verification of the following:

- Release panel is in service, free of any trouble, supervisory, or alarm conditions.
- Manual actuators are unobstructed
- Maintenance Tag is in place.
- System shows no physical damage or condition that might prevent operation.
- Pressure gauges are in the required operational range.

Water Hose Cabinets

All water hose reels' cabinets should be inspected and supervised on a monthly basis along with the fire extinguisher. Inspection should check the following questions:

- Is the cabinet clearly visible?
- Is the cabinet door obstructed?
- Can the cabinet door be opened easily?
- Can the hose reel be fully extended (30m)?
- Is the reel obstructed?
- Is the valve easily operated and reached?
- Is there a sign of misuse?
- Is instruction clearly displayed?
- Is there any sign of leaking and corrosion?

Inspection tag shall remain across each fire hose.

Portable Fire Extinguishers

Portable fire extinguishers are visually inspected when initially placed in service and at least once a month as per standard NFPA 10(98). These visual inspections are intended to help ensure that each extinguisher is in its designated place and will operate properly when needed. Inspection tag shall remain across each fire extinguisher.

Fire Pumps & Valves

Fire pumps are the single-most expensive component of a water-based sprinkler system, and failing to maintain them properly will significantly shorten their useful lives. Fire pumps shall be visually inspected on a daily basis to ensure they are in good physical condition. Fire pumps must be run once a month for 15 minutes on auxiliary power with water redirected back to the underground tank to prevent water wastage. In this manner, the pumps get tested, and the auxiliary generated with load at the same time. Inspection shall be documented and filed.

On top of the daily checks and the monthly runs, an annual flow test shall not be ignored as it is debatably the most critical test. It a full test of a pump's capabilities and is conducted by qualified personnel under no-flow (churn, i.e. no water), rated flow, and 150 percent of the pump rated flow capacity. High-quality test equipment is essential for fire pump annual flow tests. For best results, everything that's used should bear a calibration sticker attesting to calibration within the past year by an approved calibration facility. If possible, the calibration certificate should also be available for inspection.

To guarantee water supply to the hydrants and sprinklers, water supply valves must be secured. Normally open valves and normally closed valves are secured by chains and locks to prevent tempering. On top of that, the entire pump room is kept under lock at all times.

H. Pest Control

Located in a desert environment, FBSU is not immune to the presence of various pests and hazardous creatures that are native to the area, such as snakes, scorpions, lizards and geckos, wasps, and spiders. Awareness of the hazards and controls of exposure to these creatures is very important to public health and safety as they may be dangerous and require professional intervention. A pest control contract with a professional authorized contractor is the best way to deal with the problem where that contractor may actively or reactively take needed measures to deal with issues as they arise. Here are some common sense measures that may be helpful:

- Alertness is a good safety measure as reptiles will most likely attack when startled or provoked.
- Minimize food sources, rubbish, and materials by removing anything that may attract them.
- Be aware of increased risks in low traffic shaded areas that could offer safe hideouts.
- Use PPE when moving stored materials and rubbish as they will give some protection against bites.
- Once these creatures are found:
 - ✓ Do not approach or attack.
 - ✓ Immediately call one of the emergency numbers listed at the beginning of this document.
- If bitten by a snake:

- ✓ Note the color and shape of the snake's head to help with treatment.
- ✓ Keep bite victims still and calm to slow the spread of venom in case the snake is poisonous and seek medical attention as soon as possible.
- ✓ Do not cut the wound or attempt to suck out the venom.
- ✓ Apply first aid: lay the person down so that the bite is below the level of the heart, and cover the bite with a clean, dry dressing.
- ✓ Call one of the emergency numbers listed at the beginning of this document.

10. Equipment Safety Guidelines

10.1. Ladder Safety

A major cause of injury at worksites results from improperly reaching high places by climbing onto tables and chairs. Reaching these high places should only be done properly using ladders, scaffoldings, and lifts. For easy to reach places, ladders are the best choice. Different types of ladders have different uses and various load ratings. Below are some of the safety measures that should be taken when using ladders:

- Before using a ladder, one is expected to visually inspect it to insure it is free from:
 - ✓ Grease, or dirt that can result in slips and falls.
 - ✓ Defects, structural damage, broken or loose steps, and/or loose screws, bolts, hinges, or other parts.
- The weight of the person climbing the ladder, plus the weight of the tools, materials, and equipment, should be taken into consideration when choosing a ladder.
- Slip-resistant shoes with heavy soles should be used to prevent falls and foot fatigue.
- Ladders must only be set on stable flat surfaces.
- Leaning and reaching away when on ladders puts the person using them at risk of falling. To prevent falls, descend then move the ladder to the proper location.
- Self-supporting ladders must not be used half closed or as straight ladders.
- When using straight ladders:
 - ✓ The base of the ladder should be a quarter of its working height away from the wall.
 - ✓ Workers should not stand on the last three rungs of the ladder.
 - ✓ Actions should be taken to ensure ladders do not slide away causing serious injury to the person on them and/or other working in the area.
- Whenever needed, barricades must be used to divert traffic away from the ladder.
- Climbing up or down should be done cautiously, one step at a time.

10.2. Scaffolding Safety

Scaffolding is an important safety measure that's implemented when working at heights that may not be safely reached by ladders, or when working at heights for prolonged periods. University technicians may use scaffoldings indoors to access hard to reach areas up 7 meters or so in height. Outdoor scaffolding use is conducted by authorized 3rd party contractor. As scaffolding incidents are quite numerous, dangerous, and costly, the following measures need to be enforced when working with scaffoldings:

- Always use PPE when working on or around scaffoldings. Safety shoes, overalls, vests, hard hats, and harnesses are a must to protect workers from falls and other injuries.
- Never exceed manufacturer's load limit specifications.
- Inspect scaffolding components after every use.
- Setup scaffoldings on flat safe surfaces.
- Block off the area near the base from any traffic.
- Fall protection must be used for scaffolds higher than 3 meters.
 - ✓ Fall protection includes guardrail systems and personal fall arrest systems. Personal fall arrest systems include harnesses, components of the harness/belt such as Dee-rings, and snap hooks, lifelines, and anchorage point.
 - ✓ Guard rails should be between 91.44 cm and 126cm in height. The gap between the top rail and the mid rails shall not exceed 47 cm.
- Ties and braces are to be installed at each end of the scaffold and at horizontal intervals not to exceed 8 meters vertically. If the 4:1 height to width ratio of a scaffold is reached, ties and braces are to be installed at each end of the scaffold and at horizontal intervals not to exceed 9 meters vertically.

10.3. Motor Vehicles and Jobsite Transportation Rules

- The use, inspection, and operation of all motor vehicles shall comply with the manufacturer's recommendations and requirements.
- Only authorized operators may operate the University motor vehicles they are entrusted with. Motor vehicles may not be lent nor borrowed nor used for any personnel business.
- University motor vehicles must be returned to campus at the end of every workday.
- The operator must refrain from partaking in any activity that may divert his/her attention from the operation of the vehicle, e.g. using a cellular phone, texting, taking your eyes off the road, etc.
- Operators and passengers of university motor vehicles are required to wear seat belts while the vehicle is being operated and abide by posted speed limits and applicable traffic laws.
- Transportation of persons in the back of pick-up trucks is strictly prohibited.

- Motor vehicles shall not be used to pull or tow unless the vehicle and attachments are specifically designed to do so.

10.4. Electrical Appliance Safety

Although electricity can severely injure people and cause damage to property, simple precautions can be observed when working with or near electricity and electrical equipment to significantly reduce its risks. The main hazards of working with electricity are:

- Electric shock and burns from contact with live parts
- Injury from exposure to arcing (when electricity jumps from one circuit to another)
- Fire from faulty electrical equipment or installations
- Explosion caused by unsuitable electrical apparatus
- Static electricity igniting flammable vapors or dusts.

10.5. General Electric Safety rules

- Trailing cables that can cause people to trip or fall must be properly hidden.
- Electrical appliances must be switched off and unplugged before getting serviced.
- Electrical equipment should be properly connected, grounded and in good working order.
- Extension cords may not be used as permanent wiring and should be removed after temporary use for an activity or event.
- High amperage equipment such as space heaters, boilers, etc.
 - ✓ Must be announced to the Facilities Unit to ensure that outlets can properly handle the high amperage and will not melt causing fires and other hazards.
 - ✓ Must be plugged directly into permanent wall outlets.
 - ✓ Must be turned off at the end of the day.
- As wet environments can increase the risk of an electrical shock
 - ✓ Computers must be placed on computer stands and off the ground
 - ✓ Loaded/connected extension cords must not be left lying on the floor.
 - ✓ Permanent connections must be properly mounted on walls.
- Equipment should be properly grounded, providing an alternate path for electricity to follow, rather than going through a person.

11. Safe Work Permits

A safe work permit is a document that authorizes some person or persons to carry out specific work activity after potential risks have been evaluated and mitigated. It serves to ensure that workers are aware of the potential hazards and of the precautions that must be taken into consideration. Such permits help prevent accidents, maintain compliance with regulations, and

protect the health and safety of employees and the surrounding environment, as well as protect the university, workers, and contractors from liability and loss.

The permit-to-work process typically involves the following steps:

- Identification of the work to be carried out.
- Assessment of the associated risks and identification of necessary control measures.
- Development of a safe work procedure or method statement.
- Completion of a permit-to-work form or document.
- Authorization from the designated authority responsible for issuing permits.
- Implementation of the necessary controls and safety measures.
- Regular communication and coordination between different parties involved in the task.
- Closure of the permit once the work is completed and verified as safe.

The Project Manager or the Safety Supervisor may periodically check the work and job site to ensure the contractor's compliance with the requirements of the permit.

A number of work permits are discussed below.

11.1. Hot Work Permit

Hot Work is defined as cutting, welding, and soldering operations for construction, demolition, maintenance, and repair activities. The types of equipment used in these operations can introduce significant fire hazards into university buildings. The hot work permit provides a check list for hot work fire safety and serves as a reminder to contractors of their fire prevention responsibilities before, during, and after any hot work is conducted.

11.2. Working at Heights Permits: Mitigating Fall Risks

Working on construction sites often involves working at great heights, from which a fall can mean certain death or real grave injury. To protect workers, obtaining a Working at Heights Permit is essential. This permit outlines the necessary precautions, equipment, and safety measures that must be taken to ensure the safety of workers who are working above ground.

11.3. Electrical Work Permits: Safeguarding Against Electrocutation

Electricity is a crucial element in construction, but it can also be dangerous if not handled properly. Electrical Work Permits establish guidelines for de-energizing circuits, testing for live wires, and wearing personal protective equipment to ensure electrical safety.

11.4. Machine and Equipment Operation Permits: Ensuring Safe Operation

Heavy machinery is crucial in construction, but improper use can result in disastrous consequences. Machine and Equipment Operation Permits provide guidelines for safe operation, including operator qualifications, maintenance checks, and safety protocols.

12. Incident Reporting

All accidents and incidents, including injury, fire, dangerous occurrences, and near misses, must be reported without delay to the HEAPS Dept. The purpose of this reporting is to ensure that incidents are recorded and investigated, and that needed actions are identified, and performed, if possible, to prevent their recurrence. It is therefore crucial that people report incidents quickly, especially those that may involve the following:

- Near Misses: Any dangerous occurrence that could have resulted in a serious injury or fatality. Even though no observable injury, illness, death, or property damage have occurred, the information obtained from such reporting can be extremely useful in identifying and mitigating problems before they result in actual personal or property damage.
- Incidents:
 - ✓ Any accident to a student, visitor, employee, or member of the public as a result of work activities.
 - ✓ Any death occurring as a result of work activities
- Events: Incidents not involving injury or illness, but resulting in property damage.

13. General Safety Guidelines

13.1. General Safety Precautions

- You are responsible for your own safety and the safety of others.
- Most accidents are preventable by using common sense and thinking safety first.
- Keep your work area clean and free of hazards.
- Always follow agreed upon rules and procedures.
- Always wear proper protective safety gear.
- Do not tamper with fire alarm or firefighting equipment or disable emergency doors.
- Familiarize yourself with locations of fire extinguishers, emergency exits, escape routes, and emergency assembly points.
- Do not take shortcuts and always follow safety rules & procedures.
- Adhere to properly using the right tools & equipment.
- Don't use materials and equipment without prior training.
- Don't use materials and equipment without prior authorization.
- Promptly report all hazards and unsafe conditions to the nearest Safety Officer
- Refrain from horseplay and always be vigilant and prepared.
- Familiarize yourself with the location of the fire exits and fire extinguishers.
- Learn of the various types of fire extinguishing materials and their uses.

13.2. Common Causes of Injuries

- Standing on or climbing onto furniture.
- Tripping on open drawers, cables, or things left on the floor.
- Blocked or Cluttered pathways.
- Spills and wet or sticky floors.
- Objects poorly stored in high places.
- Falling cabinets and other furniture.
- Improperly lifting heavy objects.
- Using unauthorized electrical appliances.
- Using improper/unoriginal electrical plugs and/or overloading them.
- Sitting at the desk for extended periods without a break.
- Not knowing nor complying with general safety procedures.
- Not paying attention to your surroundings.

13.3. Infectious Diseases

To limit the spread of infections, adhere to the following common-sense rules:

- Cover your mouth with a tissue when coughing or sneezing
- Wash your hands regularly with soap for at least 20 seconds
- Do not touch your eyes, nose, or mouth before washing your hands
- Avoid people exhibiting flu-like symptoms
- Avoid crowded places as much as you can and use a medical mask when in such places
- When exhibiting symptoms of the flu:
 - ✓ Seek medical help As Soon As Possible
 - ✓ Use a medical mask
 - ✓ Avoid hugging/kissing people
 - ✓ Avoid shaking hands with everyone you meet

14. Fire Evacuation Plans

14.1. Emergency Evacuation

Become familiar with your work area and exit locations in advance of an emergency. Always know at least two ways out of a building. If a fire alarm sounds, prepare to evacuate immediately.

- Don't panic, keep calm and do not run nor hide.
- Do not take any unnecessary risks.
- Do not go back to collect your belongings.
- Walk in a single file. Stay to the right when walking through corridors and stairwells.

- Avoid stopping and talking to others and keep the lines moving.
- Individuals requiring assistance should proceed to a stairwell entrance area and wait for assistance.
- When approaching a closed door, feel the door with the back of your hand. If the door is cool, carefully open the door and, if safe, proceed with the evacuation.
- In case of heavy smoke, crawl on the floor.
- Take the stairs and do not use the elevators.
- Safely exit the building using the nearest exit.
- In case of a fire, don't use fire extinguishers unless you are trained on using them.
- Head to the designated assembly point and remain there until you are authorized to go back inside.
- Inform authorized personnel of location of fire or smoke.

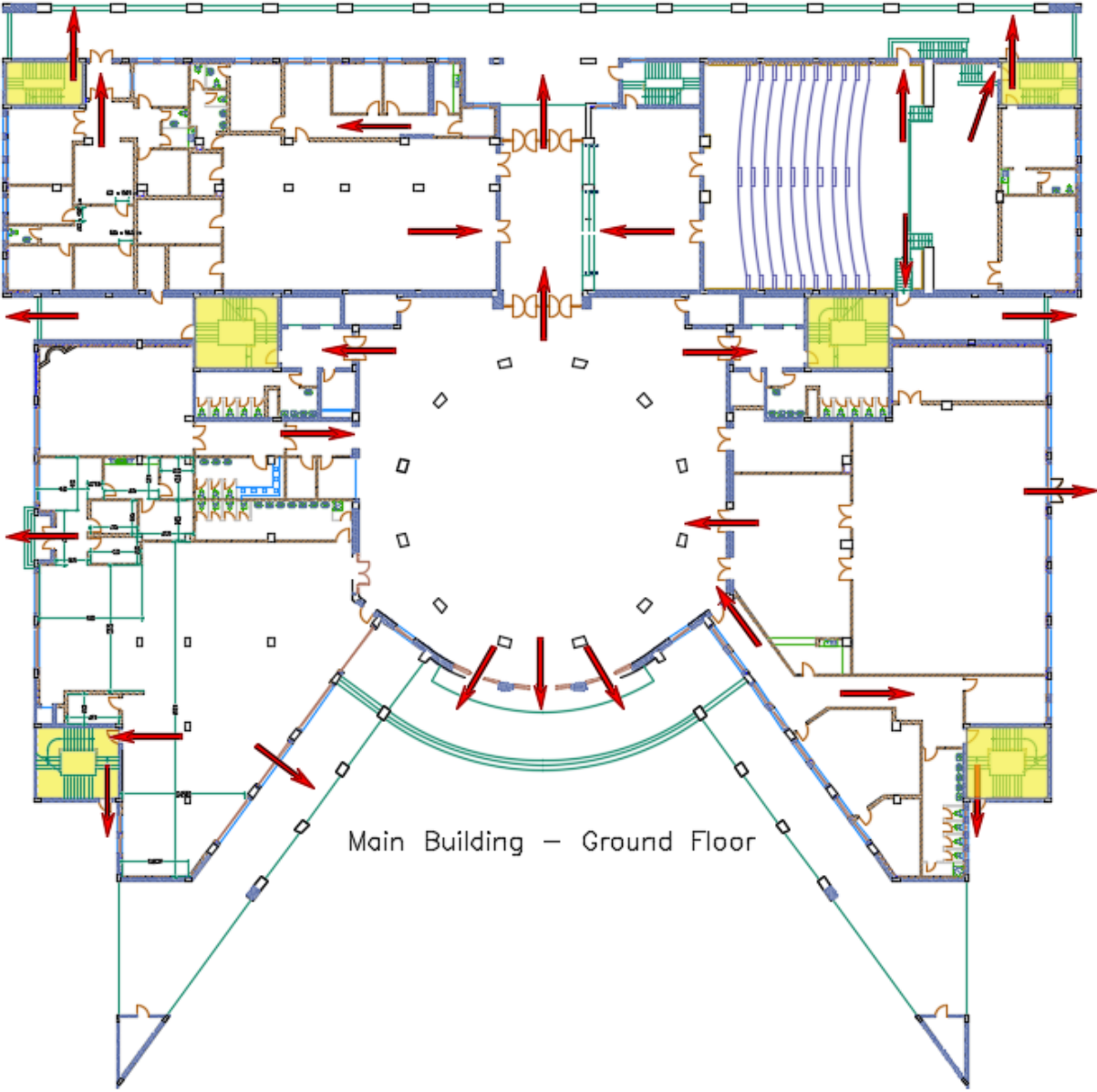
14.2. Procedures for Faculty Members

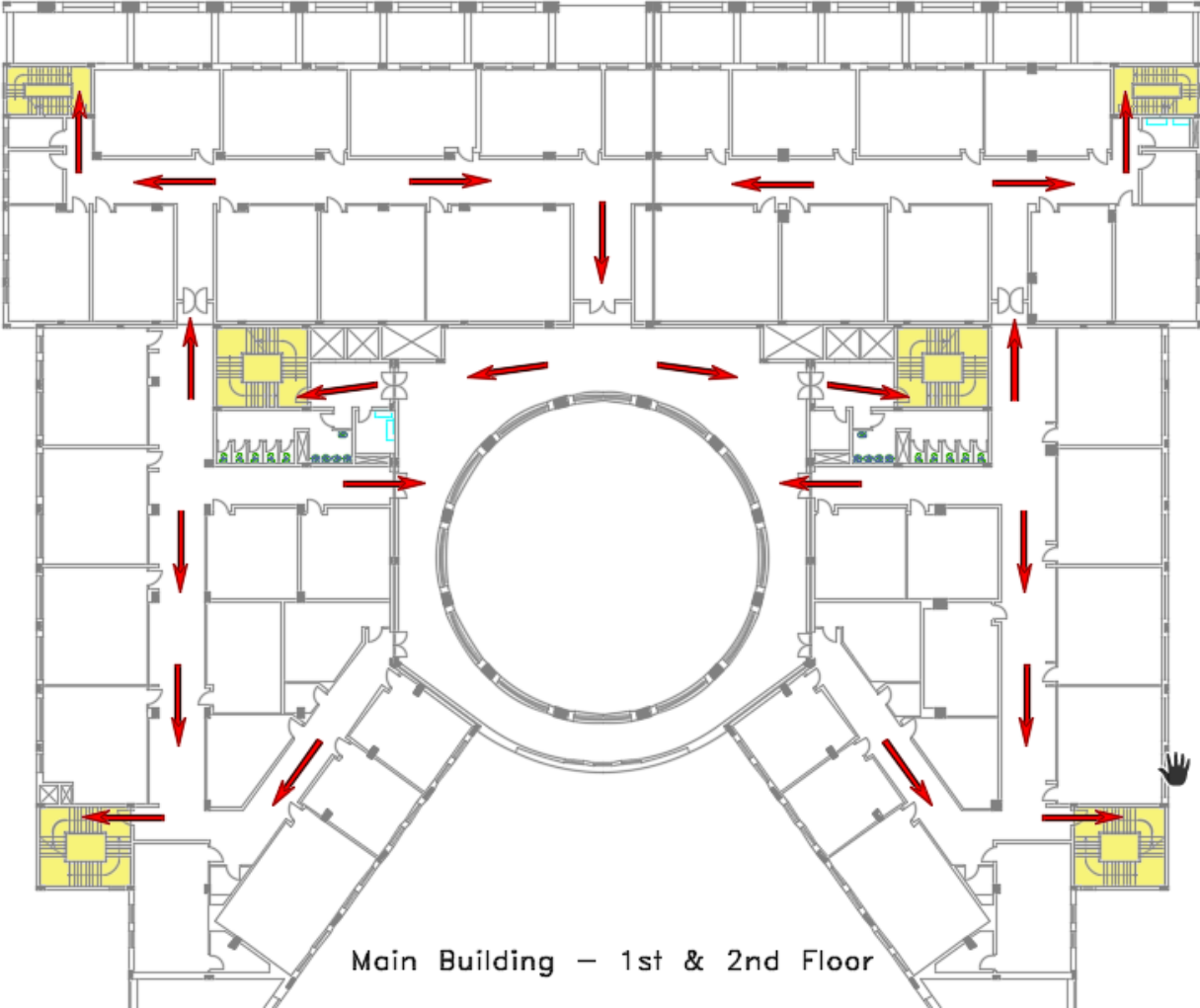
- Locate all exit routes, secondary exit routes, and assembly areas.
- During the first week of class or when a new student transfers to the class, review the evacuation plan, routes, and assembly area with the students.
- In the event of an alarm, escort/lead students out of the building and report to the assembly area.
- Upon arrival at the designated assembly area, account for your students and report any missing students to the building supervisor.

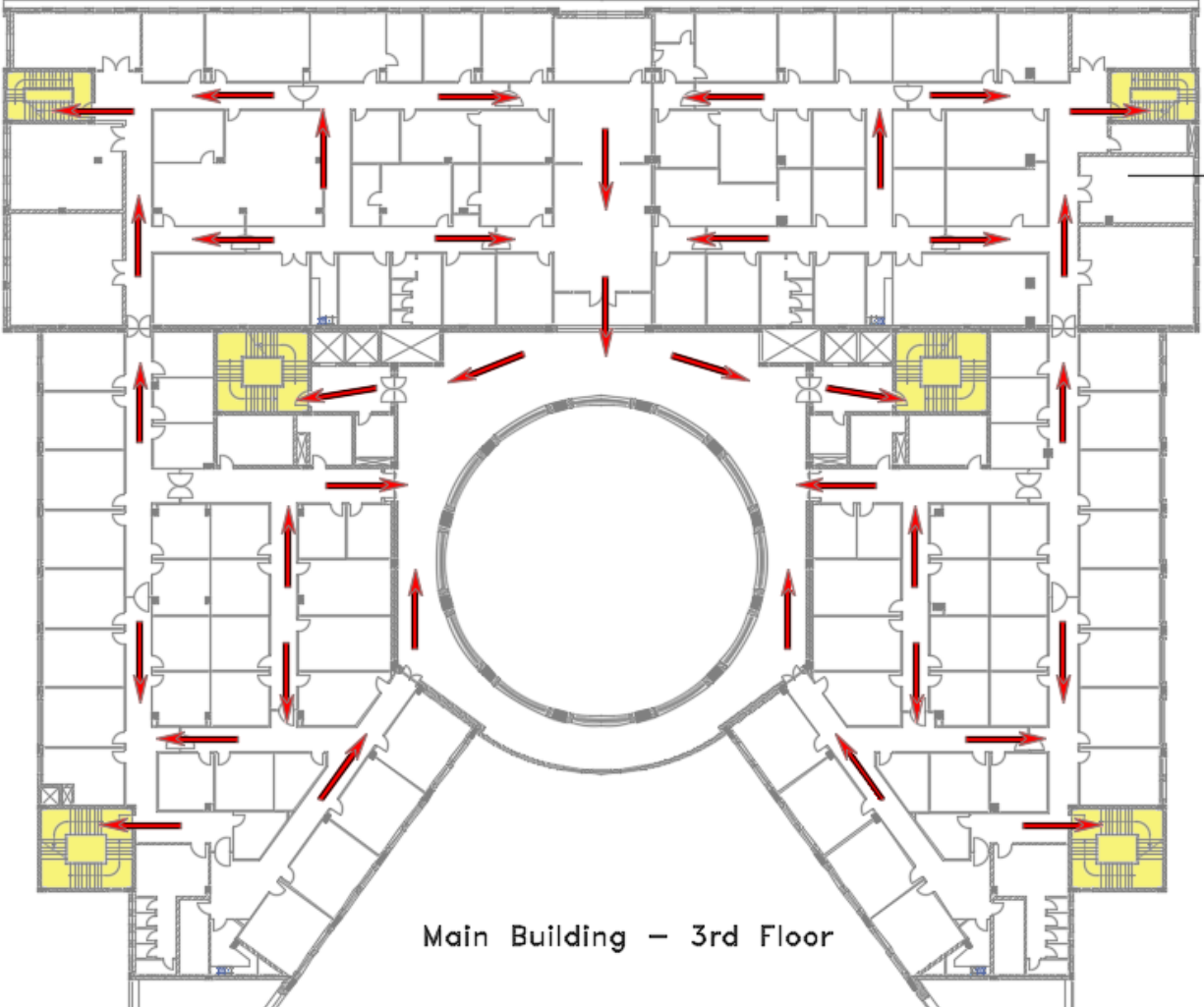
14.3. Procedures for Staff/Contractors/Other Employees

- Locate all exit routes, secondary exit routes, and staging areas.
- In the event of an alarm, immediately leave the building and report to the assembly area.
- Managers and department heads are responsible for designating a person to be responsible to account for the persons in their department or area in the event that an emergency evacuation must occur. This person will take a head count and report any unaccounted-for individuals to the floor supervisor.
- In the event of a fire alarm, building/floor supervisors shall perform a sweep of their area to ensure that, all visitors and contractors are escorted out of their area of control and direct them to the designated assembly areas, to await instructions from emergency responders. If any individual is not accounted for, such findings shall be reported immediately to the General Supervisor.

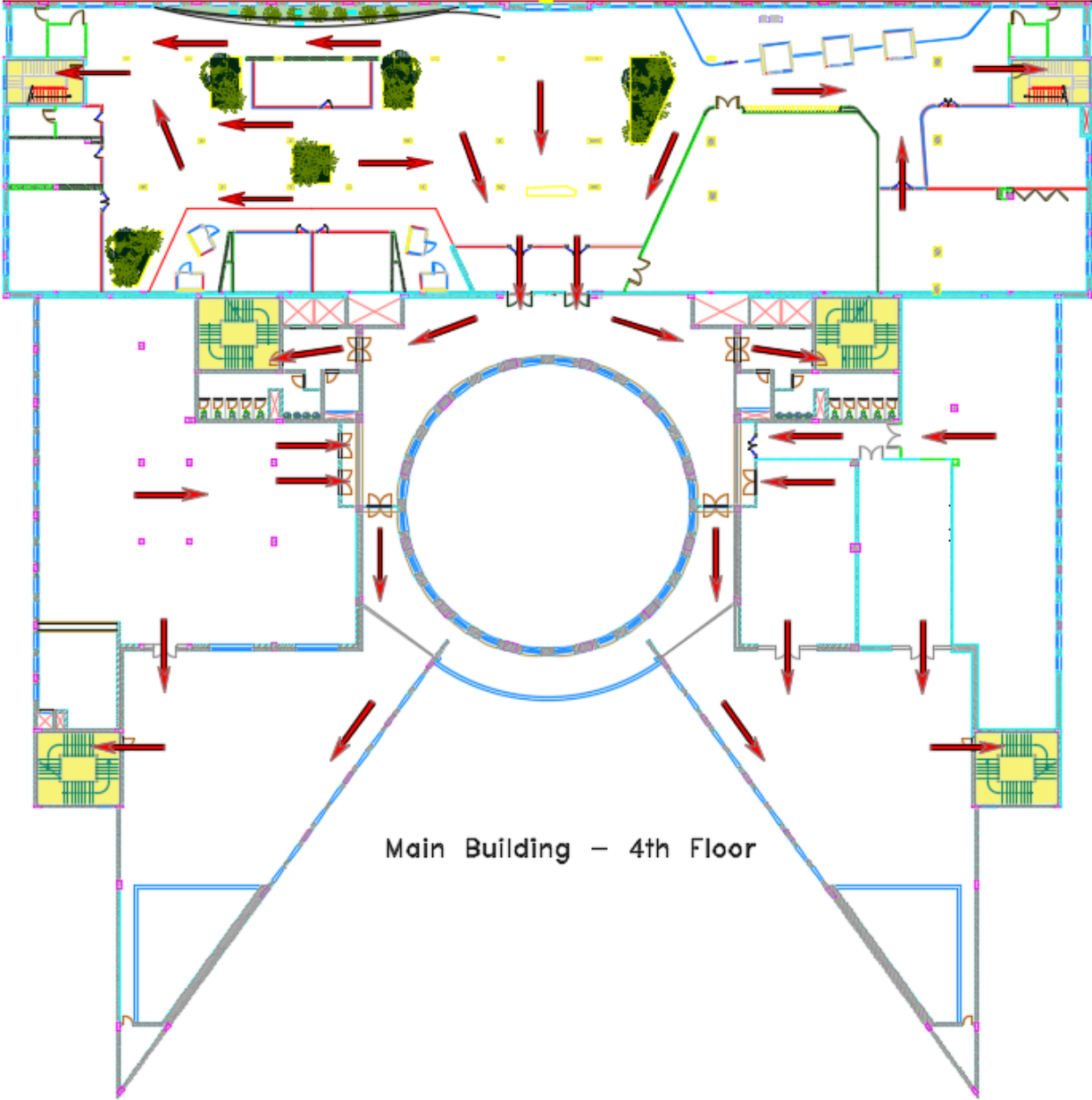
15. Escape Routes

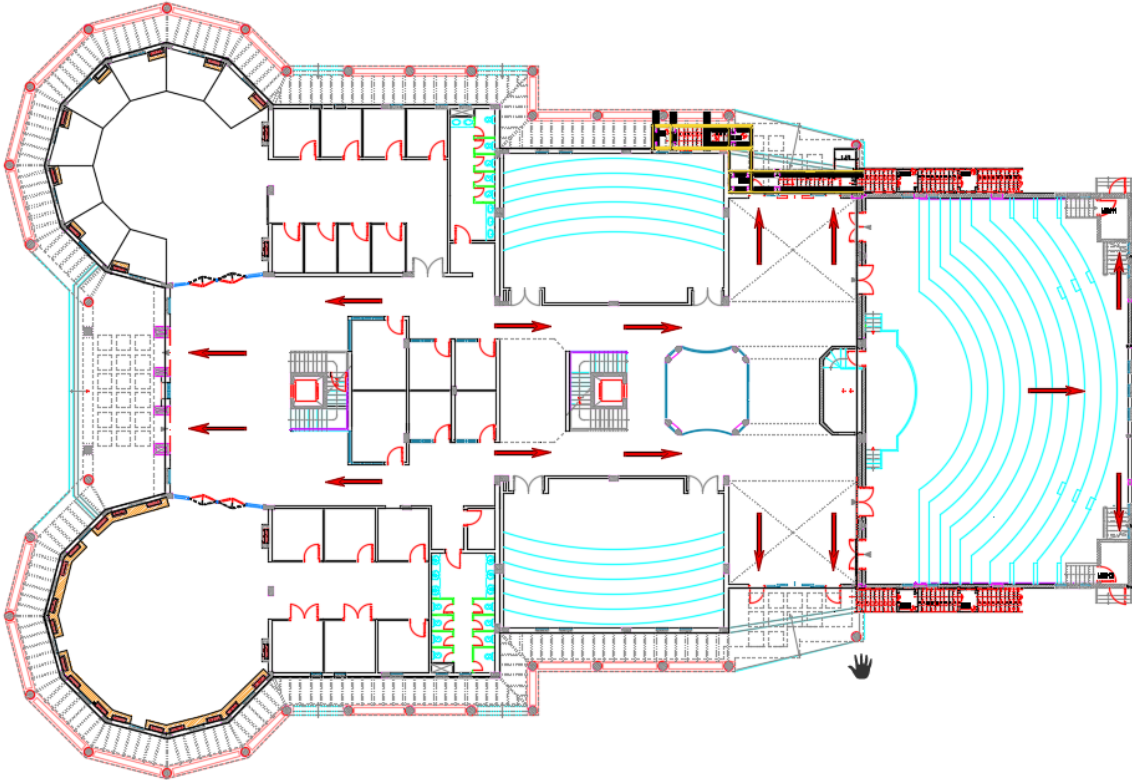




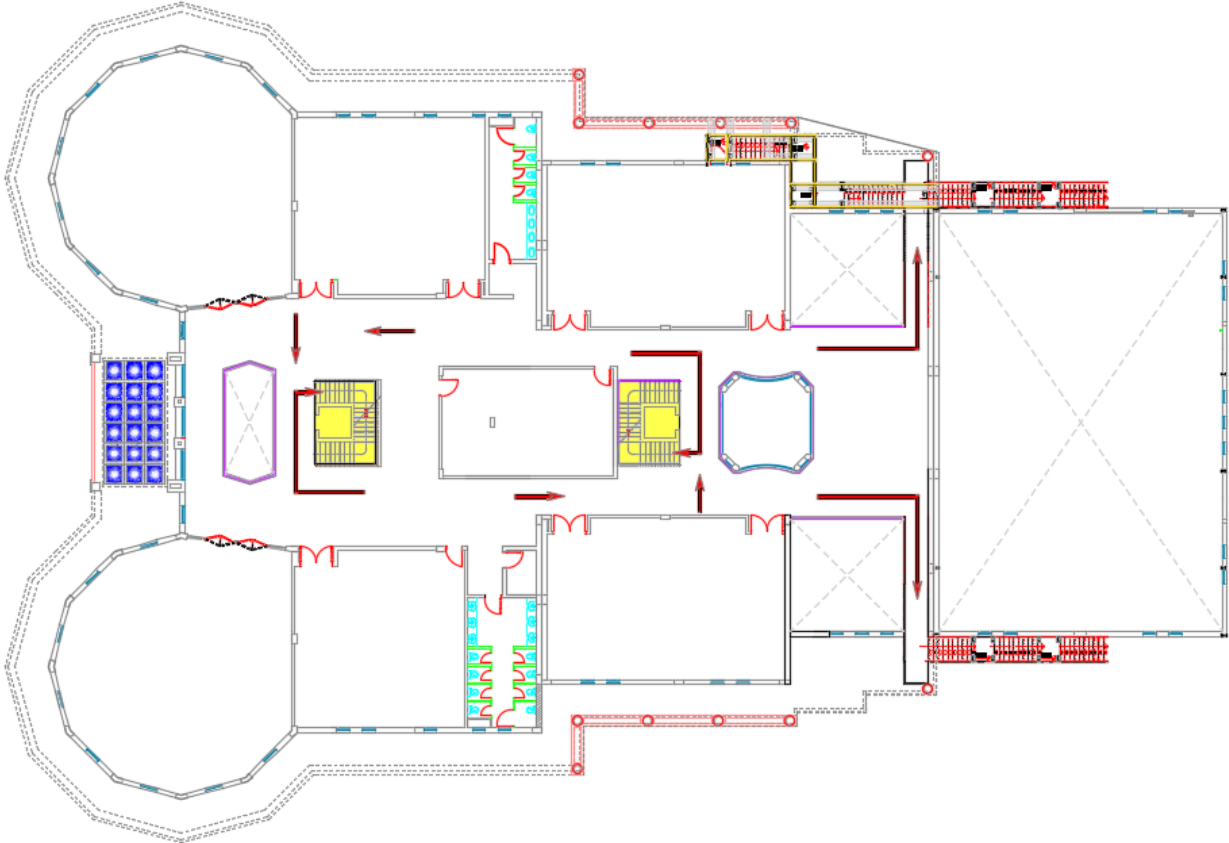


Main Building - 3rd Floor

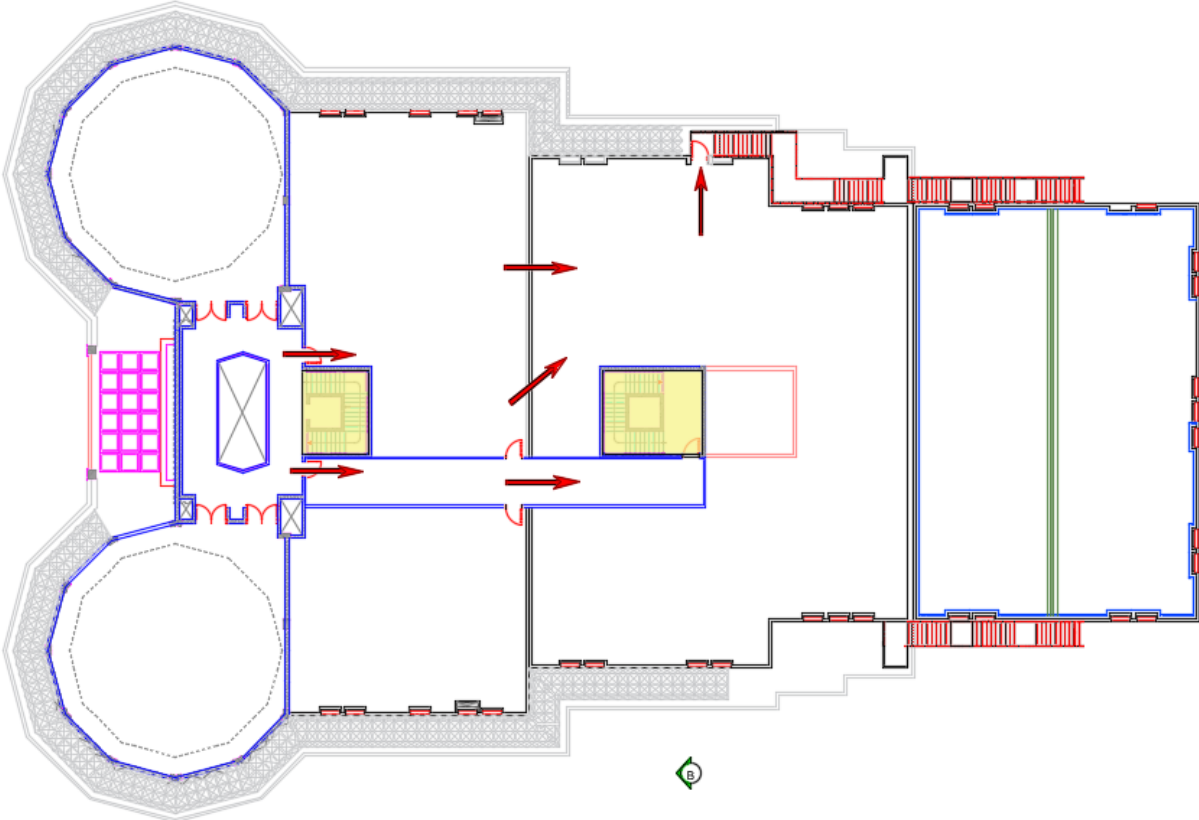




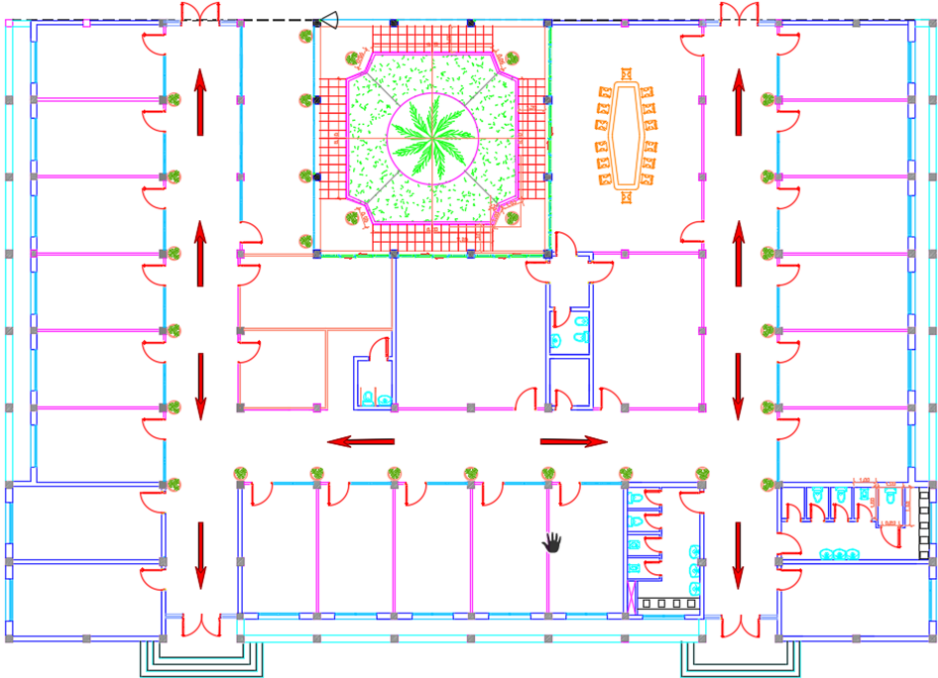
College of Medicine – Ground Floor



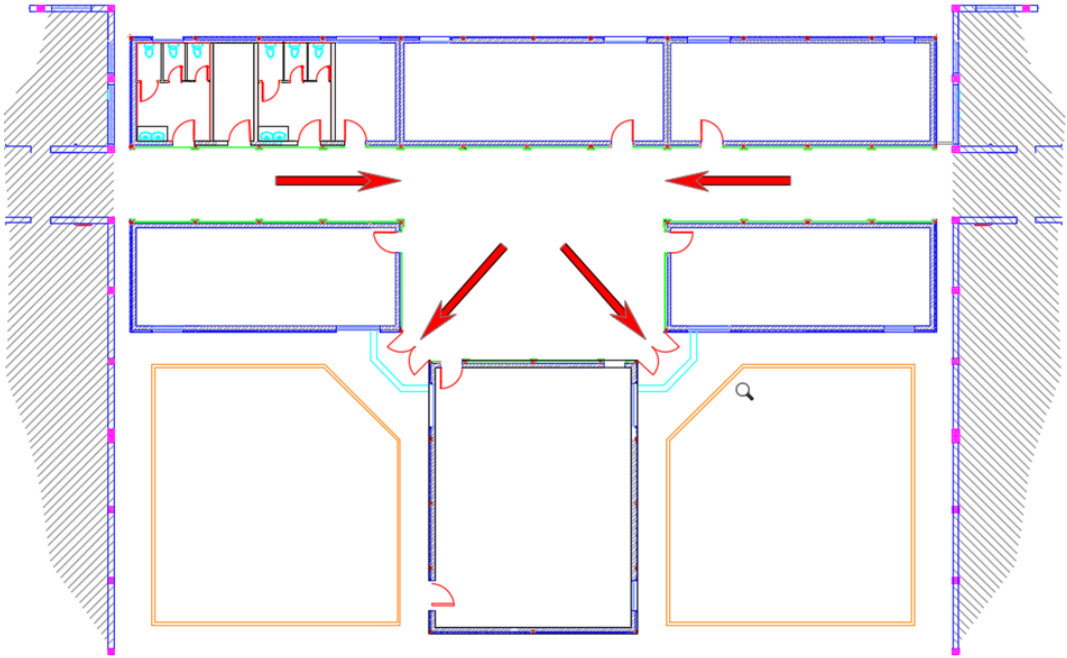
College of Medicine – 1st Floor



College of Medicine – 2nd Floor



Administrative Building A



Renewable Energy & Robotics Building