



CERTIFIED

PROFESSIONAL FITNESS

TRAINERS' COURSE

10.0 INTRODUCTION

The purpose of risk management is to eliminate hazards, reduce the risk of injury to patrons and lessen the possibility that an injury might occur which might result in potential litigation. The issue of civil liability might arise at an aquatic facility when the pool supervisor, lifeguards or maintenance personnel fail to perform, or incorrectly perform, a required duty and as a result, a patron is injured. If the injured patron feels the employee's conduct fell below the standard established by law for his or her protection against unreasonable risk of harm, negligence may be claimed.

There are numerous reasons why a lawsuit might be filed as a result of an aquatic related injury, but the following claims are made most frequently:

- hidden hazards such as inadequately marked depth or contour, slippery decks, sharp objects, etc.
- inadequate supervision at the time of the accident (number and location of supervisors, what they were doing at the time of the accident, whether general or specific supervision was being provided).
- inadequate, inaccessible or improperly maintained rescue equipment.
- lack of qualification, certification and training for work at the facility.
- inadequate facility maintenance.
- signage which does not give meaningful warning.
- injuries inflicted by other patrons.
- failure to prohibit swimming under dangerous environmental or water quality conditions.
- product liability resulting from equipment misuse or alteration.
- unsafe handling, use or storage of chemicals.

In order to be found negligent, the plaintiff, or injured party, must show a legal duty was owed, that a breach of that duty occurred and that you failed to provide the standard of care which should be expected from a prudent professional under similar circumstances. It must also be shown that an actual injury occurred and that there was a proximate cause between your conduct and the resulting injury to the plaintiff.

To avoid becoming entangled in legal matters, it is prudent for club operators to develop aquatic risk management procedures. The importance of regularly conducting safety audits for purposes of identifying and assessing risks inherent in an aquatic program or facility can not be overstated. Safety inspections help pool owners and operators eliminate or minimize hazards, reduce risk of injury to patrons through implementation of safety modifications, and avoid lawsuits due to negligence associated with tort liability. See Appendix for sample Pool Inspection Report.

10.1 INSPECTION OF AQUATIC FACILITIES FOR RISK

A thorough inspection of aquatic facilities should include scrutiny of the following areas:

10.1.1 DRAIN OUTLETS

Main drain gates should be bolted securely to the pool bottom and require special tools in order to be removed. To avoid the possibility of suction entrapment catastrophes, multiple outlets should be provided, or anti-vortex drain covers should be installed.

10.1.2 WATER CLARITY

Water clarity should be such that the main drain gates, or a six inch black disk placed at the deepest point in the pool, are clearly visible from any point on the deck.

10.1.3 CIRCULATION

Water level should be maintained to allow for the continuous overflow of water into the skimmers or gutters and for the removal of floating debris. Rate of circulation should be appropriate to meet minimum turnover requirements and to accommodate peak bather loads. Turnover requirements are specified by state code and vary slightly from state to state, but generally stipulate that an amount of water equivalent to the entire volume of the pool be circulated, filtered, and chemically treated based on the following schedule:

6 hours	swimming pools
2 hours	catch basins, temporary training pools
1 hour	wading pools
1/2 hour	spas

Dye tests should be conducted yearly using sodium fluorescein or crystal violet to insure a uniform circulation pattern and absence of dead spots. The pool should be vacuumed daily or as needed if settled debris is visible.

Pool water is recirculated, filtered and chemically treated in order to be made safe and aesthetically pleasing for swimming. Water is moved so as to avoid stagnation through a filter where small floating debris and suspended particulate matter are removed from the water. Particulate matter is filtered out and the solution is diluted. After filtration, the water is less turbid so it appears clearer and cleaner.

At three turnovers per day, assuming the filter is clean, running continuously, and filtering at one 100% capacity, 95% water clarity will be achieved. At the recommended turnover of four times per day, or once every six hours, clarity will increase to 98%. Although economically, it may be most efficient to turn pool water over three times per day, it is desirable to be able to turn the water over a fourth time, to meet the demands of high capacity bather loads, and most state and local health department codes.

CHEMICAL READING	ACCEPTABLE RANGE
Oxidation Reduction Potential (ORP)	750 mv
Free Available Chlorine	1.0 - 3.0 ppm (pools) 3.0 - 5.0 ppm (spas)
Combined Available Chlorine	< 0.3 ppm
Bromine	2.25 - 7 ppm (pools) 7.0 - 11.25 ppm (spas)
Cyanuric Acid	20 - 30 ppm 100 ppm (maximum)
pH	7.2 - 7.8
Total Alkalinity	100 - 140 ppm
Calcium Hardness	175 - 275 ppm
Total Dissolved Solids (TDS)	Drain at 1,500 ppm
Iron, Copper or other hard metals	0
Nitrates	0 - 9 mg/l
Water Clarity	Crystal clear
Air Temperature	3 - 7 degrees F higher than water temperature
Humidity	50 - 60 %
Water Temperature	<104 degrees and appropriate for primary activity being conducted.
Saturation Index	0, plus or minus 0.3

10.1.7 TEMPERATURE

Water temperature should be maintained within acceptable levels appropriate for the primary activities being conducted in the pool. Water temperature in pools or spas should never be allowed to exceed 104 degrees Fahrenheit.

10.1.8 HEAT RETENTION

The pool should be covered with an insulating pool blanket when not in use for a period of more than two hours at a time. A pool blanket will significantly lower heating costs, trap water vapor and dissipated chemicals, and slow damage to the facility. The cost of purchasing a blanket can, in most cases, be recouped in energy savings alone, in less than a year.

10.1.9 DEHUMIDIFICATION

Ambient air temperature should be comfortable and at least three to seven degrees higher than water temperature to avoid condensation problems. Air quality should be monitored and no unpleasant odors or irritating fumes should be discernable.

Low humidity levels of 50% to 60% should be maintained. Surface corrosion, as well as structural damage will result from the maintenance of high humidity levels in the pool area. Excessive moisture and chemical oxidation will damage the facility over time.

Fresh air should be introduced into the pool area at a rate of 0.5 cubic feet per minute, per square foot of pool and deck area, in compliance with ASHRAE Standard 62-1989 "Ventilation for Acceptable Indoor Air Quality" and BOCA codes (19484 with 1986 supplement). Check with your air conditioning or heating specialist to determine if this standard is being met. Chlorine and other chemical vapors, if not exhausted properly, present a potential health hazard to employees or frequent long distance swimmers.

Pool air systems of the forced air variety are outmoded and energy wasteful. A modern closed loop system, specially designed for use in warm, humid environments such as swimming pools, which exhausts chemicals, efficiently heats or cools the air, and controls humidity should be installed. Indoor pools must be mechanically ventilated and equipped to provide a temperature which is comfortable.

10.1.10 ILLUMINATION

The pool area should be well lit and sufficient overhead and/or pool lighting provided. Indoor pools should be lit to 100 lumens per square foot at the water surface or 100 foot candles as measure on a photometer (light meter). Outdoor pools should have 60 lumens per square foot of light.

All lights must be operational. Glare from natural lighting should not interfere with the ability to see below the surface of the water.

Often a combination of underwater and deck level perimeter lighting is used to illuminate pool and wet areas.

In the past, underwater lighting usually consisted of 300 or 500 watt incandescent bulbs in wet niche installations. Unfortunately, incandescent bulbs have a short life of approximately one thousand hours and are costly to operate. Today, more energy and cost efficient light fixtures are available.

Quartz halogen bulbs, with newly designed lenses and reflectors which illuminate with a more uniform glow, can be installed instead. They give off a brighter, whiter light, and use only about half the power of incandescent bulbs.

Fluorescent bulbs retrofitted into old incandescent lamp fixtures can also be used. These cool burning lights illuminate with a more diffused light. Fluorescent pool lights last as long as 10,000 hours, ten times the life of incandescent bulbs. The cost of burning fluorescent lights may be as low as 1/12th the cost of burning incandescent lights.

10.1.11 ELECTRICAL SAFETY

Lights and all electrical fixtures in and around the pool must be installed in compliance with the National Electrical Code, Article 680 promulgated by the National Fire Protection Association, or to more strict state or local codes. Electrical cords or appliances should not be found within twenty feet of the pool. Ground fault circuit interrupters (GFCI) must be installed on all electrical outlets.

10.1.12 DECKS AND FLOORING

The deck and all floors leading to the pool must be slip resistant and meet minimum coefficients of a dynamic friction of 0.6 - 0.7.

Decks should be clean, disinfected at least twice weekly, and algae free. Decks should be sloped 1/4 to 3/8 inch per foot to allow for proper drainage and to prevent pools of standing water from collecting. Covered bases or tiles should be installed where walls meet floors to facilitate maintenance. Deck mats, raised grid interlocking tiles, or anti-bactericide runners, if used, must be removed daily for cleaning and disinfection.

There should be a clear, unobstructed deck of not less than four feet and preferably eight feet wide surrounding the entire pool. Clutter should be removed, and teaching equipment and instructional aids should be properly stored off deck.

10.1.13 DECK EQUIPMENT

All ladders, backstroke flag stanchions, guard chairs, diving boards, platforms, rails and treads, and other deck equipment should be inspected daily to make sure that they are tightly secured in place. Bolts and deck equipment hardware should also be checked for wear.

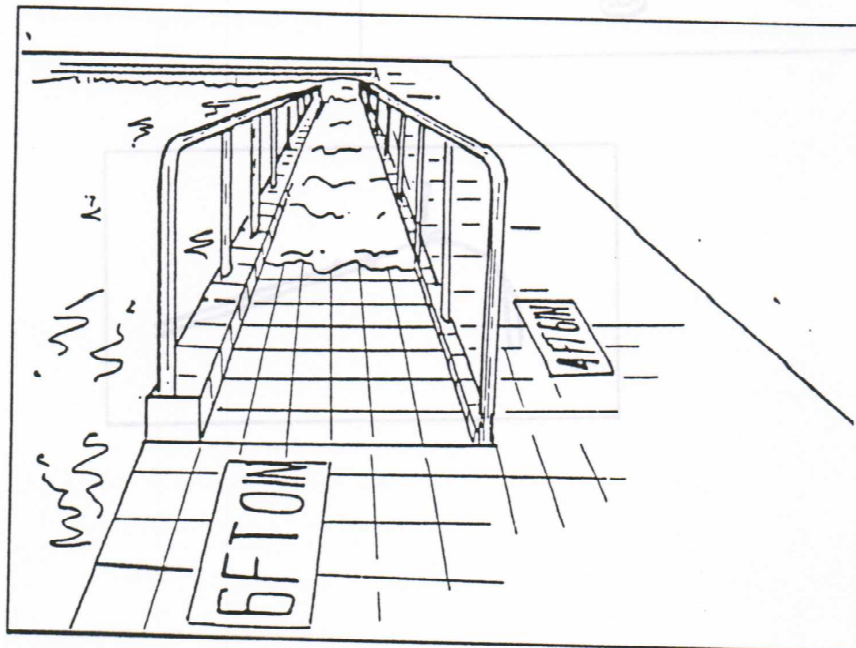
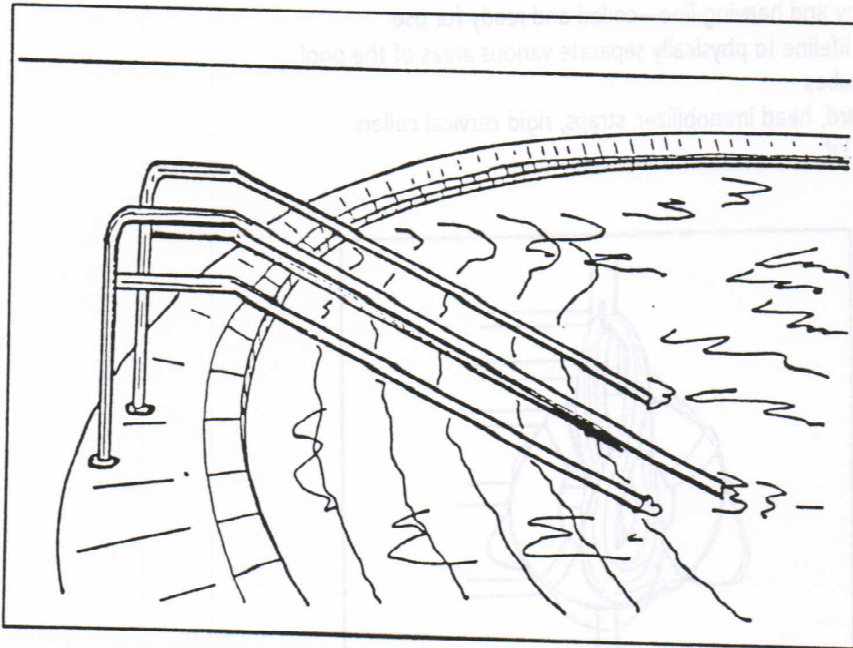
10.1.14 ACCESSIBILITY

An adequate means for exiting the pool must be provided for all patrons. The elderly, those with limited strength or agility, or patrons with temporary orthopedic injuries need to be accommodated with ramps or stairs since they may have difficulty entering or exiting the pool using ladders or recessed treads and grab rails.

In addition, the pool, locker rooms and areas leading to the pool must be handicapped accessible. Compliance with barrier free design requirements is mandatory, including those required by the American With Disabilities Act.

The pool can be made accessible to the handicapped through use of safety rails, wet or dry ramps, lifts, or moveable floors.

A ramp designed to slope gradually one foot vertically in twelve feet horizontally, and equipped with safety rails can be built into or along side the pool. A movable floor which allows depth to be altered from zero inches to the maximum depth of the pool to accommodate a variety of programming and patron needs is an expensive, but very desirable addition. Another alternative is to purchase and install a quality pool lift which electrically, manually or by using water pressure lowers a patron into or out of the pool on a chair or sling.

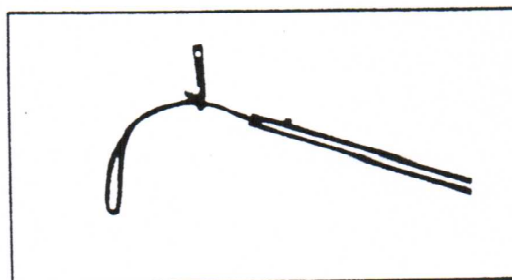
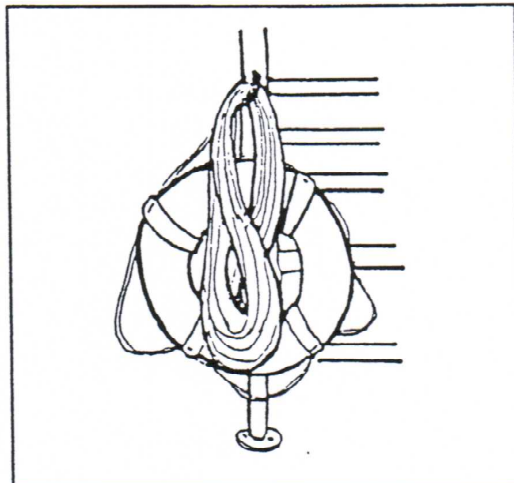


10.1.15 RESCUE EQUIPMENT

Rescue equipment including rescue tubes, ring buoys, extension poles, and shepherd's crooks, and back board (or spineboard), rigid cervical collars in appropriate sizes, a head immobilizer, and straps should be in good repair and immediately available for use in an emergency. The first aid kit should be checked daily to make sure it is well stocked with necessary items.

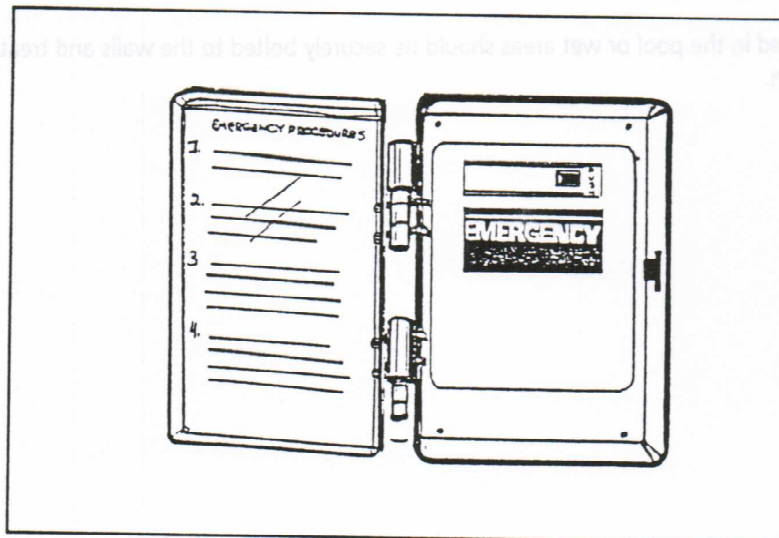
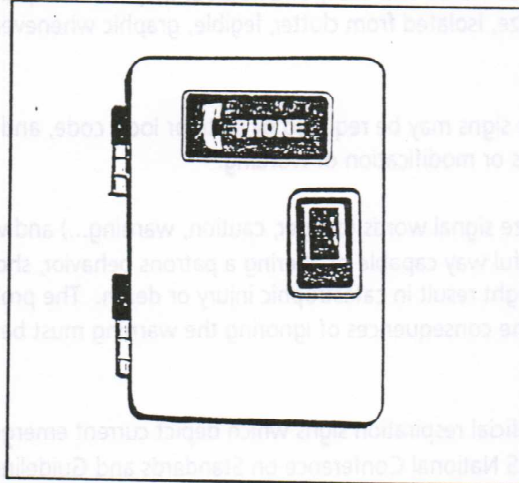
Required Rescue Equipment:

- extension pole
- shepherd's crook
- ring buoy and heaving line—coiled and ready for use
- buoyed lifeline to physically separate various areas of the pool
- rescue tubes
- backboard, head immobilizer, straps, rigid cervical collars
- first aid kit



10.1.16 EMERGENCY COMMUNICATION SYSTEM

An emergency telephone should be located on the pool deck. Emergency phone numbers should be posted in proximity to the phone, along with directions to the facility and other pertinent information to be conveyed to the 911 operator. The phone or emergency communication device should be tested daily to make sure that it will work in a real emergency.



10.1.17 POOL RULES AND SIGNAGE

Effective signage, pool rules, instructional and regulatory information, meaningful warnings, and methods of enforcement must be posted. Written safety literature and a repetitive verbal safety orientation explaining the pool rules should be provided to new members or guests before they are permitted to use the pool.

In order for signs to be assimilated and easily understood, they must be properly and conspicuously posted, be of adequate size, isolated from clutter, legible, graphic whenever possible, consistent, and pertinent.

Specific wording on some signs may be required by state or local code, and these signs should be posted without alterations or modification of wording.

Warning signs which utilize signal words (danger, caution, warning...) and which present information in a meaningful way capable of altering a patrons behavior, should be posted to warn of dangerous acts that might result in catastrophic injury or death. The prohibited behavior, the reason for the rule, and the consequences of ignoring the warning must be conveyed and understood by patrons.

Cardiopulmonary and artificial respiration signs which depict current emergency cardiac care information from the 1985 National Conference on Standards and Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiac Care, as published in the June 6, 1986 edition of the Journal of the American Medical Association should be posted.

All signs located in the pool or wet areas should be securely bolted to the walls and treated to resist corrosion.

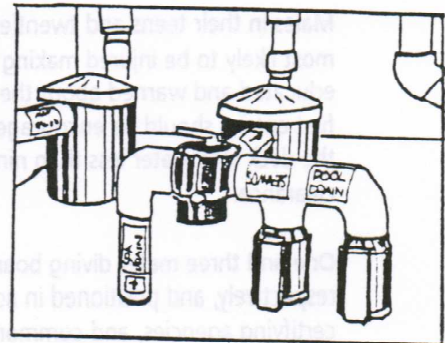
DANGER

SHALLOW WATER NO DIVING

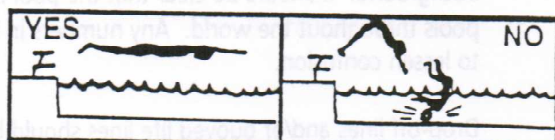


CRIPPLING INJURY MAY RESULT

DO NOT REMOVE OR COVER



WARNING !



FOR USE BY TRAINED, COMPETITIVE SWIMMERS ONLY.
EXECUTE SHALLOW RACING DIVES ONLY.
IMPACT WITH POOL BOTTOM CAN CAUSE SERIOUS INJURY.

10.1.18 DIVING

Males in their teens and twenties, persons unfamiliar with the facility, and intoxicated patrons are most likely to be injured making a shallow water head-first entry into the pool. Patrons should be educated and warned about the dangers and consequences of diving into most club pools. Feet first entries should be encouraged. Running entries should be prohibited along with diving from the deck into water less than nine feet deep and with less than twenty-five feet of forward clearance.

One and three meter diving boards should be located in water at least 12'6" and 13'2" deep respectively, and positioned in accordance with state and local codes, recommendations of national certifying agencies, and common and acceptable standards of the aquatic industry.

Starting blocks should not be installed over shallow water. Pike scoop dives should be discouraged, since they expose divers to greater risk of injury. Two warning labels, distributed at no cost by starting block manufacturers must be affixed to each block. The use of starting blocks should be prohibited, except under the direct supervision of an instructor or coach during competition or training for competition, and the blocks should be removed and stored when not in use.

10.1.19 MARKING OF DEPTH AND CONTOUR

Pool depth markings should be evaluated to determine whether they are in compliance with both state code and common and acceptable practices of the aquatic industry. Conforming with the following recommendations may help prevent catastrophic pool related injuries from occurring, such as drowning and spinal injuries.

Depth should be plainly and conspicuously marked at or above the water surface on the vertical pool wall, and on the edge of the pool deck. Depth should be marked at the shallow and deep ends, at points in break in slope, at all major deviations in shape, and at intermediate increments of depth of one foot. Numbers should not be spaced more than 25 feet apart measured peripherally, should be in numerals of four inches minimum height, non-slip, and color contrasting with the background. It should be clear that the pool is marked in feet and inches, not meters, as are most pools throughout the world. Any numbers in the pool not indicating depth should be eliminated to lessen confusion.

Drop-off lines and/or buoyed life lines should be positioned in the pool to indicated changes in slope. Many states also require that a four inch wide black line extending across the pool at a depth of four and a half feet be added to indicate a drop-off and sudden change in slope. A contour depth chart or similar device should be posted next to the pool to help non-swimmers and new patrons judge pool depth and shape.

All steps, ladders, treads, ledges, ramps or other protrusions into the pool should be tiled, marked or striped with a color contrasting coating on both the top and vertical rise.

10.1.20 OPERATING PERMIT

A current license or permit to operate a public pool should be posted in a conspicuous place in the facility.

10.1.21 BARRIERS

Adequate fencing, gates, barriers, alarms or other protective devices should be installed to prevent entry, or to alert staff to the unauthorized entry of a trespasser into the pool area.

10.1.22 MATERIAL SAFETY DATA (MSDS) SHEETS

It is required that MSDS sheets be obtained from manufacturers, importers or distributors, and posted for all chemicals stored on the premises. An MSDS station should be located where accessible to all employees who come into contact with hazardous materials while on duty. A master copy of the MSDS sheets should be kept in the administrators office, along with the Emergency Business Plan and records of employee training. MSDS sheets convey important information meant to protect the employee from work related hazards, including: hazardous ingredients, physical and chemical characteristics and hazards, health hazards, reactivity, precautions and protective control measures to take when handling the product.

10.1.23 MAINTENANCE

Detailed maintenance checklists for daily opening and closing procedures, and seasonal and long term maintenance should be developed, maintained, completed daily and available for inspection.

The pool and auxiliary rooms should be clean and maintained in a safe and acceptable manner. Markings and graffiti should be removed immediately upon discovery.

10.1.24 IDENTIFICATION OF COMPONENTS

All piping, filters, and components which are part of the mechanical operating system should be labeled, tagged or color coded as required by state code. Operating manuals should be obtained from the manufacturers, and diagrams and operating instructions should be posted in the pump room.

10.1.25 CHEMICAL STORAGE

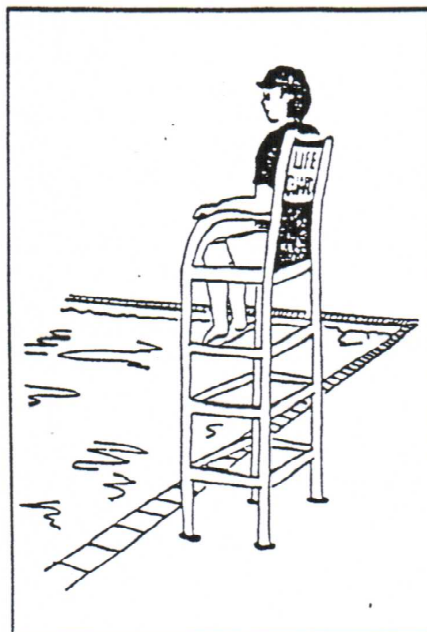
Chemicals should be properly stored, contained, transported, labeled, handled, and dispensed into the pool in compliance with federal hazardous materials regulations and safe chemical storage practices. Overpacks, containment dikes and other equipment needed for containing and cleaning up chemical spills must be purchased or built. Corrosives, flammable products, and oxidizers must be stored separately. An emergency fresh water eye wash and drench shower must be installed and located within ten seconds of where chemicals are stored or dispensed.

Personal protective gear, such as goggles, full face shields, splash guard aprons, neoprene gloves, boots, respirators, gas masks, and SCBAs must be purchased, and staff members instructed in their proper use.

Personnel operating or maintaining the pool or handling chemicals should be provided with training, including: the Certified Pool Operator course or its equivalent, frequent refresher courses, and reminders of proper use and safety precautions to take when handling, transporting or introducing chemicals into the water.

10.1.26 LIFEGUARDS AND SUPERVISORY STAFF

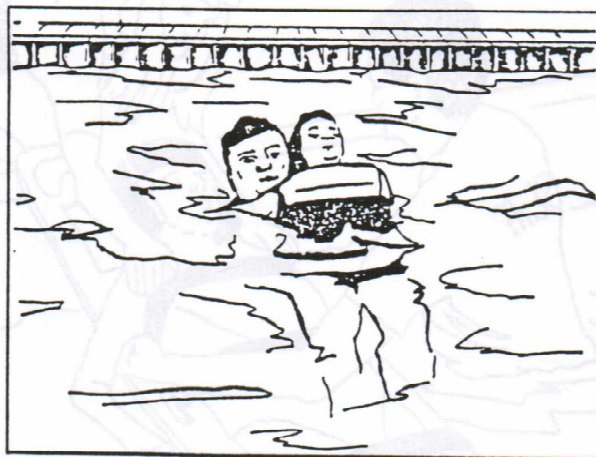
At least two certified lifeguards should be in attendance at the pool during all times of operation, at least one of whom is positioned in an elevated guard chair and has no duties to perform other than the close general supervision of participants in water contact activities. The number of guards and supervisory personnel must be adequate for the activities being conducted, age and skill level of participants, the size and shape of the facility, and environmental conditions which might limit their ability to provide necessary supervision.



Lifeguards should be properly dressed and readily identifiable to patrons. They must be alert, rotated to different positions at least once every 40 minutes, and given frequent relief breaks away from surveillance duties. Supervision should be provided in accordance with the "10/20 Rule"—so that a patron who is drowning, injured, in trouble, or in distress is identified within ten seconds, and is rescued or the situation is managed within another 20 seconds.

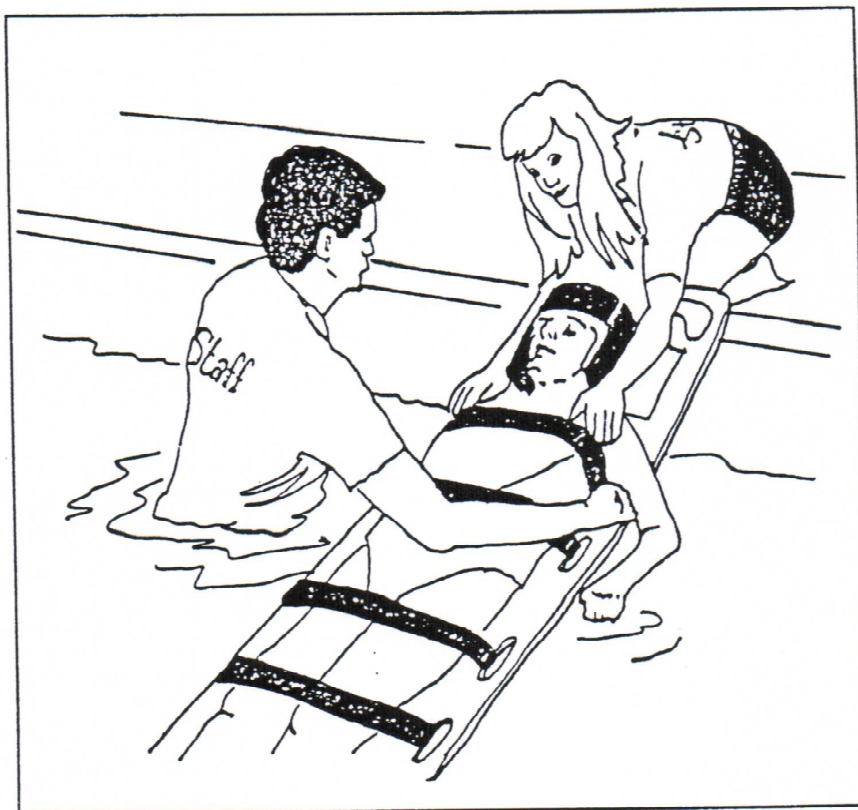
Lifeguards and aquatic instructors should possess current certifications appropriate to their job, have adequate training for the facility, be qualified and practiced in emergency procedures and other aspects of their job, including use of rescue equipment. Lifeguards must have successfully completed appropriate pre-employment training and testing, and have knowledge of all job requirements and duties as outlined in their guard manual. Lifeguards should also participate in regular in-service training, scheduled at least once a month, which involves testing and requalification in essential job skills.

Lifeguards should be at least 18 years old, medically fit, have good eyesight, and be physically able to meet the demands of the job.



These guidelines are based on common and acceptable standards of the aquatic industry, and should be considered minimum guidelines. If your state or local bathing codes are more strict, or require additional training or certification of the aquatic staff, they should be considered the minimum acceptable standard.

If supervisory staff are used in lieu of trained and certified lifeguards, they should be capable of performing the duties of lifeguards. Such duties include: preventing accidents and injuries to patrons, recognizing an emergency situation, responding to emergencies and managing the situations, extricating an injured patron from the pool or accident site, and providing necessary first aid treatment. They should be trained to recognize tired swimmers, bathers in distress, and drowning victims. They should be practiced in current spinal management techniques and use of rescue tubes to manage water emergencies. Relying on the simple extension and throwing assists often taught in basic rescue classes may give a false sense of security—these skills are often useless in a real drowning situation. Supervisory staff should be capable of making a safe entry into the pool and removing an injured patron from the water, and providing assistance, including basic first aid and C.P.R., without causing further injury to the patron.



10.1.27 CODE COMPLIANCE

There are several regulations, guidelines, and specifications which govern the way pools should be designed, built, operated and maintained: Trade association design specifications, health and safety codes, regulations and recommended guidelines from professional aquatic and safety organizations; federal codes and hazardous materials management regulations, manufacturers recommendations, design guidelines of aquatic certifying agencies and competitive governing bodies; common and acceptable practices of the aquatic industry.

Some of the many agencies which promulgate aquatic specifications, regulations, and recommended guidelines include:

State and local departments of health
(Check your White Pages telephone directory)

National Sanitation Foundation
3475 Plymouth Road
P. O. Box 1468
Ann Arbor, MI 48106
(313) 769-8010

World Waterpark Association
P. O. Box 14826
Lenexa, KS 66214
(913) 599-0300

National Spa and Pool Institute
2111 Eisenhower Avenue
Alexandria, VA 22314
(703) 838-0083

National Swimming Pool Foundation
10803 Gulfdale, Suite 300
San Antonio, TX 78216
(512) 525-1227

Council for National Cooperation in Aquatics
901 West New York Street
Indianapolis, IN 46223
(317) 638-4238

National Fire Protection Association
Batterymark Park
Quincy, MA 02269
(800) 344-3555

Western Fire Chiefs Association
5360 South Workman Mill Road
Whittier, CA 90601
(213) 699-0124

American Public Health Association
1015 - 15th Street
Washington, DC 20005
(202) 789-5600

Centers for Disease Control
1600 Clifton Road
Atlanta, GA 30333
(404) 639-2317

National Water Safety Congress
2182 Ivy Crest Drive
Buford, GA 30518
(206) 624-3845

YWCA of the USA
726 Broadway
New York, NY 10003
(212) 614-2827

YMCA of the USA
110 North Wacker Drive
Chicago, IL 60606
(800) USA-YMCA

American Red Cross
18th & E Streets NW
Washington, DC 20006
(202) 639-3686

National Pool and Waterpark Lifeguard Training Program
15 Greenway Plaza, Suite 18C
Houston, T 77046
(713) 840-0044

Lifeguard Training USA
433 Seabright Lane
Solana Beach, CA 92075
(619) 755-5344

United States Lifesaving Association (USLA)
P. O. Box 190
Huntington Beach, CA 92648
(714) 536-5283

National Association of Professional Lifeguards
433 Seabright Lane
Solana Beach, CA 92075
(619) 755-5344

U.S. Consumer Product Safety Commission
Washington, DC 20207
(800) 638-2772

American National Standards Institute
1430 Broadway
New York, NY 10018
(212) 642-4900

International Association of Plumbing and Mechanical Officials
20001 Walnut Drive South
Walnut, CA 91789
(714) 595-8449

Southern California Public Pool Operators Association
P. O. Box 1683
Wilmington, CA 90748

American Camping Association
Bradford Woods
5000 State Road 67 North
Martinsville, IN 46151-7902
(317) 342-8456

National Safety Council
1050 - 17th Street, NW
Washington, DC 20036
(202) 293-2270

U. S. Swimming
1750 East Boulder Street
Colorado Springs, CO 80909
(303) 578-4578

U. S. Diving
201 South Capitol, Suite 430
Pan Am Plaza
Indianapolis, IN 46225
(317) 237-5252

U. S. Synchronized Swimming
201 South Capitol, Suite 501
Pan Am Plaza
Indianapolis, IN 46225
(317) 237-5700

U. S. Water Polo
201 South Capitol, Suite 501
Pan Am Plaza
Indianapolis, IN 46225
(317) 237-5599

United States Water Fitness Association
P. O. Box 360133
9851-D Military Trail
Boynton Beach, FL 33436
(407) 732-9908

Aquatic Exercise Association
P. O. Box 497
Port Washington, WI 53074
(414) 375-2503

National Recreational and Park Association
Aquatic Section
650 West Higgins Road
Hoffman Estates, IL 60195
(312) 843-7529
(800) 626-6772

American Alliance for Health, Physical Education, Recreation and Dance
Aquatic Council
1900 Association Drive
Reston, VA 22091
(703) 476-3400

Materials should be acquired from these agencies, or the assistance of a consultant should be obtained in determining whether your facility is operating in compliance with the various regulations.

10.1.28 HAZARDOUS MATERIALS REGULATIONS

Recently, there is considerable awareness of the long term dangers of exposure to hazardous chemicals, the damage to the environment from chemical contamination of the air or ground water and health and fire hazards posed by improper chemical storage. As a result, numerous new federal, state and local regulations dealing with the storage, handling, transportation, and labeling of chemicals and other hazardous materials have recently come into being. Many pools are not yet in compliance with these regulations, which were developed to protect workers and the public from both the immediate and long term dangers of exposure to toxic chemicals and other hazardous materials. Some of these regulations are: the Environmental Protection Agency's SARA Title III "Emergency Planning and Community Right to Know Act of 1986," the Uniform Fire Code Article 80, the Department of Agriculture's "Pesticide Safety Training Requirements," and the Occupational Safety and Health Administration's "Hazard Communication Standard."

Federal law requires that employers whose employees may be exposed to regulated chemicals—including swimming pool chemicals—comply with these requirements.

Although the different laws have varying primary objectives, they all basically require: improved labeling and means of warning, the reporting of hazardous substances stored on-site, their quantities, and the method and location of storage. They stipulate that “reportable quantities” (RQ) be disclosed if substances are spilled or released into the environment. They require that employers develop, implement, maintain and submit to the designated authority, a written emergency response business plan which describes: potential hazards, proper labeling of containers, provisions for collecting, maintaining, posting and explaining material safety data sheets (MSDS), an employee information and training program, and procedures for informing outside contractors or individuals entering the facility of the presence of hazardous substances. They require that chemicals be properly stored in their original containers, be contained in case of spills, so that releases into the environment are avoided. They should be legibly labeled in English, and show appropriate protective warnings.

10.1.29 BACKFLOW PREVENTION

The fresh water fill spout should be located next to a rail or stanchion, or other appropriate location so as not to be a tripping hazard. An air gap of at least six inches must be provided between the spout and the pool as a means of backflow prevention.

10.1.30 SPAS, SAUNAS AND STEAM ROOMS

Patrons using spas, saunas and steam rooms should be supervised along with patrons utilizing the pool and of the wet areas of the facility, but additional care and signage should be provided to warn patrons of the effects of exposure to high temperature environments. Timers should be installed on the outside of the hot rooms, and be set to turn off at thirty minute intervals. Spa timers should be set for fifteen minute intervals. The timers should be located so that a patron must leave the room or the water to reset the timer. Patrons should be warned to discontinued use if feeling dehydrated, dizzy, overheated or ill. Pregnant women should be instructed to obtain the permission of their physicians prior to using the spa, sauna or steam room facilities. Unsupervised children, and patrons with high blood pressure, cardiovascular or respiratory diseases, diabetes, epilepsy, or those who are under the influence of alcohol, antibiotics, tranquilizers, and stimulants should be instructed no to use the spa, sauna or steam room. Sauna and steam room users should also be reminded to remove jewelry, contact lenses, glasses and other items which might overheat and cause burning.

Sauna and steam room maintenance includes keeping the floor and benches or tiers free of debris, and making sure all gauges, including the clock, timer, emergency alarm, thermometer, hygrometer, and temperature regulator are in operational order. Wood strips or duck boards covering concrete, tile or solid wood floors in saunas should be removed for cleaning. Floor drains should be free of debris. And, the entire sauna or steam room should be regularly scrubbed down with a liquid disinfectant and rinsed thoroughly.

10.1.31 LOCKER ROOMS

Pool locker rooms, shower, restroom, grooming and dressing areas demand continuous maintenance during periods of heavy use. Cleaning should be completed daily as needed, and major cleansing completed in the evening after closing, or at periods of low use.

Locker room Maintenance Checklist	
<input type="checkbox"/>	Sink basins, floors, mirrors, toilets and urinals cleaned and disinfected
<input type="checkbox"/>	Trash containers covered and emptied as needed
<input type="checkbox"/>	Locker room plumbing checked for dripping water or leaks
<input type="checkbox"/>	Showers, faucets and toilets working and in good repair
<input type="checkbox"/>	Toilet paper, towels, soap and other amenities available, containers filled
<input type="checkbox"/>	Benches, chairs and tables secure and in good repair
<input type="checkbox"/>	Lockers, locker hoods, compartments emptied and cleaned

In addition to locker room cleanliness, supervision and security measures need to be implemented. Locker rooms should be monitored. Club staff members need to be alert to detecting undesirable behavior in locker rooms and initiate corrective action if needed.

SUMMARY

If all wet areas are regularly inspected and well-maintained, the aquatic facility will be safer for all users. Accidents and injuries will be minimized, and an effective plan of action will be in place in the event of any emergency.

STUDY GUIDE QUESTIONS

1. John Doe, age 23, just ran and dove head first into the shallow end of the swimming pool. He hit his head with force on the bottom of the pool and floated up to the surface in a face down "dead man's float" position. He is conscious but bleeding severely from his head. What should be done?
2. Upon inspecting the pool prior to opening in the early morning, the staff discovered that the water had become cloudy or milky overnight. The bottom of the pool could not be clearly seen from the deck. Should morning lap swimmers waiting to enter the pool be allowed to use the facility? What steps should be taken to rectify this situation?

ANSWERS STUDY GUIDE QUESTIONS

1. Immediately activate the facility's emergency response plan for a major emergency.

Survey the scene and make sure it is safe to proceed with the rescue.

The primary rescuer should:

- Signal other staff in the facility that he or she is leaving his or her designated post to provide rescue assistance.
- Enter the water carefully trying not to disturb the water surface, and slowly approach the injured victim.
- Perform the rescue by cautiously rotating the victim as a unit into a face up position in the water, using one of the approved methods taught by aquatic certification and training agencies.
- Provide support for the victim in the water.
- Do not lift, twist or turn the victim's head.
- Apply direct pressure to the head wound to stem the flow of blood, monitor the victim's pulse and breathing.
- Bring the injured patron to the pre-arranged area in the pool for boarding, and direct the boarding procedures.
- Continue to provide emergency first aid treatment until relieved by paramedical authorities. Keep the victim warm.
- Do not remove the patron from the pool until directed to do so, unless C.P.R. is required or a dangerous condition exists necessitating immediate removal from the pool.

Additional staff members should assist with the rescue by:

- Notifying emergency EMS and supervisory personnel that an accident has occurred and that assistance is needed.
- Meeting the emergency vehicle and directing EMTs to the accident scene.
- Clearing the pool and moving all patrons away from the impact zone.
- Providing crowd control.
- Directing relatives or friends of the victim away from the accident site; providing comfort and assurance that the victim is being properly cared for.
- Bringing the first aid kit and blankets to the pre-arranged point on the pool deck.
- Entering the pool with the backboard, head immobilizer and rigid cervical collars and readying the rescue equipment for use.
- Assisting with boarding procedures.
- Removing all hazards that might hinder the rescue attempt, such as lane lines or lifelines.
- Identifying the victim.
- Gathering as much information as possible about what happened so that emergency personnel can pass the information on to the hospital emergency room staff after transporting the victim for medical care.
- Finding out what hospital the victim is going to be taken to.

Immediately after the incident:

- Conduct a thorough investigation into the incident, gather additional information about the accident, staff involvement, and condition of the facility at the time of the accident.
- Ask witnesses to hand write, sign and date an account of what happened and what they observed.
- Complete an accident report.
- Contact your facility's insurance carrier or attorney.
- If needed, have the designated individual representing your facility provide information on the incident to patrons or the media.

2. No, although this will inconvenience and annoy lap swimmers who have come to the pool for their morning workout, patrons should not be allowed to use the pool until:
 - The cause of the water cloudiness has been identified.
 - Corrective action has been taken to solve the problem.
 - The pool again meets minimum water clarity standards required by state code.

In order to rectify the situation, the pool system must be inspected and the water analyzed to determine the responsible water chemistry, contaminant, or physical cause of the water cloudiness.

Possible causes of water cloudiness included:

- Insufficient turnover rate.
- High total dissolved solid levels.
- Settled particles being stirred-up, rather than being vacuumed to waste.
- Improperly sized filters.
- Dirty filter media or overextended filter runs.
- Need to use a filter aid or flocculent.
- Chemicals added to the water too quickly or in too great a concentration.
- Imbalanced or oversaturated water.
- High calcium hardness levels maintained, and calcium coming out of solution.
- Torn diatomaceous earth screens, or high pressure forcing D.E. through the filter elements.
- Sand filter channeling or mudball formation causing improper filtering.
- Lack of a residual disinfectant leading to an algae bloom.
- Excessively high cyanuric acid concentrations.
- Incompletely oxidized organic contaminants in the water; high combined chlorine levels.
- Dissolved minerals in solution, or metal particles in suspension.
- Poor circulation pattern and dead spots.

REFERENCES

- Baker, B. B. (Ed.) (1987). Current Issues In Sport Law. Sport Law Symposium, AAHPERD National Convention, Las Vegas, NV.
- Clayton, R. D. and Thomas, D. G. (1989). Professional Aquatic Management, 2nd edition. Champaign, IL: Human Kinetics.
- Clement, A. (1988). Law In Sport And Physical Activity. Indianapolis, IN: Benchmark Press.
- Dougherty IV, N.J. (1987). Principles Of Safety In Physical Education And Sport. Reston, VA: American Alliance for Health, Physical Education, Recreation and Dance.
- Fitness Canada. (1986). Legal Liability: Considerations For The Fitness Leader. A report of the National Fitness Leadership Advisory Committee. Toronto: Fitness Canada.
- Gabrielsen, M. A. (1947). Swimming Pools: A Guide To Their Planning, Design, And Operation. Champaign, IL: Human Kinetics.
- Kaiser, R. A. (1986). Liability & Law In Recreation, Parks And Sports. Englewood Cliffs, NJ: Prentice Hall.
- Kowalsky, L. (Ed.). (1989). Pool-Spa Operators Handbook. San Antonio, TX: National Swimming Pool Foundation.
- Nygaard, G. and Boone, T. H. (1989). Law For Physical Educators And Coaches, 2nd edition. Columbus, OH: Publishing Horizons.
- Peterson, J. A. (1987). Risk Management For Park, Recreation And Leisure Services. Champaign, IL: Management Learning Laboratories.
- Priest, L. (Ed.). (1990). National Pool And Waterpark Lifeguard Training. Alexandria, VA: National Recreation and Park Association.
- Warren, R. and Rea, P. (1989). Management Of Aquatic Recreation Resources. Columbus, OH: Publishing Horizons.

Appendix

POOL INSPECTION REPORT

POOL _____ DATE _____

-
-
- _____ 1. Main drain grates are bolted securely to the pool bottom.
 - _____ 2. A six inch black disk or the main drain grates are clearly visible from any point on the deck.
 - _____ 3. Multiple main drain grates, or anti-vortex drain covers are provided.
 - _____ 4. Rate of circulation is appropriate to meet minimum turnover requirements and to accommodate peak bather loads.
 - _____ 5. Total filter surface area is adequate to meet recommended design flow rates.
 - _____ 6. Dye tests convey a uniform circulation pattern and absence of dead spots.
 - _____ 7. Water level is maintained to allow for the continuous overflow of water and removal floating debris.
 - _____ 8. Pool water is tested at least once every two hours and analyzed at least one hour prior to use by the public.
 - _____ 9. A system of regular testing, recording of findings and chemical adjustment of pool water has been implemented. A daily pool water analysis log is posted.
 - _____ 10. All water quality and chemicals levels are within acceptable ranges.
 - _____ 11. Test kits are properly stored and reagents fresh.
 - _____ 12. Water temperature is maintained within acceptable levels and is appropriate for the primary activities being conducted in the pool.
 - _____ 13. Ambient air temperature is comfortable and at least three to seven degrees higher than water temperature.

- _____ 14. Air quality is monitored. No unpleasant odors or irritating fumes are discernable.
- _____ 15. Low humidity levels (50%-60%) are maintained.
- _____ 16. Fresh air is introduced into the pool area at a rate of 0.5 cfm per square foot of pool and deck area, in compliance with ASHRAE Standard 62-1989 "Ventilation for Acceptable Indoor Air Quality" and BOCA codes (1984 with 1986 supplement).
- _____ 17. The pool is covered with an insulating pool blanket when not in use.
- _____ 18. The pool area is well lit and sufficient overhead and/or pool lighting is provided. Illumination at the water surface is at least 100 lumens per square foot for indoor pools and 60 lumens per square foot for outdoor pools.
- _____ 19. All lights are operational, and installed in compliance with the National Electrical Code, Article 680.
- _____ 20. Glare from natural lighting does not interfere with the ability to see below the surface of the water.
- _____ 21. Ground fault circuit interrupters (GFCI) have been installed on all electrical outlets.
- _____ 22. The deck and all floor leading to the pool are slip resistant and meet minimum friction coefficients (0.6 - 0.7).
- _____ 23. Deck mats, raised grid interlocking tiles, or anti-bactericide runners, if used, are removed daily for cleaning and disinfection.
- _____ 24. Decks are clean, disinfected at least twice weekly, and algae free.
- _____ 25. Decks are sloped properly to drain, and do not collect pools of standing water.
- _____ 26. All ladders, backstroke flag stanchions, guard chairs, rails and treads, and other deck equipment are tightly secured in place.
- _____ 27. An adequate means for exiting the pool is provided.
- _____ 28. The pool is handicapped accessible and in compliance with barrier free design requirements.

- _____ 29. Rescue equipment including rescue tubes, ring buoys, extension poles, and shepherd's crooks are all in good repair and immediately available for use.
- _____ 30. The first aid kit is well stocked and instantly accessible.
- _____ 31. A back board, rigid cervical collars, head immobilizer, and straps are in good repair and immediately available for use. Guards are trained and practiced in current spinal management techniques.
- _____ 32. An emergency telephone is located on the pool deck.
- _____ 33. Emergency phone numbers are posted. Directions to the facility and other pertinent information to be conveyed to 911 operator are posted next to the phone.
- _____ 34. Pool rules, methods of enforcement, safety literature, and meaningful warning signs are posted.
- _____ 35. A safety orientation is provided to new members or guests before they are permitted to use the pool.
- _____ 36. Diving is not permitted into areas of the pool less than nine feet deep or where there is less than twenty-five feet of forward clearance.
- _____ 37. One and three meter diving boards are located in water at least 12'6" and 13'2" deep respectively, and are positioned in accordance with state and local codes, recommendations of national certifying agencies, and common and acceptable standards of the aquatic industry.
- _____ 38. Starting blocks are located in water at least nine feet deep. Warning labels are affixed. Blocks are removed from the deck except during competition or training for competition. Use of starting blocks is prohibited unless swimmers are under the direct supervision of an instructor or coach.
- _____ 39. Depth markings are plainly and conspicuously marked at or above the water surface on the vertical wall of the pool and on the edge of the deck. Markings conform to local and state code as to size, color, and spacing. Depth is marked to indicate feet and inches. Numbers other than those indicating depth have been removed.
- _____ 40. Depth or drop-off lines and/or buoyed life lines are correctly positioned in the pool to indicate sudden changes in slope.

- _____ 70. Spa, sauna and steam room timers are suitably located and operational.
- _____ 71. Trash containers are covered and emptied as needed
- _____ 72. All flow meters, influent and effluent pressure gauges, controllers, thermometers and hygrometers are operational and accurate.
- _____ 73. Markings and graffiti have been removed.
- _____ 74. Locker room maintenance is completed as needed. Sink basins, floors, mirrors, toilet bowls and urinals are cleaned and disinfected.
- _____ 75. The locker room plumbing has been checked for dripping water or leaks. Showers, faucets and toilets are working and in good repair.
- _____ 76. Toilet paper, towels, soap and other amenities are available and containers filled.
- _____ 77. The pool is vacuumed daily or as needed. No settled debris is visible.
- _____ 78. Benches, chairs and tables are secure and in good repair.

- _____ 55. Lifeguards are properly dressed and readily identifiable to patrons.
- _____ 56. The number of guards and supervisory personnel is adequate for the activities being conducted, age and skill level of participants, the size and shape of the facility, and environmental conditions which might limit their ability to provide necessary supervision.
- _____ 57. Lifeguards are alert , rotated to different positions at least once every forty minutes, and are given frequent relief breaks away from surveillance duties.
- _____ 58. Lifeguards and aquatic instructors possess current certifications appropriate to their job, have adequate training for the facility, are qualified and practiced in emergency procedures and other aspects of their job, including use of rescue equipment.
- _____ 59. Supervision is being provided in accordance with the "10/20 Rule"
- _____ 60. Lifeguards are at least 18 years old, medically fit, have good eyesight, and are physically able to meet the demands of the job.
- _____ 61. The facility is in compliance with all state bathing codes.
- _____ 62. The facility is in compliance with the Uniform Fire Code, Article 80: "Hazardous Materials".
- _____ 63. The facility is in compliance with the EPA SARA Title III: "Emergency Planning and Community Right -to-Know Act".
- _____ 64. The facility is in compliance with the Dept. of Agriculture's Pesticide Safety Training requirements.
- _____ 65. The facility is in compliance with OSHA's "Hazard Communication Standard".
- _____ 66. The facility is in compliance with their states' "Safe Drinking Water" and "Toxic Enforcement" acts.
- _____ 67. The fresh water fill spout is located so as not to be a tripping hazard. An air gap of at least six inches has been provided between the spout and the pool as a means of backflow prevention.
- _____ 68. The sauna is satisfactorily maintained and operated.
- _____ 69. The steam room is satisfactorily maintained and operated.

National Health Club AssociationSM

It's History and Purpose

Our Mission Statement: The National Health Club AssociationSM was formed to develop and implement innovative programs, services, and events that will benefit people who are involved in the health club industry, either as owners, managers, instructors, or club members.

While the scope of NHCA activities will be broad in nature, with appeal to a wide spectrum of club industry participants, our primary concern is the club owner.

Until now, the only organizations in existence in the health club industry have had limited offerings appealing to select types of clubs. Most owners have found that these organizations have no answer when asked, "How can your programs benefit a club like mine?"

The NHCA prides itself on offering programs that can benefit most every club, and on a wide range of club services that can be used in any club in the country.

If our programs and services can help you, the owner, either increase your sales and revenues, or decrease your operating expense, then we are fulfilling our mission statement to you.

The NHCA was founded on these principles by Richard R. Reed in the Spring of 1990. Mr. Reed is a 25-year veteran in the health club industry. Although best known as a financial innovator and former CEO of American Service Finance, he has had a varied career as a successful club owner, developer, and franchisor of 150 Nautilus centers in the late 70's. Mr. Reed's background and industry accomplishments are detailed on the reverse side.

Mr. Reed decided to establish the new association after discussions with virtually hundreds of client / owners during his years with ASF. Many of these owners encouraged Mr. Reed to form a new national Association, and offered their ideas as to the kind of programs and services they would like to see that have never before been available.

The Executive Director of the Association is Mr. Thomas Plummer. Before coming to the Association, Mr. Plummer served as a Vice President at American Service Finance. In addition, Thom has been involved in the fitness industry for over 15 years. He has sold memberships, been a strength trainer, taught aerobics classes, managed clubs, put together successful promotion packages, and has been a leader in teaching sales and marketing seminars nationwide since 1981.

Other staff members at Association Headquarters are all hand-picked, former club people, whom we feel are innovative, personable, strong in management, and have good attention to detail. We are confident that when you call or visit NHCA Headquarters in Denver, you will find the staff both pleasant and knowledgeable about the health club business.