Dubai Municipality

Health and Safety Department

Public Swimming Pools Safety Guidelines

DM-HSD-GU81-PSPS2

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1. INTRODUCTION

The Emirate of Dubai being a cosmopolitan city and a tourism hub around the world has continuously transformed specifically in the development of top-notch leisure and residential facilities to cater to the demands of its populace and travellers. Thus, property developers have included swimming pool facilities as part of their attractions and amenities.

Although public swimming pools offer a greater level of safety due to the presence of safety provisions and lifeguards supervising the pools, the risk of drowning remains ever present. This risk is all the more pronounced with the recent upsurge in the number of water parks, hotels and residential communities with pools in Dubai. According to World Health Organization, drowning is one of the leading causes of unintentional deaths worldwide wherein children from ages 1 to 5 years old accounts for the majority of the deaths. This trend is also observed in Dubai during the accident investigations conducted by DM Health and Safety Department wherein the majority of drowning incidents involves children of the above age bracket.

2. PURPOSE

Dubai Municipality, in line with its vision to have a happy and sustainable city has developed this guideline with the primary purpose of protecting the residents and visitors of Dubai especially the children from drowning fatalities as this kind of accidents are preventable.

All public swimming pools in the Emirate of Dubai, has to be designed, constructed, operated and maintained in accordance with all the applicable regulations, design standards and guidelines as specified in this guideline to ensure safer swimming pools.

3. SCOPE

This guideline is applicable to all owners, operators and contractors/manufacturers of public swimming pools in the Emirate of Dubai.

This document has been prepared to provide minimum health and safety guidance for public swimming pools and shall be used in conjunction with other applicable regulations, design standards and DM code of practices and technical guidelines.

The following are examples of public swimming pools as defined by DM Local Order 11/2003 (see Section 4 - Definition):

- Communal pools (Pool shared by several housing villas or apartments);
- Pool located inside residential building;
- Water parks;
- Pools located in a leisure center or residential complex;
- Hotel pools;
- Camping pools;
- Club or association pools;
- Pools in schools/educational institutions;
- Therapeutic pools; and
- Any other pool which is open to the public and located in any establishment.

4. DEFINITION

Unless the context otherwise requires, the following terms shall be deemed to mean the definitions hereby assigned to them.

Swimming Pool

Any water pool designed and constructed for swimming, bathing or some other human aquatic activity. Portable pools, spa, hot tubs, whirlpool tubs and any structure (designed and used for purposes previously mentioned) which can be filled to a depth of at least 300 mm of water is also included in this definition.

Public Swimming Pool

Common swimming pool located in buildings and compounds of apartments, villas, clubs, hotels, parks or any establishment.

Note: Swimming pool which is shared by multiple residential units (e.g. villas, flats, apartments) is defined as a Public Swimming Pool by DM Local Order 11/2003.

Whereas, Private Swimming Pool serves a single dwelling unit for personal/private purposes only.

Child/Children

A young person less than five years of age.

Competent Person

Person having related educational qualifications, ability, training, and experience in his/her job responsibility.

Contractor/Manufacturer

Company or business entity engaged in the design, construction, alteration and maintenance of swimming pools; or manufacturing and/or installation of portable pools, enclosures, and safety devices.

Operator

A person or a company who has control and management of the public swimming pool whether as an owner, tenant, possessor or in any other permitted capacity.

Owner

Any person or company who is the registered owner of the swimming pool.

People of Determination (person with special needs/disabled person)

Person(s) suffering from a temporary or permanent, full or partial deficiency or infirmity in his physical, sensory, mental and communicational abilities to an extent, which limits his possibility of performing as ordinary requirements of people without special needs.

Note: Considering the convenience of the readers of this document, the term "disabled person" shall be referred as "people of determination/persons with special need" in accordance with UAE Federal Law No. 29/2006 and 2/2014.

Establishment

A place in which any commercial, tourism or any other activity licensed in the Emirate of Dubai is carried on.

Enclosure

A protective structure which acts as a surrounding barrier preventing access to a swimming pool. Enclosure includes the wall or a fence (or both) including any door and gate along the perimeter of the pool.

Safety Device

Any apparatus, product or fitting designed to prevent unauthorized access to the swimming pool.

Safety Equipment

Any tool, instrument or product that are used to avoid injuries, casualties, life threatening situations, etc. while conducting work or leisure activities in swimming pool facilities.

Safety Cover

A safety device positioned and secured in place over the water surface of the swimming pool to prevent a child under the age of five from gaining access to the water and supports the child off the water.

Note: When properly used and maintained in accordance with manufacturer's instructions, the safety cover acts as a physical barrier which prevents access to the swimming pool and allowing for the removal of a hazardous level of accumulated surface water thereby reducing the risk of a child drowning. However, the safety cover should be completely removed before any person can use the swimming pool.

Safety Net

A safety device positioned and secured in place over the water surface of the swimming pool to prevent a child under the age of five from gaining access to the water.

Note: When properly used and maintained in accordance with manufacturer's instructions, the safety net acts as a physical barrier to inhibit access to the swimming pool thereby reducing the risk of a child drowning. However, the safety net also restrains movement and should be completely removed before any person can use the swimming pool.

5. GUIDELINES

All owners, operators and contractors/manufacturers of public swimming pools shall ensure that the following requirements are adequately in place.

A. Owner, Operator and Contractor/Manufacturer Duties and Responsibilities

Owner

The owner shall ensure the following:

- Swimming pool is properly designed in accordance with the applicable requirements and standards (see Section 5E);
- Registered with Dubai Municipality; and
- Provided/equipped with the necessary safety requirements.

Contractor/Manufacturer

The contractor/manufacturer shall ensure the following as applicable:

- Design and construct the swimming pool in accordance with the prescribed requirements of the Emirate of Dubai as specified in applicable regulations, design standards and DM health and safety technical guidelines (see Section 5E);
- Products shall be manufactured in acceptable conditions and procedures and shall have a system to allow for the products' traceability;
- All materials and components used in the manufacture and installation of enclosures and safety devices shall not cause adverse health effects to the people; and used appropriately for its intended application; and suitably resistant to the prevailing conditions of the surroundings;
- All safety devices and enclosure is installed in accordance with manufacturer's specifications;
- Operations and Maintenance (O&M) manual shall be provided for the supplied/installed safety device or enclosure;
- Any safety device is clearly labeled in accordance with ASTM F1346-91 which includes information such as, manufacturer's name, date of installation and instructions for inspecting the safety device for wear and damage;
- Safety device supplied and installed shall be free of any signs of damage or defects which will impair the intended performance of the device.

Operator

The operator shall ensure the following while operating and managing public swimming pools:

- All health and safety requirements as specified in this document are in place and are properly maintained at all times;
- Comprehensive hazard identification and risk assessment for all pool related activities are conducted on a regular basis, reviewed and revised as necessary (see Section 5B);
- Written organizational health and safety policy is in place (see Section 5C);
- Safety Management System which includes personnel duties and responsibilities, safe operating procedures (SOP), emergency preparedness and response plans (EPRP), etc. are in place and properly implemented (see Section 5C);
- Appoint a certified OHS Person in Charge (PIC) for each work shift who will be responsible for health and safety awareness and supervision of public swimming pools (refer to DM Guideline on OHS Person in Charge Certification Scheme;
- Adequate lifeguard(s) are present to safeguard children and persons in distress (see Section 5I);
- Staff have the appropriate educational qualifications, ability, training, and experience for their specific job roles;
- Swimming pool and related facilities shall be kept clean, properly operational and maintained;
- Customer/pool user information is available and clearly displayed including safety advice, rules and limitations (see Section 5M);
- Adults are informed to always supervise accompanied children, people of determination and elderly people while inside their facility specially in swimming pools;
- Water quality and hygiene requirements are maintained at all times; and
- Regular inspection/checks shall be conducted to all swimming pool and related facilities to determine that the requirements are in place and are in good working condition.

B. Hazard Identification and Risk Assessment

The operator of public swimming pools shall carry out a comprehensive hazard identification and risk assessment for all of their pool related activities. Risks which arises from the use of pools, likelihood and severity of potential incidents that may arise, safe operating procedures, adequacy of any existing controls, etc. must be taken into account.

Preliminary Hazard Assessment (PHA) shall also be carried out for new activities, introduction or usage of new swimming pool features (e.g. slides, flumes, tube rides, etc.), pool modification, or any major changes to ensure that new hazards has been identified and will be addressed to implement various health and safety controls.

In addition, the following aspects (but not limited to) shall be considered when conducting risk assessment:

- Nature/use of the swimming pool (hotel, park, residential building, villas, etc.);
- Pool water area and depth including abrupt depth changes;
- Pool design (e.g. layout, access from changing rooms);
- Pool capacity/occupancy levels;
- Demographic, ability, health condition and behavior of pool users (e.g. alcohol consumption, heart condition, youth and inexperience, misuse of equipment/pool features, etc.);
- Pool and pool hall features (e.g. blind spots, glare, reflections);
- Pool activities (e.g. swimming lesson, club swimming, children play session, etc.);
- Pool features posing additional risk (e.g. use of inflatable equipment, flumes, equipment creating waves/turbulent water, diving boards, etc.);
- Practicability of enforcing safe operating procedures/rules;
- Access/admission arrangements (e.g. unrestricted access of children, admission of people of determination, admission ratio, etc.);
- Inadequate or lack of supervision (e.g. absence or lack of lifeguard, failure to safeguard children, failure to a identify a person in distress, inadequate response during emergency, etc.);
- Water quality and potential water related health effects (e.g. presence of cryptosporidium, legionella, fecal streptococci, etc.);
- Ventilation (in case of indoor swimming pool);
- Competency of staff;
- Exposure of staff to work related risks, etc.

Upon completion of risk assessment by taking into account the existing controls in place, the organization should be able to ascertain the adequacy of existing controls.

In cases wherein new or improved controls are necessary, selection should be based on the principle of the hierarchy of hazard controls which consist of elimination or minimization through engineering, administrative and personal protective equipment controls.

Risk assessment and control measures being implemented by the swimming pool operator must be reviewed and revised as necessary such as:

- If the risks are not adequately controlled by the current control measures in place;
- Prior alteration or modification of work processes, facility, new swimming pool features, or any new activity that may cause harm to the swimming pool users and staff;
- After incidents;
- Changes to relevant UAE and DM regulatory guidelines, international and local standards and industry best practices.

Hazard identification and risk assessment shall only be conducted by person(s) which are competent to use the appropriate methodologies and techniques in hazard identification and sufficient knowledge in swimming pool operation and activities.

C. Safety Management Systems

The operator shall ensure to comply with Local Order 61/1991 and other applicable UAE federal and local regulations to safeguard the health and safety of staff and the public thru establishment and implementation of a documented and appropriate Safety Management Systems (e.g. ISO 45001, NCEMA 6000). This document shall be properly communicated to all staff and stakeholders detailing legal requirements, potential hazards, duties and responsibilities, safe operating procedures (SOP) and emergency preparedness and response plan (EPRP).

Ensure that all swimming pool personnel are properly informed, trained, instructed and supervised in order to follow all the requirements and guidelines specified in the safety management system.

Safety management systems shall be properly reviewed and revised to assess the effectiveness and suitability of existing control measures and to ensure compliance with applicable regulations of UAE, DM and other concerned authorities.

D. Swimming Pool Registration Requirements

All public swimming pools located in the Emirate of Dubai are required to be registered to Dubai Municipality prior start of construction/installation.

All swimming pools shall not be altered or modified (e.g. installation of diving board, slides, etc.) without the necessary approval from Dubai Municipality.

E. General Swimming Pool Requirements

Swimming pools shall be designed and constructed in accordance with the specified requirements of Dubai Municipality (Local Order 11/2003, Local Order 61/1991, Administrative Order 211 of 1991), Dubai Universal Design Code (considering people of determination, children, pregnant women, elderly people, etc.), UAE Fire and Life Safety Code of Practice and acceptable swimming pool and features design standards (e.g. BS EN 15288: Swimming pools safety requirements for public use, BS EN 13451 Parts 1 to 11: Swimming pool equipment safety requirements, etc.). The design aspects shall include at least the following:

- Pool deck and shell design;
- Pavement/walkway design and specifications (including slip resistance);
- Piping and fittings including inlets and outlets;
- Filtration system and water recirculation;
- Disinfection system/equipment of pool water;
- Pool appurtenances (ladders, recessed threads, stairs, steps, foot baths, lighting, depth markings, etc.);
- Related facilities (toilets, showers, changing rooms, etc.);
- Control measures for safety and hygiene; etc.

Competent and adequate number of lifeguards shall be on duty to safeguard people while they are swimming (see Section 5I).

Adequate number of safety equipment for persons using the swimming pools shall be provided. These equipment shall be placed at easily accessible locations near the swimming pool (see Section 5K).

Resuscitation equipment using ordinary air and automated external defibrillator (AED) are required to be provided in public swimming pools. Use of these equipment shall be administered only by competent persons.

Adequate and complete first aid provisions are to be provided and readily accessible within the vicinity of the swimming pool (see Section 5N).

All public swimming pools shall comply with the specified occupant load factors and exit capacity factors in Table 3.13 of UAE Fire and Life Safety Code of Practice.

All public swimming pools shall be equipped with an enclosure to restrict access of unauthorized persons specially children. The use of safety device (safety cover or safety net) is also recommended for additional layer of protection.

Enclosure provided shall be permanent in nature (cannot be removed without use of tools) and effectively surround the swimming pool in accordance to the requirements specified in this document (see Section 5F).

If provided, safety cover or safety net shall completely cover the entire water surface of the pool and shall comply with the specifications, test methods and requirements of ASTM F1346-91 (see Section 5H).

The enclosure and safety device shall be designed and installed to:

- Prevent the child from getting through the openings within its structure and design;
- Prevent the child from climbing up its sides;
- Prevent the child from crawling beneath its base;
- Prevent the child from scaling its crest;
- Ensure that the access to the swimming pool is very hard for the child (but easy for an adult) to open;
- Be free of any sharp edges or protrusions that can injure the child; and
- Be robust and durable;

Area around the swimming pool shall be kept clear of any natural or artificial features wherein a child can use to climb and access the swimming pool.

Be effectively secured from unauthorized/unsupervised access of any child.

Swimming pool is not accessible thru direct access from any doors, windows, balconies or any opening from the building (e.g. hotel rooms, villas, apartments, etc.) by providing the necessary safety requirements as specified in this guidance document.

F. Enclosure Requirements

Public swimming pools situated in areas which can be easily accessed by persons especially children (i.e. pools located in residential villas, buildings, apartments, etc.) are required to be provided with a suitable enclosure which meets the following requirements:

Fences and Solid Walls

The fence/solid wall shall be provided around the perimeter of the pool with a minimum effective height of 1.20 meters measured from the outside (see Figure 1).

Vertical gaps between members/openings for enclosure made of rigid materials (e.g. steel bars) shall not exceed 100 mm (see Figure 1).

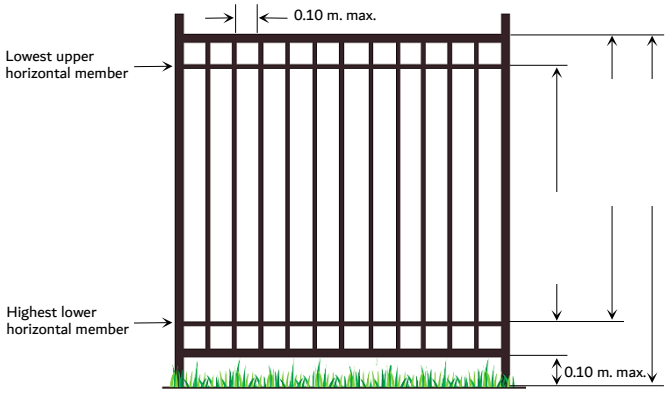


Figure 1

Horizontal members shall be spaced at least 1.10 meters from the highest of the low members to the top of the upper horizontal member and at least 900 mm for the lowest of the upper horizontal member (see Figure 1).

Bottom of the pool fence shall not have a gap that exceeds 100 mm from solid ground level, 50 mm from non-solid surface (e.g. grass, pebbles, gravel, soil) and 25 mm from removable mesh fences (see Figure 1).

Enclosure shall be non-climbable without openings, indents or projections other than the normal construction tolerances and masonry joints.

Solid walls and fences shall be provided with adequate footing designed to carry intended lateral and vertical loads.

Fencing structures that provide a flexible opening (e.g. fence made of tempered glass) shall be evaluated during design and inspected during operation to ensure that the allowable specifications in this guideline are not exceeded when light forces are applied to the fence (i.e. child trying to flex on its supports). The opening shall not exceed 100 mm when flexed.

Enclosures must be designed to be vertical and should not lean towards the swimming pool by more than 15° to the vertical.

If the enclosure are located on the sloping land, the required specifications in this document shall be maintained by taking measurements perpendicular to the ground.

For fence that has been designed so that the horizontal members brace the vertical members, the horizontal members of the fence shall be positioned facing toward the swimming pool and shall not be less than the horizontal member spacing requirements (see Figure 2).

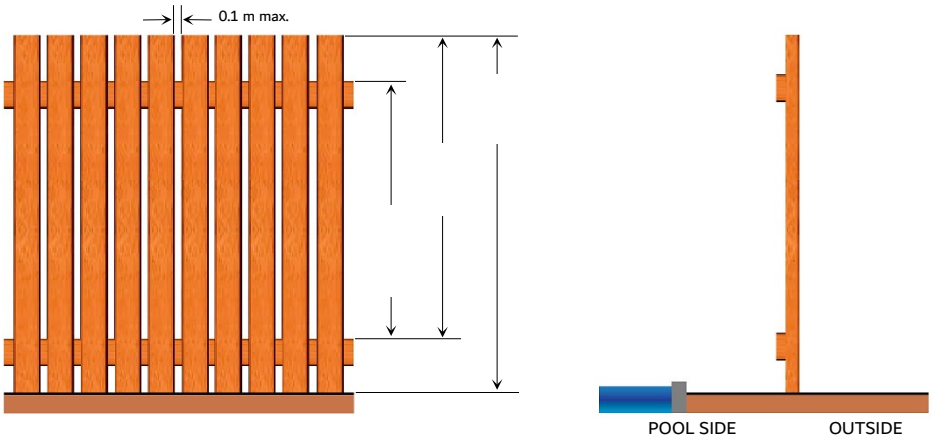


Figure 2

Objects or materials (e.g. plants, boxes, boulders, furniture, steps, etc.) that can facilitate climbing; and decks, sills and any other structure that may reduce the minimum effective height of the fence; are required to be at least 1.20 meters away from the enclosure when measured from the outside and 300 mm from the inside (see Figure 3).

For cases wherein the minimum 1.20 meters set back requirements from the outside is not possible, then the enclosure height shall be raised at a minimum of 1.80 meters with a 900 mm set back requirement from the outside and 300 mm from the inside (see Figure 4).

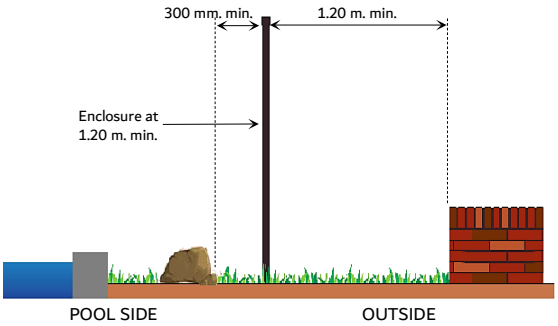


Figure 3

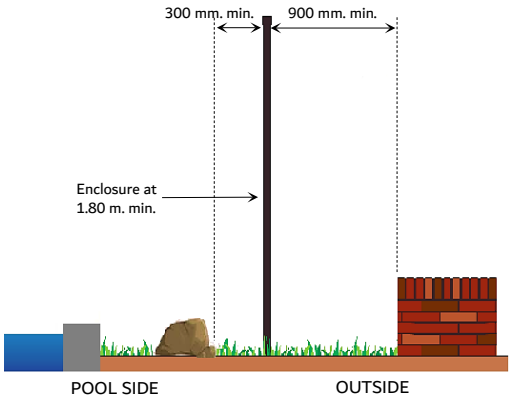


Figure 4

Decorative cutouts in fencing and diagonal openings in wooden lattice type fences shall not exceed 40 mm. opening (see Figure 5).

Diagonal openings in chain link fences shall not have openings that exceed 30 mm. unless the fence is provided with slats secured at the top or the bottom which reduce the openings to no more than 40 mm (see Figure 6 and 7).

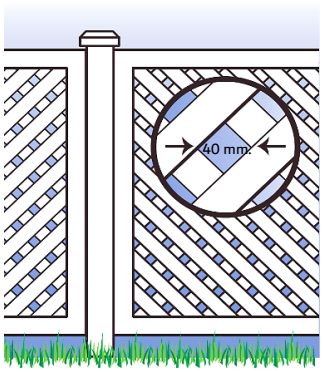


Figure 5

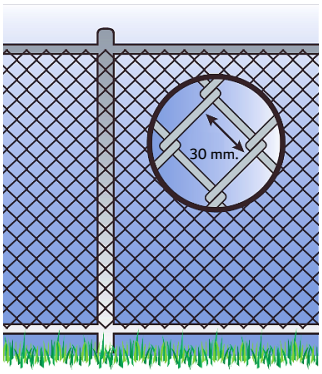


Figure 6

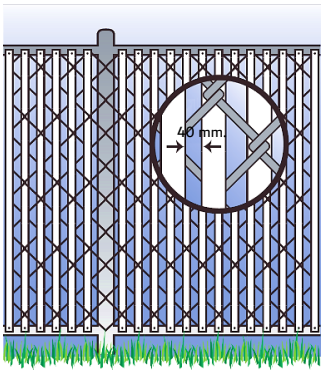


Figure 7

For swimming pools surrounded by walls (i.e. swimming pool located inside hotel), the walls may serve as an enclosure provided it meets the minimum effective height of 1.20 meters measured from the outside and meets all the applicable requirements as specified in Section 5F and 5G.

Note: Use of hedges, bushes and other plants in lieu of a fence or solid wall is not acceptable.

Access Gates

Enclosure gates for swimming pools shall only open in the outward direction, away from the pool.

All gates for swimming pools shall be self-closing and self-latching from any position. Self-closing function shall not allow the gate to inadvertently open.

Access gate shall be equipped with a locking device. Key, combination code, or password shall be properly kept or secured from children.

Gate clearance from the finished ground level shall not exceed 100 mm measured on the side of the enclosure which faces away from the swimming pool. Clearance requirements from ground level for fences is also applicable for enclosure gates (see Figure 1).

Gate hinges shall be installed at least 900 mm. apart and the hinges shall be affixed with a non-climbable safety cap.

Latching device provided to the gate shall be fitted to ensure that the gate will not re-open without the proper use of the latch.

Latch release shall be located at least 1.50 meters above from the finished ground level measured on the side of the gate which faces away from the swimming pool and at least 1.40 meters above the top of the highest lower horizontal member (see Figure 8).

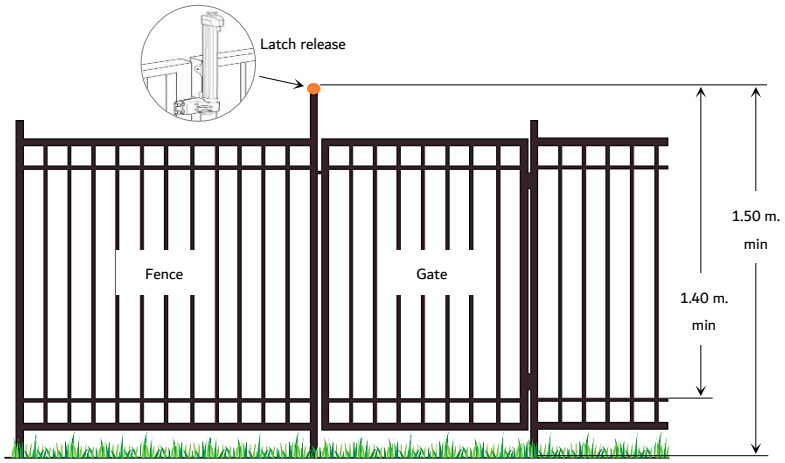


Figure 8

Where the latch release is not as stated above, the latch device shall be positioned inside the gate so that releasing the latch would require the child to reach over or through the gate at a height of at least 1.20 meters above from the finished ground level measured on the side of the gate which faces away from the swimming pool and 1.10 meters above the top of the highest lower horizontal member (see Figure 9).

Latches provided inside the gate shall be shielded by a material that has effective radius of 450 mm. when measured from the latch release and at least 150 mm below the top of the gate.

Gap between the gate and the fence shall not be more than 10 mm.

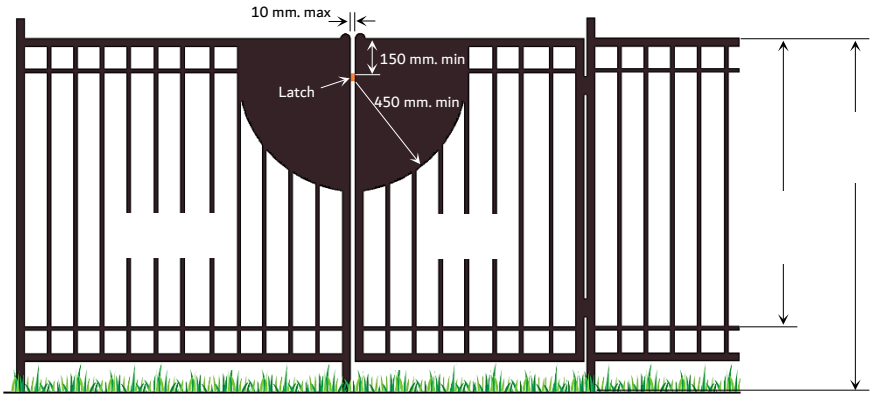


Figure 9

For above ground pools, access ladder or steps shall be provided with an enclosure that complies with the stipulated requirements of this document; or the access ladder or steps is designed to be secured, locked and removed to restrict access.

Note: Use of locking device as the only way of securing the pool access gate is not acceptable. However, this type of device can be used as an additional to the stipulated access gate requirements in this guideline.

G. Doors, Windows and Balcony Requirements

Doors

The use of doors as direct access or part of enclosure for outdoor swimming pools is prohibited. Doors are only permitted to be a part of enclosure for indoor swimming pools upon meeting the requirements as specified below:

- Be fitted with a self-closing device that will automatically close the door;
- Be fitted with a self-latching device that will prevent in opening the door without the application of manual force on the latch release mechanism;
- Be provided with a locking device. Key, combination code, or password shall be properly kept or secured from children;
- Latch release mechanism must not be less than 1.50 meters above the floor level;
- Does not contain any openings, indentations, or protrusions;
- Does not open towards the pool area. Doors are only opening sideways or away from the pool area.

Automated garage doors and perimeter gates as direct access to swimming pools is prohibited and is not to be considered as a part of swimming pool enclosure.

Note: Children are resourceful and likes to explore, swimming pool operator must be aware of this and must ensure that all objects that can be used to reach up and release the latching mechanism of the door are removed, kept and secured.

Use of locking device as the only way of securing the door as part of enclosure for indoor swimming pool is not acceptable. This type of device shall be used together with the above requirements of this guideline.

Windows

Windows opening onto the swimming pool area are required to be provided with a permanently fixed stopping device that will limit the opening of the window by less than 100 mm; or be provided with security screens or bars that are fixed in position by fasteners.

Note: Locking devices are not acceptable in securing the window. Protective devices as specified in this document shall be installed to restrict the child in using the window as a means of access to the swimming pool.

Balcony

Balcony located over or within 900 mm. of the swimming pool enclosure are required to be provided with a balustrade that is in accordance with the enclosure requirements of this document and in accordance with the building design balustrade specifications of Dubai Municipality (see Figure 10).

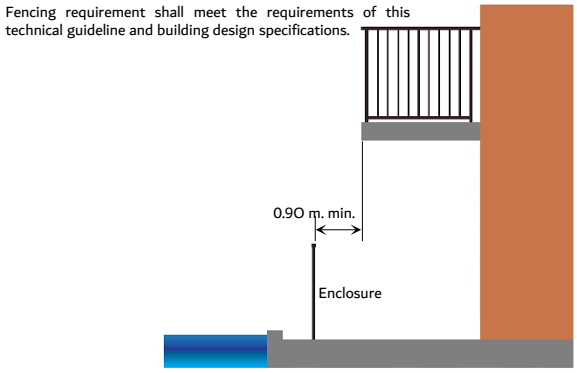


Figure 10

H. Use of Safety Devices

The content of this section is not mandatory, however if the operator decides (as practicable) to use safety cover or safety net as an additional layer of protection, these devices shall be installed in compliance with ASTM F1346-91 and the following requirements:

Static Load and Load Bearing Weight

For swimming pools having a width or diameter of more than 2.4 meters, the safety device shall be capable to hold a weight of 220 kilograms (approx. 2 adults and 1 child).

For swimming pools having a width or diameter of less than 2.4 meters, the safety device shall be capable to hold a weight of 125 kilograms (approx. 1 adult and 1 child).

Perimeter Deflection, Gaps and Openings

Safety device shall be designed that should a child fall on the safety cover or safety net, the child who has fallen or another child are prevented to slip beneath any opening between the safety cover or safety net and the side of the pool; or gain access to the pool.

Surface Drainage and Water Removal

Safety device is capable of substantially draining accumulated water on top of the safety cover/net within five minutes after cessation of normal rainfall or sprinkler water.

Opening in the Safety Device

Any opening in the safety cover/net shall be sufficiently small and strong to prevent the opening from being forced to a size that will allow an object of 114 mm diameter to pass through (as described in ASTM F1346-91).

Safety Device Installation and Fixing

Safety cover or safety net shall be manually or mechanically positioned to completely cover the pools' water surface and secured in place by a locking system or a central tensioning system that will prevent a child from removing the safety device.

Installation shall only be installed by the manufacturer or competent persons.

Fastening Mechanism or Devices

Ties, anchors, anchorage/attachment points, operation controls, and other mechanical means of fastening safety covers/nets shall be properly secured and kept (by use of keys, combination locks, devices, special tools, or inaccessible locations) to prevent children from removing or opening the safety cover or safety net.

Note: The safety cover or safety net should be completely removed and properly kept before any person can use the swimming pool.

10

I. Lifeguard Requirements

All public swimming pools are to be provided with constant pool supervision while in operation. The operator shall ensure that lifeguards are adequate in number; adequately trained; and properly organized and supervised.

General Lifeguard Duties and Responsibilities

- Provide correct pool supervision;
- Exercise appropriate level of control over swimmers;
- Apply principles of preventative lifeguarding;
- Take appropriate action during incidents;
- Carry out rescues;
- Treat suspected cases of suspected spinal injury;
- Provide first aid, within the scope of his/her qualifications;
- Provide basic life support (CPR - Cardiopulmonary resuscitation) if necessary;
- Provide advanced life support if trained to do so (e.g. AED, etc.);
- Raise alarm/escalate communication to concerned management personnel/authorities for further assistance if required.

Lifeguard Qualification and Skills

All lifeguards supervising public swimming pools shall have the following qualification and skills:

- Valid EIAC (Emirates International Accreditation Centre) accredited pool lifeguard certification in accordance with DM Health and Safety Department – Lifeguard Scheme Requirement.
- Assessed/trained in basic life support, first aid, AED and accepted techniques for life saving by DCAS (Dubai Corporation for Ambulance Services) approved curriculum or training center.

Lifeguard Numbers

The required number of lifeguards supervising the pools shall depend on the risk assessment conducted by operators.

Table 1: Lifeguard Staffing and Positioning

In determining the number of required lifeguards, the following shall be ensured:
• All areas of swimming pools are adequately supervised by lifeguards; • Lifeguards have 100% visibility within their designated area of supervision (full volume of pool water from top to bottom with no blind spots); • Lifeguards can scan their area of supervision in 10 seconds and are positioned no more than 20 seconds from the furthest point if rescue or other intervention is required. This is known as the 10:20 rule.

Swimming pool facilities can be designed and used in many ways, which makes it difficult to provide specific number of recommended lifeguards. Thus, pool operators shall ensure to develop and implement general guidelines for lifeguard staffing/arrangements as part of the Safe Operating Procedures. General guidelines shall be based on the conducted Risk Assessment.

Table 2 below outlines the minimum recommended lifeguard numbers for various levels of general use in rectangular shaped pool. It does not include consideration of factors such as the use of diving boards, wave machines or any other special equipment, which could potentially increase the number of lifeguards.

Table 2: Minimum Recommended Lifeguard for Rectangular Pools

Pool Size (m)	Area (m^2)	Minimum No. of Lifeguards	Minimum No. of Lifeguards for busy periods
20 x 8.5	170	1	2
25 x 8.5	212	1	2
25 x 10	250	1	2
25 x 12.5	312	2	2
33.3 x 12.5	416	2	3
50 x 20	1,000	4	6

Notes:

1. *In operations wherein one (1) lifeguard is on duty to supervise the poolside, the operator shall ensure to provide adequate provisions for support in case of emergencies (i.e. installing assistance alarm for calling rapid support to the pool area). This is necessary since rescue of a casualty from the water often requires at least two people and to ensure that remaining swimmers are supervised while recovery is in progress.*
2. *Last column (minimum no. of lifeguards for busy periods) refer to whenever occupancy approaches the maximum capacity of the pool.*
3. *For irregularly shaped pools (e.g. water parks, leisure pools), the figures indicated in Column 2 (Area), can be used as a starting point.*
4. *It is important that pool operators carry out regular review of risk assessments that deal with the projected change in the number of customers (i.e. during busy periods such as holidays). Lifeguard staffing and positioning arrangements shall be directed by the result of the Risk Assessment.*
5. *For 50 meter pools where the width is 16 m of more, visibility through the water becomes a problem, in determining the number of lifeguards and their positioning, refer to Table 1 for guidance.*
6. *For irregularly shaped pools and pools with additional features such as diving boards, waterslides, etc., the principles in determining number of lifeguards and their positioning shall be followed (refer to Table 1).*

J. Use of Devices/Systems to Aid Pool Supervision

The content of this section is not mandatory, however if the operator decides (as practicable) to use these devices and systems, it will help the lifeguards in identifying potential drowning incidents they had not observed.

The employer must note that these devices/systems have its limitations and capabilities and are not intended to reduce or replace the need of lifeguard monitoring and requirements as specified in Section 5I.

When the operator decides to use any of the below devices and systems, the following shall be ensured:

- Procedure shall be developed and implemented for the use of the specific devices/systems and shall be included/integrated in the facilities' risk assessment, safe operating procedures, and emergency preparedness and response plan;
- All staff responsible in supervising the pool shall be trained on its proper use/maintenance; and
- Inspection, maintenance and testing program shall be implemented in accordance with manufacturer's/installers' instructions;

The following are examples of devices/systems currently used to aid the lifeguard in monitoring drowning incidents:

- Computerized drowning detection system;
- Cameras (CCTV's) installed at the poolside;
- Poolside mirrors;
- Motion sensors;
- User worn drowning detection system; etc.

In addition to the above, providing lifeguard stands is not mandatory. The operator needs to note that the most important aspect in supervising the pool is that lifeguards are properly positioned and can effectively scan their area of responsibility by applying the 10:20 rule (see Section 5I, Table 1).

If lifeguard stands are provided, the location, number and use of such shall be included in the facilities' safe operating procedure. The stand shall be designed to improve lifeguards' visibility, carry the desired load, be stable, ease of entry/exit, and the base shall be properly fixed/locked to avoid overturning or unsafe moving.

K. Safety Equipment Requirements

The operator shall ensure that all the required general safety and personal protective equipment as specified below are readily available and properly maintained.

General Safety Equipment

Adequate life ring, throw bags/ropes and reaching aids such as poles shall be readily available and accessible to lifeguards within 5 seconds in order to allow a person under distress in the water to be assisted.

Minimum of one life ring/throw bag and one reaching pole shall be available on each side of the pool.

The type of ling ring must be appropriate for swimming pool use and shall be mounted approximately 1.33 m high on the walls to ensure accessibility and clear visibility.

Rescue tube shall also be provided for each lifeguard on duty.

Personal Protective Equipment

The operator shall ensure that all staff are provided with appropriate Personal Protective Equipment (PPE) in accordance with Dubai Municipality requirements. OHS Technical Guidelines (TG's) are available in www.dm.gov.ae under Health and Safety Department.

Operators must note that use of personal protective equipment does not provide unlimited protection and shall be used in conjunction with other risk control measures (e.g. engineering control) and sound safe operating procedures.

Operators shall provide adequate training and instruction in the proper use, testing and fitting of PPE to staff which needs this equipment (also refer to Section 5O).

Activities which requires usage of specific PPE's are provided only to workers who on the basis of medical advice are capable of safely sustaining the extra effort necessary.

All PPE's including emergency response equipment shall be properly stored, checked, maintained and tested at regular intervals.

L. Communication Requirements

The Safe Operating Procedures and EPRP shall clearly define reporting responsibilities internally and externally (e.g. Dubai Municipality, DCAS, etc.) during incidents or emergency situations. Communication procedures shall define who will make the contact and when to make it. All swimming pool staff shall be knowledgeable on how and when to contact the concerned UAE government authority.

All swimming pool facilities should have a clearly identifiable telephone wherein relevant contact numbers should be clearly displayed (see Section 5M, Table 3).

Lifeguard should also be provided with a means of communication with other operation staff during emergencies. This is very important in cases wherein there is a single lifeguard on duty (see Section 5I, Table 2, Note Item 2). Examples of means of communication are sirens or alarms. Portable "push button" alarm systems shall be considered as practicable.

A public address system (PA) shall be provided in all swimming pool facilities to communicate with the public for emergency and other general situations. The system shall be regularly checked for efficiency and audibility (refer to Dubai Universal Design Code, UAE Fire and Life Safety Code of Practice).

Lifeguards should know and practice defined systems of communications among themselves (e.g. hand signals, buzzers or use of whistles).

Operator shall also take into account vulnerable pool users such as people of determination (e.g. people with hearing problem), children and the elderly in providing/using types of communication. Use of visual communication with other recommended methods shall be considered.

M. Safety Information and Signage Requirements

Customer/Pool Users Information

The operator shall ensure that customer/pool user information is available and clearly displayed which includes potential hazards; safety advice; and rules and regulations (e.g. proper use of pool features, do's and don'ts, age restrictions, etc.) while inside the swimming pool facility. These information can be given in different ways such as:

- Safety signage and instructions displayed at reception/entrance, changing areas, poolside and where needed;
- Through the operators' website;
- Leaflet given to the pool users upon arrival;
- Verbal reminders, where necessary, by lifeguards and other operation staff.

The operator shall also ensure that all parents/adults are informed not to leave accompanied children, people of determination and elderly people (particularly with medical condition) while inside their facility especially during swimming or near the pool.

Swimming pool operators shall also provide information to customers/pool users on the proper use of various personal pool equipment used while swimming such as swimming goggles, snorkels, face masks, fins, floats, rubber rings, play balls, etc. Operator shall prohibit use of any glass equipment and small balls less than 7 mm due to associated risks.

Adequate safety information/signage shall be posted indicating when and where the aforementioned personal pool equipment are allowed and prohibited for use.

Operator shall exercise caution with the use electronic gadgets (e.g. DVD players, portable speakers, etc.) and various types of hardwired electronic equipment in swimming pools as these may cause electric shock. The operator may only allow if the electronic gadget/equipment is designed to be safely used in water (waterproof/splash proof).

Safety Signage/Instructions

The operator shall ensure to provide adequate, clear, understandable, appropriately located and visible safety signage/instructions. When and where to provide these shall be identified through the conducted risk assessment. Examples of instances and locations requiring safety signage/instructions are:

- Sudden changes in pool depth wherein it is important to clearly mark the depth of water specifically at shallow and deep ends;
- Areas which are unsafe to swim or to dive;
- Slippery surfaces;
- Near the pool and its equipment;
- Use of equipment (e.g. fins, life ring, etc.);
- On specific pool features/activities (e.g. wave pools, rapids or jet streams, water slides, flumes, tube rides, water cannons, tube rides, pool hoists, spa, hot tub, etc.)
- Controlled/prohibited areas/facilities; etc.

Safety signage/information posted shall be in accordance with the ISO recommended symbols and color scheme (e.g. ISO 3864, ISO 7001, 7010).

The following are examples of pool safety signage/information:



Safety signage/instructions shall be properly maintained and immediately replaced if damaged, worn out or dilapidated.

Operator shall ensure that all signs are not obstructed/covered by towels, clothing, equipment, materials, etc.

Information displayed shall be up to date and accurate. For example, signs shall be replaced or updated during changes in legislation, requirements, standards, pool layout, hazards present, etc.

Cardiopulmonary resuscitation (CPR) signage shall be displayed near the swimming pool or attached to the enclosure so that the signage is easily visible to the people who are near or using the pool (see Annex A).

Dubai Government Emergency Contact Numbers as shown below shall be displayed near the swimming pool or attached to the enclosure so that the signage are easily visible.

Table 3: Dubai Government Emergency Contact Numbers

Police	999
Civil Defense	997
Ambulance	998
Dubai Municipality	800900

N. Emergency Preparedness and Response Requirements

Emergency Preparedness and Response Plan

The operator shall ensure that Emergency Preparedness and Response Plan (EPRP) shall be properly developed, maintained and implemented to be able to respond effectively to accidents and other emergencies. The EPRP shall cover all reasonably foreseeable emergencies as identified in risk assessment and shall be commensurate with the nature and magnitude of the risks.

Arrangements for developing Emergency Preparedness and Response Plan shall involve the following:

- Identification of potential incidents and evaluation of its related risks;
- Development of necessary emergency plans and procedures to address identified incidents and risks;
- Acquisition of appropriate emergency response equipment;
- Conducting training to the staff to properly implement response plans and procedures including proper use of emergency equipment;
- Conduct emergency response drills at least twice a year to evaluate EPRP and to ensure that the competence of staff is maintained;
- Review and update plan as necessary.

The following are some of the examples of emergency situations that shall be included in the EPRP:

- Drowning;
- Rescuing a casualty in the water;
- Missing Person;
- Water contamination;
- Health incidents and injuries (e.g. heart attack, spinal injury, etc.);
- First aid incident incidents;
- Allegation of abuse/assault to child/person;
- Unauthorized entry/access of children/persons to pool and other sensitive facilities/areas (e.g. plant room, chemical storage area, etc.); and
- Specific emergencies as applicable (e.g. escape of toxic gases, chemical burns, structural collapse, etc.).

EPRP shall include reporting procedure of emergency incidents to Dubai Municipality and other competent government authorities.

Emergency equipment shall be properly maintained and inspected at least annually and be readily available as needed.

Ensure that all swimming pool employees understand and are competent on the actions that are to be undertaken during emergencies (e.g. response procedures, specific responsibilities, location of exits, emergency equipment, raising alarm, etc.).

First Aid Provisions

The operator shall provide a specifically designated DCAS compliant first aid station near the pool area. The location of the first aid station shall be clearly shown in the EPRP. First aid equipment shall include the following:

- Removable curtain or screen to protect the privacy of the person receiving first aid;
- Medical examination couch with frequently cleaned pillow and blankets;
- Stretcher;
- Hot and cold water;
- Appropriate ventilation;
- A nearby toilet;

- Chairs;
- Spinal board;
- Resuscitation equipment using ordinary air and automated external defibrillator (AED);
- Fully stocked first aid box wherein all items are in usable condition (not expired).

O. Staff Information, Instruction and Training Requirements

Public swimming pool operators are required to provide health and safety orientation/induction training and other applicable health and safety training for all staff working under their control and management to ensure that all personnel are able to recognize workplace hazards and its adverse health effects, apply safe operating procedures (SOP's), use of PPE's, awareness to emergency response procedures, etc.

To implement this, the operator shall establish a training program to be delivered periodically to the employees and shall include refresher training based on the risk management approach, industry best practices and to their respective duties and responsibilities to ensure that the personnel skills and knowledge are retained and improved.

Operator shall also ensure to establish a program for staff to practice emergency management, physical fitness and other skills.

Providing appropriate induction, supervision, instruction and training is a positive step towards reducing the risk and severity of public and work related incidents, especially for new employees, or personnel who change their work responsibilities, or for staff who were not around their work for an extended period of time.

Records of any training including induction and tool box talks shall be properly kept for at least five (5) years and be made readily available to Dubai Municipality health and safety inspectors and other regulatory agencies for review and demonstrate compliance with pertinent UAE and DM regulations.

P. Water Quality Requirements

Swimming pool water shall be clear (i.e. deepest part of the pool is clearly visible when viewed from the pool deck) and shall be free of floating debris, suspended solids, turbidity, algae, or any such undesirable matter which may affect the health of swimming pool users.

Pool water shall be disinfected and the parameters as specified in Table 5 and 6 below shall be maintained at all times. In cases wherein the disinfection level is not within the acceptable range/values, the pool shall be closed down until it meets the required parameters.

All water in the swimming pool must be filtered as often as necessary to ensure that a clean and clear water condition is maintained. The total water volume contained in a pool shall be recirculated as specified in Table 4 below:

Table 4: Minimum Recirculation (Turnover) Requirements

Type of Pool	Minimum Recirculation Rate
Swimming pool	Once in every six (6) hours
Wading pool	Once every two (2) hours
Hydrotherapy pool	Once every 1 to 2 hours
Waterslide pool	Once every hour
Spa pool	Once every 30 minutes

Swimming pool shall be equipped with an automatic dosing and monitoring system to ensure that the pH and disinfectant level in the pool water are continuously controlled and monitored within the ranges as specified in Table 5.

Stabilizers (Cyanuric acid and chlorinated cyanurates) shall not be used in any indoor swimming pool which includes spa pool and hydrotherapy pool (both indoor and outdoor).

Water quality shall be tested daily (before use) for pH, chlorine and temperature levels. Pool water shall also be tested for calcium hardness, alkalinity, saturation index and cyanuric acid for every 15 days. All readings shall be recorded in a logbook.

Pool water shall be tested for microbiological parameters for every two months.

Table 5: Pool Water Standard Quality Parameters

Type of Pool	Disinfectant	Pool Water Temp.	pH	Total Alkalinity	Free Chlorine	Cyanuric Acid[1]
Swimming pools, wading pools and waterslides	Chlorine	≤ 26°C	7.2 - 7.6	60 - 200 mg/l[2]	Min. 1 - 2 mg/l[3]	30 - 50 mg/l
		> 26°C	7.2 - 7.6	60 - 200 mg/l[2]	Min. 2 - 4 mg/l[3]	30 - 50 mg/l
	Disinfectant	Pool Water Temp.	pH	Total Alkalinity	Bromine	Calcium Hardness and Saturation Index[9]
	Bromine	≤ 26°C	7.2 - 7.8	60 - 200 mg/l[4]	2 mg/l	
		> 26°C	7.2 - 7.8	60 - 200 mg/l[4]	4 mg/l	
Hydrotherapy pools	Disinfectant	Pool Water Temp.	pH	Total Alkalinity	Free Chlorine	
	Chlorine	28° - 35°C	7.2 - 7.6	60 - 200 mg/l[2]	Min. 2 mg/l[5]	
	Bromine	28° - 35°C	7.2 - 7.8	60 - 200 mg/l[4]	Min. 4 mg/l[6]	
Spa pools	Disinfectant	Pool Water Temp.	pH	Total Alkalinity	Free Chlorine	
	Chlorine	35° - 37°C	7.2 - 7.6	60 - 200 mg/l	Min. 4 mg/l	
	Bromine	35° - 37°C	7.2 - 7.8	60 - 200 mg/l[4]	Min. 8 mg/l	

Notes:

1. *Stabilizer (cyanuric acid and chlorinated cyanurates) is not allowed to be used in indoor pools (swimming pool, wading pool or waterslide) which includes spa pool and hydrotherapy pool (both indoor and outdoor).*
2. *If disinfectant used is gaseous chlorine the total alkalinity should range from 150 to 200 mg/l.*
3. *If cyanuric acid is used, minimum free chlorine is 2 mg/l at ≤ 26°C and 4 mg/l at > 26°C. For unstabilized pool water (without cyanuric acid), minimum free chlorine is 1 mg/l at ≤ 26°C and 2 mg/l at > 26°C.*
4. *If disinfectant used is 1-Bromo-3-chloro-5, 5-dimethylhydantoin (BCDMH) the total alkalinity should range from 150 to 200 mg/l.*
5. *In cases wherein the pool is operated at the upper temperature limit and heavy bather load, the recommended free chlorine is at least 4 mg/l.*
6. *In cases wherein the pool is operated at the upper temperature limit and heavy bather load, the recommended bromine concentration is at least 8 mg/l.*
7. *Maximum level for both free chlorine and bromine shall not exceed 10 mg/l.*
8. *Ultraviolet light plus hydrogen peroxide can only be used as a disinfectant for indoor pools having a maximum capacity of 500,000 liters with the following operating criteria: UV light - ≥ 30,000 µWs/cm² (disinfection value), Pool water flow rate - ≤ 150 l/min., Hydrogen peroxide - ≥ 40 mg/l (disinfection value), pH - 7.2 to 7.6, and Total alkalinity - 60 to 200 mg/l.*
9. *Calcium Hardness shall be between 100 to 500 mg/l and Saturation Index shall be between -0.5 to 0.5. These parameter values are applicable to all types of pools whether indoor and outdoor.*

Table 6: Maximum Allowable Microbiological Parameters

Parameter	Acceptable Range
Total Coliforms	0 mpn/100 ml.
Fecal Coliforms	0 mpn/100 ml.
Heterotrophic Plate Count	1000 cfu/ml.
Pseudomonas Aeroginosa	0 cfu/100 ml.
Fecal Streptococci	0 cfu/100 ml.

Q. Maintenance Requirements

The operator of public swimming pool shall ensure that competent persons are carrying out regular and correct maintenance of swimming pools, plants, equipment, tools and related facilities to safeguard the health and safety of staff and customers/pool users. The operator shall also ensure the following:

General Maintenance Requirements

The operator shall ensure that all necessary documents for installation, maintenance and repair operations are provided to, trained with and understood by personnel that will be carrying out the work:

- Work specific safe operating/work procedures;
- Manufacturer's Operations and Maintenance (O&M) Manual/Instructions;
- Permit to Work (e.g. confined space, electrical work, etc.).

Work specific risk assessment shall be prepared in order to identify the necessary control measures that will be in place.

Work area shall be provided with the necessary arrangements (e.g. lighting, ventilation), appropriate equipment/tools, suitable personal protective equipment, visible safety signage and other risk control measures (as identified in risk assessment) so far as is reasonably practicable to conduct work safely.

Operator shall ensure that all work carried out are in accordance with applicable UAE regulations; DM code of practices and technical guidelines; and industry best practices.

Regular inspections and tests are carried on all plant and equipment as per manufacturers' instructions. Pipes, filters and motors shall be in good working condition at all times.

Swimming pool shall be regularly cleaned. Strainers, filters, pool walls, etc. shall be cleaned regularly; and floors and stairs are kept clear, clean and not slippery.

Damaged parts of the pool shall be immediately repaired or replaced.

All machines, equipment and tools used for maintenance work and electrical installations shall be properly maintained as per manufacturers' specifications and replaced/removed from service if damaged/not working properly.

Only use appropriate equipment when working near or in water. Consult manufacturers' instructions prior use. Also refer to DM health and safety Technical Guideline on Electrical Safety at Work available in www.dm.gov.ae.

Store, handle and use pool and plant chemicals in accordance with manufacturer's instructions and Safety Data Sheet. The operator shall also refer to the requirements specified in DM Code of Practice for the Management of Dangerous Goods in the Emirate of Dubai.

Emergency eyewash and shower facility and spill kits shall be adequately provided and suitably located nearby chemical storage and handling area.

Chemicals shall be stored in a dedicated storage area with a locking device.

Public Protection Requirements

The operator shall ensure that all suitable safety precautions and provisions are in place to protect the swimming pool customers/pool users who may be present during work activities. Effective arrangements shall be in position to prevent unauthorized entry/access especially by children at worksite (e.g. barricade, fencing/hoarding with controlled entry equipped with lock, empty swimming pools provided with safety net/safety cover).

All access/entry doors of plant rooms, storage areas and facilities not intended for the general public shall be provided with a locking device. Key, combination code, or password shall be properly kept by a designated person.

6. REFERENCES

American Society for Testing and Materials - Standard Performance Specification for Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs (ASTM F1346-91:2018)

Australia: Government of Western Australia - Rules for Pools and Spas

Australia: Government of South Australia - Code of Practice for Public Swimming Pools in South Australia

Australia: Victoria State Government - Water Quality Guidelines for Public Aquatic Facilities: Managing Public Health Risks

Australia: Government of South Australia - Standard for the Operation of Swimming Pools and Spa Pools

Australia: Queensland Government - Guidelines for pool owners and property agents

British Standard/European Standard - Swimming Pools for Public Use:

- Part 1 Safety Requirements for Design (BS EN 15288-1:2018); and
- Part 2 Safety Requirements for Operation (BS EN 15288-2:2018).

British Standard/European Standard - Swimming Pool Equipment:

- Part 1 General Safety Requirements and Test Methods (BS EN 13451-1:2011+A1:2016);
- Part 2 Additional Specific Safety Requirements and Test Methods for Ladders, Stepladders and Handle Bends (BS EN 13451-2:2015);
- Part 3 Additional Specific Safety Requirements and Test Methods for Inlets and Outlets and Water/Air Based Water Leisure Features (BS EN 13451-3:2011+A3:2016);
- Part 4 Additional Specific Safety Requirements and Test Methods for Starting Platforms (BS EN 13451-4:2014);
- Part 5 Additional Specific Safety Requirements and Test Methods for Lane Lines and Dividing Lines (BS EN 13451-5:2014);
- Part 6 Additional Specific Safety Requirements and Test Methods for Turning Boards (BS EN 13451-6:2001);
- Part 7 Additional Specific Safety Requirements and Test Methods for Water Polo Goals (BS EN 13451-7:2001);
- Part 10 Additional Specific Safety Requirements and Test Methods for Diving Platforms, Diving Springboards and Associated Equipment (BS EN 13451-10:2018);
- Part 11 Additional Specific Safety Requirements and Test Methods for Movable Pool Floors and Moveable Bulkheads (BS EN 13451-11:2014);

Canada: Government of British Columbia – B.C. Guidelines for Pool Design

Canada: Government of British Columbia – B.C. Guidelines for Pool Operations

Ireland: Irish Water Safety - Swimming Pool Safety Guidelines

International Organization for Standardization (ISO) - International Standards for Safety Signs and Markings in Workplaces and Public Facilities (ISO 3864)

International Organization for Standardization (ISO) - Hazard Symbols on Hazard and Safety Signs (ISO 7010)

International Organization for Standardization (ISO) - Occupational Health and Safety Management Systems (ISO 45001:2018)

International Organization for Standardization (ISO) - Public Information Symbols (ISO 7001)

South African National Standard (SANS) - The Safety of Swimming Pools (SANS 10134:2016)

United Kingdom: Health and Safety Executive (HSE) - Managing Health and Safety in Swimming Pools

United States Consumer Product Safety Commission - Safety Barrier Guidelines for Residential Pools

Dubai Municipality - Local Order No. 61 of 1991

Dubai Municipality - Administrative Order 211 of 1991

Dubai Municipality - Local Order No. 11 of 2003

Dubai Municipality: Health and Safety Department - Lifeguard Scheme Requirement

Government of Dubai - Dubai Universal Design Code

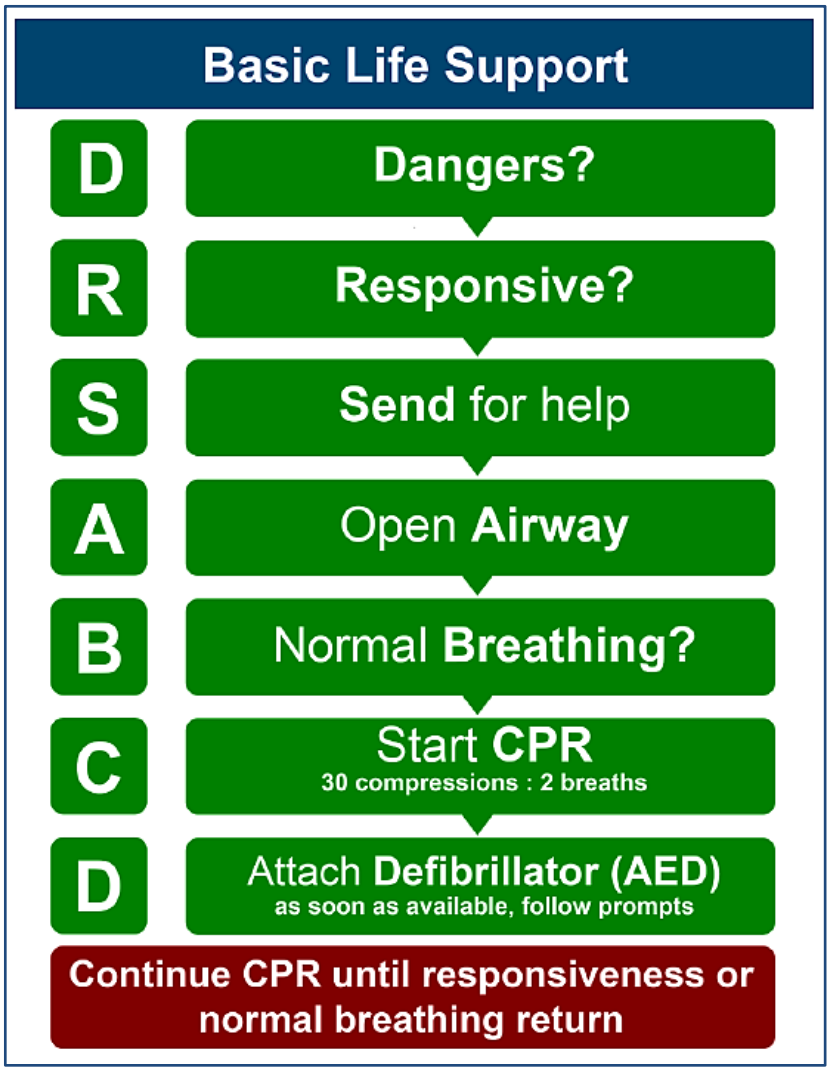
Government of Dubai - Law No. 2 of 2014 Concerning Protection of the Rights of People with Disabilities in the Emirate of Dubai

Ministry of Interior - UAE Fire and Life Safety Code of Practice

Ministry of Social Affairs - UAE Federal Law No. 29 of 2006 Concerning the Rights of People with Special Needs

National Emergency Crisis and Disasters Management Authority - UAE Occupational Health and Safety Management System (OHSMS) National Standard (NCEMA 6000:2016)

ANNEX A: SAMPLE OF CARDIOPULMONARY RESUSCUTATION (CPR) SIGNAGE



For Further Information, Please Contact:

Health & Safety Department

Dubai Municipality

Tel: 800900

Safety@dm.gov.ae