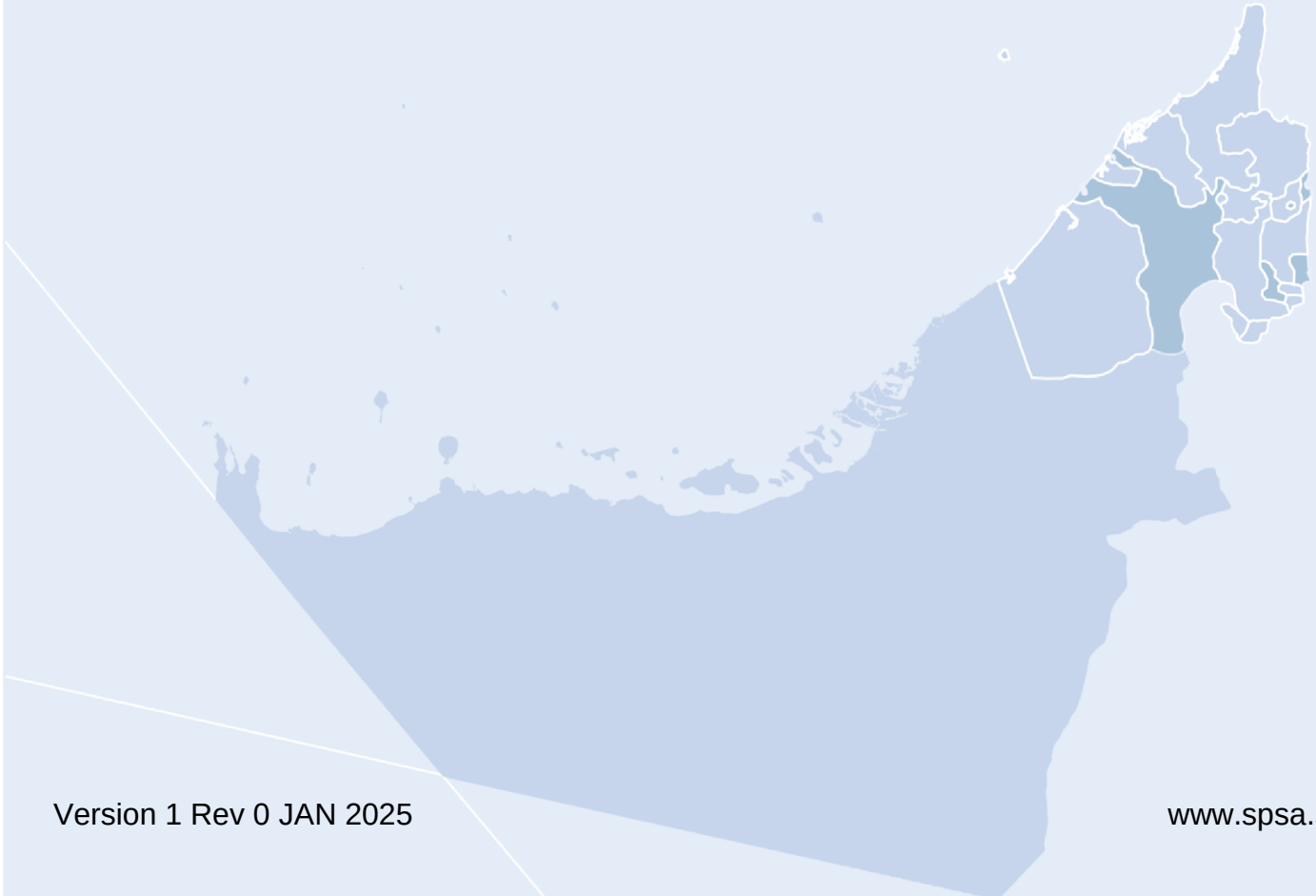
نظام الشارقة للسلامة والصحة المهنية
Occupational Safety & Health Sharjah

حكومة الشارقة
هيئة الوقاية والسلامة
Government of Sharjah
Prevention & Safety Authority

Guideline

High-Rise Building Safety

OSHJ-GL-11



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1 Introduction

Safety in High rise buildings (HRBs) and Super High-Rise Buildings (SHRBs) is a critical aspect of modern architecture and urban development. Due to their significant heights and complex structures, these buildings necessitate advanced and specialized safety measures to safeguard their occupants. In the United Arab Emirates, high rise buildings and super-high-rise buildings are defined as establishments, buildings, and structures with heights of 23 meters or more. Safety considerations in buildings include fire safety, emergency evacuation procedures, security measures, health considerations, regular maintenance, and inspections.

2 Purpose and Scope

This Guideline document has been developed to provide information to entities to assist them in complying with the requirements of the Occupational Safety and Health System in Sharjah.

To achieve compliance in the Emirate of Sharjah, all entities are required to demonstrate a standard of compliance which is equal to or higher than the minimum acceptable requirements outlined in this Guideline document.

3 Definitions and Abbreviations

Super high-rise buildings (SHRBs):	The occupancies or Multiple and Mixed occupancies, facilities, buildings and structures having total height of the building (excluding roof parapets) is more than 90 meters from the lowest grade or lowest level of Fire Service access into that occupancy.
High rise buildings (HRBs):	The occupancies or Multiple and Mixed occupancies, facilities, buildings and structures having occupiable or usable floors more than 23 Meters above the lowest grade or lowest level of Fire Service Access into that occupancy
Building Owner	Every natural or legal person, whether public or private, individual or group, has ownership of the high-rise buildings or super-high-rise building in the Emirate of Sharjah.
Building Management	The private establishment registered with the Department of Economic Development for property management or the homeowners' association registered with the Real Estate Registration Department.
Occupant:	A person or people that live visit or work in high-rise building or super high-rise buildings.
Hazard:	Anything that has the potential to cause harm or loss (injury, disease, ill health, property damage etc).
Risk:	Is the combination of likelihood of the hazard causing the loss and the severity of that loss (consequences).
Risk Assessment:	The systematic identification of workplace hazards and evaluation of the risks associated. This process takes existing control measures into account and identifies and recommends further control measures where required.

The Intelligent Monitoring Fire Systems (AMAN):	An advanced early fire detection system allows 24-hour monitoring of fire alarms, boosting the capability of the Sharjah Civil Defence Authority to immediately respond to fire incidents. The Aman system can be installed in commercial, government, and all buildings that are not classified as independent private homes or villas for residential purposes.
Security Guard	Every employee performs facility guard and security duties within an approved security company operating in the Emirate of Sharjah.
Incident	An unplanned event, sequence of events or actions that either resulted or could have resulted in an adverse effect (loss).
Near miss	An incident not causing harm or loss but had the potential to do so.
Emergency Plan:	Specifies systematic instructions and procedures that have to be followed before and after the time of an anticipated emergency event.
Evacuation Plan:	A diagram showing the safest emergency exit routes from a building and clearly indicating the places of the emergency equipment including firefighting and first aid equipment.

4 Roles and Responsibilities

4.1. Managing buildings Responsibilities

- Undertake risk assessments, identify hazards and implement control measures that manage risks to occupants, employees, contractors, visitors and others;
- Ensure employees that are managing HRBs and SHRBs have the relevant information, instruction, supervision and training to manage buildings risks on a day to day basis;
- Perform regular inspections to check that safety and health control measures have been implemented and remain appropriate and effective;
- Provide adequate resources to manage safety and health;
- Develop and implement emergency preparedness and response procedures to deal effectively with emergencies including fire, utility disruptions, etc.
- Ensure that safety protocols are regularly reviewed and updated to reflect new technologies, updated legal requirements, and lessons learned from incident reviews.
- Stay updated with local, national, and international safety regulations and standards, ensuring that all practices are compliant and that the HRBs and SHRBs adheres to the highest safety standards.
- Utilize technology such as CCTV, advanced fire alarm systems, and integrate smart technologies in HRBs and SHRBs that enhance safety features, like automated systems to control air quality, lighting, and fire suppression systems.
- Develop and maintain clear communication channels among all stakeholders, including occupants, management teams, emergency services, and maintenance staff, to ensure everyone is informed about safety procedures and changes.

- Regularly collaborate with local emergency services to conduct joint drills and ensure that emergency response plans are effective and well-coordinated.
- Provide regular safety training sessions for occupants about emergency procedures, the use of fire safety equipment, and evacuation plans.
- Implement safety engagement programs that encourage occupants to participate actively in safety initiatives and feedback mechanisms.
- Establish a rigorous schedule for preventive maintenance of critical systems like elevators, fire safety systems, electrical systems, and HVAC systems to prevent failures that could lead to safety hazards.
- Keep comprehensive records of all safety checks, maintenance, training sessions, and compliance measures to ensure transparency and accountability.
- Develop a systematic incident reporting and analysis system to track incidents and near misses, and dangerous occurance analyze them for underlying causes, and implement corrective and preventatative actions to prevent future occurrences.

The management responsible for the building must ensure compliance with all the requirements outlined in the UAE Fire and Life Safety Code, Chapter 18: Responsibilities of Stakeholders

4.2. Employee Responsibilities

- Not endanger themselves or others;
- Follow precautionary control measures to ensure work activities associated with managing HRBs and SHRBs are performed safely and without risk to health;
- Report any activity or defect relating to the managing HRBs and SHRBs, which they know, is likely to endanger the safety of themselves or that of any other person.
- Properly use and maintain personal protective equipment as required for their roles.
- Attending all required safety training sessions and drills to ensure readiness in case of an emergency and Cooperate with the entity and receive safety information, instruction, supervision and training;

4.3. Occupant Responsibilities

- Not engage in activities that could endanger themselves or others;
- Report any unsafe acts or conditions that could affect the safety and health of occupants;
- Respond to fire alarms, evacuate promptly and follow instructions from emergency response personnel.
- Familiarize themselves with the emergency procedures for HRBs and SHRBs, including fire evacuation routes, location of exits, and assembly points.
- Follow all safety policies and regulations for HRBs and SHRBs, which can include restrictions on smoking, specific guidelines for using amenities, and adhering to security protocols.
- Participate in regular emergency drills organized by HRBs and SHRBs management to understand what they need to do in a real emergency.

- Attend safety-training sessions if offered, especially for those involving fire safety, emergency response, and use of safety equipment.
- Promptly report any safety hazards or maintenance issues to HRBs and SHRBs management, such as blocked exits, malfunctioning fire doors, or faulty safety equipment.
- Report any accidents or near misses to help the management improve safety measures.
- Utilize safety features of HRBs and SHRBs correctly. This includes not disabling smoke detectors, properly using fire extinguishers when necessary, and not obstructing sprinkler systems.
- Adhere to all safety and warning signs around the buildings to avoid hazardous areas or activities.
- In an emergency, follow the evacuation plans as practiced during drills. Use stairs instead of elevators and proceed to designated assembly points.
- Cooperate with emergency services and HRBs and SHRBs management during an emergency. This includes following instructions from firefighters, police, and medical teams.
- Keep hallways, fire exits, and common areas free of clutter to ensure they are accessible during emergencies.
- Be observant about security within the buildings . This could involve reporting suspicious behavior or ensuring doors and access points are secure.

5 Guidelines

This guideline document provides safety measures for high-rise and super high-rise buildings.

5.1. HRBs and SHRBs Health Safety Management System

It is required for HRBs and SHRBs to establish an effective Health and Safety (H&S) Management System based on four main components: prevention, protection, response, and resilience. Building owners must demonstrate compliance through planning, implementation, evaluation, and continuous improvement.
The key focus areas of the safety management system should include the building, its occupants, the environment, contractors, and employees. A comprehensive safety management system should address various elements to ensure the safety and well-being of occupants, contractors, visitors, the surrounding community, and all others impacted by the building's activities
You can refer to the appendix for detailed guidelines on the key elements of the safety management system in high-rise buildings.

5.2. Employees

5.2.1. OSH Practitioner

Occupants of diverse cultures inhabit HRBs and SHRBs and speak multiple languages within a confined geographical area, creating unique challenges. To ensure the safety of the building and its occupants, each building must have a safety practitioner who is a member of the Safety and Occupational Health Practitioners from the Prevention and Safety Authority in the Emirate of Sharjah. And any other accreditations or approvals required by the relevant local and

federal regulations, with the responsibility of providing advice and guidance to the building owner or their delegate to ensure the safety of all building occupants.

The safety practitioner is responsible for providing advice and guidance to the building owner or their delegate to ensure the safety and security of all building occupants. The safety practitioner's responsibilities include monitoring compliance with local and federal safety regulations and collaborating with the building owner to implement a proactive management system aimed at preventing hazards such as fires and other risks. Additionally, the safety practitioner must be responsible for the building's overall security to ensure the necessary protection for the building, its occupants, workers, and those affected by the building's activities. The nature of HRBs and SHRBs presents unique challenges, necessitating that the building management follow all procedures to ensure the safety and security of all stakeholders in the building. The safety practitioner plays an important role in providing expert advice and guidance. Some of the key responsibilities and authority granted to the safety practitioner in HRBs and SHRBs are listed below:

5.2.1.1. Responsibilities

- Conducting regular safety audits and risk assessments to identify potential hazards and ensure that appropriate safety measures are in place.
- Ensuring the building complies with local, national, and international safety codes and regulations, including fire safety, operational safety, and accessibility standards.
- Developing and implementing emergency procedures, including evacuation plans. Organizing regular drills to ensure occupants are familiar with emergency protocols.
- Providing training for all building staff on safety procedures, including emergency response, evacuation procedures, and the use of fire safety equipment.
- Acting as the first point of contact in the event of an emergency, coordinating with emergency services, and managing the building’s response.
- Ensuring regular maintenance and inspection of all safety systems, such as fire alarms, sprinklers, emergency lighting, and HVAC systems to ensure they are functional when needed.
- Maintaining comprehensive records of all safety inspections, Accidents, and training activities.
- Keeping all building occupants informed about safety protocols and changes in safety procedures. This includes distributing safety materials and conducting safety meetings.
- Overseeing the building’s security measures, including CCTV operations, access control systems, and security personnel.

5.2.1.2. Authority

- Authorized to implement safety policies and procedures that align with regulatory requirements and best practices.
- In emergencies, the safety officer has the authority to take command over safety-related matters, directing evacuations and coordinating with public emergency services.
- Depending on the organization, they may have the authority to approve expenditures related to safety improvements, training programs, and emergency equipment.

- Power to enforce compliance with safety regulations among tenants, visitors, and staff, and to take disciplinary actions or recommend sanctions for non-compliance.
- Authority to halt any operation or activity that poses a significant risk to the safety and well-being of building occupants.
- Can recommend operational and procedural safety enhancements to senior management or building owners.

Further information on OSH Practitioner can be found in OSHJ-GL-10: OSH Practitioner

5.2.2. Security Personnel

All owners of super high-rise buildings or their delegates responsible for managing the building must ensure that an appropriate number of security personnel is available, in accordance with the number of building occupants, the nature of the building, and its facilities, to ensure the safety of the building's occupants. The Prevention and Safety Authority advises following the formula below to ensure the minimum number of security personnel. Building owners can demonstrate their commitment to the safety of building occupants by employing more security personnel than recommended in this guideline.

In addition to their duties in maintaining building security, security personnel monitor safety measures within the building and correct any discrepancies to ensure effective proactive measures for risk prevention. During emergencies, they work as part of the emergency and crisis team. Although the recommended number of personnel does not need to work the same shift and can be distributed across different shifts, they must all be available within the building and on call 24/7.

A model for the recommended number of security personnel can be found in the table shown in the appendix. The formula for calculating the minimum required number of security personnel is:

$$\text{Min No. Security personnel} = \left(\frac{Total\ Number\ of\ floors}{5}\right)\left(\frac{AVG\ of\ Total\ number\ of\ flats/floor}{7}\right)$$

To provide security personnel in super high-rise buildings, it is necessary to contract with an approved security company in accordance with the regulations in force in the Emirate of Sharjah and the federal regulations.

5.2.3. Facility Manager

The guidelines for a facility manager for HRBs and SHRBs are extensive due to the complex nature of these buildings and the diverse needs of their occupants. A facility manager must possess a diverse skill set encompassing technical expertise, leadership abilities, financial acumen, and a strong commitment to safety, sustainability, and customer service. Here is a comprehensive list of requirements for a facility manager in HRBs and SHRBs:

- **Educational Background:** A bachelor's degree in facility management, engineering, architecture, business administration, or a related field is typically required. Advanced degrees or certifications such as Certified Facility Manager (CFM), Facilities Management Professional (FMP), or credentials from the International Facility Management Association (IFMA) can be advantageous.
- **Experience:** Several years of experience in facility management or a related field, with a focus on managing HRBs and SHRBs or large-scale commercial properties. Experience in overseeing building operations, maintenance, and tenant relations.

- **Technical Knowledge:** In-depth understanding of building systems and infrastructure, including HVAC, electrical, plumbing, fire protection, and security systems. Knowledge of building codes, regulations, and industry standards is essential.
- **Leadership and Management Skills:** Strong leadership qualities with the ability to manage and motivate a diverse team of staff and contractors. Excellent communication, interpersonal, and conflict resolution skills are necessary for effective management.
- **Problem-Solving Abilities:** Proficiency in identifying, analyzing, and resolving complex issues related to building operations, maintenance, safety, and tenant satisfaction. The ability to make informed decisions quickly and effectively is essential.
- **Safety and Emergency Preparedness:** Thorough knowledge of safety protocols, emergency procedures, and regulatory compliance requirements. Experience in developing and implementing emergency preparedness plans, conducting drills, and coordinating with emergency responders.
- **Financial Management:** Skills in budgeting, financial analysis, and cost control to effectively manage the operational budget for the building. Experience in negotiating contracts with service providers and vendors to optimize costs while maintaining quality.
- **Strategic Planning:** Ability to develop and execute long-term strategic plans for the efficient operation and maintenance of the buildings. This includes identifying areas for improvement, implementing sustainability initiatives, and ensuring alignment with organizational goals.
- **Customer Service Orientation:** Commitment to providing exceptional customer service to building occupants, tenants, and visitors. Proactive communication, responsiveness to inquiries and concerns, and a focus on tenant satisfaction are essential.
- **Technology Proficiency:** Familiarity with building management systems (BMS), smart building technologies, and computer-aided facility management (CAFM) software. Ability to leverage technology to optimize building performance, energy efficiency, and occupant comfort.
- **Regulatory Compliance:** Stay abreast of relevant laws, regulations, and industry standards pertaining to building operations, safety, environmental sustainability, and accessibility. Ensure the building remains compliant with all applicable regulations.
- **Continuing Education:** Commitment to ongoing professional development through training, workshops, seminars, and industry conferences to stay updated on emerging trends, best practices, and advancements in facility management.

5.2.4. Safety Personnel in High-Rise Buildings

High-rise buildings with a height ranging from 23 meters to 90 meters must ensure compliance with the following guidelines:

- At least 20% (minimum of 2) of the facility management employees in the building should undergo fire safety training from an institute accredited by the SPSA, as specified by Executive Council Resolution No. 21 of 2019.
- A trained employee from the building management team should be appointed as Fire and Life Safety Manager.
- 100% of building management personnel shall be familiar with Fire extinguisher usage

- The building management must provide an OSH practitioner who will supervise the Fire and Life Safety managers in the building. It is not required for the OSH practitioner to be dedicated solely to supervising the high-rise building, but it is required that there is a fire protection and safety manager for each work shift.

- OSH practitioner in the high-rise building must define the specific tasks for the Fire and Life Safety Managers and team members regarding fire safety issues in the building.

It is recommended to appoint qualified and accredited security personnel in high-rise buildings, as is the case with super high-rise buildings, as outlined in the guidelines specified in section 5.2.2.

5.3. Risk Assessment

The entity responsible for HRBs and SHRBs should ensure that hazards related to building safety are identified through risk assessments, which should consider the following factors, including but not limited to:

- Access and egress to the buildings , including leisure facilities, communal areas and car parking areas; swimming pools; gyms and others.

- Contractors conducting maintenance or construction activities;

- The purpose and use of the buildings , and the nature of the activities being undertaken in the buildings ;

- The potential of use or storage of hazardous substances;

- Emergency planning and preparedness.

- Potential sources of ignition, such as electrical equipment, heating devices, and smoking areas.

- Combustible materials within the buildings that could fuel a fire, including furnishings, decorations, and stored goods.

- Sources that could supply oxygen to a fire, such as HVAC systems and natural ventilation routes.

- All people present in the buildings , considering the varying needs of residents, workers, and visitors, including those with disabilities.

- Challenges for different occupants might face during an evacuation, especially on higher floors or in secured areas.

- The functionality and integrity of fire-resistant doors, barriers, and compartmentalization features that prevent the spread of fire.

- The availability and accessibility of evacuation routes and emergency exits.

- Unobstructed of emergency exits, and adequate for the buildings’s capacity.

- The functionality of emergency lighting along escape routes and in exit areas.

- The effectiveness and clarity of the buildings’s fire evacuation plan, including provisions for practicing fire drills.

- The systems in place to communicate with occupants, first responders, and between different areas of the buildings during an emergency.

- The waste and houskeeping and
- The exterior cladding
- The Pest control.
- Area surrounding and adjacent and facilities.
- Car parking, Balacony, Pickup up/ pickoff points, Delivery of goods. Material and foods, Opent to sky (OTS) safety.
- Commercial shops in the building.

Further information on risk assessment can be found in OSHJ-CoP-01: Risk Management and Control.

5.4. Incident Management

Incident management in HRBs and SHRBs involves a systematic approach to prevent, respond to, and recover from incidents efficiently and effectively. Given the complexity and potential severity of incidents in such environments, having a comprehensive plan is a must.

Prevention: This involves following an approach that minimizes the likelihood of an incident occurring to the lowest possible level.

Protection: This entails implementing necessary protective measures to prevent harm in the event of an incident.

Response: This includes having a pre-prepared plan and well-defined measures to minimize losses. The response is divided into an internal response by the team within the high-rise building, and if an external response is deemed necessary, coordination with relevant authorities to provide support for incident control.

Recovery: This involves a consistent, organized, and pre-planned approach that allows the high-rise building management to reduce recovery time to the minimum possible, enabling the building to return to normal or pre-incident conditions.

5.4.1. Near Miss Management

Near miss reporting in HRBs and SHRBs is a proactive component of a safety management system. By tracking and analyzing near misses, management can identify potential hazards and address them before they result in actual accidents or injuries.

5.4.2. Incident Investigation

Incident investigation in HRBs and SHRBs is invaluable for identifying the root causes of incidents, implementing corrective actions, and preventing future accidents.

Further information can be found on:

- Appendix.
- OSHJ-CoP-17: Incident Reporting and Investigation.
- OSHJ-CoP-16: First aid at Work.
- OSHJ-GL-08: Training and Competence.

5.5. Safe Access and Egress

Safe access to and egress from HRBs and SHRBs are fundamental to the provision of a safe place to work or live, this includes the common areas such as car parking areas and external areas, including; roads, paths, lighting, waste storage areas, entrance doors, reception areas, corridors, staircases and lifts. They should be:

- Adequately maintained and not introduce additional risks that could affect the safety and health of occupants;
- Free from slipping and tripping hazards, and have arrangements in place to prevent falls with sufficient lighting in normal conditions, in addition to the provision of emergency lighting;
- Accessible for people of determination and the elderly, where such measures are not inbuilt, special arrangements should be made to allow adequate access and egress for people of determination and the elderly;
- Accessible by emergency services.
- Ensure that access points, such as entrances and exits, are strategically located and easily identifiable.
- Designate separate entry and exit points to manage the flow of people efficiently.
- Implement clear signage and wayfinding systems to guide occupants to exits and emergency assembly points.
- Provide accessible entrances and exits for people with disabilities, including ramps, elevators, and tactile guidance systems.
- Ensure that all access routes comply with accessibility standards and regulations.
- Design access points to accommodate the anticipated flow of occupants during peak times.
- Implement measures to prevent overcrowding and congestion, such as queuing systems and staggered entry/exit times.
- Incorporate security measures, such as access control systems, turnstiles, and security personnel, to prevent unauthorized access and ensure the safety of occupants.
- Develop and maintain clear emergency egress plans that outline primary and secondary evacuation routes.
- Conduct regular drills and training sessions to familiarize occupants with emergency procedures and evacuation routes.
- Keep access and egress routes clear of obstacles, debris, and obstructions at all times.
- Regularly inspect and maintain doors, stairways, corridors, and other access points to ensure they are free from hindrances.
- Install adequate lighting along access routes and exits to ensure visibility, especially during low-light conditions or emergencies.
- Ensure that emergency lighting systems are in place and operational to illuminate exit paths during power outages or emergencies.

- Integrate fire safety features, such as fire doors, fire-resistant materials, and smoke control systems, into access and egress routes to prevent the spread of fire and smoke.
- Ensure that access points are equipped with fire detection and alarm systems to alert occupants in case of fire.
- Establish a routine maintenance schedule to inspect and maintain access and egress systems, including doors, locks, stairs, elevators, and escalators.
- Promptly address any issues or deficiencies identified during inspections to ensure the ongoing safety and functionality of access points.

All access and egress routes must comply with UAE Fire and Life Safety Code of Practice.

5.6. Electrical Rooms

Electric rooms in HRBs and SHRBs require strict safety requirements, precautions, and measures to ensure the protection of occupants, electrical equipment, and the building itself, this is guidelines in additional to the requirements listed in UAE Fire and Life Safety Code of Practice and Sharjah Electricity Water & Gas Authority (SEWA):

- Ensure that electric rooms are easily accessible to authorized personnel but are secured to prevent unauthorized access.
- Maintain adequate clearance around electrical panels, switchgear, and other equipment to facilitate safe operation, maintenance, and emergency access.
- Provide adequate ventilation in electric rooms to prevent the accumulation of heat and fumes from electrical equipment.
- Install ventilation systems or fans to ensure proper airflow and cooling, reducing the risk of overheating and fire.
- Install fire suppression systems, such as sprinklers or fire extinguishers, in electric rooms to mitigate the risk of electrical fires.
- Ensure that fire detection and alarm systems are in place to alert occupants and emergency responders to potential fire hazards.
- Implement proper grounding and bonding techniques to prevent electrical shocks and mitigate the risk of electrical faults.
- Regularly inspect grounding systems to ensure they are intact and functioning correctly.
- Clearly label electrical panels, switches, and equipment with appropriate signage indicating their function, voltage ratings, and potential hazards.
- Provide warning signs to alert personnel to electrical hazards and safe operating procedures.
- Require personnel working in electric rooms to wear appropriate PPE, such as insulated gloves, safety goggles, and flame-resistant clothing, to protect against electrical hazards and arc flashes.
- Establish a regular maintenance schedule for electrical equipment, including testing, inspection, and cleaning, to identify and address potential issues before they escalate.
- Conduct periodic testing of electrical systems and components to ensure they meet safety standards and performance requirements.

- Develop and communicate emergency procedures for electric room incidents, including protocols for responding to electrical fires, power outages, and equipment failures.
- Train personnel on emergency evacuation routes, shutdown procedures, and first aid measures for electrical injuries.
- Install ground fault circuit interrupters (GFCIs) or ground fault protection devices (GFIDs) to detect and mitigate ground faults, reducing the risk of electrical shocks and fires.
- Implement security measures, such as access control systems, surveillance cameras, and intrusion detection systems, to prevent unauthorized access and tampering with electrical equipment.

By adhering to these safety requirements, precautions, and measures, building managers can help ensure the safe and reliable operation of electric rooms in the buildings s, minimizing the risk of electrical hazards and promoting the well-being of occupants and property.

Further information on electricity can be found in OSHJ-CoP-05: Electrical Safety at Work.

5.7. Escalators and Elevators

In the UAE, escalators are subject to specific safety requirements to ensure the well-being of users. Here are some of the key safety guidelines for escalators:

- Escalators and Elevators must be installed, inspected, and maintained by qualified professionals according to local regulations and industry standards.
- Escalators and Elevators should be equipped with safety sensors to detect obstructions or unusual movement, automatically stopping the escalator to prevent accidents.
- Thorough examination at least every 6 months by a competent inspection body or more frequently if required.
- The owner of the buildings must sign a maintenance and operation contract with a competent company to ensure that the elevators and escalators are serviceable 24/7.
- Handrails must be securely attached and maintained, providing a stable grip for passengers.
- There should be minimal clearance between steps and sidewalls to prevent entrapment hazards.
- Emergency stop buttons must be easily accessible at the top and bottom of escalators, allowing users to halt the escalator in case of emergencies.
- Escalators and Elevators should be equipped with step and skirt brushes to prevent foreign objects from becoming trapped in moving parts, reducing the risk of accidents.
- Clear and visible warning signs and instructions should be displayed near escalators, indicating safety precautions and proper usage guidelines.
- Escalators and Elevators should undergo regular inspections and maintenance to ensure proper functioning and compliance with safety standards.
- Any issues or defects identified during inspections must be promptly addressed to prevent accidents.
- Adequate lighting should be provided around escalators to ensure good visibility, especially in dimly lit areas.

- Transparent barriers or guards may be installed to enhance safety without compromising visibility.
- Escalators and Elevators should be equipped with overload protection systems to prevent excessive weight or overcrowding, automatically stopping the escalator if the weight limit is exceeded.
- Clear emergency evacuation procedures should be established and communicated to escalator users, detailing actions to take in case of emergencies such as power failures or entrapment.
- Escalators and Elevators must comply with relevant safety standards and regulations set forth by local authorities and regulatory bodies in the UAE.

These safety guidelines aim to ensure that escalators in the SHRBs provide safe and reliable transportation for users while minimizing the risk of accidents or injuries. Regular maintenance, inspections, and adherence to safety standards are essential for maintaining escalator.

5.8. Pest Control

Pest control in HRBs and SHRBs is essential to maintain hygiene, ensure the health of occupants. The guidelines for effective pest control in such buildings generally include:

- Regular and thorough inspections by qualified pest control professionals to identify potential infestations and risk areas.
- Implementing an Integrated Pest Management plan that uses a combination of techniques including biological, mechanical, and chemical methods to manage pests effectively and environmentally responsibly.
- Sealing all possible entry points such as cracks, crevices, and openings around pipes, cables, and vents to prevent pests from entering the building.
- Maintaining high standards of cleanliness to reduce food sources and breeding grounds for pests. This includes proper waste management practices such as regular garbage disposal, using sealed bins, and managing food waste areas.
- Educating tenants about proper food storage, waste disposal, and other hygiene practices that help prevent pest infestations.
- When necessary, using approved chemical treatments that are safe for indoor use and do not pose health risks to humans or pets. These treatments should be applied by licensed professionals.
- Establishing a system for tenants and maintenance staff to report sightings of pests or signs of infestations promptly.
- Keeping detailed records of all pest control measures, inspections, and treatments as per local health and safety regulations. Compliance with local and national laws regarding pest control practices is crucial.
- Developing a plan to respond to severe infestations, particularly for pests that pose health risks, such as rodents, cockroaches, or bedbugs.
- Whenever possible, using environmentally friendly and sustainable pest control methods to minimize ecological impact.

5.9. Waste Management

Effective waste management in HRBs and SHRBs is vital for maintaining a healthy, safe, and environmentally friendly building environment. Here are some key safety guidelines and best practices for waste management in buildings:

- Implement a system for segregating waste at the source. This should include separate bins for recyclables, organics, and general waste to facilitate recycling and reduce landfill use.
- Place waste collection bins in easily accessible locations throughout the building. Ensure that these areas are clearly marked with signage that indicates the type of waste each bin is for.
- Designate safe, ventilated, and easily cleanable areas for storing waste that are away from main building ventilation systems. These areas should be designed to prevent pest infestations and minimize smells.
- Establish regular waste collection schedules to avoid accumulation, which can pose fire hazards and attract pests.
- Ensure that waste storage areas are equipped with appropriate fire suppression systems, such as sprinklers, and are constructed with fire-resistant materials as the requirements of the UAE Fire and Life Safety Code of Practice.
- Train maintenance and housekeeping staff in proper waste handling and emergency procedures related to waste management, including dealing with hazardous waste.
- Implement special procedures for the handling, storage, and disposal of hazardous wastes like electronics, batteries, and chemicals, ensuring compliance with local regulations.
- Encourage waste reduction through tenant engagement programs that promote recycling and waste minimization.
- Ensure that waste storage areas are accessible for emergency response units and are not obstructing any emergency exits or firefighting equipment.
- Comply with all local and national environmental and health regulations regarding waste management, including obtaining necessary permits and conducting regular audits.
- Provide personal protective equipment (PPE) to staff involved in waste management and enforce health and safety protocols to protect them from potential hazards such as exposure to harmful substances.

Further information on waste can be found in OSHJ-CoP-19: Waste Management.

5.10. Safety Signage

Safety signs play a critical role in HRBs and SHRBs, helping to ensure the safety and direction of occupants during regular operations and emergencies, The safety signage must comply with the UAE Fire and Life Safety Code of Practice. Below are the key guidelines and considerations for safety signs in buildings:

- Safety signs must be clearly visible and legible with lettering of a size that can be read comfortably from a distance. Signs should also be well lit, either by natural light or by artificial lighting.

- Signs should be made of durable materials that can withstand environmental conditions and regular wear and tear without fading or becoming illegible. They should be regularly inspected and maintained to ensure their effectiveness.

- Signs should be strategically placed at all decision points along escape routes (e.g., at exits, elevator banks, stairways, and corridors), near fire safety equipment, and hazardous areas. They should be positioned at eye level wherever possible and free from obstructions.

- Use internationally recognized symbols and pictograms to overcome language barriers and ensure that messages are universally understood. This is particularly important in buildings with a diverse population.

- Adhere to local and international standards for safety signs, such as those specified by the ISO (International Organization for Standardization) or relevant local building codes and UAE fire safety regulations.

- Clearly mark all emergency exits and escape routes with signs that are reflective or illuminated for visibility in power failures or smoke-filled conditions.

- Signs indicating the location of fire extinguishers, fire alarms, and other fire protection equipment must be conspicuous and placed at each point where the equipment is located.

- Use signs to communicate actions that are prohibited (e.g., no smoking, no entry) and actions that are mandatory (e.g., fire door must be kept closed).

- Provide signs that offer instructions on how to use safety equipment or how to act in an emergency, such as instructions for using a fire extinguisher or the steps to take in case of fire.

- Display evacuation maps prominently in common areas and near exits. These maps should include 'You are here' indicators, show primary and secondary escape routes, and the location of fire-fighting equipment.

- Emergency and exit signs should have independent power sources, such as backup batteries, ensuring they remain illuminated in the event of a power outage.

Ensuring that all safety signs meet these guidelines, helps maintain a safe environment in buildings, aiding in quick responses during emergencies and promoting everyday safety awareness.

Further information on Safety signs can be found in OSHJ-CoP-35: Safety Signs and Signals.

5.11. Smoking Areas

In HRBs and SHRBs, strict management of smoking areas is imperative both for health reasons and to mitigate fire risks. Here are some key safety guidelines and best practices for designated smoking areas in such buildings:

- Smoking areas should be strategically located outside the building to prevent smoke from entering through windows, doors, or ventilation systems. These areas should be sufficiently distanced from any entrances, exits, and air intakes to ensure that smoke does not infiltrate into non-smoking zones.

- Designated smoking areas should be equipped with adequate fire prevention tools, including fire-resistant ashtrays and bins that are regularly emptied and maintained. These containers should be designed to extinguish cigarettes completely and reduce the risk of smoldering ash.

- Clear, visible signs should indicate where the smoking areas are located. Signs should also remind users of the smoking area to dispose of cigarettes properly and warn against smoking outside the designated zones.
- Although these areas are outside, consideration should be given to protecting nearby non-smokers from exposure. Barriers or a location downwind of common areas can help manage smoke spreading.
- Ensure that the location and management of smoking areas comply with UAE fire codes, building regulations, and health ordinances. This might include specific requirements about the distance from the building and other safety measures.
- Regular cleaning and maintenance of smoking areas are essential to ensure they remain safe, clean, and presentable. This includes the regular removal of waste and checking that all facilities function correctly.
- Smoking areas should be accessible to all building users, including those with disabilities, without compromising the smoke-free routes for other building occupants.
- Where possible, provide a sheltered area to protect smokers from the elements, which can encourage the use of designated areas during inclement weather.
- Monitoring smoking areas through regular patrols or CCTV can help ensure compliance with the building's smoking policies and provide data for further safety enhancements if needed.

5.12. Gymnasiums

Safety guidelines for gymnasiums in HRBs and SHRBs are essential to ensure the well-being of occupants and minimize risks associated with physical activity in such high-density environments. Here are key safety considerations and guidelines for gymnasiums located within these buildings:

- Ensure that the floor structure is adequately reinforced to handle heavy equipment and the dynamic loads from activities like running, jumping, or weightlifting.
- Good air quality is vital in gym spaces to manage higher levels of carbon dioxide from exercising individuals and to reduce odors. HVAC systems should be designed to provide efficient air exchange and filtration.
- Gyms must have clearly marked emergency exits that are easily accessible, even from remote corners of the gym. These exits should lead to safe zones outside the building or to designated areas of refuge within the skyscraper.
- Install smoke detectors and fire extinguishers in visible and accessible locations. All gym staff should be trained on the use of fire extinguishers and the evacuation procedures specific to the gym area.
- All gym equipment should be regularly inspected and maintained to prevent accidents. Equipment should also be arranged to allow ample space for safe operation and movement around each piece.
- Adequate lighting is essential for safety to ensure that gym-goers can see clearly to avoid injuries. Emergency lighting should also be installed in case of power outages.
- A first aid kit should be readily available and fully stocked. Staff should be trained in basic first aid and CPR to handle potential emergencies until professional medical assistance can arrive.

- Post clear instructions on how to use gym equipment properly to reduce the risk of injury. Emergency procedure signs and directional signs to exits should also be prominently displayed.
- Use non-slip, impact-absorbing flooring to reduce the risk of falls and injuries, especially in areas where weightlifting or high-impact exercises occur.
- Regular cleaning and sanitation of the gym area, including equipment and surfaces, are crucial to prevent the spread of germs and diseases in a communal environment.
- Consider installing surveillance cameras to monitor gym areas for unauthorized access and to ensure safety protocols are followed. Staff presence can also help in managing gym safety.
- Soundproofing measures may be necessary to minimize the transmission of noise to other areas of the building, ensuring a good relationship between the gym and other occupants.

5.13. CCTV Monitoring Room

CCTV and monitoring rooms play a pivotal role in the safety and security infrastructure of HRBs and SHRBs, the requirements must be according to the UAE regulations. Here are some key safety guidelines and best practices related to the deployment of CCTV and the operation of monitoring rooms in such buildings:

- The security personnel of the building must be led by a safety practitioner who is registered with the Sharjah Prevention and Safety Authority.
- Security personnel and monitoring room operators should receive regular training on the latest security and surveillance techniques, including how to respond to Accidents and emergencies using the CCTV system.
- The security person on duty should monitor for any abnormal situations, including fire, smoke, or any emergency requiring a response.
- All security personnel in the CCTV room should be trained and made aware of the response procedures, and respond to fire verification calls on time without any delay.
- The Security personnel should monitor through the CCTV the corridors and emergency routes for any obstructions, immediately must response to do the corrective action.
- All security personnel on CCTV room must be part from the emergency response team of the buildings .
- If fire alarm warned the security personnel on the CCTV room responsible from the verification of fire through the initial monitoing on the fire area if there is smoke or any sings of fire.
- If the fire is cathed then the CCTV security personeel should activate the the emergency response plan immediately.
- The security personnel on CCTV must provide continous information about the situation to the emergency response team and to relevent authorities.
- The fire alarm panel must be in the same room of the CCTV, and any failure or malfunction must be reported through the security personnel immediately, and keep record in the same room, also they are responsible to follow up the malfunction untill it is corrected.

- CCTV cameras should cover all critical areas, including entrances and exits, lobbies, elevators, staircases, emergency exits, parking areas, and other vulnerable spots. Placement should be strategic to ensure comprehensive coverage without blind spots while respecting privacy norms.

- Cameras should have high-resolution imaging to ensure clear footage that is useful for both real-time monitoring and forensic analysis. Features like night vision, motion detection, and the ability to pan, tilt, and zoom (PTZ) are important for enhancing the effectiveness of the CCTV system.

- Footage should be recorded and stored securely with sufficient storage capacity to retain video for a defined period, compliant with local regulations, Storage devices should be secured against tampering and unauthorized access.

- The monitoring room should be accessible only to authorized personnel. It should be equipped with secure, locked doors, and biometric access controls to prevent unauthorized entry.

- The monitoring room should be ergonomically designed to ensure that operators can work efficiently and comfortably. This includes adequate lighting, soundproofing, comfortable seating, and appropriate workstations with multiple screens.

- Critical components of the CCTV system, such as power supplies and network connections, should have redundancy to ensure that the system remains operational during power failures or network disruptions. Uninterruptible power supplies (UPS) can provide power during outages.

- The CCTV system should be integrated with other building management and security systems, including access control, fire alarm systems, and emergency communication systems. This integration can enhance overall security response and coordination.

- The system should be regularly tested and maintained to ensure it is functioning properly. This includes checking camera focus and positioning, ensuring recording equipment is operational, and verifying that all monitored areas are adequately covered.

- Ensure compliance with local laws regarding surveillance, including privacy laws and regulations related to data protection. Notices should be posted to inform occupants and visitors about the presence of CCTV surveillance.

5.14. Firefighting Systems

Firefighting maintenance in HRBs and SHRBs in the Emirate of Sharjah involves a series of regular checks, servicing, and testing of equipment and systems to ensure readiness in the event of a fire. Given the critical nature of these tasks, especially in densely populated urban environments like Al-Khan or Al-Nahda and Al-Majaz areas, the procedures are tightly regulated by authorities. Here's a general outline of these procedures:

- Regular testing and maintenance of smoke detectors, heat sensors, and manual call points to ensure they are functional.

- Checking fire extinguishers, hose reels, wet/dry risers, and sprinkler systems for proper operation.

- Testing sirens, fire alarm panels, and communication interfaces to ensure they activate correctly and are audible throughout the building.

- Buildings are required to sign annual maintenance contracts with companies certified by the Sharjah Civil Defense Authority to handle the comprehensive maintenance of

firefighting systems. This entails periodic checks and repairs as needed, with the company providing 24/7 response.

- Maintaining a log of all maintenance activities, inspections, and corrective actions taken. These records must be available for review by the civil defense or other authorities during inspections or audits.
- Compliance with the UAE Fire and Life Safety Code of Practice, which details the standards and requirements for fire safety measures in buildings.
- Conducting regular fire drills to ensure that building occupants are aware of evacuation routes and procedures.
- Training for the building's emergency response team on various scenarios, including fire outbreaks.
- Ensuring that all fire safety systems are integrated properly so that activation of one system (like fire detection) triggers others (like alarm systems or suppression systems) effectively.
- To ensure the water in the building tank designated for the fire sprinkler system is adequate and well-maintained, follow this revised statement for accuracy and clarity.
- Regularly check the water level in the building tank identified by the fire system designer for use in the fire sprinkler system. It is crucial to maintain the required water level at all times. Keep detailed records of each water level check to ensure compliance and readiness.
- Fire pumps in buildings must meet the requirements set forth by the UAE Civil Defense in the Fire and Life Safety Code of Practice. It is mandatory that these pumps be energized, active, and set to the 'auto' position at all times to ensure their functionality during emergencies.
- To ensure the integration of the fire alarm and firefighting system with the Aman system, the connection with Aman must include the fire alarm, fire pumps, and water tanks. The integration must be tested quarterly and after any maintenance that may affect connectivity.
- Regular training on the latest fire safety protocols, proper use of fire extinguishers, and first-response actions until the arrival of civil defense or firefighting teams.
- All security personnel and employees working in a building, regardless of whether they are part of the emergency response team, are required to attend fire safety training and advanced firefighting training at an approved institute.
- Ensuring that all access routes and firefighter lifts are in good working condition and are not obstructed, to allow quick access to the building in case of emergencies.
- Periodic inspections by external auditors or the civil defense to ensure all systems are up to standard. Adjustments and upgrades are made based on their recommendations to enhance safety.
- The certificate of compliance from the Sharjah Civil Defense Authority must be renewed annually
- Implementing new technologies and innovations such as smart smoke detectors, AI-based surveillance, and automated emergency communication systems to improve fire safety readiness and response times.

Each high-rise building may have specific guidelines based on its design, function, and occupancy load, which could necessitate additional customized procedures. It's crucial for building management to stay updated with any changes in the local regulations to ensure complete compliance.

Further information on firfighting and fire alarm system can be found in the UAE Fire and Life safety Code of practice.

5.15. Emergency Crisis Plan

In developing an emergency crisis plan for a high-rise building, it's essential to consider a wide range of potential scenarios and ensure preparedness to address them effectively. Here are key items to include in such a plan:

- **Risk Assessment and Hazard Identification:** Conduct a thorough risk assessment to identify potential hazards and vulnerabilities specific to the high-rise building, considering factors such as location, occupancy, structural design, and surrounding environment.
- **Emergency Response Team:** Designate and train an emergency response team responsible for implementing the crisis plan, including roles such as incident commander, floor wardens, medical response team, and communication coordinators.
- **Communication Protocols:** Establish clear communication protocols for disseminating emergency information to building occupants, emergency responders, and relevant stakeholders. This includes procedures for internal communication (e.g., intercoms, PA systems) and external communication (e.g., emergency hotlines, mass notification systems).
- **Emergency Notification and Alert Systems:** Implement systems for quickly and effectively notifying occupants of emergencies, such as fire alarms, emergency lighting, text messaging, email alerts, and public address announcements.
- **Evacuation Procedures:** Develop detailed evacuation procedures outlining primary and secondary escape routes, assembly points, and methods for assisting individuals with disabilities or mobility limitations. Conduct regular evacuation drills to familiarize occupants with these procedures.
- **Shelter-in-Place Protocols:** Establish protocols for sheltering in place during emergencies where evacuation may not be safe or feasible, such as severe weather events, hazardous material releases, or external threats.
- **Medical Response and First Aid:** Ensure access to trained medical personnel and first aid supplies, and establish procedures for providing medical assistance to injured occupants until professional help arrives.
- **Building Systems and Utilities Management:** Develop procedures for safely shutting down building systems and utilities during emergencies to prevent further risks, such as gas leaks, electrical hazards, or water damage.
- **Security Measures:** Implement security measures to safeguard occupants and property during crises, including access control, perimeter security, and coordination with police and security authorities.
- **Crisis Communication Plan:** Develop a comprehensive crisis communication plan outlining strategies for managing media inquiries, addressing public concerns, and maintaining transparency and accountability during emergencies.

- **Recovery and Business Continuity Planning:** Establish procedures for post-crisis recovery and business continuity, including assessing damages, prioritizing recovery efforts, and resuming normal building operations as quickly as possible.

- **Occupants relocation:** In the event of a building emergency requiring temporary relocation, a clear plan for the allocation of occupants until building recovery should be established. This plan should encompass all occupants and include details on the allocation process, transportation arrangements, budget considerations, and measures to ensure the safety and well-being of individuals at the new location.

- **Training and Drills:** Provide regular training and conduct emergency drills to ensure that occupants and staff are familiar with crisis procedures, understand their roles and responsibilities, and can respond effectively under pressure.

- **Review and Update Procedures:** Regularly review and update the emergency crisis plan to reflect changes in building occupancy, regulations, technology, and lessons learned from past incidents or exercises.

By addressing these key items, HRBs and SHRBs can enhance their preparedness and resilience to effectively respond to a wide range of emergency crises.

Further information on emergency crisis can be found in OSHJ-CoP-35: Emergency Preparedness and Response.

5.16. Helipad

Helipads for Super high-rise buildings have specific safety requirements to ensure safe helicopter operations and emergency evacuations. Here are some key safety guidelines:

- **Design Standards:** Helipads must be designed and constructed in compliance with relevant General Civil Aviation Authority (GCAA) of UAE regulations, Civil Aviation Regulations Heliports (Onshore/Offshore) Vertiports (Onshore) guideline.

- **Structural Integrity:** The helideck structure should be robust and capable of supporting the weight of helicopters during landing and takeoff operations. It should undergo regular structural inspections and maintenance to ensure integrity and stability.

- **Fire Safety:** Helipads must be equipped with fire suppression systems, such as foam monitors or fire extinguishers, to quickly extinguish any fires that may occur during helicopter operations. Fire-resistant materials should be used in the construction of the helideck to minimize the risk of fire spread.

- **Emergency Response Equipment:** Helipads should be equipped with emergency response equipment, including firefighting equipment, first aid kits, and emergency communication devices, to facilitate rapid response to emergencies or incidents.

- **Lighting:** Adequate lighting is essential for safe helicopter operations, especially during night landings or adverse weather conditions. Helipads should be equipped with suitable lighting systems, including perimeter lights, floodlights, and landing/takeoff lights, to provide visibility for pilots.

- **Markings and Signage:** Helipads should be clearly marked with painted landing/takeoff markings, touchdown and lift-off area (TLOF) markings, and directional indicators to guide pilots during approach and departure. Signage indicating helideck safety procedures, emergency contact information, and any hazards should also be prominently displayed.

- **Safety Nets and Guardrails:** Safety nets or guardrails should be installed around the perimeter of the helideck to prevent personnel or equipment from falling over the edge during helicopter operations. These safety barriers should be strong, durable, and regularly inspected for integrity.

- **Helicopter Landing Officer (HLO):** Trained personnel, such as a Helicopter Landing Officer (HLO), should be stationed on the helideck during helicopter operations to oversee safety procedures, communicate with pilots, and coordinate ground activities.

- **Clearance and Obstructions:** The helideck should be free from obstacles, obstructions, or loose objects that could interfere with helicopter operations or pose a safety hazard during landing, takeoff, or ground operations.

- **Training and Drills:** Personnel working on or near the helideck should receive training in helideck safety procedures, including emergency response protocols and helicopter landing/takeoff procedures. Regular drills and exercises should be conducted to ensure readiness and familiarity with safety procedures.

- **Emergency Evacuation Helipad:** According to the General Civil Aviation Authority (GCAA) of UAE regulations, Civil Aviation Regulations Heliports (Onshore/Offshore) Vertiports (Onshore) guideline, an emergency evacuation helipad is a clear area on a roof of a tall building that is not intended to function fully as a heliport, yet is capable of accommodating helicopters engaged in emergency evacuation operations.

  - To facilitate emergency evacuation operations, local building guidelines (where applicable) may require structures over a specified height to provide a clear area on the roof capable of accommodating a helicopter. Since the cleared area is not intended to function as a heliport, there is no requirement to apply for certification or acceptance from the GCAA; however, permissions or approvals may be required from the appropriate authorities, municipalities or the Civil Defence.
  - The owner/occupier of a building with an emergency evacuation helipad shall provide details of the emergency evacuation helipad to the GCAA at ana@gcaa.gov.ae. This information shall include the name of the building, its geographic location in WGS-84 coordinates and the D-Value.
  - The D-value is the largest overall dimension of the largest helicopter intended to use the helipad. It is measured from the most forward position of the main rotor tip path plane to the most rearward position of the tail rotor tip path plane or helicopter structure.
  - A marking indicating the maximum allowable mass for which the helipad has been designed to accommodate should be displayed at an emergency evacuation helipad.
  - A maximum allowable mass marking should be located within the Touchdown and lift-off area (TLOF) and so arranged as to be readable from the preferred final approach direction.
  - Operators of emergency evacuation helipads should also advise the local air traffic services of the facility and should produce supporting procedures.

Further information on Helipad can be found in UAE General Civil Aviation Authority Regulations.

5.17. Heating, Ventilation and Air Conditioning (HVAC)

HVAC system is an assembly of various types of equipment installed together to provide heating and cooling along with indoor climate control to provide comfort to the occupants of the buildings or to preserve goods, products or items placed in the buildings , Implementing effective safety measures for Heating, Ventilation, and Air Conditioning (HVAC) systems in buildings is crucial for maintaining a comfortable and safe indoor environment for occupants. Here are key safety measures to consider for HVAC systems in buildings, The entity responsible for managing buildings should ensure:

- **Regular Maintenance and Inspections:**
  - Establish a comprehensive maintenance schedule for HVAC systems, including regular inspections, cleaning, and servicing by qualified technicians.
  - Inspect ductwork, filters, fans, coils, and other components for signs of wear, damage, or debris buildup.
  - Ensure that all HVAC equipment meets safety standards and manufacturer recommendations.

- **Fire Safety Integration:**
  - Install fire dampers and smoke detectors within HVAC ducts to prevent the spread of fire and smoke throughout the buildings.
  - Integrate HVAC systems with the building's fire alarm and suppression systems to automatically shut down in the event of a fire and prevent the spread of smoke and toxic fumes.

- **Proper Ventilation Design:**
  - Design HVAC systems to provide adequate ventilation and airflow throughout the buildings, ensuring the proper exchange of indoor and outdoor air.
  - Size ventilation systems appropriately based on the buildings occupancy, usage, and local regulations to maintain indoor air quality.

- **Air Quality Monitoring:**
  - Install air quality sensors to monitor indoor air pollutants, including carbon monoxide, volatile organic compounds (VOCs), and particulate matter.
  - Implement automatic controls to adjust ventilation rates based on indoor air quality measurements to ensure occupants are not exposed to harmful contaminants.

- **Energy Efficiency Measures:**
  - Implement energy-efficient HVAC equipment and controls to reduce energy consumption and operating costs while maintaining optimal indoor comfort levels.
  - Utilize variable air volume (VAV) systems, programmable thermostats, and occupancy sensors to optimize HVAC operation based on the building’s occupancy and usage patterns.

- **Emergency Shutdown Procedures:**
  - Establish emergency shutdown procedures for HVAC systems in the event of a fire, gas leak, or other hazardous conditions.
  - Ensure that buildings management and emergency responders have the ability to manually override HVAC controls to isolate affected areas and prevent the spread of contaminants.

- **Training and Education:**
  - Provide training to the building’s maintenance staff and HVAC technicians on the safe operation, maintenance, and troubleshooting of HVAC systems.
  - Educate the building’s occupants on the importance of proper HVAC use, including the risks associated with blocking air vents, tampering with controls, or obstructing airflow.

- **Documentation and Record Keeping:**

- Maintain detailed records of HVAC maintenance activities, including inspection reports, service records, and equipment warranties.
- Document any modifications or repairs made to HVAC systems to ensure compliance with safety regulations and manufacturer recommendations.

5.18. Traffic Management

A well-designed and maintained HRBs and SHRBs should have suitable arrangements for traffic management, including but not limited to:

- It is essential to ensure that no parking is allowed within 15 meters of the building perimeter. This ensures unimpeded access for fire vehicles during emergencies, enabling efficient firefighting activities.
- Installation of traffic calming measures such as rumble strips or speed humps to reduce vehicle speeds and enhance pedestrian safety.
- Implementation of designated drop-off and pick-up zones to prevent congestion and conflicts between vehicles and pedestrians.
- Regular inspection and maintenance of traffic control devices, including traffic lights, barriers, and signage, to ensure functionality and visibility.
- Integration of smart traffic management systems, such as sensors and dynamic message signs, to provide real-time information and optimize traffic flow.
- Provision of designated loading and unloading zones for delivery vehicles to minimize disruptions to pedestrian traffic.
- Implementation of measures to mitigate the risk of vehicle-related incidents, such as installing bollards or barriers to protect pedestrian areas from accidental vehicle intrusion.
- Incorporation of sustainable transportation options, such as bicycle parking facilities and electric vehicle charging stations, to promote alternative modes of transportation and reduce traffic congestion.
- Collaboration with local authorities and transportation agencies to coordinate traffic management efforts and address issues related to road infrastructure and public transportation access.
- Continuous monitoring and evaluation of traffic patterns and safety performance to identify areas for improvement and implement proactive measures to enhance traffic safety in the buildings vicinity.
- Vehicle routes are segregated from walkways;
- Where walkways and vehicle traffic routes cross, they should be clearly marked to direct people to the appropriate crossing points;
- Separate entrances and exits are provided for vehicles and people;
- Routes are clearly marked and have adequate signage;
- Speed limit and directional signs are placed in visible areas;
- Blind spots and sharp corners are adequately managed;
- Speed bumps are clearly marked and have signs;
- Traffic routes are maintained in good condition;
- Parking areas should be clearly indicated and there should be separate parking areas for commercial and private vehicles;
- Where identified as a result of risk assessment and where the parking design is suitable, reverse parking may be required to assist drivers to leave the parking area quickly.
- The provision of designated areas where commercial vehicles can be loaded and unloaded.

A well designed and maintained HRBs and SHRBs should have suitable arrangements for traffic management, including safe areas for taxi and student bus pickup and drop-off. Proper building design is essential for ensuring the safety and convenience of building occupants and visitors. Here are some considerations for designing such areas

- **Designated Drop-off and Pick-up Zones:**

- Allocate specific areas near the entrance of the buildings for taxi and student bus drop-off and pick-up activities.
- Clearly mark these zones with signage and pavement markings to indicate their purpose and restrict other types of vehicle parking.
- Designate specific areas near the entrance of the buildings for food delivery drop-off and pick-up. Install tables or designated zones to facilitate deliveries and prevent delivery personnel from entering the buildings premises.

- **Separate Access Points:**

  - Provide separate access points for taxis and buses to minimize conflicts with pedestrian and vehicular traffic.
  - Designate dedicated lanes or loading areas to facilitate smooth and efficient movement of taxis and buses.

- **Accessibility and Safety:**

  - Ensure that drop-off and pick-up zones are easily accessible to pedestrians, including those with disabilities.
  - Incorporate safety features such as curb ramps, crosswalks, and tactile paving to enhance pedestrian safety in these areas.
  - Ensure that drop-off and pick-up zones in parking areas are clearly marked and identified, especially for pedestrians, including children and those with disabilities.

- **Traffic Flow Management:**

  - Implement traffic management measures to regulate the flow of vehicles in and out of the drop-off and pick-up zones.
  - Designate waiting areas for taxis and buses to prevent congestion and facilitate orderly queuing.

- **Adequate Lighting and Visibility:**

  - Install adequate lighting in drop-off and pick-up areas to enhance visibility, especially during evening hours or inclement weather conditions.
  - Consider the use of reflective materials or signage to improve the visibility of these zones for drivers and pedestrians.

- **Proximity to HRBs and SHRBs Entrances:**

  - Locate drop-off and pick-up zones in close proximity to building entrances to minimize walking distances for occupants and visitors.
  - Ensure clear sightlines between the drop-off/pick-up zones and entrances for enhanced security and supervision.

- **Landscaping and Amenities:**

  - Provide amenities such as seating or sheltered waiting areas for passengers awaiting taxis or buses, and incorporate landscaping elements such as planters or greenery to enhance the aesthetics of drop-off and pick-up areas.

- **Collaboration with Transportation Providers:**

  - Coordinate with taxi companies and school transportation services to establish designated pick-up and drop-off procedures and timings.
  - Communicate with transportation providers to ensure compliance with HRBs and SHRBs regulations and safety guidelines.

By integrating these considerations into the building's design, planners and architects can create safe, efficient, and accessible areas for taxi and student bus pickup and drop-off, thereby enhancing the overall functionality and user experience of HRBs and SHRBs.

5.19. Transparent or Translucent Doors, Gates, Walls and Windows

Windows, transparent or translucent surfaces in walls, partitions, doors and gates should, where necessary for reasons of safety and health, be made of safety materials or be protected against breakage, including but not limited to:

- If there is a danger of people coming into contact with transparent or translucent surfaces, they shall be marked or incorporate features to make it apparent that it is not a designated walkway or route;
- Openable windows, skylights and ventilators should be capable of being opened, closed or adjusted without exposing anyone to risks of safety and health;
- Openable windows shall not create a gap of more than as stipulated in the Emirates Guide for UAE Fire and Life Code of Practice and the Regulations for Building Conditions and Specifications in the Emirate of Sharjah.
- Children, where permitted, in the workplace shall never be left unattended or unsupervised near openable windows, railings or on balconies or terraces;
- Windows and skylights shall be designed so they may be cleaned without risk to safety and health;
- Doors and gates should be suitably constructed and fitted with safety devices if necessary. Doors and gates which swing both ways and conventionally hinged doors on designated walkways or routes shall have a transparent viewing panel;
- Power operated doors and gates shall have safety features to prevent people being struck or trapped and, where necessary, shall have a readily identifiable and accessible control switch or device so that they can be stopped quickly in an emergency;
- Glass safety stickers, or glass manifestations, are designed to highlight glazed areas so that they stand out visually with the background, therefore reducing the risk of collision
- Installed windows, transparent or translucent surfaces in walls, partitions, doors and gates should meet the requirements of UAE Fire and Life Code of Practice.
- Apply anti-glare coatings to transparent or translucent surfaces to reduce glare and prevent visual impairment for occupants, particularly in areas with high levels of natural light.
- Implement anti-fog treatments on windows and glass surfaces to maintain visibility and prevent hazards caused by condensation, especially in humid environments or during temperature differentials.
- Install child safety locks on openable windows and doors to prevent children from accidentally opening them, reducing the risk of falls or other accidents.
- Ensure that transparent or translucent doors and windows used as emergency exits are clearly marked with illuminated signage to facilitate quick and safe evacuation during emergencies.
- Use impact-resistant materials for transparent or translucent surfaces to minimize the risk of breakage due to impact, vandalism, or extreme weather conditions.
- Install automatic shutoff mechanisms for power-operated doors and gates to prevent injuries caused by entrapment or collision, with sensors that detect obstacles and halt movement accordingly.
- Ensure that transparent or translucent doors and gates comply with accessibility standards, including provisions for wheelchair users and individuals with mobility impairments.
- Implement a schedule for regular maintenance and inspection of transparent or translucent surfaces to identify and address any signs of wear, damage, or deterioration promptly.

- Ensure that transparent or translucent materials used in doors, walls, and partitions meet fire resistance standards outlined in the UAE Fire and Life Safety Code of Practice, providing adequate protection in the event of a fire.
- Incorporate security features such as reinforced locks, access control systems, and surveillance cameras to enhance security around transparent or translucent entrances and exits.

Further information about specifications can be found in the UAE Fire and Life Safety Code of Practice and the Regulations for Building Conditions and Specifications in the Emirate of Sharjah.

5.20. Swimming Pool

Ensuring safety procedures for swimming pools in HRBs and SHRBs is essential to prevent accidents and maintain a secure environment for all users. Below are some key safety measures that are commonly implemented:

- **Access Control:**
  - Restrict pool access to residents and authorized guests only to manage the number of people and ensure safety.
  - Secure the pool area with locked gates that meet local safety codes.
- **Safety Equipment:**
  - Equip the pool area with lifesaving devices such as life rings and reaching poles.
  - Install safety signage that includes pool rules, depth markers, and emergency contact information.
- **Supervision:**
  - Implement rules requiring children under a certain age to be accompanied by an adult.
  - Consider having a lifeguard on duty during busy hours or during organized events.
- **Water Quality Management:**
  - Regularly test and maintain water quality to prevent infections and ensure the proper balance of chemicals.
  - Keep maintenance records for health and safety inspections.
- **Emergency Preparedness:**
  - Train staff in CPR and emergency response procedures.
  - Have a clear action plan for emergencies, such as accidental drowning or injury.
- **Physical Maintenance:**
  - Regularly inspect the pool area and equipment for hazards like slippery surfaces, broken tiles, or faulty gates.
  - Ensure that the pool's electrical systems meet safety standards to prevent electrocution.
- **Health Regulations Compliance:**
  - Follow local health and safety regulations regarding public pools, including occupancy limits and hygiene practices.
- **Documentation and Training:**

- Keep all staff trained and informed about pool safety protocols and emergency procedures.
- Document all training, incidents, and maintenance activities for legal compliance and review.

5.21. Cladding Safety

In everything related to external cladding, you must strictly adhere to the requirements, instructions and bulletins issued by the Sharjah Civil Defense Authority and adhere to the requirements of the UAE Fire and Life Safety Code of Practice.

Cladding safety in HRBs and SHRBs has become a critical concern, especially following several high-profile fire incidents around the world. Ensuring the safety of cladding involves several key aspects, from material selection to installation and maintenance. Here's an overview of the safety considerations for cladding in high-rise buildings:

- **Material Selection:**
  - Non-combustible Materials: Use materials that are non-combustible or of limited combustibility to minimize the risk of fire spread. Materials should meet the fire performance standards set by the UAE Fire and Life safety Code of practice and Sharjah Civil Defense Authority regulations.
  - Fire Resistance: Select cladding materials that have been tested for fire resistance to ensure they can withstand high temperatures for a significant period without failing.
- **Compliance with Building Codes:**
  - Ensure all materials and installation methods comply with the Emirate of Sharjah local, and national, building codes and standards related to fire safety.
  - Regularly review changes in building codes to ensure ongoing compliance, especially after new safety standards are introduced.
- **Installation:**
  - Proper Installation Techniques: Ensure that cladding is installed according to the manufacturer's guidelines and industry standards. Incorrect installation can compromise the fire safety properties of the material.
  - Ventilation and Gaps: Proper design to prevent the chimney effect, where a gap between the cladding and the building acts as a chimney and facilitates the rapid spread of fire.
- **Inspection and Maintenance:**
  - Regular Inspections: Conduct regular inspections to identify any damage or deterioration in cladding materials that might affect their performance in a fire.
  - Maintenance: Promptly repair or replace damaged cladding to maintain its fire-resistance capabilities.
- **Fire Safety Assessments:**
  - Undertake detailed fire safety assessments of existing cladding systems, particularly for older buildings that might not meet current standards.
  - Consider the overall facade design, including features like windows and balconies, which can influence how a fire spreads.
- **Documentation and Certification:**
  - Ensure that all cladding materials come with proper certification indicating their fire performance ratings.
  - Keep detailed records of the materials used, installation processes, maintenance schedules, and any inspections or assessments conducted.

- **Retrofitting and Upgrades:**
  - Depend on the regulation on Sharjah Civil Defense Authority regulations for buildings with existing cladding that does not meet current safety standards, consider retrofitting with safer materials or additional safety measures such as fire barriers.
  - Engage with fire safety experts and structural engineers during the retrofitting process to ensure that all aspects of the facade's fire safety are addressed.
  - Buildings whose installed cladding does not meet current fire safety standards must provide a clear replacement plan, which is required to be approved by the Sharjah Civil Defense Authority.

By focusing on these key areas, building owners and managers can significantly mitigate the risks associated with cladding fires in high-rise buildings, ensuring a safer environment for occupants and the surrounding community.

5.22. Water Tank

5.22.1. For Suppression System

Water tanks in high-rise buildings, especially those designated for fire suppression systems like sprinklers, are critical components of the building's safety infrastructure. Regular testing and maintenance of these tanks are essential to ensure their functionality in the event of a fire. Here are the general safety guidelines and guidelines for testing water tanks in high-rise buildings:

- **Regular Inspections:**
  - **Visual Inspections:** Conduct regular visual inspections to check for signs of corrosion, leaks, or damage to the tank and its connections.
  - **Structural Integrity Checks:** Periodically assess the structural integrity of the tank, especially if it is located in an area susceptible to environmental wear and tear.
- **Water Quality Testing:**
  - **Bacteriological Testing:** Perform periodic testing for bacteria, such as Legionella, particularly if the water is stagnant for periods.
  - **Chemical Analysis:** Test the water for pH, turbidity, and the presence of harmful chemicals that could corrode the tank or piping.
- **Volume and Pressure Tests:**
  - Level Checks: Regularly check that the water level within the tank meets the required capacity for firefighting.
  - Pressure Tests: Ensure that the water pressure is adequate to supply the entire building, particularly the upper floors, under emergency conditions.
- **Maintenance of Ancillary Equipment:**
  - **Pump Testing:** Test all pumps associated with the water tank to ensure they operate effectively and start automatically when needed.
  - **Valve Inspection:** Check all valves for operability and ensure they are accessible and free from blockages.
- **Cleaning and Disinfection:**
  - **Routine Cleaning:** Schedule regular cleaning of the tank to prevent sediment build-up and contamination.

- **Disinfection:** Periodically disinfect the tank to prevent the growth of pathogens, especially if water testing indicates a problem.

- **Compliance with Fire Codes and Standards:**
  - Fire Code Compliance: Adhere to local and national fire codes, which specify the requirements for fire suppression systems, including water tank size, placement, and maintenance.
  - Certifications and Documentation: Maintain up-to-date certification and documentation that verify the tank's compliance with safety standards.

- **Emergency Preparedness:**
  - **Drills and Testing:** Include the water tank systems in regular fire drills to ensure they are functional and to familiarize building management with their operation during an emergency.
  - **Integration with Building Systems:** Ensure that water tank operations are integrated with other building management systems for coordinated emergency responses.

- **Professional Assessments:**
  - **Engineering Assessments:** Engage qualified professionals to perform periodic assessments of the tank and associated systems to ensure ongoing compliance with the latest safety standards and technological advancements.

5.22.2. For Occupants

Water tanks used for providing potable water to occupants in high-rise buildings must adhere to stringent safety and quality standards to ensure the health and safety of all residents. Here are the key safety requirements and guidelines for testing and maintaining these water tanks:

- **Water Quality Testing:**
  - **Microbial Testing:** Regularly test the water for bacteria and other pathogens. This is crucial to prevent waterborne diseases.
  - **Chemical Testing:** Analyze the water for harmful chemicals and pollutants. Ensure the water meets or exceeds health and safety standards for drinking water, such as those set by local health departments or environmental protection agencies.

- **Cleaning and Disinfection:**
  - **Scheduled Cleaning:** Clean the tanks periodically to remove sediment and prevent the accumulation of impurities that could affect water quality.
  - **Disinfection Procedures:** Use appropriate methods to disinfect the tank, typically after cleaning and before refilling, to eliminate any microbial contamination.

- **Volume and Pressure Checks:**
  - **Capacity Checks:** Regularly verify that the water level within the tank is sufficient to meet the daily needs of all occupants.
  - **Pressure Maintenance:** Ensure that the water pressure is adequate for all floors of the building, providing reliable water flow to all taps and appliances.

- **Safety and Access Controls:**
  - **Secure Access:** Maintain secure access to the water tank to prevent unauthorized entry and potential contamination.

- **Safety Signage:** Install clear safety signage and instructions for maintenance personnel.

- **Compliance and Documentation:**
  - **Regulatory Compliance:** Follow all local health and safety regulations regarding potable water storage, including materials used for tank construction and required water treatment methods.
  - **Record Keeping:** Keep detailed records of all inspections, maintenance, cleaning, and testing activities.

- **Emergency Procedures:**
  - **Contingency Plans:** Develop and implement contingency plans for water supply interruptions or contamination incidents.
  - **Regular Training:** Conduct training sessions for building maintenance staff on emergency procedures and proper tank maintenance techniques.

- **Professional Audits:**
  - **External Audits:** Engage certified professionals to conduct annual audits of the water storage system to ensure it meets all safety standards and to provide recommendations for improvements.

5.23. Balconies

Safety procedures for balconies in high-rise buildings are critical due to the potential risks associated with height and exposure to natural elements. Here are some fundamental safety procedures and guidelines that should be implemented to ensure the safety of residents and visitors:

- **Structural Integrity:**
  - **Regular Inspections:** Conduct regular structural inspections of balconies to ensure they are in good condition, with no signs of wear, corrosion, cracking, or detachment from the main structure.
  - **Load Capacity:** Verify that balconies adhere to design specifications regarding maximum load capacity to prevent collapse under excessive weight.

- **Railing and Barrier Safety:**
  - **Height Regulations:** Ensure that balcony railings are of adequate height according to Sharjah Municipality building code to prevent falls.
  - **Strength and Durability:** Railings should be sturdy and securely attached to the balcony structure, able to withstand normal pressures such as leaning or sudden impact.
  - **Design Safety:** Balcony railings should feature a design that prevents climbing, especially important in buildings where children reside.

- **Materials and Maintenance:**
  - **Weatherproofing:** Use durable, weather-resistant materials for balcony floors and railings to prevent deterioration from weather conditions like rain, and extreme temperatures.
  - **Regular Maintenance:** Perform maintenance checks for signs of damage or wear and carry out necessary repairs or replacements to keep the balcony safe and functional.

- **Safe Usage Guidelines:**
  - **Clear Guidelines:** Provide residents with guidelines on safe balcony use, including limitations on weight and the type of furniture or items that can safely be placed on balconies.
  - **Prohibitions:** Discourage or prohibit potentially dangerous activities on balconies, such as barbecuing, storing heavy objects, or using balconies for any structural modifications not approved by building management.
- **Child Safety:**
  - **Childproofing:** For families with children, recommend or provide resources for childproofing balcony spaces, such as locking devices for doors leading to balconies and child-safe netting or guards.
  - **Awareness Campaigns:** Regularly communicate balcony safety tips and the importance of supervising children on balconies.
- **Emergency Procedures:**
  - **Access for Rescue Operations:** Ensure that balconies are accessible and can support emergency operations in case they need to be used as points of rescue or evacuation.
- **Compliance with Building Codes:**
  - **Building Codes and Regulations:** Adhere to all local building codes and safety standards that apply to balcony construction and maintenance. This includes keeping up to date with any changes in legislation or safety requirements.
- **Documentation and Communication:**
  - **Resident Manuals:** Include balcony safety procedures in the resident's manual or lease agreements. Make sure new residents are briefed on these procedures upon moving in.

5.24. Internal Audit

Internal safety audits for HRBs and SHRBs involve systematic evaluations of safety protocols, procedures, and practices to ensure compliance with regulations, identify potential hazards, and improve overall safety performance. Here is an overview of the process:

- **Planning:**
  - **Scope Definition:** Define the scope and objectives of the safety audit, including the areas to be assessed (e.g., fire safety, emergency procedures, and structural integrity).
  - **Audit Team Formation:** Form an audit team consisting of qualified individuals with expertise in safety management, engineering, and building operations.
  - **Audit Schedule:** Develop a schedule for conducting the audit, taking into account the buildings operational needs and occupancy patterns.
- **Data Collection:**
  - **Documentation Review:** Review existing safety policies, procedures, and records to assess compliance with regulatory requirements.

- **Physical Inspection:** Conduct on-site inspections of high-risk areas such as fire exits, emergency lighting, electrical systems, and structural components to identify potential hazards.

- **Assessment:**
  - **Risk Identification:** Identify potential safety hazards and risks that could affect occupants, employees, and visitors within the building.
  - **Compliance Verification:** Verify compliance with local regulations, building codes, and standards pertaining to safety and emergency preparedness.
  - **Gap Analysis:** Compare current safety practices against established benchmarks and best practices to identify areas for improvement.

- **Reporting:**
  - **Findings Documentation:** Document audit findings, including observations, deficiencies, and areas of non-compliance.
  - **Root Cause Analysis:** Analyze the underlying causes of identified deficiencies to determine their root causes and contributing factors.
  - **Recommendations:** Develop actionable recommendations for addressing identified deficiencies and enhancing safety performance.

- **Action Planning:**
  - **Prioritization:** Prioritize corrective actions based on the severity of risks and their potential impact on safety.
  - **Responsibility Assignment:** Assign responsibilities for implementing corrective actions to relevant individuals or departments.
  - **Timeline Development:** Establish timelines for implementing corrective actions and monitor progress to ensure timely completion.

- **Implementation:**
  - **Action Execution:** Implement identified corrective actions according to the established timelines and responsibilities.
  - **Training and Awareness:** Provide training and awareness programs to educate building occupants, employees, and management about safety protocols and procedures.

- **Follow-Up:**
  - **Verification:** Conduct follow-up inspections and assessments to verify the effectiveness of implemented corrective actions.
  - **Continuous Improvement:** Continuously review and update safety protocols and procedures based on lessons learned from audit findings and feedback.

- **Documentation:**
  - **Audit Report:** Prepare a comprehensive audit report summarizing findings, recommendations, and actions taken.

- **Records Maintenance:** Maintain records of audit reports, corrective actions, and follow-up activities for future reference and regulatory compliance.

5.25. External Assessment

External assessments are critical for ensuring that HRBs and SHRBs adhere to regulatory standards and best practices. Below is an outline of the process and guidelines for conducting these external safety assessments:

- **Third-Party Assessment:**
  - **Engagement:** High-rise building owners should engage third-party safety assessment firms with expertise in building safety and compliance.
  - **Scope:** Define the scope of the assessment, covering key areas such as fire suppression systems, fire alarms, elevators, balconies, water tanks, HVAC systems, and other critical safety components.
  - **Audit Process:** Conduct a thorough audit of the building's safety systems, procedures, and infrastructure to identify any deficiencies or areas of non-compliance.
- **Corrective Action Plan:**
  - **Findings Review:** Review the assessment findings and recommendations provided by the third-party assessment firm.
  - **Action Plan Development:** Develop a comprehensive corrective action plan that addresses identified deficiencies and implements necessary improvements.
  - **Short-, Medium-, and Long-Term Actions:** Prioritize corrective actions based on urgency and impact, categorizing them into short-term (immediate), medium-term, and long-term corrective measures.
  - **Preventative Actions:** Incorporate preventative measures to mitigate future risks and ensure sustained compliance with safety standards.
- **Approval Process:**
  - **Regulatory Compliance:** Ensure that the corrective action plan aligns with regulatory requirements and standards set forth by the relevant authorities in the Emirate of Sharjah.
  - **Authorities Approval:** Submit the corrective action plan to the appropriate regulatory authorities for review and approval.
  - **Documentation:** Maintain documentation of the corrective action plan, including approvals from regulatory authorities, for compliance verification and record-keeping purposes.
- **Implementation and Monitoring:**
  - **Execution:** Implement the identified corrective and preventative actions according to the approved plan and timelines.
  - **Monitoring:** Regularly monitor the progress of corrective actions and verify their effectiveness in addressing identified deficiencies.

- **Adaptation:** Adjust the corrective action plan as needed based on ongoing monitoring and feedback to ensure continuous improvement.

- **Follow-Up Assessment:**
  - **Re-Assessment:** Schedule periodic follow-up assessments by the third-party assessment firm to evaluate the effectiveness of implemented corrective actions.
  - **Compliance Verification:** Verify compliance with regulatory standards and assess any remaining safety risks or areas requiring further improvement.
  - **Documentation:** Document the results of follow-up assessments and any additional actions taken to address outstanding issues.

5.26. Occupant self-inspection

Occupant safety self-inspection in HRBs and SHRBs is a proactive approach to ensuring the safety and well-being of individuals within the premises. Here's a guide on how occupants can conduct self-inspections:

- **Structural Safety:**
  - **Balconies**
  - **Windows**
  - **Flooring**
- **Electrical Safety:**
  - **Electrical Outlets**
  - **Appliances**
- **Environmental Safety:**
  - **Air Quality**
  - **Temperature Control**
  - **HVAC**
- **Windows overlooking the OTS (Open to Sky)**
  - **Bathroom windows**
  - **Kitchen windows**
- **Documentation:**
  - **Record Keeping:** Keep a log of self-inspections and any safety concerns identified, along with dates and actions taken.
  - **Communication:** Share safety findings and recommendations with building management to address any identified issues collaboratively.

5.27. Housekeeping

Housekeeping in high-rise buildings is imperative for ensuring safety. Proper housekeeping practices help prevent accidents and enable efficient emergency responses. Here are some key safety-oriented housekeeping strategies for high-rise buildings:

- **Clutter Management**
  - **Hallways and Common Areas:** Regularly clear all hallways, stairwells, and common areas of clutter. Ensure that these spaces are free of obstacles that could hinder evacuation during emergencies.
  - **Storage:** Store all materials neatly and safely. Avoid stacking items in a way that could create falling hazards or block access to emergency equipment and exits.
- **Waste Disposal**
  - **Regular Removal:** Ensure that trash is removed from building premises regularly to prevent accumulation, which can be a fire hazard.
  - **Recycling and Hazardous Waste:** Properly segregate and dispose of recyclables and hazardous waste, such as batteries, electronic equipment, and cleaning chemicals.
- **Spill Management**
  - **Immediate Response:** Quickly address and clean up spills, especially in areas like kitchens, bathrooms, and walkways where they can pose slip hazards.
  - **Adequate Supplies:** Maintain ready access to cleaning supplies and spill kits throughout the building to enable prompt action.
- **Maintenance of Fire Safety Equipment**
  - **Unobstructed Access:** Ensure that fire extinguishers, fire hose reels, sprinkler systems, and other fire safety equipment are easily accessible and not obscured by storage or debris.
  - **Regular Checks:** Part of housekeeping should include routine checks to ensure that all fire safety equipment is in good working order.
- **Proper Lighting**
  - **Adequate Illumination:** Maintain adequate lighting in all areas of the building to prevent accidents and aid in navigation, especially in emergencies.
  - **Regular Maintenance:** Replace burned-out bulbs and repair faulty lighting fixtures promptly to ensure visibility and safety at all times.
- **Ventilation Systems**
  - **Clean Air Ducts:** Regularly clean air ducts and ventilation systems to prevent the accumulation of dust and other contaminants that can affect indoor air quality and pose a fire risk.
- **Floor Care**
  - **Regular Cleaning:** Keep floors clean and dry to prevent slips, trips, and falls.

- **Appropriate Matting:** Use mats and runners in entryways to absorb moisture and dirt from shoes, especially in rainy or snowy weather.

- **Signage**
  - **Clear and Visible:** Ensure that safety signage, including exit signs and warnings, is clearly visible and not obstructed by furniture or decorations.

- **Pest Control**
  - **Routine Inspections:** Conduct routine inspections and treatments to manage pests such as rodents and insects, which can damage property and spread disease.

- **Secure Loose Items**
  - **Stability Measures:** Securely anchor items that could become projectiles in high winds or during earthquakes, such as outdoor furniture and indoor shelving units.

5.28. Cleaning the façade

Cleaning the external facade of HRBs and SHRBs involves significant safety risks, primarily due to the height and complexity of the task. Implementing stringent safety precautions is crucial to protect the workers involved and ensure the stability and security of the equipment used. Here are key safety precautions for facade cleaning in high-rise buildings:

- **Proper Training**
  - **Safety and Technique Training:** Ensure that all personnel involved in facade cleaning are trained in both the techniques required for high-rise cleaning and comprehensive safety practices.
  - **Rescue Training:** Train all workers in emergency response and rescue procedures specific to high-rise scenarios.

- **Use of Personal Protective Equipment (PPE)**
  - **Harnesses and Lanyards:** Ensure that workers use full-body harnesses with shock-absorbing lanyards or self-retracting lifelines.
  - **Helmets:** Require helmets to protect against head injuries.
  - **Protective Footwear:** Ensure that workers wear non-slip safety footwear.
  - **Gloves and Eye Protection:** Use gloves and safety goggles or face shields as necessary, depending on the cleaning chemicals and methods used.

- **Secure and Inspect Equipment**
  - **Regular Inspection:** Routinely inspect all equipment, including scaffolding, bosun's chairs, platforms, and temporary suspended structures, for integrity and stability.
  - **Certification:** Use only certified and well-maintained equipment to ensure it meets safety standards.

- **Implement Rigorous Safety Checks**
  - **Pre-Operation Checks**: Conduct thorough checks of all equipment and safety gear before beginning work each day.

- **Weather Conditions:** Monitor weather conditions closely, and do not perform exterior cleaning during high winds, electrical storms, or other adverse weather conditions.

- **Communication Systems**
  - **Effective Communication:** Equip all workers with reliable communication devices to maintain contact with ground-level supervisors and emergency services.
  - **Clear Protocols:** Establish clear communication protocols to be followed in case of an emergency.

- **Anchor Points**
  - **Secure Anchor Points:** Ensure that all anchor points used for suspension equipment are structurally sound and regularly inspected.
  - **Proper Use:** Train workers on how to correctly use anchor points to avoid misuse and potential accidents.

- **Traffic Control**
  - **Ground-Level Safety:** Implement measures to protect the public and workers on the ground, including cordoning off areas beneath cleaning operations to prevent injuries from falling debris or equipment.

- **Chemical Safety**
  - **Material Safety Data Sheets (MSDS):** Provide access to MSDS for all chemicals used in cleaning processes. Ensure workers understand the hazards and necessary precautions associated with these chemicals.
  - **Proper Storage and Handling:** Store cleaning chemicals safely and ensure they are handled properly to prevent spills, leaks, and exposure.

- **Emergency Preparedness**
  - **Emergency Plan:** Develop and regularly update an emergency response plan tailored to high-rise facade cleaning operations.
  - **Rescue Plans:** Prepare and practice rescue plans that can be executed in case of equipment failure or other emergencies at height.

- **Legal Compliance**
  - **Regulations and Permits:** Ensure all operations comply with local safety regulations and building codes. Obtain necessary permits and approvals for facade cleaning, especially when using suspended equipment.

5.29. OTS

Open-to-sky service rooms in HRBs and SHRBs, often housing mechanical, electrical, and other utility equipment, require specific safety measures to ensure they remain safe and functional. Here are key safety considerations and measures to implement:

- **Access Control**

- **Restricted Access:** Limit access to authorized personnel only to prevent accidents and interference with sensitive equipment.
- **Secure Entry:** Use locks or security systems to secure entry points and prevent unauthorized access.
- **Window:** To minimize fire risks in open-to-sky service rooms, it is prohibited to install windows that can be opened or exhaust fans that can throw materials from inside the building to these areas. This measure prevents the accidental disposal of cigarettes or any combustible materials that could ignite a fire in these exposed service areas. Building occupants must adhere strictly to this rule to maintain the safety and integrity of the OTS service rooms.

- **Structural Safety**
  - **Load Bearing Capacity:** Ensure that the structure supporting the service room is capable of bearing the load of the equipment, especially in open-to-sky scenarios where additional environmental factors may apply.
  - **Weatherproofing:** Since these areas are exposed to the elements, ensure that all structures and coverings are designed to withstand local weather conditions, including wind, rain, and extreme temperatures.
- **Electrical Safety**
  - **Grounding and Bonding:** Properly ground all electrical installations to prevent electrical shock and fire hazards.
  - **Weatherproof Electrical Systems:** Use weather-resistant materials and fixtures to protect against moisture and temperature changes.
  - **Regular Inspections:** Schedule regular inspections and maintenance of electrical systems to prevent malfunctions and ensure compliance with safety standards.
- **Fire Safety**
  - **Fire Suppression Systems:** Equip service rooms with appropriate fire suppression systems, such as fire extinguishers or automatic sprinkler systems, suitable for the types of equipment and materials stored.
  - **Clearance and Ventilation:** Maintain sufficient clearance around equipment for heat dissipation and ensure adequate ventilation to prevent overheating.
- **Equipment Maintenance**
  - **Regular Maintenance Schedule:** Implement and adhere to a regular maintenance schedule to ensure all equipment is functioning properly and safely.
  - **Documentation:** Keep detailed records of all maintenance activities, inspections, and any repairs done on the equipment.
- **Hazardous Materials Management**
  - **Proper Storage:** Store hazardous materials, if any, according to safety regulations to prevent leaks, spills, or reactions.
  - **Spill Containment and Response Plans:** Have plans and materials ready for containing and cleaning up spills safely.

- **Safety Signage**
  - **Warning Signs:** Install clear and visible safety signs warning of potential hazards such as high voltage, toxic substances, or heavy equipment.
  - **Instructional Signage:** Post instructions for the safe operation of equipment and emergency procedures.

5.30. 24/7 Support

From a safety perspective, providing 24/7 support in HRBs and SHRBs is fundamental to ensuring a prompt response to any emergencies and maintaining continuous monitoring of the building's safety systems. Here are the key aspects to consider for implementing effective 24/7 support:

- **Security Monitoring:** Operate a 24-hour security command center equipped with CCTV and alarm systems to monitor all critical areas of the building. This includes entrances, exits, stairwells, and other vulnerable points.
- **Maintenance Crews:** Have maintenance personnel available 24/7 to address any urgent repairs or issues that may affect the building's safety, such as elevator malfunctions, plumbing leaks, or electrical faults.
- **Communication Systems:** Maintain robust communication channels that can quickly disseminate information to all occupants in the event of an emergency. This includes public address systems, emergency alert systems, and digital notifications.
- **Help Desk:** Operate a 24/7 help desk to address the safety concerns of occupants, providing guidance and support on how to handle emergencies and whom to contact.
- **Fire Safety Systems:** Ensure that fire detection, suppression systems are monitored continuously, and that any alerts are responded to immediately to prevent the spread of fire.
- **Health and Safety Advisories:** Provide ongoing health and safety advisories that inform and educate tenants about potential hazards and safety protocols specific to high-rise living.

5.31. PTW

In HRBs and SHRBs, implementing a Permit to Work (PTW) system is essential to ensure that certain types of work, especially those that are hazardous, are conducted safely and under controlled conditions. This system helps manage the risks associated with maintenance, construction, and other high-risk activities. Here's an outline of how a PTW system can be structured and what it should include:

- **Scope of Work**
  - Clearly define the type of work that requires a permit, such as electrical maintenance, hot work (welding), work at height, and any work in confined spaces or involving hazardous materials.
- **Permit Issuance**
  - Permits should only be issued by authorized personnel who are trained to understand the risks associated with the job and the necessary control measures.

- Permits must detail the work to be done, the hazards involved, the precautions to take, the duration of the permit, and the area where the work will be carried out.

- **Risk Assessment**
  - Before issuing a permit, a detailed risk assessment must be conducted to identify and evaluate potential hazards. This assessment should also specify the mitigation measures that will be implemented.

- **Safety Procedures and Precautions**
  - The permit must outline specific safety procedures and precautions, including the use of personal protective equipment (PPE), necessary safety signs, and emergency procedures.

- **Training and Competence**
  - Workers performing the tasks must be adequately trained and demonstrate competence in handling the equipment and understanding the safety protocols.

- **Supervision**
  - Work under a PTW must be supervised by qualified personnel to ensure adherence to safety regulations and the conditions stipulated in the permit.

- **Communication**
  - Effective communication channels must be established among all team members, supervisors, and emergency services. Information about ongoing permitted work should be available to all relevant parties.

- **Audit and Inspection**
  - Regular audits and inspections should be conducted to ensure compliance with the PTW system and to identify any areas for improvement.

- **Closure and Feedback**
  - Once the work is completed, the permit should be formally closed with a sign-off from the issuing authority. A review meeting can provide feedback and lessons learned, which can be used to improve the PTW system.

- **Documentation and Record Keeping**
  - All permits and related documentation should be kept for a designated period for accountability, tracking progress, and for review in case of an incident.

Further information on emergency crisis can be found in OSHJ-CoP-34: Permit to Work

6 References

OSHJ-GL-10: OSH Practitioner

OSHJ-CoP-17: Incident Reporting and Investigation.

OSHJ-CoP-16: First aid at Work.

OSHJ-GL-08: Training and Competence.

OSHJ-CoP-01: Risk Management and Control.

OSHJ-CoP-05: Electrical Safety at Work.

OSHJ-CoP-19: Waste Management.

OSHJ-CoP-35: Emergency Preparedness and Response.

OSHJ-CoP-34: Permit to Work

UAE General Civil Aviation Authority Regulations.

UAE Fire and Life Safety Code of Practice.

7 Document Amendment Record

TITLE	High-Rise Building Safety		
DOCUMENT AMENDMENT RECORD			
Version	**Revision Date**	**Amendment Details**	**Pages Affected**
1	15 JAN 2025	New Document	N/A

Notice

If any inconsistency in the contents of this document, a conflict in any of the standards or guidelines, a suggestion for improvement in any of the standards or wording, or a typographical error is observed, please do not hesitate to contact us at the email address provided below, referencing the document code.

Email: Info@spsa.shj.ae

APPENDIX 1. OSH Management System in HRBs and SHRBs

When developing a safety management system for HRBs and SHRBs, it is recommended to include the following items:

- **Safety policy:** When drafting a safety policy statement for a building, it's crucial to consider key elements that reflect a strong commitment to ensuring the safety and well-being of occupants, visitors, and property, and it is Clearly state the organization's commitment to safety, outlining its responsibility to identify, assess, and mitigate safety risks within the high-rise building.

- **Safety Objectives:** Define the overarching objectives of the safety policy, such as protecting lives and property, ensuring regulatory compliance, and fostering a culture of safety among occupants and staff.

- **Safety procedures:** Establishing safety management procedures for a high-rise building involves creating a structured framework to identify, assess, and mitigate risks while ensuring the safety and well-being of occupants, visitors, and property. The procedures should provide details about how to conduct the following:

  - Safety Policies and Objectives
  - Risk assessment
  - Fire Safety Management
  - Security Management
  - Employee training
  - Occupant Safety Training
  - Maintenance Procedures
  - Crises management Plan
  - Communication and Coordination
  - Compliance Management
  - Audit and inspection
  - Review and Improvement

- **Risk Assessment and Hazard Identification:** Conduct regular assessments to identify potential risks and hazards associated with the building's design, construction, occupancy, and surrounding environment.

- **Crisis management Plan:** Develop a detailed plan outlining procedures for responding to emergencies such as fires, natural disasters, medical incidents, and security threats. This plan should include evacuation procedures, communication protocols, and coordination with emergency responders.

- **Fire Safety Measures:** Implement and maintain fire safety measures such as fire detection and alarm systems, fire suppression systems, emergency lighting, and fire evacuation drills.

- **Building Security:** Implement security measures to protect the building and its occupants from threats such as unauthorized access, vandalism, theft, and terrorism. This may include access control systems, surveillance cameras, security personnel, and perimeter fencing.

- **Employee Safety training and education:** Training are essential for employees in a high-rise building. It's crucial to cover various topics to ensure they are well-prepared to respond effectively to emergencies and mitigate safety risks. Additionally, continuous training and review are important to provide ongoing opportunities for employees to refresh their knowledge and skills in safety-related topics. Conducting

regular reviews and assessments helps evaluate the effectiveness of training programs and identify areas for improvement. Here are the main items to include:

- Fire Safety
- Emergency Response
- Evacuation Procedures
- First Aid and Medical Response
- Security Awareness
- Occupational Health and Safety
- Building Systems and Equipment
- Communication Protocols
- Safety Culture and Awareness

- **Occupant Safety Awareness:** Provide safety training and awareness programs for building occupants to educate them about emergency procedures, evacuation routes, and general safety practices.

- **Maintenance and Inspections:** Establish a regular maintenance schedule for building systems and equipment to ensure they are functioning properly and in compliance with safety regulations. Conduct periodic inspections to identify and address any safety deficiencies.

- **Compliance with Regulations:** Ensure compliance with local building codes, fire safety regulations, and other applicable laws and standards governing high-rise buildings.

- **Communication and Coordination:** Establish effective communication channels and coordination mechanisms among building management, occupants, emergency responders, and relevant stakeholders to facilitate timely response and information sharing during emergencies.

- **Community Engagement:** Engage with the surrounding community to raise awareness about building safety measures, emergency procedures, and how to report safety concerns or incidents.

- **Continuous Improvement:** Regularly review and evaluate the effectiveness of the safety management system, and make necessary improvements based on lessons learned from incidents, feedback from occupants, and changes in regulations or best practices.

APPENDIX 2. For example, security personnel SHRBs

The table provides different samples for calculating the minimum number of security personnel required in super-high-rise buildings as per the recommendation of the Sharjah Prevention and Safety Authority.

Total Number of floors	*Total number of flats/floor*	*Required number of security personnel*	*Total number of flats/floor*	*Required number of security personnel*	*Total number of flats/floor*	*Required number of security personnel*
30	7	*6*	8	*7*	9	*8*
31	7	*6*	8	*7*	9	*8*
32	7	*6*	8	*7*	9	*8*
33	7	*7*	8	*8*	9	*8*
34	7	*7*	8	*8*	9	*9*
35	7	*7*	8	*8*	9	*9*
36	7	*7*	8	*8*	9	*9*
37	7	*7*	8	*8*	9	*10*
38	7	*8*	8	*9*	9	*10*
39	7	*8*	8	*9*	9	*10*
40	7	*8*	8	*9*	9	*10*
41	7	*8*	8	*9*	9	*11*
42	7	*8*	8	*10*	9	*11*
43	7	*9*	8	*10*	9	*11*
44	7	*9*	8	*10*	9	*11*
45	7	*9*	8	*10*	9	*12*
46	7	*9*	8	*11*	9	*12*
47	7	*9*	8	*11*	9	*12*
48	7	*10*	8	*11*	9	*12*
49	7	*10*	8	*11*	9	*13*
50	7	*10*	8	*11*	9	*13*
30	*7*	*6*	8	*7*	9	*8*
31	*7*	*6*	8	*7*	9	*8*
32	*7*	*6*	8	*7*	9	*8*
33	*7*	*7*	8	*8*	9	*8*
34	*7*	*7*	8	*8*	9	*9*
35	*7*	*7*	8	*8*	9	*9*
36	*7*	*7*	8	*8*	9	*9*
37	*7*	*7*	8	*8*	9	*10*
38	*7*	*8*	8	*9*	9	*10*
39	*7*	*8*	8	*9*	9	*10*
40	*7*	*8*	8	*9*	9	*10*
41	*7*	*8*	8	*9*	9	*11*
42	*7*	*8*	8	*10*	9	*11*
43	*7*	*9*	8	*10*	9	*11*
44	*7*	*9*	8	*10*	9	*11*
45	*7*	*9*	8	*10*	9	*12*
46	*7*	*9*	8	*11*	9	*12*
47	*7*	*9*	8	*11*	9	*12*
48	*7*	*10*	8	*11*	9	*12*
49	*7*	*10*	8	*11*	9	*13*
50	*7*	*10*	8	*11*	9	*13*

APPENDIX 3. Incident Management

The key components of incident management for buildings:

- **Incident Prevention**
  - **Risk Assessment:** Regularly conduct thorough risk assessments to identify potential hazards that could lead to accidents, such as electrical failures, fire risks, and structural issues.
  - **Safety Training:** Provide ongoing safety training for all building staff and occupants. Training should cover emergency procedures, evacuation routes, and the use of fire extinguishers and other safety equipment.
  - **Maintenance:** Ensure regular maintenance of all safety and building systems, including fire alarms, sprinklers, emergency lighting, elevators, and security systems.
  - **Safety Inspections:** Perform frequent inspections of all facilities and equipment to ensure they meet safety standards and are in good working condition.
- **Incident Preparedness**
  - **Emergency Plans:** Develop and maintain comprehensive emergency response plans tailored to different types of accidents, including fires, power outages, and natural disasters.
  - **Communication Systems:** Implement effective communication tools to alert and instruct building occupants during an emergency. Systems such as public address systems, emergency alert systems, and digital signage should be regularly tested.
  - **Drills and Simulations:** Conduct regular emergency drills (e.g., fire drills) to ensure everyone knows how to act in an emergency.
- **Incident Response**
  - **Emergency Response Team:** Establish a trained emergency response team within the building staff who can take immediate action when an incident occurs. This team should have clear roles and responsibilities.
  - **First Aid:** Provide accessible first aid kits on every floor and train selected staff members in basic first aid and CPR.
  - **Evacuation Procedures:** Clearly mark all evacuation routes and exits. Ensure these pathways are unobstructed and well-lit at all times.
  - **Coordination with Emergency Services:** Establish protocols for contacting and cooperating with local emergency services, such as fire departments and medical responders.
- **Recovery**
  - **Post-Incident Analysis:** After an accident, conduct a thorough investigation to determine the cause and evaluate the response. This helps in understanding what happened and why.
  - **Support Services:** Provide support services for occupants affected by the accident, which might include counseling and medical care.

- **Review and Revise Emergency Plans:** Use the insights gained from the incident and its management to review and update the existing emergency plans and safety measures.

- **Documentation and Reporting**
  - **Incident Logs:** Keep detailed records of all incidents and accidents, including what happened, how it was managed, and any injuries or damages incurred.
  - **Legal Compliance:** Ensure all incident management procedures comply with local safety regulations and legal requirements. Regularly update these procedures to stay compliant with new laws.

- **Technological Integration**
  - **Surveillance and Monitoring:** Utilize surveillance systems and building management systems to monitor safety-related incidents and respond quickly.
  - **Data Analysis:** Use data collected from various building systems to analyze trends and predict potential incident hotspots or systemic failures.

By covering these areas, high-rise buildings can manage accidents more effectively, minimizing harm to people and property and ensuring a swift return to normal operations.

Near Miss Management

Near miss reporting in high-rise buildings is an integral aspect of a proactive safety management system. By tracking and analyzing near misses, management can identify potential hazards and address them before they lead to actual accidents or injuries. Here's how near miss reporting can be structured in high-rise buildings:

- **Definition and Awareness**
  - **Define a Near Miss:** Clearly define what constitutes a near miss in the context of the building's operations. This could include any incident that had the potential to cause harm or damage but did not, thanks to timely intervention or sheer luck.
  - **Awareness Campaigns:** Conduct regular awareness campaigns to educate all building occupants, including tenants, employees, and maintenance staff, about the importance of reporting near misses. This helps in cultivating a culture of safety.

- **Reporting System**
  - **Easy Access:** Implement an easy-to-use reporting system that is accessible to everyone in the building. This could be a digital form, a dedicated email, or a mobile app.
  - **Anonymous Reporting:** Allow for anonymous submissions to encourage more reports by removing fear of blame or embarrassment.
  - **Clear Instructions:** Provide clear instructions on how to report a near miss, detailing the information required, such as the time, location, and description of the incident.

- **Response and Investigation**

- **Immediate Response:** Ensure that every report receives an immediate response, even if it's just to acknowledge receipt and thank the reporter.
- **Investigation Process:** Detailed investigations should be carried out for reported near misses to understand the underlying causes and factors contributing to the incident.
- **Feedback Loop:** Inform the person who reported the near miss (if not anonymous) about the actions taken, demonstrating that their input is valued and effective.

- **Data Analysis**
  - **Trend Analysis:** Regularly analyze the collected data to identify trends and patterns in near misses. Look for common locations, times, or factors that repeatedly appear in reports.
  - **Risk Assessment Updates:** Use the insights from trend analysis to update risk assessments and safety protocols.
- **Training and Education**
  - **Incorporate Findings in Training:** Update training programs to include examples and lessons learned from near miss reports. Highlight how reporting and subsequent interventions prevented accidents.
  - **Regular Training Sessions:** Hold regular training sessions to reinforce the importance of safety and the role of near miss reporting in maintaining it.
- **Review and Continuous Improvement**
  - **Regular Reviews:** Conduct regular reviews of the near miss reporting system to evaluate its effectiveness and make improvements where necessary.
  - **Management Support:** Ensure ongoing support from building management and owners, emphasizing the importance of safety and the near miss reporting system.
- **Integration with Overall Safety Culture**
  - **Part of Safety Culture:** Integrate near miss reporting into the overall safety culture of the building, making it a key component of daily operations.
  - **Recognition Programs:** Develop recognition programs that reward departments or individuals who actively participate in the near miss reporting system. This can further encourage participation and engagement.

By implementing a robust near miss reporting system, high-rise buildings can significantly enhance their safety protocols, reducing the likelihood of accidents and creating a safer environment for everyone.

Incident and Dangerous Occurrence Management

Incident and dangerous occurrence reporting in super high-rise buildings is essential for maintaining a safe environment for occupants and employees. Here's how it can be effectively implemented:

- **Reporting Procedure:**

- **Designated Reporting Channels:** Establish clear channels for reporting accidents, such as a dedicated phone number, email address, or online form.
- **Prompt Reporting:** Encourage prompt reporting of accidents to ensure timely response and investigation.
- **Detailed Information:** Collect detailed information about the accident, including the date, time, location, nature of the incident, individuals involved, and any witnesses.

- **Investigation Process:**
  - **Investigation Team:** Designate a team responsible for investigating accidents thoroughly to determine their causes and contributing factors.
  - **Gather Evidence:** Collect evidence related to the accident, such as photographs, witness statements, and documentation of any damage or injuries.
  - **Root Cause Analysis:** Conduct a root cause analysis to identify underlying issues or systemic failures that led to the accident.
- **Documentation:**
  - **Incident Report Form:** Develop a standardized incident report form to ensure consistent documentation of incidents.
  - **Record Keeping:** Maintain accurate records of all reported accidents, investigations, and corrective actions taken.
  - **Confidentiality:** Ensure that incident reports are treated with confidentiality to protect the privacy of individuals involved.
- **Communication:**
  - **Internal Communication:** Notify building management, occupants, and relevant stakeholders about the incident and any immediate safety measures or precautions.
  - **External Communication:** If necessary, communicate with external parties such as emergency services, regulatory agencies, and insurance providers.
- **Corrective and Preventative Actions:**
  - **Implement Corrective and Preventative Measures:** Based on the findings of the incident investigation, implement corrective and preventative actions to address identified hazards and prevent similar incidents in the future.
  - **Training and Education:** Provide additional training and education to staff and occupants on incident prevention and emergency response procedures.
- **Follow-Up:**
  - **Follow-Up Checks:** Conduct follow-up checks to ensure that corrective actions have been implemented effectively and that safety measures are being followed.
  - **Continuous Improvement:** Use lessons learned from accidents to improve safety protocols and procedures continuously.
- **Regulatory Compliance:**

- **Compliance Monitoring:** Ensure that incident reporting and investigation processes comply with relevant regulatory requirements and standards.

- **Regular Audits:** Conduct regular audits to assess the effectiveness of incident reporting procedures and identify areas for improvement.

By establishing a systematic approach to incident reporting and investigation, high-rise buildings can enhance safety, mitigate risks, and create a secure environment for everyone within the premises.

Incident Investigation

Conducting incident investigations in high-rise buildings is essential for identifying root causes, implementing corrective actions, and preventing future accidents. Here is an outline of how to effectively conduct incident investigations:

- **Immediate Response:**

  - **Emergency Protocol:** Activate the building's emergency response protocol immediately after an incident occurs. Ensure the safety of all occupants and provide medical assistance as needed.

  - **Preservation of Scene:** Preserve the incident scene to the extent possible to prevent tampering with evidence before the investigation begins.

- **Investigation Team:**

  - **Designated Investigators:** Assign a team of qualified individuals responsible for conducting the incident investigation. This team may include safety officers, engineers, and relevant stakeholders.

  - **Training:** Ensure that investigators are trained in incident investigation techniques, including evidence collection, interviewing witnesses, and root cause analysis.

- **Evidence Collection:**

  - **Gather Information:** Collect all available information related to the accident, including witness statements, photographs, video footage, and physical evidence.

  - **Document Findings:** Record detailed information about the incident scene, such as the location, time, weather conditions, and any relevant observations.

- **Root Cause Analysis:**

  - **Identify Causes:** Analyze the collected evidence to determine the underlying causes of the accident. Look beyond immediate causes to identify contributing factors and systemic issues.

  - **Root Cause Identification:** Use techniques such as the "5 Whys" or "Fishbone Diagram" to systematically identify root causes and contributing factors.

- **Report Preparation:**

  - **Report Writing:** Prepare a comprehensive incident investigation report documenting the findings of the investigation, including the sequence of events, causes, and recommendations for corrective actions.

- **Clear Recommendations:** Provide clear and actionable recommendations for preventing similar accidents in the future. Prioritize recommendations based on their potential to mitigate risks.

- **Corrective and Preventative Actions:**
  - **Implementation:** Implement corrective and Preventative actions based on the recommendations outlined in the investigation report. Ensure that responsible individuals or departments are assigned to carry out these actions.
  - **Timely Execution:** Prioritize and execute corrective actions promptly to address identified hazards and prevent recurrence of accidents.

- **Communication:**
  - **Internal Communication:** Communicate the findings of the incident investigation to all relevant stakeholders, including building management, employees, and occupants. Emphasize the importance of implementing corrective actions.
  - **External Communication:** If necessary, communicate with external parties such as regulatory authorities, emergency responders, and insurance providers.

- **Follow-Up:**
  - **Monitoring:** Monitor the implementation of corrective actions to ensure their effectiveness. Conduct follow-up inspections or audits to verify compliance with recommended measures.
  - **Continuous Improvement:** Use lessons learned from incident investigations to improve safety protocols, procedures, and training programs continuously.

APPENDIX 4. OSH Index for HRBs and SHRBs in the Emirate of Sharjah

1. Purpose:

To come up with a way to find out how well a building classified as HRB or SHRB follows the High-Rise Buildings Safety Guideline for the Emirate of Sharjah's Prevention and Safety Authority's rules .

2. Guidance:

Any OSH practitioner in a high-rise or super high-rise building must measure the compliance rate with this guideline according to the index designed for this purpose. A high-rise or high-rise building must measure compliance once a year, keep a copy, and submit it upon request.

The OSH practitioner must provide evidence of the development of a corrective action plan to address improvement areas in the building to achieve the highest compliance rate in the index. The progress in implementing the corrective action plan must be clarified to the representative of the Prevention and Safety Authority when he visits the building or if requested through the electronic platform of the Sharjah Occupational Safety and Health System (OSHJ) or by other means.

The inspector of the Prevention and Safety Authority can conduct an independent evaluation of the level of compliance of the building and submit a copy of the evaluation result to the building management, which must submit the corrective action plan whenever there are standards that have not been complied with or areas that need improvement.

3. Standards:

The index is based on 28 criteria for measuring compliance with the requirements. Each criterion is assigned a weight that varies according to its impact on the safety and health processes within the building .

The criteria divided into two categories:

Type A criteria are mandatory for all buildings, while Type B criteria may not necessarily apply to every building as shown in table below.

Calculation of the compliance rate using the following formula:

$$C = [\left(\frac{SA}{WA} * \left(100 - 18 * B_{applied}\right)\right] + [\left(\frac{SB}{WB} * 18 * B_{applied}\right)]$$

SA = Score achieved in A category

WA= Constant weight =24

B_applied = 0 or 1

SB = Score achieved in B category

WB= Constant weight =4

Table: The Index criteria

Category	Criteria	Points
A	Employees	2
	H&S management system	2
	Emergency Crisis Plan	2
	Fire risk assessment	2
	Fire accident management	1
	Safe Access and Egress	1
	Escalators and Elevators	0.5
	Pest Control	0.5
	Waste Management	1
	Safety Signage	0.5
	Smoking Areas	0.5
	CCTV Monitoring Room	1
	Firefighting Systems	2
	Heating, Ventilation and Air Conditioning (HVAC)	1
	Traffic Management	1
	Transparent or Translucent Doors, Gates, Walls and Windows	0.5
	Water Tank	1
	Balconies	0.5
	Internal Audit	0.5
	External Assessment	2
	Housekeeping	0.5
	24/7 Support	0.5
	Permit to Work (PTW)	0.5
Total weight		24

B	Gymnasiums	0.5
	Helipad	0.5
	Swimming Pool	1
	Cladding Safety	1
	OTS	1
Total weight		4

Table: The Index subcriteria

Criterion	Sub-criteria	Sub weight	Total Weight
Employees	Competent facility manager	20%	**2.0**
	Competent OSH practitioner	20%	
	Minimum number of security personnel	50%	
	All employees working in the residential building have attended approved firefighting training.	5%	
	All employees working in the residential building have attended approved firefighting training and attend refresher training every two years.	5%	
OSH management system	Safety policy	5%	2.0
	Safety Objectives	5%	
	Safety procedures	10%	
	Risk Assessment and Hazard Identification	7%	
	Crisis management Plan	7%	
	Fire Safety Measures	7%	
	Building Security	10%	
	Employee Safety training and education	7%	
	Occupant Safety Awareness	5%	
	Maintenance and Inspections	5%	
	Compliance with Regulations	10%	
	Communication and Coordination	5%	
	Community Engagement	10%	
	Continuous Improvement	7%	
Emergency Crisis Plan	Risk Assessment and Hazard Identification	5%	2.0
	Emergency Response Team	13%	
	Communication Protocols	10%	
	Emergency Notification and Alert Systems	5%	
	Evacuation Procedures	12%	
	Shelter-in-Place Protocols	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Medical Response and First Aid	5%	
	Building Systems and Utilities Management	10%	
	Security Measures	5%	
	Crisis Communication Plan	10%	
	Recovery and Business Continuity Planning	5%	
	Occupants relocation	5%	
	Training and Drills	5%	
	Review and Update Procedures	5%	
Fire risk assessment	The size, distribution and location of the HRBs or SHRBs	5%	2.0
	Access and egress to the HRBs or SHRBs, including leisure facilities, communal areas and car parking areas; swimming pools; gyms and others.	5%	
	Contractors conducting maintenance or construction activities;	5%	
	The purpose and use of the HRBs or SHRBs, and the nature of the activities being undertaken in the buildings	5%	
	The potential of use or storage of hazardous substances;	5%	
	Emergency planning and preparedness.	5%	
	Potential sources of ignition, such as electrical equipment, heating devices, and smoking areas.	5%	
	Combustible materials within the HRBs or SHRBs that could fuel a fire, including furnishings, decorations, and stored goods.	4%	
	Sources that could supply oxygen to a fire, such as HVAC systems and natural ventilation routes.	5%	
	All people present in the HRBs or SHRBs, considering the varying needs of residents, workers, and visitors, including those with disabilities.	5%	
	Challenges for different occupants might face during an evacuation, especially on higher floors or in secured areas.	5%	
	The functionality and integrity of fire-resistant doors, barriers, and compartmentalization features that prevent the spread of fire.	4%	
	The availability and accessibility of evacuation routes and emergency exits.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Unobstructed of emergency exits, and adequate for the HRBs or SHRBs capacity.	5%	
	The functionality of emergency lighting along escape routes and in exit areas.	5%	
	The effectiveness and clarity of the HRBs or SHRBs fire evacuation plan, including provisions for practicing fire drills.	5%	
	The systems in place to communicate with occupants, first responders, and between different areas of the HRBs or SHRBs during an emergency.	4%	
	The waste, housekeeping, and Pest control.	5%	
	The exterior cladding.	5%	
	Area surrounding and adjacent HRBs or SHRBs and facilities.	5%	
	Car parking, Balcony, Pickup up/ pickoff points, Delivery of goods. Material and foods Open to sky (OTS) safety.	3%	
Fire accident management	Fire accidents, near misses and minor fire accidents are monitored, recorded, and analyzed.	10%	1.0
	Fire accidents, near misses and minor fire accidents investigated, preventative action implemented.	60%	
	Fire accidents, near misses and minor reported to authorities.	10%	
	The report of accidents shared with the residents.	10%	
	The report of accidents shared with the public.	10%	
Safe Access and Egress	Adequately maintained and not introduce additional risks that could affect the safety and health of occupants;	5%	1.0
	Free from slipping and tripping hazards, and have arrangements in place to prevent falls with sufficient lighting in normal conditions, in addition to the provision of emergency lighting;	5%	
	Accessible for people of determination and the elderly, where such measures are not inbuilt, special arrangements should be made to allow adequate access and egress for people of determination and the elderly;	4%	
	Accessible by emergency services.	5%	
	Ensure that access points, such as entrances and exits, are strategically located and easily identifiable.	4%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Designate separate entry and exit points to manage the flow of people efficiently.	5%	
	Implement clear signage and wayfinding systems to guide occupants to exits and emergency assembly points.	4%	
	Provide accessible entrances and exits for people with disabilities, including ramps, elevators, and tactile guidance systems.	4%	
	Ensure that all access routes comply with accessibility standards and regulations.	4%	
	Design access points to accommodate the anticipated flow of occupants during peak times.	5%	
	Implement measures to prevent overcrowding and congestion, such as queuing systems and staggered entry/exit times.	5%	
	Incorporate security measures, such as access control systems, turnstiles, and security personnel, to prevent unauthorized access and ensure the safety of occupants.	5%	
	Develop and maintain clear emergency egress plans that outline primary and secondary evacuation routes.	5%	
	Conduct regular drills and training sessions to familiarize occupants with emergency procedures and evacuation routes.	5%	
	Keep access and egress routes clear of obstacles, debris, and obstructions at all times.	5%	
	Regularly inspect and maintain doors, stairways, corridors, and other access points to ensure they are free from hindrances.	5%	
	Install adequate lighting along access routes and exits to ensure visibility, especially during low-light conditions or emergencies.	4%	
	Ensure that emergency lighting systems are in place and operational to illuminate exit paths during power outages or emergencies.	5%	
	Integrate fire safety features, such as fire doors, fire-resistant materials, and smoke control systems, into access and egress routes to prevent the spread of fire and smoke.	4%	
	Ensure that access points are equipped with fire detection and alarm systems to alert occupants in case of fire.	4%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Establish a routine maintenance schedule to inspect and maintain access and egress systems, including doors, locks, stairs, elevators, and escalators.	4%	
	Promptly address any issues or deficiencies identified during inspections to ensure the ongoing safety and functionality of access points.	4%	
Escalators and Elevators	Escalators and Elevators must be installed, inspected, and maintained by qualified professionals according to local regulations and industry standards.	50%	0.5
	Escalators and Elevators should be equipped with safety sensors to detect obstructions or unusual movement, automatically stopping the escalator to prevent accidents.	2.5%	
	Thorough examination at least every 6 months by a competent inspection body or more frequently if required.	2.5%	
	The owner of the HRBs or SHRBs must sign a maintenance and operation contract with a competent company to ensure that the elevators and escalators are serviceable 24/7.	10.0%	
	Handrails must be securely attached and maintained, providing a stable grip for passengers.	2.5%	
	There should be minimal clearance between steps and sidewalls to prevent entrapment hazards.	2.5%	
	Emergency stop buttons must be easily accessible at the top and bottom of escalators, allowing users to halt the escalator in case of emergencies.	2.5%	
	Escalators and Elevators should be equipped with step and skirt brushes to prevent foreign objects from becoming trapped in moving parts, reducing the risk of accidents.	2.5%	
	Clear and visible warning signs and instructions should be displayed near escalators, indicating safety precautions and proper usage guidelines.	2.5%	
	Escalators and Elevators should undergo regular inspections and maintenance to ensure proper functioning and compliance with safety standards.	2.5%	
	Any issues or defects identified during inspections must be promptly addressed to prevent accidents.	2.5%	
	Adequate lighting should be provided around escalators to ensure good visibility, especially in dimly lit areas.	2.5%	
	Transparent barriers or guards may be installed to enhance safety without compromising visibility.	2.5%	
	Escalators and Elevators should be equipped with overload protection systems to prevent excessive weight or	2.5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	overcrowding, automatically stopping the escalator if the weight limit is exceeded.		
	Clear emergency evacuation procedures should be established and communicated to escalator users, detailing actions to take in case of emergencies such as power failures or entrapment.	2.5%	
	Escalators and Elevators must comply with relevant safety standards and regulations set forth by local authorities and regulatory bodies in the UAE.	7.5%	
Pest Control	Regular and thorough inspections by qualified pest control professionals to identify potential infestations and risk areas.	10%	0.5
	Implementing an Integrated Pest Management plan that uses a combination of techniques including biological, mechanical, and chemical methods to manage pests effectively and environmentally responsibly.	10%	
	Sealing all possible entry points such as cracks, crevices, and openings around pipes, cables, and vents to prevent pests from entering the building.	10%	
	Maintaining high standards of cleanliness to reduce food sources and breeding grounds for pests. This includes proper waste management practices such as regular garbage disposal, using sealed bins, and managing food waste areas.	10%	
	Educating tenants about proper food storage, waste disposal, and other hygiene practices that help prevent pest infestations.	10%	
	When necessary, using approved chemical treatments that are safe for indoor use and do not pose health risks to humans or pets. These treatments should be applied by licensed professionals.	10%	
	Establishing a system for tenants and maintenance staff to report sightings of pests or signs of infestations promptly.	10%	
	Keeping detailed records of all pest control measures, inspections, and treatments as per local health and safety regulations. Compliance with local and national laws regarding pest control practices is crucial.	10%	
	Developing a plan to respond to severe infestations, particularly for pests that pose health risks, such as rodents, cockroaches, or bedbugs.	10%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Whenever possible, using environmentally friendly and sustainable pest control methods to minimize ecological impact.	10%	
Waste Management	Implement a system for segregating waste at the source. This should include separate bins for recyclables, organics, and general waste to facilitate recycling and reduce landfill use.	10%	1.0
	Place waste collection bins in easily accessible locations throughout the building. Ensure that these areas are clearly marked with signage that indicates the type of waste each bin is for.	10%	
	Designate safe, ventilated, and easily cleanable areas for storing waste that are away from main building ventilation systems. These areas should be designed to prevent pest infestations and minimize smells.	10%	
	Establish regular waste collection schedules to avoid accumulation, which can pose fire hazards and attract pests.	10%	
	Ensure that waste storage areas are equipped with appropriate fire suppression systems, such as sprinklers, and are constructed with fire-resistant materials as the requirements of the UAE Fire and Life Safety Code of Practice.	10%	
	Train maintenance and housekeeping staff in proper waste handling and emergency procedures related to waste management, including dealing with hazardous waste.	10%	
	Implement special procedures for the handling, storage, and disposal of hazardous wastes like electronics, batteries, and chemicals, ensuring compliance with local regulations.	10%	
	Encourage waste reduction through tenant engagement programs that promote recycling and waste minimization.	5%	
	Ensure that waste storage areas are accessible for emergency response units and are not obstructing any emergency exits or firefighting equipment.	10%	
	Comply with all local and national environmental and health regulations regarding waste management, including obtaining necessary permits and conducting regular audits.	10%	
	Provide personal protective equipment (PPE) to staff involved in waste management and enforce health and safety protocols to protect them from potential hazards such as exposure to harmful substances.	5%	
Safety Signage	Safety signs must be clearly visible and legible with lettering of a size that can be read comfortably from a distance. Signs	9%	0.5

Criterion	Sub-criteria	Sub weight	Total Weight
	should also be well lit, either by natural light or by artificial lighting.		
	Signs should be made of durable materials that can withstand environmental conditions and regular wear and tear without fading or becoming illegible. They should be regularly inspected and maintained to ensure their effectiveness.	9%	
	Signs should be strategically placed at all decision points along escape routes (e.g., at exits, elevator banks, stairways, and corridors), near fire safety equipment, and hazardous areas. They should be positioned at eye level wherever possible and free from obstructions.	9%	
	Use internationally recognized symbols and pictograms to overcome language barriers and ensure that messages are universally understood. This is particularly important in buildings with a diverse population.	9%	
	Adhere to local and international standards for safety signs, such as those specified by the relevant local building codes and UAE fire safety regulations.	10%	
	Clearly mark all emergency exits and escape routes with signs that are reflective or illuminated for visibility in power failures or smoke-filled conditions.	9%	
	Signs indicating the location of fire extinguishers, fire alarms, and other fire protection equipment must be conspicuous and placed at each point where the equipment is located.	9%	
	Use signs to communicate actions that are prohibited (e.g., no smoking, no entry) and actions that are mandatory (e.g., fire door must be kept closed).	9%	
	Provide signs that offer instructions on how to use safety equipment or how to act in an emergency, such as instructions for using a fire extinguisher or the steps to take in case of fire.	9%	
	Display evacuation maps prominently in common areas and near exits. These maps should include 'You are here' indicators, show primary and secondary escape routes, and the location of fire-fighting equipment.	9%	
	Emergency and exit signs should have independent power sources, such as backup batteries, ensuring they remain illuminated in the event of a power outage.	9%	
Smoking Areas	Smoking areas should be strategically located outside the building.	10%	0.5

Criterion	Sub-criteria	Sub weight	Total Weight
	Designated smoking areas should be equipped with adequate fire prevention tools.	8%	
	Clear, visible signs should indicate where the smoking areas are located.	8%	
	Signs should remind users of the smoking area to dispose of cigarettes properly and warn against smoking outside the designated zones.	8%	
	consideration should be given to protecting nearby non-smokers from exposure	8%	
	Barriers or a location downwind of common areas to help manage smoke spreading.	8%	
	The location and management of smoking areas comply with UAE fire codes, building regulations, and health legislation.	10%	
	Regular cleaning and maintenance of smoking areas.	8%	
	Regular removal of waste.	8%	
	Accessible to all building users, including those with disabilities.	8%	
	Provide a sheltered area to protect smokers from the elements, which can encourage the use of designated areas during inclement weather.	8%	
	Monitoring smoking areas through regular patrols or CCTV.	8%	
CCTV Monitoring Room	The security personnel of the HRBs or SHRBs must be led by a safety officer who is registered with the Sharjah Prevention and Safety Authority.	5%	1.0
	Security personnel and monitoring room operators should receive regular training on the latest security and surveillance techniques, including how to respond to Accidents and emergencies using the CCTV system.	5%	
	The security person on duty should monitor for any abnormal situations, including fire, smoke, or any emergency requiring a response.	5%	
	All security personnel in the CCTV room should be trained and made aware of the response procedures and respond to fire verification calls on time without any delay.	5%	
	The Security personnel should monitor through the CCTV the corridors and emergency routes for any obstructions, immediately must response to do the corrective action.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	All security personnel on CCTV room must be part from the emergency response team of the HRBs or SHRBs	5%	
	If fire alarm warned the security personnel on the CCTV room responsible from the verification of fire through the initial monitoring on the fire area if there is smoke or any sings of fire.	5%	
	If the fire is catch then the CCTV security personnel should activate the emergency response plan immediately.	5%	
	The security personnel on CCTV must provide continuous information about the situation to the emergency response team and to relevant authorities.	5%	
	The fire alarm panel must be in the same room of the CCTV, and any failure or malfunction must be reported through the security personnel immediately, and keep record in the same room, also they are responsible to follow up the malfunction until it is corrected.	5%	
	CCTV cameras should cover all critical areas, including entrances and exits, lobbies, elevators, staircases, emergency exits, parking areas, and other vulnerable spots. Placement should be strategic to ensure comprehensive coverage without blind spots while respecting privacy norms.	5%	
	Cameras should have high-resolution imaging to ensure clear footage that is useful for both real-time monitoring and forensic analysis. Features like night vision, motion detection, and the ability to pan, tilt, and zoom (PTZ) are important for enhancing the effectiveness of the CCTV system.	5%	
	Footage should be recorded and stored securely with sufficient storage capacity to retain video for a defined period, compliant with local regulations, Storage devices should be secured against tampering and unauthorized access.	5%	
	The monitoring room should be accessible only to authorized personnel. It should be equipped with secure, locked doors, and biometric access controls to prevent unauthorized entry.	5%	
	The monitoring room should be ergonomically designed to ensure that operators could work efficiently and comfortably. This includes adequate lighting, soundproofing, comfortable seating, and appropriate workstations with multiple screens.	5%	
	Critical components of the CCTV system, such as power supplies and network connections, should have redundancy to ensure that the system remains operational during power	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	failures or network disruptions. Uninterruptible power supplies (UPS) can provide power during outages.		
	The CCTV system should be integrated with other building management and security systems, including access control, fire alarm systems, and emergency communication systems. This integration can enhance overall security response and coordination.	5%	
	The system should be regularly tested and maintained to ensure it is functioning properly. This includes checking camera focus and positioning, ensuring recording equipment is operational, and verifying that all monitored areas are adequately covered.	5%	
	Ensure compliance with local laws regarding surveillance, including privacy laws and regulations related to data protection.	5%	
	Notices should be posted to inform occupants and visitors about the presence of CCTV surveillance.	5%	
Firefighting Systems	Regular testing and maintenance of smoke detectors, heat sensors, and manual call points to ensure they are functional.	5%	2.0
	Checking fire extinguishers, hose reels, wet/dry risers, and sprinkler systems for proper operation.	5%	
	Testing sirens, fire alarm panels, and communication interfaces to ensure they activate correctly and are audible throughout the building.	5%	
	Buildings are required to sign annual maintenance contracts with companies certified by the Sharjah Civil Defense Authority to handle the comprehensive maintenance of firefighting systems. This entails periodic checks and repairs as needed, with the company providing 24/7 response.	10%	
	Maintaining a log of all maintenance activities, inspections, and corrective actions taken. These records must be available for review by the civil defense during inspections or audits.	5%	
	Compliance with the UAE Fire and Life Safety Code of Practice, which details the standards and requirements for fire safety measures in buildings.	5%	
	Conducting regular fire drills to ensure that building occupants are aware of evacuation routes and procedures.	5%	
	Training for the building's emergency response team on various scenarios, including fire outbreaks.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Ensuring that all fire safety systems are integrated properly so that activation of one system (like fire detection) triggers others (like alarm systems or suppression systems) effectively.	5%	
	To ensure the water in the building tank designated for the fire sprinkler system is adequate and well maintained, follow this revised statement for accuracy and clarity.	5%	
	Regularly check the water level in the building tank identified by the fire system designed for use in the fire sprinkler system. It is crucial to maintain the required water level at all times. Keep detailed records of each water level check to ensure compliance and readiness.	5%	
	Fire pumps in HRBs or SHRBs must meet the requirements set forth by the UAE Civil Defense in the Fire and Life Safety Code of Practice. It is mandatory that these pumps be energized, active, and set to the 'auto' position at all times to ensure their functionality during emergencies.	5%	
	To ensure the integration of the fire alarm and firefighting system with the Aman system, the connection with Aman must include the fire alarm, fire pumps, and water tanks. The integration must be tested quarterly and after any maintenance that may affect connectivity.	5%	
	Regular training on the latest fire safety protocols, proper use of fire extinguishers, and first-response actions until the arrival of civil defense or firefighting teams.	5%	
	All security personnel and employees working in HRBs or SHRBs, regardless of whether they are part of the emergency response team, are required to attend fire safety training and advanced firefighting training at an approved institute.	5%	
	Ensuring that all access routes and firefighter lifts are in good working condition and are not obstructed, to allow quick access to the building in case of emergencies.	5%	
	Periodic inspections by external auditors or the civil defense to ensure all systems are up to standard. Adjustments and upgrades are made based on their recommendations to enhance safety.	5%	
	The certificate of compliance from the Sharjah Civil Defense Authority must be renewed annually	5%	
	Implementing new technologies and innovations such as smart smoke detectors, AI-based surveillance, and automated emergency communication systems to improve fire safety readiness and response times.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
Heating, Ventilation and Air Conditioning (HVAC)	Establish a comprehensive maintenance schedule for HVAC systems, including regular inspections, cleaning, and servicing by qualified technicians.	10%	1.0
	Inspect ductwork, filters, fans, coils, and other components for signs of wear, damage, or debris buildup.	5%	
	Ensure that all HVAC equipment meets safety standards and manufacturer recommendations.	5%	
	Install fire dampers and smoke detectors within HVAC ducts to prevent the spread of fire and smoke throughout the HRBs or SHRBs.	5%	
	Integrate HVAC systems with the HRBs or SHRBs fire alarm and suppression systems to automatically shut down in the event of a fire and prevent the spread of smoke and toxic fumes.	5%	
	Design HVAC systems to provide adequate ventilation and airflow throughout the HRBs or SHRBs , ensuring the proper exchange of indoor and outdoor air.	5%	
	Size ventilation systems appropriately based on HRBs or SHRBs occupancy, usage, and local regulations to maintain indoor air quality.	5%	
	Install air quality sensors to monitor indoor air pollutants, including carbon monoxide, volatile organic compounds (VOCs), and particulate matter.	5%	
	Implement automatic controls to adjust ventilation rates based on indoor air quality measurements to ensure occupants are not exposed to harmful contaminants.	5%	
	Implement energy-efficient HVAC equipment and controls to reduce energy consumption and operating costs while maintaining optimal indoor comfort levels.	5%	
	Utilize variable air volume (VAV) systems, programmable thermostats, and occupancy sensors to optimize HVAC operation based on HRBs or SHRBs occupancy and usage patterns.	5%	
	Establish emergency shutdown procedures for HVAC systems in the event of a fire, gas leak, or other hazardous conditions.	5%	
	Ensure that HRBs or SHRBs management and emergency responders have the ability to manually override HVAC controls to isolate affected areas and prevent the spread of contaminants.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Provide training to HRBs or SHRBs maintenance staff and HVAC technicians on the safe operation, maintenance, and troubleshooting of HVAC systems.	5%	
	Educate HRBs or SHRBs occupants on the importance of proper HVAC use, including the risks associated with blocking air vents, tampering with controls, or obstructing airflow.	5%	
	Maintain detailed records of HVAC maintenance activities, including inspection reports, service records, and equipment warranties.	10%	
	Document any modifications or repairs made to HVAC systems to ensure compliance with safety regulations and manufacturer recommendations.	10%	
Traffic Management	It is essential to ensure that no parking is allowed around the perimeter of the HRBs or SHRBs for a minimum of 15 meters. This ensures unimpeded access for fire vehicles during emergencies, enabling efficient firefighting activities.	5.0%	1.0
	Installation of traffic calming measures such as rumble strips or speed humps to reduce vehicle speeds and enhance pedestrian safety.	2.5%	
	Implementation of designated drop-off and pick-up zones to prevent congestion and conflicts between vehicles and pedestrians.	2.5%	
	Regular inspection and maintenance of traffic control devices, including traffic lights, barriers, and signage, to ensure functionality and visibility.	2.5%	
	Integration of smart traffic management systems, such as sensors and dynamic message signs, to provide real-time information and optimize traffic flow.	2.5%	
	Provision of designated loading and unloading zones for delivery vehicles to minimize disruptions to pedestrian traffic.	2.5%	
	Implementation of measures to mitigate the risk of vehicle-related incidents, such as installing bollards or barriers to protect pedestrian areas from accidental vehicle intrusion.	2.5%	
	Incorporation of sustainable transportation options, such as bicycle parking facilities and electric vehicle charging stations, to promote alternative modes of transportation and reduce traffic congestion.	2.5%	
	Collaboration with local authorities and transportation agencies to coordinate traffic management efforts and	2.5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	address issues related to road infrastructure and public transportation access.		
	Continuous monitoring and evaluation of traffic patterns and safety performance to identify areas for improvement and implement proactive measures to enhance traffic safety in the HRBs or SHRBs vicinity.	2.5%	
	Vehicle routes are segregated from walkways;	2.5%	
	Where walkways and vehicle traffic routes cross, they should be clearly marked to direct people to the appropriate crossing points;	2.5%	
	Separate entrances and exits are provided for vehicles and people;	2.5%	
	Routes are clearly marked and have adequate signage;	2.5%	
	Speed limit and directional signs are placed in visible areas;	2.5%	
	Blind spots and sharp corners are adequately managed;	2.5%	
	Speed bumps are clearly marked and have signs;	2.5%	
	Traffic routes are maintained in good condition;	2.5%	
	Parking areas should be clearly indicated and there should be separate parking areas for commercial and private vehicles;	2.5%	
	Where identified as a result of risk assessment and where the parking design is suitable, reverse parking may be required to assist drivers to leave the parking area quickly.	2.5%	
	The provision of designated areas where commercial vehicles can be loaded and unloaded.	2.5%	
	Allocate specific areas near the entrance of the HRBs or SHRBs for taxi and student bus drop-off and pick-up activities.	2.5%	
	Clearly mark these zones with signage and pavement markings to indicate their purpose and restrict other types of vehicle parking.	2.5%	
	Designate specific areas near the entrance of the HRBs or SHRBs for food delivery drop-off and pick-up. Install tables or designated zones to facilitate deliveries and prevent delivery personnel from entering the HRBs or SHRBs premises.	2.5%	
	Provide separate access points for taxis and buses to minimize conflicts with pedestrian and vehicular traffic.	2.5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Designate dedicated lanes or loading areas to facilitate smooth and efficient movement of taxis and buses.	2.5%	
	Ensure that drop-off and pick-up zones are easily accessible to pedestrians, including those with disabilities.	2.5%	
	Incorporate safety features such as curb ramps, crosswalks, and tactile paving to enhance pedestrian safety in these areas.	2.5%	
	Ensure that drop-off and pick-up zones in parking areas are clearly marked and identified, especially for pedestrians, including children and those with disabilities.	2.5%	
	Implement traffic management measures to regulate the flow of vehicles in and out of the drop-off and pick-up zones.	2.5%	
	Designate waiting areas for taxis and buses to prevent congestion and facilitate orderly queuing.	2.5%	
	Install adequate lighting in drop-off and pick-up areas to enhance visibility, especially during evening hours or inclement weather conditions.	2.5%	
	Consider the use of reflective materials or signage to improve the visibility of these zones for drivers and pedestrians.	2.5%	
	Locate drop-off and pick-up zones in close proximity to HRBs or SHRBs entrances to minimize walking distances for occupants and visitors.	2.5%	
	Ensure clear sightlines between the drop-off/pick-up zones and HRBs or SHRBs entrances for enhanced security and supervision.	2.5%	
	Incorporate landscaping elements such as planters or greenery to enhance the aesthetics of drop-off and pick-up areas.	2.5%	
	Provide amenities such as seating or sheltered waiting areas for passengers awaiting taxis or buses.	2.5%	
	Coordinate with taxi companies and school transportation services to establish designated pick-up and drop-off procedures and timings.	2.5%	
	Communicate with transportation providers to ensure compliance with HRBs or SHRBs regulations and safety guidelines.	2.5%	
Transparent or Translucent Doors, Gates,	If there is a danger of people coming into contact with transparent or translucent surfaces, they shall be marked or incorporate features to make it apparent that it is not a designated walkway or route;	5%	0.5

Criterion	Sub-criteria	Sub weight	Total Weight
Walls and Windows	Openable windows, skylights and ventilators should be capable of being opened, closed or adjusted without exposing anyone to risks of safety and health;	5%	
	Openable windows shall not create a gap from the wall, when opened; according to the local code of building.	5%	
	Children, where permitted, in the workplace shall never be left unattended or unsupervised near openable windows, railings or on balconies or terraces;	10%	
	Windows and skylights shall be designed so they may be cleaned without risk to safety and health;	5%	
	Doors and gates should be suitably constructed and fitted with safety devices if necessary. Doors and gates which swing both ways and conventionally hinged doors on designated walkways or routes shall have a transparent viewing panel;	5%	
	Power operated doors and gates shall have safety features to prevent people being struck or trapped and, where necessary, shall have a readily identifiable and accessible control switch or device so that they can be stopped quickly in an emergency;	5%	
	Glass safety stickers, or glass manifestations, are designed to highlight glazed areas so that they stand out visually with the background, therefore reducing the risk of collision	5%	
	Installed windows, transparent or translucent surfaces in walls, partitions, doors and gates should meet the requirements of UAE Fire and Life Code of Practice.	5%	
	Apply anti-glare coatings to transparent or translucent surfaces to reduce glare and prevent visual impairment for occupants, particularly in areas with high levels of natural light.	5%	
	Implement anti-fog treatments on windows and glass surfaces to maintain visibility and prevent hazards caused by condensation, especially in humid environments or during temperature differentials.	5%	
	Install child safety locks on openable windows and doors to prevent children from accidentally opening them, reducing the risk of falls or other accidents.	5%	
	Ensure that transparent or translucent doors and windows used as emergency exits are clearly marked with illuminated signage to facilitate quick and safe evacuation during emergencies.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Use impact-resistant materials for transparent or translucent surfaces to minimize the risk of breakage due to impact, vandalism, or extreme weather conditions.	5%	
	Install automatic shutoff mechanisms for power-operated doors and gates to prevent injuries caused by entrapment or collision, with sensors that detect obstacles and halt movement accordingly.	5%	
	Ensure that transparent or translucent doors and gates comply with accessibility standards, including provisions for wheelchair users and individuals with mobility impairments.	5%	
	Implement a schedule for regular maintenance and inspection of transparent or translucent surfaces to identify and address any signs of wear, damage, or deterioration promptly.	5%	
	Ensure that transparent or translucent materials used in doors, walls, and partitions meet fire resistance standards outlined in the UAE Fire and Life Safety Code of Practice, providing adequate protection in the event of a fire.	5%	
	Incorporate security features such as reinforced locks, access control systems, and surveillance cameras to enhance security around transparent or translucent entrances and exits.	5%	
Water Tank	Conduct regular visual inspections to check for signs of corrosion, leaks, or damage to the tank and its connections.	2.5%	1.0
	Periodically assess the structural integrity of the tank, especially if it is located in an area susceptible to environmental wear and tear.	2.5%	
	Perform periodic testing for bacteria, such as Legionella, particularly if the water is stagnant for periods.	2.5%	
	Test the water for pH, turbidity, and the presence of harmful chemicals that could corrode the tank or piping.	7.5%	
	Level Checks: Regularly check that the water level within the tank meets the required capacity for firefighting. This is usually mandated by local fire codes.	2.5%	
	Pressure Tests: Ensure that the water pressure is adequate to supply the entire building, particularly the upper floors, under emergency conditions.	2.5%	
	Test all pumps associated with the water tank to ensure they operate effectively and start automatically when needed.	2.5%	
	Check all valves for operability and ensure they are accessible and free from blockages.	2.5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Schedule regular cleaning of the tank to prevent sediment build-up and contamination.	2.5%	
	Periodically disinfect the tank to prevent the growth of pathogens, especially if water testing indicates a problem.	2.5%	
	Fire Code Compliance: Adhere to local and national fire codes, which specify the requirements for fire suppression systems, including water tank size, placement, and maintenance.	2.5%	
	Certifications and Documentation: Maintain up-to-date certification and documentation that verify the tank's compliance with safety standards.	10.0%	
	Include the water tank systems in regular fire drills to ensure they are functional and to familiarize building management with their operation during an emergency.	2.5%	
	Ensure that water tank operations are integrated with other building management systems for coordinated emergency responses.	2.5%	
	Engage qualified professionals to perform periodic assessments of the tank and associated systems to ensure ongoing compliance with the latest safety standards and technological advancements.	2.5%	
	Perform frequent visual inspections to check for cracks, leaks, or signs of wear and tear on the tank and its associated piping.	2.5%	
	Conduct structural assessments to ensure the tank's integrity, particularly if the tank is exposed to environmental elements that could degrade its condition.	2.5%	
	Regularly test the water for bacteria and other pathogens. This is crucial to prevent waterborne diseases.	2.5%	
	Analyze the water for harmful chemicals and pollutants. Ensure the water meets or exceeds health and safety standards for drinking water, such as those set by local health departments or environmental protection agencies.	2.5%	
	Clean the tanks periodically to remove sediment and prevent the accumulation of impurities that could affect water quality.	2.5%	
	Use appropriate methods to disinfect the tank, typically after cleaning and before refilling, to eliminate any microbial contamination.	2.5%	
	Regularly verify that the water level within the tank is sufficient to meet the daily needs of all occupants.	2.5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Ensure that the water pressure is adequate for all floors of the building, providing reliable water flow to all taps and appliances.	2.5%	
	Maintain secure access to the water tank to prevent unauthorized entry and potential contamination.	2.5%	
	Install clear safety signage and instructions for maintenance personnel.	2.5%	
	Follow all local health and safety regulations regarding potable water storage, including materials used for tank construction and required water treatment methods.	2.5%	
	Keep detailed records of all inspections, maintenance, cleaning, and testing activities.	2.5%	
	Develop and implement contingency plans for water supply interruptions or contamination incidents.	2.5%	
	Conduct training sessions for building maintenance staff on emergency procedures and proper tank maintenance techniques.	2.5%	
	Engage certified professionals to conduct annual audits of the water storage system to ensure it meets all safety standards and to provide recommendations for improvements.	15.0%	
Balconies	Conduct regular structural inspections of balconies to ensure they are in good condition, with no signs of wear, corrosion, cracking, or detachment from the main structure.	10%	0.5
	Verify that balconies adhere to design specifications regarding maximum load capacity to prevent collapse under excessive weight.	5%	
	Ensure that balcony railings are of adequate according to the Sharjah municipality Building Codes and Regulations to prevent falls.	5%	
	Railings should be sturdy and securely attached to the balcony structure, able to withstand normal pressures such as leaning or sudden impact.	5%	
	Balcony railings should feature a design that prevents climbing, especially important in buildings where children reside.	5%	
	Use durable, weather-resistant materials for balcony floors and railings to prevent deterioration from weather conditions like rain, snow, and extreme temperatures.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Perform maintenance checks for signs of damage or wear and carry out necessary repairs or replacements to keep the balcony safe and functional.	5%	
	Provide residents with guidelines on safe balcony use, including limitations on weight and the type of furniture or items that can safely be placed on balconies.	5%	
	Discourage or prohibit potentially dangerous activities on balconies, such as barbecuing (if fire codes restrict such activities), storing heavy objects, or using balconies for any structural modifications not approved by building management.	5%	
	For families with children, recommend or provide resources for childproofing balcony spaces, such as locking devices for doors leading to balconies and child-safe netting or guards.	5%	
	Regularly communicate balcony safety tips and the importance of supervising children on balconies.	5%	
	Ensure that balconies are accessible and can support emergency operations in case they need to be used as points of rescue or evacuation.	5%	
	Adhere to all local building codes and safety standards that apply to balcony construction and maintenance. This includes keeping up to date with any changes in legislation or safety requirements.	30%	
	Include balcony safety procedures in the resident's manual or lease agreements. Make sure new residents are briefed on these procedures upon moving in.	5%	
Internal Audit	Scope Definition	5%	0.5
	Audit Schedule	5%	
	Documentation Review	5%	
	Physical Inspection	5%	
	Findings Documentation	5%	
	Root Cause Analysis	5%	
	Prioritize corrective actions based on the severity of risks and their potential impact on safety.	5%	
	Assign responsibilities for implementing corrective actions to relevant individuals or departments.	5%	
	Establish timelines for implementing corrective actions and monitor progress to ensure timely completion.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Implement identified corrective actions according to the established timelines and responsibilities.	5%	
	Conduct follow-up inspections and assessments to verify the effectiveness of implemented corrective actions.	5%	
	Continuously review and update safety protocols and procedures based on lessons learned from audit findings and feedback.	15%	
	Prepare a comprehensive audit report summarizing findings, recommendations, and actions taken.	5%	
	Maintain records of audit reports, corrective actions, and follow-up activities for future reference and regulatory compliance.	10%	
	Implement identified corrective actions according to the established timelines and responsibilities.	15%	
External Assessment	High-rise building owners should engage third-party safety assessment firms with expertise in building safety and compliance.	25%	2.0
	Define the scope of the assessment, covering key areas such as fire suppression systems, fire alarms, elevators, balconies, water tanks, HVAC systems, and other critical safety components.	5%	
	Conduct a thorough audit of the building's safety systems, procedures, and infrastructure to identify any deficiencies or areas of non-compliance.	5%	
	Review the assessment findings and recommendations provided by the third-party assessment firm.	5%	
	Develop a comprehensive corrective action plan that addresses identified deficiencies and implements necessary improvements.	5%	
	Prioritize corrective actions based on urgency and impact, categorizing them into short-term (immediate), medium-term, and long-term corrective measures.	5%	
	Incorporate preventative measures to mitigate future risks and ensure sustained compliance with safety standards.	5%	
	Ensure that the corrective action plan aligns with regulatory requirements and standards set forth by the relevant authorities in the Emirate of Sharjah.	5%	
	Submit the corrective action plan to the appropriate regulatory authorities for review and approval.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Maintain documentation of the corrective action plan, including approvals from regulatory authorities, for compliance verification and record-keeping purposes.	5%	
	Implement the identified corrective and preventative actions according to the approved plan and timelines.	5%	
	Regularly monitor the progress of corrective actions and verify their effectiveness in addressing identified deficiencies.	5%	
	Adjust the corrective action plan as needed based on ongoing monitoring and feedback to ensure continuous improvement.	5%	
	Schedule periodic follow-up assessments by the third-party assessment firm to evaluate the effectiveness of implemented corrective actions.	5%	
	Verify compliance with regulatory standards and assess any remaining safety risks or areas requiring further improvement.	5%	
	Document the results of follow-up assessments and any additional actions taken to address outstanding issues.	5%	
Housekeeping	Regularly clear all hallways, stairwells, and common areas of clutter. Ensure that these spaces are free of obstacles that could hinder evacuation during emergencies.	5%	0.5
	Store all materials neatly and safely. Avoid stacking items in a way that could create falling hazards or block access to emergency equipment and exits.	5%	
	Ensure that trash is removed from building premises regularly to prevent accumulation, which can be a fire hazard.	10%	
	Properly segregate and dispose of recyclables and hazardous waste, such as batteries, electronic equipment, and cleaning chemicals.	10%	
	Quickly address and clean up spills, especially in areas like kitchens, bathrooms, and walkways where they can pose slip hazards.	5%	
	Maintain ready access to cleaning supplies and spill kits throughout the building to enable prompt action.	5%	
	Ensure that fire extinguishers, fire hose reels, sprinkler systems, and other fire safety equipment are easily accessible and not obscured by storage or debris.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Part of housekeeping should include routine checks to ensure that all fire safety equipment is in good working order.	10%	
	Maintain adequate lighting in all areas of the building to prevent accidents and aid in navigation, especially in emergency situations.	5%	
	Replace burned-out bulbs and repair faulty lighting fixtures promptly to ensure visibility and safety at all times.	5%	
	Regularly clean air ducts and ventilation systems to prevent the accumulation of dust and other contaminants that can affect indoor air quality and pose a fire risk.	5%	
	Keep floors clean and dry to prevent slips, trips, and falls.	5%	
	Use mats and runners in entryways to absorb moisture and dirt from shoes, especially in rainy or snowy weather.	5%	
	Clear and Visible: Ensure that safety signage, including exit signs and warnings, is clearly visible and not obstructed by furniture or decorations.	5%	
	Routine Inspections: Conduct routine inspections and treatments to manage pests such as rodents and insects, which can damage property and spread disease.	10%	
	Stability Measures: Securely anchor items that could become projectiles in high winds or during earthquakes, such as outdoor furniture and indoor shelving units.	5%	
24/7 Support	Operate a 24-hour security command center equipped with CCTV and alarm systems to monitor all critical areas of the building. This includes entrances, exits, stairwells, and other vulnerable points.	10%	0.5
	Have maintenance personnel available 24/7 to address any urgent repairs or issues that may affect the building's safety, such as elevator malfunctions, plumbing leaks, or electrical faults.	20%	
	Maintain robust communication channels that can quickly disseminate information to all occupants in the event of an emergency. This includes public address systems, emergency alert systems, and digital notifications.	10%	
	Operate a 24/7 help desk to address the safety concerns of occupants, providing guidance and support on how to handle emergencies and whom to contact.	20%	
	Ensure that fire detection, suppression systems are monitored continuously, and that any alerts are responded to immediately to prevent the spread of fire.	10%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Provide ongoing health and safety advisories that inform and educate tenants about potential hazards and safety protocols specific to high-rise living.	10%	
	Regularly conduct safety drills involving all occupants, including evacuation drills and emergency response training, to ensure everyone knows what to do in the event of an emergency.	10%	
	Establish a trained and equipped emergency response team that is available around the clock. This team should be capable of handling various types of emergencies, including fires, medical emergencies, and structural issues.	10%	
Permit to Work (PTW)	Clearly define the type of work that requires a permit, such as electrical maintenance, hot work (welding, grinding), work at height, and any work in confined spaces or involving hazardous materials.	10%	0.5
	Permits should only be issued by authorized personnel who are trained to understand the risks associated with the job and the necessary control measures.	10%	
	Permits must detail the work to be done, the hazards involved, the precautions to take, the duration of the permit, and the area where the work will be carried out.	10%	
	Before issuing a permit, a detailed risk assessment must be conducted to identify and evaluate potential hazards. This assessment should also specify the mitigation measures that will be implemented.	10%	
	The permit must outline specific safety procedures and precautions, including the use of personal protective equipment (PPE), necessary safety signs, and emergency procedures.	10%	
	Workers performing the tasks must be adequately trained and demonstrate competence in handling the equipment and understanding the safety protocols.	10%	
	Work under a PTW must be supervised by qualified personnel to ensure adherence to safety regulations and the conditions stipulated in the permit.	10%	
	Effective communication channels must be established among all team members, supervisors, and emergency services. Information about ongoing permitted work should be available to all relevant parties.	10%	
	Regular audits and inspections should be conducted to ensure compliance with the PTW system and to identify any areas for improvement.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Once the work is completed, the permit should be formally closed with a sign-off from the issuing authority. A review meeting can provide feedback and lessons learned, which can be used to improve the PTW system.	10%	
	All permits and related documentation should be kept for a designated period for accountability, tracking progress, and for review in case of an incident.	5%	
Gymnasiums	Ensure that the floor structure is adequately reinforced to handle heavy equipment and the dynamic loads from activities like running, jumping, or weightlifting.	5%	0.5
	Good air quality is vital in gym spaces to manage higher levels of carbon dioxide from exercising individuals and to reduce odors.	5%	
	HVAC systems should be designed to provide efficient air exchange and filtration.	5%	
	Gyms must have clearly marked emergency exits that are easily accessible, even from remote corners of the gym.	5%	
	Exits should lead to safe zones outside the building or to designated areas of refuge within the skyscraper.	5%	
	Install smoke detectors and fire extinguishers in visible and accessible locations.	5%	
	All gym staff should be trained on the use of fire extinguishers and the evacuation procedures specific to the gym area.	10%	
	All gym equipment should be regularly inspected and maintained to prevent accidents.	5%	
	Equipment should also be arranged to allow ample space for safe operation and movement around each piece.	5%	
	Adequate lighting is essential for safety to ensure that gym-goers can see clearly to avoid injuries.	5%	
	Emergency lighting should also be installed in case of power outages.	5%	
	A first aid kit should be readily available and fully stocked	5%	
	Staff should be trained in basic first aid and CPR to handle potential emergencies until professional medical assistance can arrive.	5%	
	Post clear instructions on how to use gym equipment properly to reduce the risk of injury.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Emergency procedure signs and directional signs to exits should also be prominently displayed.	5%	
	Use non-slip, impact-absorbing flooring to reduce the risk of falls and injuries, especially in areas where weightlifting or high-impact exercises occur.	5%	
	Regular cleaning and sanitation of the gym area, including equipment and surfaces, are crucial to prevent the spread of germs and diseases in a communal environment.	5%	
	Consider installing surveillance cameras to monitor gym areas for unauthorized access and to ensure safety protocols are followed. Staff presence can also help in managing gym safety.	5%	
	Soundproofing measures may be necessary to minimize the transmission of noise to other areas of the building, ensuring a good relationship between the gym and other occupants.	5%	
Helipad	Design Standards: Helipads must be designed and constructed in compliance with relevant General Civil Aviation Authority (GCAA) of UAE regulations, Civil Aviation Regulations Heliports (Onshore/Offshore) Vertiports (Onshore) guideline.	12%	0.5
	Structural Integrity: The helideck structure should be robust and capable of supporting the weight of helicopters during landing and takeoff operations. It should undergo regular structural inspections and maintenance to ensure integrity and stability.	8%	
	Fire Safety: Helipads must be equipped with fire suppression systems, such as foam monitors or fire extinguishers, to quickly extinguish any fires that may occur during helicopter operations. Fire-resistant materials should be used in the construction of the helideck to minimize the risk of fire spread.	12%	
	Lighting: Adequate lighting is essential for safe helicopter operations, especially during night landings or adverse weather conditions. Helipads should be equipped with suitable lighting systems, including perimeter lights, floodlights, and landing/takeoff lights, to provide visibility for pilots.	10%	
	Markings and Signage: Helipads should be clearly marked with painted landing/takeoff markings, touchdown and lift-off area (TLOF) markings, and directional indicators to guide pilots during approach and departure. Signage indicating helideck safety procedures, emergency contact information, and any hazards should also be prominently displayed.	8%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Safety Nets and Guardrails: Safety nets or guardrails should be installed around the perimeter of the helideck to prevent personnel or equipment from falling over the edge during helicopter operations. These safety barriers should be strong, durable, and regularly inspected for integrity.	10%	
	Helicopter Landing Officer (HLO): Trained personnel, such as a Helicopter Landing Officer (HLO), should be stationed on the helideck during helicopter operations to oversee safety procedures, communicate with pilots, and coordinate ground activities.	8%	
	Emergency Response Equipment: Helipads should be equipped with emergency response equipment, including firefighting equipment, first aid kits, and emergency communication devices, to facilitate rapid response to emergencies or incidents.	8%	
	Clearance and Obstructions: The helideck should be free from obstacles, obstructions, or loose objects that could interfere with helicopter operations or pose a safety hazard during landing, takeoff, or ground operations.	8%	
	Training and Drills: Personnel working on or near the helideck should receive training in helideck safety procedures, including emergency response protocols and helicopter landing/takeoff procedures. Regular drills and exercises should be conducted to ensure readiness and familiarity with safety procedures.	8%	
	Emergency Evacuation Helipad: According to the General Civil Aviation Authority (GCAA) of UAE regulations, Civil Aviation Regulations Heliports (Onshore/Offshore) Vertiports (Onshore) guideline, an emergency evacuation helipad is a clear area on a roof of a tall building that is not intended to function fully as a heliport, yet is capable of accommodating helicopters engaged in emergency evacuation operations.	8%	
Swimming Pool	Restrict pool access to residents and authorized guests only to manage the number of people and ensure safety.	5%	1.0
	Secure the pool area with locked gates that meet local safety codes.	5%	
	Equip the pool area with lifesaving devices such as life rings and reaching poles.	5%	
	Install safety signage that includes pool rules, depth markers, and emergency contact information.	10%	
	Implement rules requiring children under a certain age to be accompanied by an adult.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Consider having a lifeguard on duty during busy hours or during organized events.	5%	
	Regularly test and maintain water quality to prevent infections and ensure the proper balance of chemicals.	10%	
	Keep maintenance records for health and safety inspections.	5%	
	Train staff in CPR and emergency response procedures.	5%	
	Have a clear action plan for emergencies, such as accidental drowning or injury.	5%	
	Regularly inspect the pool area and equipment for hazards like slippery surfaces, broken tiles, or faulty gates.	10%	
	Ensure that the pool's electrical systems meet safety standards to prevent electrocution.	5%	
	Follow local health and safety regulations regarding public pools, including occupancy limits and hygiene practices.	10%	
	Keep all staff trained and informed about pool safety protocols and emergency procedures.	5%	
	Document all training, incidents, and maintenance activities for legal compliance and review.	10%	
Cladding Safety	Use materials that are non-combustible or of limited combustibility to minimize the risk of fire spread. Materials should meet the fire performance standards set by the UAE Fire and Life safety Code of practice and Sharjah Civil Defense Authority regulations.	10%	1.0
	Select cladding materials that have been tested for fire resistance to ensure they can withstand high temperatures for a significant period without failing.	5%	
	Ensure all materials and installation methods comply with the Emirate of Sharjah local, and national, building codes and standards related to fire safety.	5%	
	Regularly review changes in building codes to ensure ongoing compliance, especially after new safety standards are introduced.	5%	
	Ensure that cladding is installed according to the manufacturer's guidelines and industry standards. Incorrect installation can compromise the fire safety properties of the material.	5%	
	Proper design to prevent the chimney effect, where a gap between the cladding and the building acts as a chimney and facilitates the rapid spread of fire.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Conduct regular inspections to identify any damage or deterioration in cladding materials that might affect their performance in a fire.	10%	
	Promptly repair or replace damaged cladding to maintain its fire-resistance capabilities.	5%	
	Undertake detailed fire safety assessments of existing cladding systems, particularly for older buildings that might not meet current standards.	5%	
	Consider the overall facade design, including features like windows and balconies, which can influence how a fire spreads.	5%	
	Ensure that all cladding materials come with proper certification indicating their fire performance ratings.	5%	
	Keep detailed records of the materials used, installation processes, maintenance schedules, and any inspections or assessments conducted.	5%	
	Depend on the regulation on Sharjah Civil Defense Authority regulations for buildings with existing cladding that does not meet current safety standards, consider retrofitting with safer materials or additional safety measures such as fire barriers.	10%	
	Engage with fire safety experts and structural engineers during the retrofitting process to ensure that all aspects of the facade's fire safety are addressed.	10%	
	Buildings whose installed cladding does not meet current fire safety standards must provide a clear replacement plan, which is required to be approved by the Sharjah Civil Defense Authority.	10%	
OTS	Limit access to authorized personnel only to prevent accidents and interference with sensitive equipment.	5%	1.0
	Use locks or security systems to secure entry points and prevent unauthorized access.	5%	
	To minimize fire risks in open-to-sky service rooms, it is prohibited to install windows that can be opened or exhaust fans that can throw materials from inside the building to these areas. This measure prevents the accidental disposal of cigarettes or any combustible materials that could ignite a fire in these exposed service areas. Building occupants must adhere strictly to this rule to maintain the safety and integrity of the OTS service rooms.	5%	
	Ensure that the structure supporting the service room is capable of bearing the load of the equipment, especially in	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	open-to-sky scenarios where additional environmental factors may apply.		
	Since these areas are exposed to the elements, ensure that all structures and coverings are designed to withstand local weather conditions, including wind, rain, and extreme temperatures.	5%	
	Properly ground all electrical installations to prevent electrical shock and fire hazards.	5%	
	Use weather-resistant materials and fixtures to protect against moisture and temperature changes.	5%	
	Schedule regular inspections and maintenance of electrical systems to prevent malfunctions and ensure compliance with safety standards.	5%	
	Equip service rooms with appropriate fire suppression systems, such as fire extinguishers or automatic sprinkler systems, suitable for the types of equipment and materials stored.	5%	
	Maintain sufficient clearance around equipment for heat dissipation and ensure adequate ventilation to prevent overheating.	5%	
	Implement and adhere to a regular maintenance schedule to ensure all equipment is functioning properly and safely.	5%	
	Keep detailed records of all maintenance activities, inspections, and any repairs done on the equipment.	5%	
	Store hazardous materials, if any, according to safety regulations to prevent leaks, spills, or reactions.	5%	
	Have plans and materials ready for containing and cleaning up spills safely.	5%	
	Install clear and visible safety signs warning of potential hazards such as high voltage, toxic substances, or heavy equipment.	5%	
	Post instructions for the safe operation of equipment and emergency procedures.	5%	
	Ensure that service rooms have clearly marked, unobstructed emergency exits.	5%	
	Develop and prominently display emergency response procedures, including contacts for emergency services.	5%	
	Install effective ventilation systems to manage fumes, odors, and potentially hazardous gases that may emanate from operating equipment.	5%	

Criterion	Sub-criteria	Sub weight	Total Weight
	Provide sufficient lighting to ensure that personnel can safely operate and maintain equipment at any time of day.	5%	