

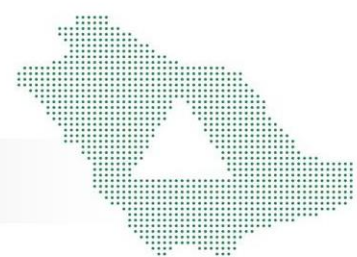


Kingdom of Saudi Arabia
Ministry of Interior
General Directorate of Civil Defense

Regulation of Safety and Fire Prevention Requirements in Hospitals

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Chapter 1

1st: **Definitions: The terms in this list mean:**

1. **Hospital:** institution equipped for the examination, treatment, and hospitalization of the sick and the injured.
2. **Exits:** regular doors that lead to the outside of the hospital.
3. **Emergency Exits:** doorways for the unusual getting out of the hospital in case of emergency.
4. **Law:** Civil Defence law issued by royal decree no (M/10) date (10/5/1406) and other related laws.
5. **Authority:** Ministry of Interior (General Directorate of Civil Defense) and other related government authorities.
6. **Safety Officer:** according to Article (25) of Civil Defense law, Safety officer is a person responsible for ensuring safety and security of the workplace beside the supervision of other safety employers. The safety officer reports Civil Defense about accidents that might constitute foreseeable risk on safety. Its duties and responsibilities are defined as stated in the regulation of industrial security and safety officer.
7. **Specifications** are defined as follows:
 - a. **Saudi Standards:** standard specifications issued by Saudi Standards, Metrology and Quality Organization, SASO.
 - b. **International Standards:** international specifications approved by Saudi Standards, Metrology and Quality Organization. Formal documentations proving that a material or an equipment adhere to all safety requirements and rules shall be provided and approved by Saudi Standards, Metrology and Quality Organization.
8. **Civil Defense Representative:** the authorised person, or persons assigned by General Directorate of Civil Defense to perform inspection, detection and violation issuing as per with related regulation to ensure the safety of the building and safety and firefighting equipment.



9. **Escape routes:** means of escape to safe location outside the building during difficult situation. These include corridors and emergency stairs.
10. **Exist/ Floor Exit:** a door / opening to the corridor which leads to escape route. All non-ground floor exits should lead to protected stair which considered to be part of the escape route and leads to the outside of the building.
11. **Final Exit** – part of the exit route that leads directly to a safe place outside the building (assembly point).
12. **Emergency Exit:** used only during emergencies alongside other exists to implement evacuation process of the building.
13. **Emergency stair:** used only during emergencies for evacuation purpose.
14. **Exit dimensions:** the occasional distance required to pass one person, estimated at 55 cm.
15. **Exits width:** the distance of the width of the exit and it must, in no way, be no less than two exit units with a minimum of 105 cm.
16. **Escape route dimension:** the total width that permits walking in escape routes and it must be no less than 140 cm.

Chapter 2

2

General Terms and Conditions

Scope of application: This regulation shall be apply in governmental and nongovernmental hospitals with (bed capacity of 30 and more) existing or planned to be renovated, expanded, modernized or established after the issuance of these Regulations.

3

This regulation relates only to safety and Civil Defense requirements, but has no relation with the rest of requirements fall within the jurisdiction of other relevant bodies.



4

In accordance with Art No 20 of the Civil Defense Law, a permit for construction works on new or existing hospital shall not be issued unless the owner submits a technical study prepared by one of the consultant engineering offices specialized in safety works, alarming, and firefighting and approved by General Directorate of Civil Defense. The extent of commitment in applying standard and instructions contained in this regulation shall be clearly clarified.

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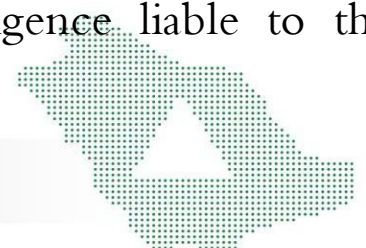
The office that prepared the technical study regarding the implementation of safety and fire protection requirements and the instructions based on this regulation shall be deemed responsible to General Directorate of Civil Defense, or one of its subsidiaries and other related government bodies for contractor commitment and compliance with what has been stated in the technical study. The office shall submit monthly reports to nearest Civil Defense center from the hospital project from the very beginning. Reports shall include the phases of project development and the extent of compliance to safety requirements contained in this regulation. Upon projects completion, the office shall submit a final certificate confirming the compliance to all safety and fire protection requirements in hospitals

6

The safety officer shall be responsible for all aspects related to its main duties as per in the current (regulation of safety officer). For maintenance purpose, safety officer shall immediately notify hospital administration with safety related problems.

7

The hospital administration shall be fully responsible of implementing all safety and firefighting procedures. Failing in applying such procedures would be considered as gross negligence liable to the penalties stated in Law.



8

Safety officer in the hospital shall be committed to create a record for safety, alarms and fire suppression systems. The record shall be in accordance with the format prepared by the General Directorate of Civil Defense, and all pages shall be sealed by the designated department. Data such as Monthly inspections and periodic tests of the fire detection, alarm and fire suppression equipment, and dates of such actions, methods used and repairing works carried out shall be included in the record together with other relevant data. Part of the form shall be allocated for writing down maintenance and inspection works of hospital facilities and equipment. The record shall be kept with hospital administration to be available for CD representative when needed.

9

Safety officer shall notify in writing the relevant Civil Defense center with a yearly/ phased schedule for periodic inspections dates and inspectors in charge to agree on suitable dates for Civil Defense representative to attend these tests. This shall be approved with a signature by CDR on the safety record.

10

Hospital administration shall provide security officers and ward managers with training courses of all aspects related to safety, fire fighting, rescuing, first aid and evacuation. The training shall be conducted either in Saudi specialized institution approved by the General Directorate of Civil Defense or in Civil Defense Institution and its training centers. The cost of this training shall be paid by training requisitioners on the basis of training cost per employee.

11

Hospitals subject to this regulation shall be inspected to find and investigate violations as per the regulation of inspection, detection and investigation issued by the Minister of Interior, President of Civil Defense Council. Stipulated penalties shall be imposed in accordance with Civil Defense Law and regulations issued by the relevant bodies.

Chapter 3

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Terms and safety and protection requirements in hospitals

The site:

1. The building must fulfil the requirements of the permit issued by the Ministry of Municipal and Rural Affaires and other requirements specified by relevant government bodies such as the Ministry of Health. As the body responsible for issuing construct permit, the Ministry of Municipal and Rural Affaires must, before issuing the permit, ensure that it complies with all requirements and is accepted by other concerned bodies.
2. Hospital site shall be far from hazardous places and noise activities, such as storage places for petroleum, gases, chemical materials, basic warehouse, flood paths, workshops, etc. The appendix (table 5) on hazardous places and noise activities must be adhered to when allocating a site for a proposed hospital.
3. A detailed construction layout/plan describing the boundaries of the building and its surroundings, safety and protection equipment, evacuation, rescuing and fire suppression facilities as per in this regulation, must be submitted to Civil Defense upon completion of the final design and before commencing the delivery of the project site to the contractor or before starting expansion and renovation works to obtain opinion of the Civil Defense representative. In case amendments have been made on the layout before the implementation phase, Civil Defence must be consulted again for approval.
4. Roads and entrances leading to the building with appropriate size to allow fire and rescue vehicles to reach the building balconies, accesses and fire water supplies shall be provided. In case building height exceeds the street by (50 m), an entrance on both sides must be provided.



Building construction

1. All structures and building shall be constructed of non-combustible materials, including master ceilings and drop ones. Materials which are subjected to burning or releasing harmful gases when exposure to temperature or during storage are not permitted.
2. Building structures shall be built of fire resistance with period of not less than (4) hours.
3. Number of people shall be one per 10 square metre of the floor total area.
4. Hospital main building and its related external buildings such as clinics shall be equipped with ramp to ensure the safety and flexibility of the movement of people with disability.
5. Underground floors shall not be used as admission rooms for patients, warehouses, kitchens, preparing food areas, restaurants or maintenance workshops. They can be used, after the approval of the designated department of Civil Defense, as halls for lectures and meeting if sufficient emergency exits are available.
6. An underground floor must be dedicated as shelter and as emergency hospital. All public shelter requirements must be met and it must be equipped with the necessary materials and services.
7. Cladding of the exterior walls of the building, ceiling of escape routes and admission rooms must not be less than the grade (A), which is the noncombustible material according to the international standard specifications (1982), dated on 1979. Other walls and ceilings cladding materials not less than grade (B), which is different combustible materials according to the standards of the American Association for materials testing (No. 84).
8. The flooring materials must be non-combustible to be fully coated to avoid obstructing the walking paths.
9. Approved Saudi or international standards must be undertaking regarding the safety of mechanical and electrical installations.
10. Suitable earth grounding and a lightning rod must be installed.

Fire Sectors

1. The building is divided, according to its status/position, into sectors to be separated by fire-resistant barriers (walls) in order to reduce the risk of fire and to prevent its spread between sectors and to facilitate fire suppression and evacuation operations.
2. The division of building is conducted in accordance with SASO, taking into account the following considerations:
 - a. Each ward, section, unit, or part of the floor that accommodates more than (50) persons or has an area of more than 40 m is considered as independent fire sector.
 - b. Stairs locations and escape routes are considered independent sectors.
 - c. Each unit of the hospital is considered an independent fire sector such as, inpatient and outpatient unit, surgical unit, x-ray and physical therapy unit, dining rooms and waiting rooms, etc.
 - d. Vertical openings shall be separated from the rest of the building by a fireresistant wall for at least (1hour), and doors openings resistant are not less than (40 minutes). The vertical space, such as building shaft, stairwell and elevator shaft must be separated from the building with fire-proof walls and doors. The industrial hazards areas such as mechanical rooms, power switchgear and transformer room, and alike are considered separate fire sectors.
3. The doors installed on the walls of the fire sectors must be fire resistant (at least an hour), non-smoked and of sliding types , with width not less than a meter and to be designed according to Saudi standards (fire and smoke-proof doors).
4. Hospitalization and treatment Areas must be separated from service areas, and outpatient units must be separated from inpatient ones.
5. The walls separating the fire sections must be sealed, both vertically and horizontally, to ensure that all areas including the invisible ones between the main roof and the sloping roof are closed.

Requirements of escape routes

1. Adequate escape routes for each building subjected to this regulation must be provided in a way that permits evacuation, in case of emergency, in no more than (three minutes).
2. Exist and escape routes must be far apart as much as possible, and the number of exists on each floor, which lead to escape routes, must not be less than (two exists).
3. Escape routes should lead to the evacuation assembly area. This area must be pre-determined, equipped, and in compliance with relevant safety requirements to ensure the ability to provide necessary assistance, and to account the number of evacuees.
4. Doors of exists must be easy to open, fire-resistant at least (one hour). However, it is not permitted to install curtains on these doors or mirrors around them to avoid blocking them or creating confusion of pointing exit ways.
5. Distance from any point inside bedrooms or suites must not be more than (10 meters), and not exceed (10 meters) to emergency exists or to fire stairs, or inside the basement, and not more than (7.50 meters) at closed ends of the floor (table 3).
6. Safety officer is assigned to place signs/marks on balconies and windows, which are part of rescue measure, both inside and outside the building. These signs/marks need to be mounted on the highway where rescue teams can reach and to be used only by the rescue teams in case of extreme necessity and when people are trapped in these places .
7. The doors (exits) of hospital rooms and the exits of other units must be sufficient to accommodate patient trolleys and other available mobile equipment. Main corridors must not be less than 204 cm wide.
8. The previous statement shall be applied on escape routes and exits to be able to evacuate patients and people of disabilities using such mobile equipment during emergency situations.

9. Stairs used as escape routes shall be designed in accordance with Saudi Arabia building standards so that the stairs must be made of non-combustible, heat and smoke insulating materials and provided with handrails to ensure safety and security of people.
10. Doors on the end of the escape routes must be opened on a flat routes or corridors and far away from ventilation systems and gas outlets.
11. Blocked corridors must be closed with solid doors opened from inside and marked by non-illuminated signs with the word (blocked). It is not allowed to establish hospital rooms in such corridors.
12. Lifts and escalators are not considered means of escape and are not allowed to be used in case of emergency without the supervision of Civil Defense teams.
13. The escape routes must not be less than (2 meters) high, and it must be kept clear from any obstructions.
14. The number of required exits shall be determined as indicated in the attached table (No. 4).
15. Exits, escape routes, corridors, halls and stairs leading to them shall be provided with guiding signs and a continues illuminated arrows pointing out to them in a clear and visible way. All visitors and occupants can view these signs and arrows from any location within the building. The designed signs should include safety instructions that must be followed during emergencies, and must be mounted /fixed in visible areas in different floors and sections within the building. Signs and posts must be designed as per Civil Defense approved designs and written in Arabic. The addition of other signs is allowed.
16. Corridors shall be clear from any materials and furniture that might hinder movement or access to fire fighting equipment.
17. Locking the doors in mental health care home or prisoner's health care unit inside the hospital is permitted if such places are guarded 24 H to ensure the evacuation of those people during emergency.

18. Operating rooms and intensive care rooms in hospitals must be of particular importance in terms of their design to be near emergency exits or to allocate separate exits and staircases.

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Escape corridors lighting and safety

1. Escape corridors must be protected in accordance with Saudi Arabian building standards. The walls, ceilings and floors of escape corridors and stairs and halls leading to them must be made of fire-resistant materials and the external cladding layer made of non-combustible materials, grade A.
2. Signs and posts, external and escape corridors arrows shall be illuminated continuously day and night. The source of light is double, primary and backup power (emergency light). Emergency light is switched on automatically when the building experiences a power outage to ensure continues light of the building in all circumstances. Escape corridors must also be illuminated in order to fully lighten the floors of the entire branches means including corners, intersections of corridors intersections , towers, stairs, rugs, exits doors, etc.

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Assembly areas

Located inside and outside the building where staff and other building users gather in case of emergency. The aim is to protect them and aid them with the necessary assistance. They are two types:

1. **Internal assembly areas:** These areas are located inside the building and often in large halls which can be accessed through a number of exits and escape routes. They must be connected to at least two escape routes leading directly to assembly areas located outside the building. These areas must have adequate safety and ventilation to accommodate evacuees from areas in danger, and equipped with guidance signs and illuminated arrows and posts. The evacuation process to these temporary areas should be pre-planned, and in case the situation getting worse ,evacuees should be directed immediately to the external assembly areas.

2. **Outside assembly areas:** These areas are located outside the building based on their capacity. They must be directly connected to the final exits leading to them. These areas must be safe, secure, naturally ventilated, and easy accessed by general services teams and vehicle. These areas permit the gathering occupants through exits and internal assembly areas when necessary.

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Preventive safety during construction works:

The contractor carrying out construction, renovation and maintenance works is fully responsible to the General Directorate of Civil Defense or its subdirectorates in the compliance of engineers, supervisors and workers with the requirements of occupational safety, industrial safety and the safety of lives. Concluding contracts with subcontractors does not exempt the main contractor of responsibility. He is also committed to establish a safety division for hospitals project responsible for not carrying out any construction prior issuing a written permit. This is to ensure the safety of workers and to take care of industrial safety. Complacency and negligence in meeting such safety requirements will be considered as gross negligence which needs to be penalized by the related regulations.

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Safety of laboratories:

The hospital administration is committed for the compliance of research centres dealing with radioactive materials with the regulatory instructions issued by King Abdulaziz City for Science and Technology and the Ministry of Interior (public security regarding dealing with the radioactive materials (dirty radioactive waste). It is also required to consider the regulations issued in this regard.



Table (2)
Special Hospital Fire Prevention Engineering Service

Type		Sites require service
	Special Hospital Fire Prevention Engineering Service	
1	Ventilation system	According to the international standards approved by Civil Defense
2	Lighted signs	Basement and escape routes (Emergency Exits).
3	Emergency Lighting Network	Basement and escape routes (Emergency Exits).
4	Firefighter Lift	If building height exceeds 6 floors or 20 meters, which ever less.
5	Backup power	All departments of the hospital
6	Automatic fire doors	According to the engineering precautionary measures

Table (3)
Calculating travel distance and straight distance in the Hospital.

Site	Distance in meters	Floor	Cases and notes
Direct\straight distance inside bedrooms or suites	15	Ground floor	--
Travel distance from the doors of bedrooms or suites to the exits or protected stairs	20	Any floor	Because there is more than one exit, and because of internal corridors.
Closed end	7.5	Any floor	In the case of a closed end.

Table (4)
How to determine the number of exits

Number of people	Number of exits	Minimum clear width of exits
A maximum of 200 people	2	105 cm
A maximum of 300 people	2	122cm
A maximum of 500 people	2	152 cm
A maximum of 750 people	3	152 cm
A maximum of 1000 people	4	152 cm



Table (5)
Dangerous places, sources of inconvenience activities and requirements of their existence in hospitals

No	Dangerous places	Distance inside the hospital	Distance outside the hospital
1	Generators + dieselpowered water pumps	Placed in an independent room separated from the building	--
2	Fuel gas tanks and other flammable tanks	Placed in a separate room with its own firefighting system	It is forbidden to be near hospitals.
3	The main warehouses	--	300 meters
5	Car and equipment maintenance workshops and craft work workshops	20 meters from the main building and the hospital rooms, in a separate building provided with sound insulation	200 m
6	Heat boilers	Placed in rooms in the basement, with sound insulation and firefighting systems	It is forbidden to be near hospitals.
7	Air conditioning equipment(chillers)	Placed on special bases that prevent the arrival and transmission of vibrations and placed in the hospital service building	