جامعة الإمام عبدالرحمن بن فيصل

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College of Dentistry | كلية طب الأسنان

Safety Guidelines

College of Dentistry

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Purpose

The purpose of this manual is to guide, educate practices that maintain a safe environment for all IAU-COD offices, lecture rooms, laboratories, and clinics in both campuses (Al Nawras Campus; Al Rakah Campus & Dental Hospital).

The prevention of potential loss of life or injury due to a fire or other harmful incidents is the focus of this manual. This has led the IAU-COD administration to develop a comprehensive fire and safety program. It involves the planning, implementation and maintenance of the program that is supported by different departments and units at the university.

The objective of this manual is to provide, establish and instruct all IAU-COD employees, dental students, patients, and visitors with a safe and beneficial learning environment that is free of hazards. This manual will also provide prevention or immediate action for emergencies such as injuries, illness, property damage and death from work related causes.

This manual is directed toward the control and prevention of all types of hazards encountered in a teaching institution with a main focus in Fire safety.

Dental faculty, students, staff, and patients are exposed to various risks:

1. Chemical hazards: There are many dangerous chemicals such as medical gases, sterilization materials, cleaning materials, medicines and solutions. These materials can cause great risks if they are not dealt with according to local legislation, international specifications and procedures approved by the manufacturer.

2. Physical hazards: such as noise, level of lighting, radiation and ventilation. These risks can cause many occupational diseases, which often appear after a period of continuous exposure to these risks, and this requires attention to identifying, measuring and making an appropriate assessment for them.

3. Risks of human factors engineering (ergonomics): such as repetitive work, lifting and moving patients, patient beds, doctors' chairs and staff offices, including chairs and computer screens, which are causes of back, neck and joint pain.

4. Biological hazards: These may be among the most common risks, such as bacteria, viruses, fungi, parasites, health waste, tissue and blood residues, and cause diseases such as hepatitis, AIDS and many other diseases. This is one of the most important risks that exist more in health facilities compared to other facilities.

5. Fire hazards: especially electrical fires, medical gas fires, and kitchen fires. Here comes the importance of adhering to the requirements of the Saudi Building Code to provide the highest levels of engineering design compatible with the requirements of the Saudi Building Code and international standards for fire prevention in health facilities.

6. Psychological and social risks: such as stress, sleep deprivation, violence at work, drug abuse, depression, sexual harassment, bad attitudes and inappropriate behavior, especially in times of crises, wars, epidemics, deaths, and the continuation of working for long hours. These risks have become more visible and influential in the recent period, especially during the Corona epidemic (Covid 19 emerging).

7. Security hazards: There two general categories of security hazards. Human hazard and natural hazards. Human hazards are acts or conditions affecting the safe operation of the facility caused by human action accidental or intentional. Natural hazard are those caused by natural phenomena which cause damage, disturbance and problems of the normal functioning of human activities.

General Safety

All the employees in the College of Dentistry should know the following:

- How to report the crises.
- How to prevent injuries in general.
- What to do in case of occupational injuries.
- Safety measures against electrical hazards.
- How and where to get help in case of emergencies
- Proper use and disposal of safety equipment's.
- How to prevent exposure injuries.
- How prevent occupational hazrads.

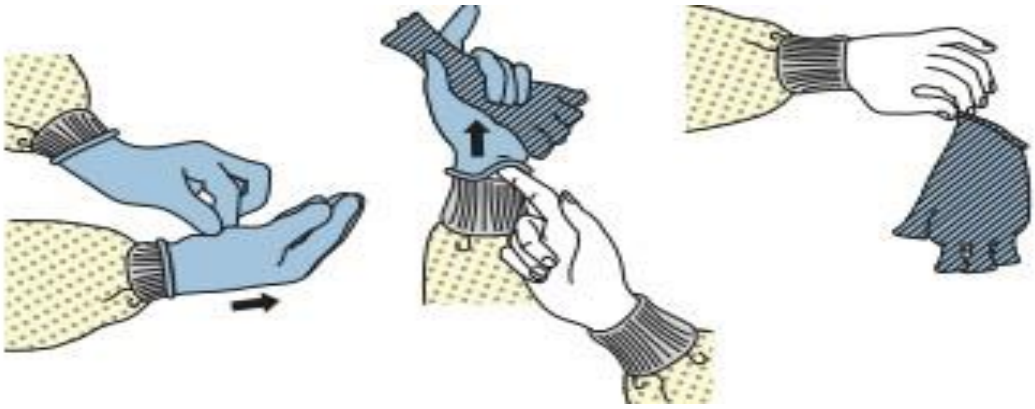
Safety procedures and instructions in general hygiene

1. Cleaning works are not limited to floors, bathrooms, and toilets, but must include hospital buildings and walls from the inside and outside, windows, doors, ceilings, furniture, patient beds, bed barriers, curtains, light fixtures, gardens, courtyards, skylights, and warehouses.
2. Divide the cleaning work and its places among the cleaning workers, with writing a table showing the specializations of each of them, and the instructions that increase the effectiveness of the cleaning process, such as (the walls must be cleaned one day per week).
3. Cleaning workers should be provided with the necessary supplies and protective clothing.
4. Hygiene works include sweeping and cleaning with soap and water, with the use of disinfectants in places known to contain large numbers of pathogens, such as places to isolate patients, bathrooms, wards for patients with fevers, chest hospitals, and laboratories.
5. Disinfectants should be added in places where patients have a special predisposition to infection, such as operating rooms
6. General cleaning works shall be carried out at least twice a day, in the morning before the start of work and in the evening after the end of work.
7. Allocate more workers for cleaning toilets, as they need cleaning and disinfection several times a day

Personal Protective Equipment

Gloves

Encountering caustic or toxic chemicals, biological substances, electrical sources, or extremely cold or hot objects can irritate or burn your hands. Outside of gloves are contaminated, if your hands get contaminated during glove removal, immediately wash your hands, or use an alcohol-based hand sanitizer. When removing the glove, using a gloved hand, grasp the palm area of the other gloved hand and peel off the first glove, hold the removed glove in gloved hand, Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove. Discard gloves in a waste container.



Respiratory Protection Equipment (Lab Masks)

Respiratory hazards can include airborne contaminants such as dust, gases, or oxygen-deficient atmospheres due to the crawdad lab area. The face masks should be designed to fit tightly against the face, it should be clean and suitable in size.

Body Protection (Lab coats)

Lab coats are an essential protective garment, serve as a barrier between the wearer's clothing and potentially hazardous substances, providing a layer of protection. The coats should be washed regularly.

General and Basic Safety Rules:

All employees have to know the following essential rules for safety

- Always make safety a part of your work, as safety is not a work that comes randomly but is achieved by cooperation and team work from all the employees.
- Follow the only approved procedures for implementing the work.
- Use the appropriate equipments for the task assigned to you.
- Be aware of the safety instructions related to patients, visitors and employees.
- Do not ever overload the electrical circuits under any condition.
- If it necessary to block or obstruct any exit, you have to put a clear warning banner that points towards the alternative route.
- The doors can be a problem if these doors have glass to see the other side, so make sure that the other side is empty before opening the door. If the door does not have glass, open the door slowly using the handle or the push panel.
- Remember to walk more than to run especially in the corridors and when using the stairs.

Laboratories:

- It is not allowed to enter the laboratory unless you have permission to enter.
- Follow all the indicative plates.
- It is not acceptable to get rid of any organic solutions insoluble in water through the sewage drains.
- It is a must to provide all the primary safety guidelines that are known as as well as providing them to the employees.
- It is not impossible to work alone in the laboratory or in the chemicals stores, but you have to use the laboratory's coat during being there, and take it off when you leave the laboratory.
- Do not wear bracelets, watches and rings when dealing with contaminated materials.
- Do not eat or drink in the laboratory and do not put make up.
- Make sure that there are no obstacles in the entrances that lead to the special washbasins to wash eyes and safety rails.
- Deal with all the samples of tissues, blood or serum samples as if they are taken from a patient with infectious disease.
- Use the automated laboratory pipette to pull the material inside the suction tube of the laboratory.
- Never use your mouth to suck any material and pull it into the tube.

Safety in offices:

- Make sure that there are no obstacles in the office or anything that can cause and injury, such as telephone wires, electrical wires, or any other objects.
- Make sure that the doors of the cabinets and cupboards are closed when they are not used.
- Do not put broken glass or any other sharp materials in the paper containers and call the cleaning service to help you.

Cleaning Services:

- Make sure to put explanatory stickers on all the materials and wastes.
- Use gloves.
- Never search in the recycle bin or any other wastes.
- Reduce pathological leaks and clean them directly by specialists, as well as making sure they use masks, lab coat and gloves, then use the appropriate disinfectant directly.

Disabled Persons: Public Safety makes every effort to track the locations of all persons (students, employees, and visitors) with both obvious and reported disabilities during their time on campus. In the event evacuation is necessary, every effort must be made to facilitate and assist in the evacuation of persons with disabilities. Finally, Safety personnel shall immediately direct arriving emergency responders (fire, police and EMS) to, the location of those individuals with disabilities.

Security system: Closed-Circuit Television Systems (CCTV) - There are several CCTVs placed strategically throughout facilities to monitor activities and document events for recall.

Safety & Directional Warning:

Signs concerning direction and other safety precautionary methods are posted in all the college premises to avoid any further accident other than fire.

HAZARD SIGNAGE	NAME	DESCRIPTION
	Electrical Hazard Caution Sign	Warn visitors and employees of potential electrical hazards in and around the workplace
	Biohazard Hazard Caution Sign	This is placed on materials and substances that have the potential for transferring human infection during normal handling or disposal
	Radiation Hazard Caution Sign	This is placed on radiation emitting devices and in their location
	Lazer Hazard Caution Sign	This is placed on laser emitting devices and in their location
	Slipping Hazard Caution Sign	This is placed to indicate wet floor or potential slippery floor

	Tripping Hazard Caution Sign	This is placed to indicate possibility of tripping dure to cables or other items across walkway
	Hot Surface Caution Sign	This is placed to indicate presence of hot surface.
	Restricted Access Sign	This is placed in all areas with restricted access.
	Emergency Exit Signs	Denoting the location of the closest emergency exit in case of fire or other emergency
	Directive Signs	Signs to direct staff and patients to the different services in the hospital

Safety Measures Against Biological Hazards

Biological Hazards:

These are hazards that can result from microbial infections in the dental college.

To prevent such hazards, the college apply the following measures:

1. Infection control guidelines that govern all clinical and laboratory practices.
2. Waste management.
3. Monitoring the water quality.
4. Mitigation strategies during disease outbreaks.
5. Food safety protocols.

The infection control committee and quality unit develop and implement guidelines that ensure the prevention and control of all biological hazards.

1. Infection Control

Infection control provides a framework for identification of a hazard and development of an action plan to eliminate the hazard or minimise its effect through control measures. The main components of infection control program:

- Education and training
- Surveillance of infection
- Policies, procedures, and guidelines
- Audit processes
- Documented arrangements
- Monitoring of college hygiene

The WHO has classified infection control practices into two main categories: standard precautions and additional (transmission-based) precautions. These category items are Standard precautions include the following items

- Hand washing and antisepsis (hand hygiene)
- Use of personnel protective equipment when handling blood, body substances, and secretions
- Appropriate handling of patient care equipment and soiled linen
- Prevention of needlestick / sharp injuries
- Environmental cleaning and spills-management
- Appropriate handling of waste

Additional (transmission-based) precautions while ensuring standard precautions include

- Airborne precautions
- Droplet precautions
- Contact precautions

2. Waste Management

Medical waste is any waste occurring as a result of medical services and scientific research in medicine. World Health Organization (WHO) divides medical waste into seven basic categories based on their properties and risk level:

- Infectious waste
- Pathological waste
- Sharps
- Chemicals
- Pharmaceuticals
- Genotoxic waste
- Radioactive waste

The most important factors that should be considered in waste management systems are

- Collection system in the generation site (i.e. segregation system, type of containers/bags)
- Time and temperature of temporary storage (generation side)
- Transport requirements
- Central storage conditions
- Approved disposal method
- Collection system in segregation stage should follow the guidelines approved by Ministry of Health (MOH).
- For central storage area it should not be located near the general waste central storage.
- Further more, waste disposal process must be carried out according to approved method such as incineration which is requiredfor disposal of pathological specimens.

3. Monitoring water quality

One of the important roles is also monitoring the quality of drinking water and the water of the kidney unit, one of the most important roles of occupational safety and health, through chemical or microbial tests, which are carried out periodically, whether inside the hospital or in central laboratories.

Drinking water quality control: The process of ensuring the safety of drinking water by taking samples from different water points Inside the health institution for the purpose of conducting the required tests to ensure its suitability for human use.

Drinking water quality standards: They are physical, chemical, bacteriological and radiological standards that must be available in drinking water.
suitable for human consumption.

Ensuring water quality:

1. Biological testing.

2. Chemical testing.

Prevention of drinking water cooler accidents:

Water coolers must have a filter for filtering drinking water installed, taking into account its cleaning, monitoring and replacing it periodically whenever necessary, and drinking water tanks must be made of stainless material, and the design of the tank should be in a way that facilitates the process of washing, cleaning and ventilation by having an opening from The bottom can be controlled, and the water tank must be in a high place and equipped with filters before entering the water and in a place far from sources of pollution, and it must also be ensured that the drinking water tanks are clean and tightly closed to prevent insects or any foreign bodies from entering them.

4 Mitigation strategies during disease outbreaks.

Infection control precautions:

These procedures consist of two parts:

- Standard precautions: These are the measures that must be always applied to all patients.
- Additional precautions related to infection transmission: These include the following:
    - Droplet precautions.
    - Precautions for direct contact.
    - Airborne precautions.

The combination of these precautionary measures will ensure the effectiveness of the dental college in breaking the chain of infection.

For standard precautions:

Treatment of patients in hospitals must be based on a high degree of protection for patients, hospital staff and visitors, and this is represented in the following precautions:

- Wash hands with any disinfectant or soap and water.
- Use protective clothing (PPE) when handling laboratory specimens and other secretions, including gloves, a high protection (N95) or surgical mask, a long-sleeved apron, a head cover, and eye glasses.
- Be careful when dealing with the patient's tools and supplies.
- Prevention of needle and sharp injuries.
- Cleanliness of the surrounding environment and safe disposal of waste.

5. Food safety protocols

- Food processors, manufacturers, wholesalers, retail outlets, and estaurants play a key role in maintaining the safety of food products and food ingredients.
- Strict implementation of temperature control and hygienic measures is the most important preventive measure in the hospital setting.
- Effective hand washing with soap and water before and after the handling of all foodstuffs is critical for infection control.
- To reduce the fecal oral transmission of gastrointestinal pathogens from the contaminated hospital environment, patients and their families should be educated on proper personal hygiene and sanitation.

Safety Measures Against Chemical Hazards

Chemical hazards:

Compressed gases are chemicals, and they have all the chemical properties and chemical hazards in terms of toxicity

Incendiary, inflammable, explosive materials

Health risks:

Hazard category No. (1): Explosives: There is a special regulation for security and safety instructions for transporting, storing, manufacturing and selling explosives.

Hazard category No. (2): **Gases :**

Dangerous branch (1-2) Flammable gases. For example: carbon monoxide, hydrogen, oxygen. Hazards: It ignites easily and burns quickly

Storage: On sources of ignition, flames and oxidizing explosives.

- Keep away materials that interact with air or moisture.
- Should be placed in a safe place to prevent it from falling.
- Continuous monitoring of containers to avoid leakage
- Preparing the site with fire detectors

Dangerous branch (2 - 2) Non-flammable and non-toxic gases (compressed gases) and at normal temperature or very low temperature. These are gases that have been packed into containers under relatively high pressure. For example: carbon dioxide nitrogen

Hazards: Explosion of containers, fire, toxic gases in the surrounding atmosphere that reduce or exchange oxygen in the air in the enclosed space, which leads to endangering life.

Storage:

- The cylinders should be stored in a vertical manner and be tightly closed.
- Cylinders containing the same gases are stored in separate groups.
- Placed in a safe place to prevent it from falling.
- Continuous monitoring of containers to avoid leakage.
- It is not permissible to repaint the cylinders (containers) except through the supplier.
- Allocating an area inside the store for empty cylinders.

Hazard category No. (3): Solvents (Flammable Liquids)

Inflammable and flammable materials containing liquids such as organic solvents, oils, grease, tar, oils, paints, varnishes, etc.

Hazards: Easily ignites and burns quickly

Flammable and flammable liquids depend on the flash point, which is defined as the lowest temperature at which the liquid produces vapors.

Storage conditions:

- Store in a cool, dry place free from moisture.

- The site shall take into account the possibility of discharging the explosion, in the event of its occurrence, to the party that constitutes the least dangerous with a height of (3 cm) and other openings on the opposite side for air intake or

- Providing the store with ventilation openings at approximately ground level with a mechanical ventilation system to renew the air at a rate of 4-6 times per hour

Hazard category No. (4): Flammable solids

Any solid materials that burn quickly when subjected to ignition or that self-ignite Ex: sodium

Hazards: It ignites easily and burns quickly

Storage:

Keep away from ignition sources (heat - flame - sparks - open flame) and oxidizing sources.

Hazardous category No. (5): oxidants and organic peroxides

A group of chemicals that produce oxygen when decomposing or reacting. These materials are classified into two branches as follows:

Dangerous branch (1-5): It includes oxidizing substances and substances that release oxygen or carry out oxidation processes that may initiate or stimulate fire in surrounding materials. It interacts violently with organic materials and supplies reactions with oxygen, which is dangerous when stored with flammable or combustible materials because they lead to continuous combustion, and some oxidizable materials interact with oxidizing materials at a high temperature.

Risks: fire or explosions.

Storage:

- Store in a cool, dry place, free from moisture

- For flammable (flammable) materials, organic solvents and combustible materials (wooden paper).

- keep away from reducing substances such as: zinc, alkali metals, formic acid.

- keep away from organic and flammable materials

- Do not store on wooden or paper shelves or bases

Dangerous Branch (2-5): Organic Peroxides:

Highly flammable materials that are sensitive to impact and friction and interact strongly with other chemicals, and these reactions may be explosive. Example: diethyl ether.

Risks: An explosion occurs when the peroxide granules are concentrated

Most peroxides are highly sensitive and disperse to light, heat and friction causing an explosion

Storage:

- Store in a cool dry place.

- Keep in a dark place and the containers must be tightly closed

- Disposing of it before the expiry date

Hazardous category No. (6): Toxic Substances (Chemicals Toxins)

These are substances that cause organ damage or death when swallowed, inhaled, or absorbed through the skin. For example: chloroform, chromic acid, phenol, acetonitrile (0).

Storage:

- Keep in tightly closed containers in the lower shelf.

- It is kept in separate locations from other materials

- Keep away from heat, humidity and fire hazards

- Protect it from mixing with acids and vapors

- keep away from acids and other corrosive materials

- keep away from the risks of fire, heat and humidity 0

- keep away from provision of protective devices and equipment (hand gloves, rubber shoes, respirators, first aid kits).

- Do not inhale the fumes of the material or have it come into contact with the body

Safety Measures Against Physical Hazards

Physical hazards:

These are hazards that can result from:

1. Injuries or accidents
2. Electrical shock.
3. Fire

Some threats to physical safety: -

1. The appearance of slumping in the floors of rooms and public squares.
2. The appearance of bulges in the lines where the ceiling meets the wall.
3. The appearance of leakage in the ceilings of toilets and roofs.
4. The appearance of slanted or horizontal cracks in the walls.
5. Cracks in the interior ceilings (lower surfaces of concrete slabs).
6. The occurrence of cracks in beams and columns, and the appearance of reinforced concrete bars in any area.
7. Poor condition of the building facilities and equipment.

Ensuring safe traffic and movements

- Plenty of footpaths and signs pointing to it nearby
- From the centers areas.
- Determine the permissible speeds within the college.
- Determine designated parking spaces for vehicles

Safety precautions while cleaning

Safety / accident prevention measures should be implemented to avoid accidental fall among patients and visitors, as well as protecting the staff. Few such measures are mentioned below -

1. The ideal time to clean the facility is when patients / visitors are not present. If however this is not possible then they should be requested,to step aside or wait outside for the duration of the cleaning.
2. Avoid wet and slippery floors.
3. Use appropriate / cautionary signage
4. Arrange furniture for easy movements of the patients to avoid accidents.
5. Pay attention while cleaning the electrical switchboards. Do not sprinkle water / liquids on the electrical connections.

Prevention of injuries and occupational hazards

Employer obligations

1. Provide the necessary means of prevention to protect workers from the risks of occupational injuries and diseases that may occur during work
2. Ensure the provision of guiding and educational regulations
3. Provide appropriate training for workers to avoid risks
4. Conducting periodic assessments to ensure the compliance and fulfilment of all work parties with health and occupational safety and security requirements.

Employee obligations

1. To use the protective equipment and clothing that he is provided with
2. To carry out all instructions of the employer aimed at protecting him from dangers
3. Refrain from taking any action that would obstruct those instructions
4. To abide by the orders and instructions related to work safety and security precautions
5. He is prohibited from taking any action that leads to non-implementation of the instructions, or to the misuse of the means designed to protect the health and safety of workers, or to damage or destroy these means.

Prevention of Accidents:

To avoid any work accidents, the process of managing the risks should be followed and evaluation of the situation based on the following questions:

- Is there any problem in your work area? Determine and mention the problem. Monitor the work; speak with others who do the same work as you in order to benefit from each other.
- What is the reason of the problem? Evaluate the risk and its impact- How dangerous is the problem?
- What are the methods and possibilities to solve the problem? Control the risk.
- Which methods enable you to do your work more safely?
- Which mechanism enables you from not repeating the same problem? Monitoring and reviewing.

Causes of Accidents: Dangerous Activities/Practices:

The work resulted by the employee/ worker, when they do their work without having the enough knowledge or awareness, when they do not follow the safety procedures, or when they do not do their work safely. This can result in having the dangerous works and sometimes dangerous situation for other too.

Some Examples on the Dangerous Works:

- Use the suspended devices such as the worn electrical wire,or use the unsuitable electrical connections.
- Take an inappropriate physical position such as lifting things incorrectly.
- Not reporting suspended devices.
- Not using the personal preventive equipment's, such as not wearing the gloves when dealing with blood samples or other body liquids.
- Poor cleaning services such as not storing the materials well or not reporting about leaks or spills.
- Lack of awareness regarding work risks such as not developing a plan to organize the work.
- Try to save time by shortcutting safety procedures.
- In appropriate working practices such as cleaning the floor without putting the warning sign "Caution; Wet Floor".
- Ignore or remove the security system, safety elements or the warning systems that are available for the devices or not applying the safety procedures such as ignore replacing the boxes of the infected needles by others that are empty before they get full, which can lead to stack the needles and get the employees in danger.

Dangerous Situations:

The risk resulted from the work environment, its equipments, devices or systems.

Some Examples on the Dangerous Situations:

- Lack of protection system or safety elements in equipment and devices.
- Lack of effectiveness of the warning systems.
- The acceptance of administration of poor cleaning services.
- Employees are exposed to the noise of the equipments.
- The administration's acceptance to store the combustible or ignition materials improperly
- Lack of fire extinguishers or any other safety equipments.
- Lack of having a fire protection system or a smoke detector system.
- Poor ventilation.

Prevention of falls, trips, and slips:

Falls are among the most common accidents, and they rank second in terms of being one of the most important accidents leading to death after road accidents. Falls can occur at any time and in any place, and therefore the following preventive measures should be followed:

1. Keeping the doors leading to the balconies closed.
2. Putting suitable barriers and barriers that are consistent with safety requirements on windows.
3. Do not leave liquid residue on the tiles or leave the bathroom floors wet to avoid slipping accidents.
4. Avoid leaving things on the stairs or in the corridors, because this may lead to stumbling while walking and then falling.

Prevention of Elevator Accidents:

Despite the multiplicity and diversity of safety means in elevators. However, some accidents may occur as a result of misuse or as a result of the absence of periodic maintenance work, which exposes its users to the risk of detention. To prevent these risks, we recommend the following:

1. Contact the Civil Defense immediately when assistance and rescue are needed.
2. Training on how to operate the elevator manually when it suddenly stops, and write the operation method and hang it in a visible place, along with writing the emergency contact phones and the elevator load in a sign that is installed next to the elevator.
3. Carrying out periodic maintenance of the elevator by specialized companies at specific times.
4. Compliance with the prescribed load for the elevator.
5. Ensure that the emergency bell and all buttons are working.
6. Good ventilation and adequate lighting inside the elevator.
7. Availability of a plate for the number of passengers and the weight allowed inside The elevator.
8. The elevator is safe from sounds and vibrations during operation movement.
9. Elevator periodic maintenance.
10. The service life of the elevator is checked periodically by a third party every 6 months.
11. Installing the emergency number plate inside the elevator, on the to include (police, civil defence, ambulance, Building Supervisor, Elevator Maintenance Company.)

Prevention of Door Lock Accidents:

Among the risks that we may be exposed to are those resulting from the doors, which we summarize in the following points:

1. Automatically retracting doors cause people to bump into them.
2. Rotating doors cause another unseen person behind the door to hit.
3. Doors with sharp edges that cause wounds or fractures to the hands or fingers.
4. Closing doors in rooms or toilets leads to injuries. Prevention measures must be taken.

Electrical Safety Rules:

- Do not overload electrical circuits or the power plugs and sockets.
- Do not put the electrical wires on the floor because it can be a risk of stumbling.
- Do not use the electrical connections, and in case you had to use them, you have to get the approval from the university electrical department.
- Do not replace the three-headed socket with two-headed one through the connections which can lead to not benefiting from the grounding system that protects people from the electric shocks.
- Do not use the electrical connectors "Multi-slot", because by putting many plugs in the same electrical connection, it can cause overload on the electrical circuit.
- Beware of liquids entering electrical devices unless these devices are customized to be used in wet places.
- Must report to the dental technicians if any medical equipment fell down or a liquid is spilled on its surface or inside it.
- Must report to the engineering administration at the University in case of noting any damages such as in the electrical wires or the sockets, or noting any defect or damage in the explanation poster put on the devices and equipments.
- Must report the engineering administration in case you feel a heat coming from the plugs or the wires of the dental equipments when using them.
- Must report the engineering administration about the devices that cause electric shocks.
- You need to know the electric power in your area of work.
- Make sure that the button of the devices and equipments is on off mode before you plug it in.
- Avoid pulling the wire when you need to turn off the devices or the equipments, and instead use the plug to separate it from the socket.

Electrical and mechanical, are according to the specifications in the KSA and with the knowledge of a specialized technical authority.

- Well insulate the electrical wires.
- Isolation of rooms for generators and electrical transformers
- About the building, placing warning signs, and permitting
- Entry is for authorized persons only

Main entrances and exits subsidiary and emergency

1. The doors are easy to open and there are no locks.
2. There are no obstacles or materials stored in the corridors and near the exits.
3. Proper lighting is provided in the corridors leading to emergency exits.
4. Distributing boards and arrows showing escape routes conspicuous places and make sure they are lit continuously.
5. Availability of emergency number plates distributed throughout the building and inside rooms and elevators

Fire Safety

Ensuring Fire Safety

Fire Prevention is a collective responsibility that falls on all employees within the college building. It is crucial because many visitors are unaware of the potential dangers present in the college surroundings. As an employee, you have the right to question any practices that may lead to a fire or other crises. Additionally, if you suspect someone or something to be suspicious, it is essential to bring it to the attention of the security personnel to initiate an investigation and implement necessary preventive measures.

One specific concern is the presence of oxygen in medical care areas. Although oxygen itself is not a flammable gas, it plays a vital role in sustaining ignition and combustion. In the event of a fire occurring near an area where oxygen is stored, it becomes challenging to contain the fire, and it can rapidly spread, becoming more intense and stronger.

Fire Extinguishing Theory

- Fire is a chemical reaction that occurs when a fuel rapidly unites with oxygen in the presence of a heat source, and a flame is produced. Four elements are necessary to produce and support a fire:
- Fuel source (solid - liquid - gas)
- Heat source (a type of energy)
- Oxygen source (gas for ignition and flame support)
- Chemical chain reaction (occurs when fuel, heat & oxygen are united in the proper proportions to create a fire).

If any one of these four elements are eliminated, the fire will go out. There are four ways that a fire can be extinguished:

- Isolate, contain, separate, cover, or remove the fuel source.
- Remove the heat source by applying a cooling agent which absorbs the heat. Water is the most common cooling agent used to remove the heat from the reaction.
- Separate the oxygen from other essentials that make a fire by smothering the fire with a wet blanket, throwing soil or sand on it, or covering it with a chemical foam or water fog.
- Stop the chemical reaction by applying certain chemical substances that break up this chain reaction, such as sodium bicarbonate (baking soda) or potassium bicarbonate ("purple AK") or sodium monophosphate (ABC dry chemical). Application of these chemicals will result in a reduction of the combustion rate and the fire can be extinguished.

Factors Contributing in spreading of Fire:

- Open doors.
- Open stairs.
- Un-closed slots that are specified for the large pipes and electrical wire holders.
- Sun roofs for natural lighting
- Vertical slots that are made for electrical services.
- Isolated areas that are not provided with fire preventer.
- Cleaning services.
- Not providing automatic fire fighting systems or smoke sensor systems.
- Type of the building.
- The Materials existed during the fire.
- Untrained employees.
- Delayed reporting and response to the accident quickly.

Fire Prevention Practices:

Fire protection systems are not limited to alarm; sprinkler; fire extinguishers; smoke detectors. In the event of fire activate the alarm system by pulling the nozzle.

Fire Detection:

- Smoke/ heat detectors must be adequate (numbers & type) / unobstructed/ dust free
- Fire alarm/pull station must be visibly located/ unobstructed/ tested

1. Tampering with the fire protection system is punishable by law. Anyone found tampering the fire protection system will be held accountable and liable for any damage or losses in case of fire.
2. Attend the annual "fire drill" and educate occupants to familiarize themselves with procedures, locations of fire exit, and the sound of the fire alarm. During the fire drill all occupants must participate and exit the college campus premises.
    - Staff must know RACE, PASS & Stop-Drop-Roll technique and can demonstrate
3. Always know the location of the nearest fire extinguisher and how to use (P.A.S.S).

Fire Abatement:

1. Fire extinguisher must be identified/ adequate (numbers & type)/ wall mounted or inside cabinet/ stored at designated place only
2. Fire extinguisher must be unobstructed/ dust free/ current inspection & maintenance tag/ green zone on gauge (fully charged)/ Hydrostatic testing done
3. Fire hose system must be identified/ unobstructed/ dust free/ nozzle in place/ current inspection tag
4. Fire blanket must be available/ accessible/ dust free/ wall mounted/ good condition
5. Open flame items are not permitted on college campuses. Similar dental instruments or materials may be allowed under the provision of the College Administration if they are used for teaching purposes.
6. Smoking cigarettes and vape are strictly prohibited on college campuses and will be penalized if reported or caught.
7. Flammable liquid or other hazardous elements not used for teaching purposes are strongly prohibited on college campuses.
8. All combustibles, such as paper or what it's like, must be properly disposed of every day.
9. Multiple use of extension cords without the permission of the building Engineering Department will not be allowed. Extension cords usage is temporary or when a flexible connection is necessary and approved.
10. Personal electrical appliances are ONLY allowed in offices with the provision and approval of the Security & Engineering Department of the college.

Fire Prevention Measures in Campus:

General Fire Safety Protocol

1. Office **a. Executive Office(s)** **b. Faculty Office(s)** **c. Workstation (Cubicle Type)**	• All doors must remain free of obstructions • Work area must be free of clutter or away from any "fire hazard" • All storage area, cabinets and furniture's must not accumulate dust • Electrical panel shall remain accessible clear from any "fire hazard"
2. Lecture Rooms **a. Main Auditorium** **b. Undergraduate Lecture Room(s)** **c. Postgraduate Lecture Room(s)** **d. Mini Theater(s)**	• All doors must remain free of obstructions • Work area must be free of clutter or away from any "fire hazard" • Electrical panel shall remain accessible clear from any "fire hazard" • Audiovisual equipment is properly grounded and check for crack or damage
3. Laboratories **a. Teaching Laboratories** **b. Production Laboratories** **c. Support Staff Station(s)**	• All doors must remain free of obstructions • Work area must be free of clutter or away from any "fire hazard" • Electrical equipment/devices not in use must be unplugged • Properly label all dental materials or chemical containers to identify contents • Combustible liquids or flammable items must be properly stored and must excel the allowable storage capacity • Propane/Gas/Nitrous Oxide (outlet) must be periodically checked and any leakage reported
4. Clinic **a. Business Center Clinic(s)** **b. Operating Room(s)** **c. Faculty Clinic(s)** **d. Undergraduate/Postgraduate Clinic Station(s)** **e. Waiting Area**	
5. Cafeteria	• All doors must remain free of obstructions • Microwaves, coffee makers, toasters etc., and other appliances with exposed heating elements must not be unattended
6. Comfort Room(s)/Washroom(s)	• All doors must remain free of obstructions
7. Corridor, Halls and Common Area	• Emergency exit doors must be maintained without obstruction and unlocked at all time

In Case of Fire:

1. Evacuate people who are at immediate danger.

2. Report to 33555 / 997 and activate the alarm.

3. Extinguishing the fire by using the fire extinguisher.

4. If it is safe and possible, the fire can be contained by closing the doors.

Be Aware:

- The location of the fire exits.
- The location of the fire extinguisher.
- The location of the alarm.
- The location of the water hoses.
- Do not use the elevators in case of fires at all.

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في حال حدوث حريق

IN CASE OF FIRE

	اضغط أقرب جرس انذار BREAK THE NEAREST ALARM CALL POINT
	اتصل على رقم الطوارئ (33555) DIAL INTERNAL EMERGENCY EXT(33555)
	اخرج من المبنى عن طريق اقرب مخرج طوارئ LEAVE THE BULDING BY THE NEAREST EXIT
	اذهب إلى أقرب نقطة تجمع GO TO THE NEAREST ASSEMBLY POINT
	لا تستخدم المصعد DO NOT USE LIFT
	لا تعرض نفسك للخطر DO NOT TAKE RISKS

Fire Extinguisher Located in Your Work Area:

When using the fire extinguisher, you have to check the following:

- Try to extinguish the fire but after reporting the fire by calling (33555 / 977) to get help as soon as possible, and also after evacuating the area of people who are at immediate risk. It is the best if two persons tried to extinguish the fire if it is possible.
- Make sure to use the appropriate fire extinguisher that is suitable for the type of the fire, because not using the appropriate fire extinguisher may cause more damage.
- All fire extinguishers have a poster with instructions on how to use them, which will help you to know the fire extinguisher suitable to extinguish the fire.
- Make sure about the validity of all the medical equipment's by check the expiry of all medical equipment by authorized personnel from the department of medical engineering.

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المواد الخطرة
(دليل السلامة)

الفئة	التخزين	الخطورة	أدوات الوقاية الشخصية
قابلة للإشتعال	الفصل في التخزين	تشتعل بسهولة وتحترق بسرعة	نظارة واقية، قفاز، بالطو
أكلة	تخزن بعيدا عن المواد القابلة للإشتعال والمواد النشطة والمواد ذات الأضرار الصحية	تسبب ضرر للأنسجة عند التلامس	نظارة واقية، قفاز، بالطو
نشطة	تخزن بعيدا عن المواد الأكلة والمواد ذات الأضرار الصحية والمواد القابلة للإشتعال	تتفاعل بعنف مع الهواء والماء والمواد الأخرى	نظارة واقية، قفاز، بالطو
اضرار صحية	تخزن في مخازن جيدة التهوية	سامة عند الشم والبلع والامتصاص عن طريق الجلد	نظارة واقية، قفاز، بالطو، قناع تنفس
غير ضارة	تخزن في مخزن جيد التهوية	ذات أضرار بسيطة	تقدير المشرف
مواد ذات خطورة معينة	تحتاج المواد المسرطنة ، الكيماويات شديدة السمية والسموم المتكاثرة الى احتياطيات خاصة • إنشاء طرق عمل قياسية (SOPs) • تحديد مناطق العمل • استخدام ادوات الوقاية الشخصية ودولاب الأبخرة لتقليل التعرض • وضع إجراءات الاستجابة للطوارئ وإزالة التلوث		
مواد ذات خطورة معينة	• تحديد مناطق العمل • استخدام ادوات الوقاية الشخصية ودولاب الأبخرة لتقليل التعرض • وضع إجراءات الاستجابة للطوارئ وإزالة التلوث		

ادارة السلامة والصحة المهنية — الطوارئ (33555)

انواع الحرائق
(كيف تتعامل مع الحريق)

فئة الحريق	نوع الحريق	الصورة الرمز	الطفايات
A	الخشب ، الورق ، الأقمشة...الخ		الماء الرغوة البودرة لجافة ABC الفئة F كيماويات رطبة
B	السوائل المشتعلة		الرغوة البودرة لجافة ABC
C	الغازات المشتعلة		البودرة لجافة
D	المعادن		بودرة الفئة D
F	زيت الطبخ والدهون		الفئة F كيماويات رطبة
	الكهرباء		البودرة لجافة ABC ثاني اكسيد الكربون

إدارة السلامة والصحة المهنية — الطوارئ (33555)

Training on Safety and Fire Fighting

College of Dentistry has system in place to prioritize safety and fire prevention. Encouraging employees to attend and participate in training programs is an effective way to ensure that everyone is aware of the principles of safety and firefighting, as well as how to use the safety equipment available in their work areas. By providing training on safety, prevention, and firefighting, the college is helping employees to understand the procedures they must follow in the event of a fire or other emergency. It's important that employees absorb this information so that they can respond quickly and effectively in a crisis. Additionally, training includes information on how to report emergency cases or any improper work practices done by any employee. This will help ensure that everyone is held accountable for maintaining a safe work environment. Overall, these training programs are an important step in ensuring the safety and well-being of employees in the college of Dentistry's building.

Steps to ensure fire safety:

- Ensure the validity of the fire extinguisher.
- Ensure there are procedures of reporting about the emergencies.
- Ensure that all the employees know the places of fire hoses in their work areas.
- Ensure that there is a map of the routes and exits in the area.
- Ensure that the corridors are free from all obstacles without exception, as well as keeping it free from any obstacles.
- Ensure that there is a usable fire extinguisher based on the examination card.
- Ensure that there is a fire blanket.
- Ensure that it is easy and clear to reach and use the fire alarm system as well as the fire extinguisher.
- Ensure that all the employees know the locations of the exists, fire extinguishers and fire blankets, as well as ensuring that it is easy to reach them and that they know the procedures of reporting the emergencies.

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كيفية استخدام بطانية الحريق

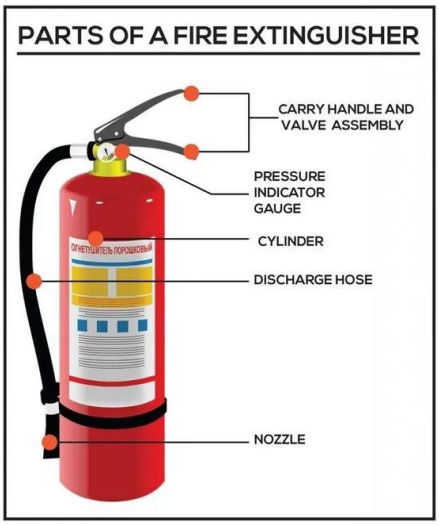
1	اسحب الشريطين لإخراج البطانية وستنفتح تلقائيا	
2	امسك البطانية بوضعية الحماية من الزاويتين المتصلتين بالشريطين من جهتك	
3	ضع البطانية بهدوء فوق النار لتغطية الوعاء او المادة المحترقة بإحكام	
4	إبقاء البطانية فوق النار لحين التأكد من إخماد النار كلياً.	
5	استخدامات أخرى	

إدارة السلامة والصحة المهنية — الطوارئ (33555)

Protective Equipment:

Fire Safety equipment and Fire Extinguishers:

Fire is the most common serious hazard that you could face inside the Physical Therapy labs due to the presence of several electrical devices. While proper procedure and training can minimize the chances of an accidental fire, you must still be prepared to deal with a fire emergency. A fire extinguisher is an active fire protection device used to extinguish or control small fires, often in emergencies. If the fire happened, you must use the fire extinguisher as in the figure below and follow the evacuation plan.



Also, one of the safety equipment inside the laboratories is a fire sprinkler. The heat from a fire will break a glass tube or melt a solder plug which releases water. The water comes out as a spray that covers the area immediately around the sprinkler, putting out the fire. In addition, to the smoke detectors, there are three types of smoke alarms, ionization, photoelectric, and a combination of the two which is commonly called a "dual" detector. A smoke alarm is critical for the early detection of a fire inside the Physical Therapy Laboratories and could mean the difference between life and death. Fires can occur in a variety of ways and in any room of your home. But no matter where or how, having a smoke alarm is the first key step toward your family's safety.

First Aid Kit

The first aid kit should be available and can be easily reached. A basic first aid kit may contain:

- Plasters in a variety of different sizes and shapes.
- small, medium, and large sterile gauze dressings.
- At least 2 sterile eye dressings.
- Triangular bandages.
- Crêpe rolled bandages.
- Safety pins.
- Disposable sterile gloves.
- Tweezers

Evacuation from the Building:

Exit Routes in Case of Emergency

- All the routes that lead to the exits in any place in the building have to be empty from any obstacles, as well as keeping the corridors clean all the time.
- Make sure that there are no obstacles in the exit paths, corridors, doors, stairs or any other parts of the exits.
- If there is an obstacle in the route of the exit for a short while, if it is needed to close the corridor, door or there is an obstacle in the route of the exits for a short while, large warning plates must be placed at the intersection of the corridors pointing to the path or the alternate path.
- The committee of security and safety in cooperation with the civil defence periodically conduct mock fire safety drills within the college premises is a proactive measure to ensure the safety and well-being of all employees.
- All the employees of the building of the College of Dentistry are trained on how to do the plan of evacuating the building, and that included male and female students, staff members and administrative staff.

Responsibilities You Should Know:

- The procedures of reporting the fire.
- How to respond in case of reporting a fake fire.
- The risks of fire and how to report it.
- How to use fire equipments that are available in your work place.
- How to deal with injuries and accidents and how to report them.
- How to evacuate and transfer patients.
- The location of exits, emergency exits and locations of fire extinguishers and safety equipments.
- That the practical training is on how to use the fire extinguisher.
- Know that using the fire extinguisher to contain fire can worsen the situation.
- You have to be aware about what is on the staff safety manual and the plan of internal disaster management.

Emergency Exits

Emergency exit routes are important because they provide a clear, safe way to evacuate a building in case of a crisis or disaster. First responders such as fire or police may also utilize emergency exits to enter a building during a disaster or crisis. It is usually in a strategically located (e.g., in a stairwell, hallway, or other likely places) outward opening door with a crash bar on it and with exit signs leading to it.

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