ORDINANCE NO. 3-1988

AN ORDINANCE CREATING CHAPTER 29.5, OF THE ABILENE MUNICIPAL CODE, SUCH ORDINANCE TO BE ENTITLED "SWIMMING POOLS AND SPAS", PROVIDING CERTAIN SECTIONS AS SET OUT BELOW; PROVIDING A SEVERABILITY CLAUSE; DECLARING A PENALTY; AND NAMING AN EFFECTIVE DATE.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ABILENE, TEXAS:

PART 1: THAT CHAPTER 29.5 OF THE ABILENE MUNICIPAL CODE BE CREATED AS SET OUT IN EXHIBIT A, ATTACHED HERETO AND MADE A PART OF THIS MUNICIPAL CODE FOR ALL PURPOSES.

PART 2: THAT IT IS DECLARED TO BE THE INTENTION OF THE CITY COUNCIL THAT THE SECTIONS, PARAGRAPHS, SENTENCES, CLAUSES AND PHRASES OF THE ORDINANCE ARE SEVERABLE, AND IF ANY PHRASE, CLAUSE, SENTENCE, PARAGRAPH OR SECTION OF THIS ORDINANCE SHALL BE DECLARED UNCONSTITUTIONAL BY THE VALID JUDGEMENT OR DECREE OF ANY COURT OF COMPETENT JURISDICTION, SUCH UNCONSTITUTIONALITY SHALL NOT AFFECT ANY OF THE REMAINING PHRASES, CLAUSES, SENTENCES, PARAGRAPHS AND SECTIONS OF THIS ORDINANCE, SINCE THE SAME WOULD HAVE BEEN ENACTED BY THE CITY COUNCIL WITHOUT THE INCORPORATION OF THIS ORDINANCE OF ANY SUCH UNCONSTITUTIONAL PHRASE, CLAUSE, SENTENCE, PARAGRAPH OR SECTION.

PART 3: THAT ANY PERSON, FIRM OR CORPORATION WHO VIOLATES, DISOBEYS, OMITS, NEGLECTS, REFUSES TO COMPLY WITH, OR RESISTS THE ENFORCEMENT OF THE PROVISIONS OF THIS ORDINANCE SHALL BE FINED NOT LESS THAN FIFTY DOLLARS ($50.00) NOR MORE THAN TWO HUNDRED DOLLARS ($200.00) FOR EACH OFFENSE.

PART 4: SAID ORDINANCE, BEING A PENAL ORDINANCE, BECOMES EFFECTIVE TEN (10) DAYS AFTER ITS PUBLICATION IN THE NEWSPAPER AS PROVIDED BY SECTION 19 OF THE CHARTER OF THE CITY OF ABILENE.

PASSED ON FIRST READING THIS 17 DAY OF December, A.D. 19 87.

PASSED ON SECOND AND FINAL READING THIS 14 DAY OF January, A.D. 19 88.

ATTEST:

Patricia Hancock
CITY SECRETARY

Dale Ferguson
MAYOR

APPROVED:

Claudia Clinton
CITY ATTORNEY

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EXHIBIT A
SWIMMING POOLS AND SPAS

1. ADMINISTRATION

1-1 This Ordinance shall be known as the "Swimming Pools and Spas Ordinance", may be so cited, and will be referred herein as this "Ordinance".

1-2 The purpose of the Ordinance shall be to provide a guide for the operation and maintenance of public and restricted access pools and spas, to minimize health and safety hazards, and to regulate the design and construction of all swimming pools.

1-3 It shall be the duty of the Health Authority or its representatives to enforce the provisions of this chapter dealing with maintenance and operation of public and restricted access pools and spas. It shall be the duty of the Building Official to enforce the provisions of this chapter dealing with design and construction of all swimming pools and spas. The Health Authority and Building Official shall have full power at all times to enter any premises for the purposes of inspecting such premises.

2. DEFINITIONS

2-1 BUILDING OFFICIAL - shall be the Building Official or the representative from the Building Inspection Department of the City of Abilene.

2-2 HEALTH AUTHORITY - is the Director of the Abilene/Taylor County Health Department or the representative of the Abilene/Taylor County Health Department.

2-3 LIFEGUARD - Any person having a current lifesaving certificate from the American Red Cross or YMCA.

2-4 PERSON - Any person, firm, partnership, association, corporation, company, governmental agency, club, or organization of any kind.

2-5 PRIVATE RESIDENTIAL SWIMMING POOL - Any swimming pool or spa located on private property under the control of the homeowner or lessee therof, the use of which is limited to swimming or bathing by members of the family or their invited guests. The operation and maintenence of such pools or spas are not subject to the provisions of this Ordinance. Such pools or spas shall be designed and constructed in accordance with the provisions of this Ordinance.

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2-6 PUBLIC SWIMMING POOL - Any swimming pool or spa, other than a private residential swimming pool or spa or a restricted access pool or spa, intended to be used collectively by numbers of persons for swimming, operated by any person as defined herein, regardless of whether a fee is charged for such use.

2-7 QUALIFIED ATTENDANT - is any person certified by the American Red Cross in Basic First Aid and certified by the American Red Cross or American Heart Association in Artificial Respiration.

2-8 QUALIFIED OPERATOR - is any person trained in the operation and maintenance of swimming pools and spas.

2-9 R-3 CONSTRUCTION - that which is accessory to single-family residence.

2-10 RESTRICTED ACCESS SWIMMING POOL - Any swimming pool or spa on the premises of a hotel, motel, apartment complex, mobile home park, educational institution, private fitness center, or private club, for the intended use of the members or residents of the facility and their guests.

2-11 SPA - A unit primarily designed for therapeutic use which is not drained, cleaned or refilled for each individual. It may include, but is not limited to, hydrojet circulation, hot water, cold water, mineral baths, air induction bubbles, or any combination thereof. Industry terminology for spa includes, but is not limited to, therapeutic pool, hydrotherapy pool, whirlpool, hot spa, etc. In this Ordinance the requirements for swimming pools and spas are the same unless specifically stated as referring to spas alone.

2-12 SPA POOL - A pool, not under medical supervision that incorporates water jets and/or an aeration system used for hydro massage. In this Ordinance the requirements for swimming pools and spa pools are the same unless specifically stated as referring to spa pools alone. The term Spa is used to include the term Spa Pool.

2-13 SWIMMING POOL - Any constructed or prefabricated pool used for swimming, diving, or recreational bathing and having a depth of twenty-four (24) inches or more at any point and a capacity of 5000 gallons or more.

2-14 SWIMMING POOL CONTRACTING - Designing, installing, constructing, repairing, altering or modifying any swimming pool or spa product, system or equipment.

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2-15 SWIMMING POOL CONTRACTOR - A person licensed under this Chapter who designs, installs, constructs, repairs, alters, or modifies any swimming pool, spa and spa pool product, system, or equipment.

3. LICENSE AND PERMITS FOR SWIMMING POOL CONTRACTING

3.1 For the purpose of establishing rules, rendering interpretations of the construction regulations, reviewing alternate methods of construction, and for administering the licensing provisions of this Code a Board of Appeals shall be established, hereafter refered to as the Board. The Board shall consist of the Mechanical Board of Appeals as established by Section 203 of the Mechanical Code and two pool contractors licensed under the provisions of this Code that are appointed by the Mayor and approved by the City Council. The pool contractors shall participate in the proceedings of the Board only when the Board is acting on matters regulated by this Ordinance.

3-2 LICENSES AND RENEWALS

The designing, installing, construction, repairing, altering or modifying of swimming pool and spa systems shall require a City of Abilene swimming pool contractors license. Exceptions to this shall be:

a. A person who designs, installs, constructs, repairs or modifies a pool or spa accessory to a single family dwelling in which he/she resides and which he/she owns, provided he/she takes and passes the Swimming Pool Mechanical Exam as provided in Section 3-3, except that the exam requirement shall not be necessary in instances where the homeowner is installing a listed above-ground swimming pool or portable self-contained spa.

b. Pools or spas may be designed by an Architect or Engineer licensed by the State of Texas.

A license holder is required to notify the City in writing within 30 days of any change in mailing address, change of location, or business affiliation. The mailing address on file with the City shall be considered the contractor's primary place of business, and all correspondence, including license expiration notice from the department, will be mailed to such address of record.

Each license shall expire three years after the date of issuance. The Building Inspection Department shall submit a renewal notice to each license holder approximately six months prior to the license expiration date. The renewal notice shall advise the amount of the renewal fee and include a renewal application.

A license holder is responsible for the timely filing of the renewal application. Failure to receive notification from the Department prior to the expiration date of the license will not excuse failure to file for renewal.

To renew a license, each license holder shall submit to the Department a renewal application accompanied with the renewal fee. The renewal application and renewal fee shall be received by the Department not less than 30 days prior to the expiration date. Each license shall be renewed for a three-year period.

A license that has expired for a period of 10 days or less may be renewed by submitting the renewal application and payment of the renewal fee, and an additional late renewal penalty fee. If the license has expired for a period of more than 10 days, that license may not be renewed. The former license holder may obtain a new license in same manner as a new applicant, including taking the applicable exam and payment of all required fees.

3-3 APPLICATIONS

A person who is bonded to the City of Abilene at the time of adoption of this Ordinance for the purpose of building pools and who has acquired a permit for construction of a pool or spa within the City limits of Abilene or who can demonstrate to the Board that he/she has been active as a swimming pool contractor as described in Section 2-15, within six (6) months prior to the adoption of this Ordinance, may obtain a license by paying the license fee and complying with the other requirements of this Ordinance, except than an examination will not be required.

Other persons desiring a City of Abilene Swimming Pool Contractor License shall request an application from the department. All applications shall be submitted only on the form approved by the Board of Appeals and provided by the Department.

An applicant for a Swimming Pool Contractor License must have at least three years of practical experience in swimming pool work. The application must be verified by the Board of Appeals. Before an applicant can be approved to take the applicable exam the following must be received and accepted by the Department:

a. The application form complete and correctly filled out;

b. A statement of the applicant's practical experience;

c. Payment to the Department of the examination fee set by the City Council in accordance with City Council Resolution.

An applicant's application file must be complete and received by the Board not less than 45 days prior to being scheduled for an examination.

3-4 EXAMS

Exams shall be administered and monitored by examiners who shall be approved by the board. Examiners shall be full-time licensed swimming pool contractors.

A license exam shall be approved by the Board and cover the City of Abilene Swimming Pool Ordinance. The applicant shall have three hours in which to complete the exam.

An applicant who correctly answers 70% of the exam questions shall be eligible for a City of Abilene swimming pool contractors license, provided the license fee has been paid. Eligibility for a license shall last not more than 90 days from the date of examination result notification. Applicants who pass the exam but do not choose to acquire a license before the 90-day period must take a re-exam and pay the required re-examination fee.

All applicants will be notified of the examination results within 30 days of the exam date.

An applicant who does not correctly answer 70% of the exam questions (or make a minimum passing grade of 70) shall be eligible for reexamination, provided the applicant notifies the Board in writing and pays the reexam fee for each reexam taken. The written notice must be received by the Board not less than 60 days prior to being scheduled for a reexamination.

An applicant shall be notified by the Board of the scheduled examination date within a reasonable amount of time prior to the examination.

3-5 BOND REQUIREMENT

A contractors performance bond in the amount of $1000, binding the contractor to the City and guaranteeing compliance with all Codes and Ordinances, shall be on file in the office of the Building Official before the license will be issued.

3-6 DENIAL, SUSPENSION OR REVOCATION: PENALTIES

A person whose application for a license is denied or a person whose license is suspended or revoked is entitled to a hearing before the Board if he submits a written request for hearing to the department. If a person's license is revoked, the person may not apply for a new license before one year from the date the revocation became effective, but not before.

The Board may revoke or suspend a license, probate a license suspension, or reprimand a license for any violation of rules promulgated by the Board. A violation may include, but not be limited to, obtaining a license through error or fraud; knowingly making a misrepresentation of services to be provided or which have been provided; or making any false promise with intent to influence, persuade, or induce an individual to contract for services. Any person whose license has been revoked may apply for a new license after the expiration of one year from the date of such revocation, but not before.

Unless licensed under the provisions of the Act, it shall be unlawful for any person to display a sign or use any advertising that such person is authorized to engage in the business of a swimming pool contractor.

It shall be unlawful for a licensed swimming pool contractor to permit the contractor's license to be used in any manner contrary to any of these provisions; or to obtain a municipal permit, required under the provisions hereof, in his/her name, or to allow the use of his/her name directly or indirectly by another person for the purpose of obtaining a municipal permit, when such licensed swimming pool contractor does not intend to, or does not in fact, do or supervise the work authorized by such municipal permit; or to take out municipal permits for swimming pool work to be done by another person by whom he/she is not employed.

Such unlawful action as detailed above shall constitute a Class "C" misdemeanor.

3-7 BUILDING INSPECTION PERMITS

No person may construct or modify a swimming pool or spa in the City without obtaining a Building Permit. The application for a Building Permit must be on a form provided by the Building Official and must be accompanied by the required fee and specified number of copies of the plans for which the applicant seeks approval. The Health Authority or the Building Official may require the submission of other necessary plans, specifications and data including capacity, rate of filtration, skimming devices, and facilities for draining. No Building Permit shall be issued by the Building Official to a public or restricted access pool or spa unless it is also approved by the Health Authority. The criteria to be followed by Building Inspection and the Health Authority in the review and approval of plans shall be made known as Rules and Regulations as authorized by this Ordinance. Plans and specifications for all public and restricted access pools and spas shall at a minimum comply with the current Design Standards of the Texas Department of Health for Public Swimming Pool Construction, except that where such standards are less restrictive than the standards of this Ordinance, or any other provision of the Abilene Code, said Code will govern in all cases. If the Building Official and the Health Authority are satisfied that the public or restricted access pool or spa has been constructed to conform in all respects to the requirements of the law, a Certificate of Occupancy shall be issued by the Building Official to the Applicant.

4. PERMIT TO OPERATE

4-1 PERMIT REQUIRED

No person shall conduct, operate or maintain a public or restricted access pool or spa who does not possess a valid, current Permit to Operate from the Health Authority. Such Permit to Operate shall at all time be kept posted and displayed within the premises of the swimming pool or spa area as the Health Authority may direct. Such Permit to Operate shall be obtained by the date of opening and shall be valid for one year from date of issue, unless otherwise revoked for cause. The Permit to Operate shall not be transferred or reassigned, and shall be considered revoked should the same be sold or otherwise disposed of by the owner thereof. The permit shall be renewed annually in like manner as originally applied for.

4-2 FEE FOR PERMIT

The fee for such Permit to Operate shall be set by the City Council in accordance with City Council Resolution.

5. APPLICATION FOR PERMIT TO OPERATE; INSPECTIONS

5-1 Each applicant for a Permit to Operate required by Section 4-1, shall make written application to the Health Authority, stating thereon the name and address of the pool or spa, the name and address of the owner of such , and such other information as may be resonably required by the Health Authority.

5-2 Upon receipt of the application as provided in the preceding section the Health Authority shall inspect the pool or spa and the premises and equipment to be used in connection with the pool or spa, and if based upon the inspection, the pool or spa and premises and equipment in his/her opinion conform with the requirements of the laws of the State and of this Code and of other Ordinances of the City in force at the time of the inspection, he/she shall grant the Permit to Operate.

5-3 The Health Authority is authorized to conduct such inspections as is deemed necessary to ensure compliance with all provisions of this Ordinance.

6. REVOCATION; REINSTATEMENT

Any permit granted herein shall be subject to revocation or suspension at the direction of the Health Authority for failure of the grantee named therein or any of his/her employees, agents or representatives to operate the pool or spa in accordance with this article, all swimming pool and sanitary laws of the State, and the rules and regulations of the State Health Department and all official orders pursuant thereto. Upon notice of such revocation or suspension, the operation of such pool or spa shall be immediately discontinued until the terms and provisions of this article are complied with. An application for reinstatement of such permit shall be made under the same terms and conditions as the original applications therefor.

7. APPEAL

Any person dissatisfied with an order or ruling of the Health Authority in the enforcement of this Ordinance may appeal to the Abilene-Taylor County Board of Health. A person desiring to so appeal shall file in the office of the Health Authority, within fifteen (15) days of the ruling or order appealed from, a written appeal which shall include a brief statement of the reasons therefor and a detailed statement of the facts supporting the appeal. Upon the expiration of the fifteen-day period without a written appeal being filed with the Health Authority, as herein provided, the order or ruling of the Health Authority shall become final and nonappealable.

8. RECORDS

It shall be the duty of every person holding a permit to operate and maintain a pool or spa and every employee of such permit holder to furnish such records and information as the Health Authority may deem necessary to ascertain that all provisions of this Article are being complied with.

9. SUPERVISION OF SWIMMING POOLS

9-1 Every public and restricted access pool and spa shall be operated under close supervision of a qualified operator. The Health Authority may require a Certificate of Competency obtained through attendance and successful completion of a swimming pool operator's training course as evidence of compliance with this Section.

9-2 Proper operating records, which may include the following as required by the Health Officer, shall be kept daily showing:

(a) Bather loads - total;
(b) Peak bather load;
(c) Operating periods of recirculation pumps and filters and corresponding rate of flow meter readings;
(d) Types and amounts of chemicals used;
(e) Disinfectant residuals,(recommended to be taken every 2 hours);
(f) pH readings;
(g) Maintenance (and malfunctioning) of equipment;
(h) Any pool-related accidents.

10. DISINFECTION AND QUALITY OF WATER

10-1 Swimming pools when in use shall be continuously disinfected by a chemical which imparts an easily measured, free available residual effect. When chlorine is used, a free chlorine residual of at least 1.0 ppm shall be maintained throughout the pool whenever it is open or in use. Spas shall maintain a free chlorine residual of at least 2.0 ppm. If other halogens are used, residuals of equivalent disinfecting strength shall be maintained. A testing kit for measuring the concentration of the disinfectant, accurate within 0.1 ppm, shall be provided at each swimming pool and spa.

10-2 The Health Officer may accept other disinfecting materials or methods when they have been adequately demonstrated to provide a satisfactory residual effect which is easily measured and to otherwise be equally as effective under conditions of use as the chlorine concentration required herein, and not be dangerous to public health, create objectionable physiological effects, or impart toxic properties to the water.

10-3 The swimming pool and spa water shall be maintained in an alkaline condition as indicated by a pH of not less than 7.2 and not over 8.2. A pH test kit accurate to the nearest 0.2 pH unit shall be provided at each swimming pool and spa.

10-4 A black disc, six inches in diameter shall be painted on the bottom surface at the deepest point of public swimming pools or restricted access pools which are deeper than five (5) feet. Were racing lines are permanently situated on the bottom of pools, this requirement may be waived. The grate covering the main drain of the pool may also be used as a clarity indicator, provided it is painted black. The water shall have sufficient clarity that the disc, racing lines or painted grate shall be readily visible at all times. In pools of less depth the bottom shall be clearly visible at all times. Failure to meet this requirement shall constitute grounds for immediate closure of the pool.

10-5 Chemicals used in controlling the quality of water shall be demonstrated as imparting no toxic properties to the water.

Such chemicals as may be used for algae control shall be E.P.A approved for use in swimming pools.

11. DEPTH MARKINGS AND LINES FOR POOLS OTHER THAN THOSE ACCESSORY TO SINGLE FAMILY DWELLINGS

11-1 Depth of the water shall be plainly marked at or above the water surface on the vertical wall of the swimming pool and on the edge of the deck or walk next to the swimming pool, at maximum and minimum points and at the points of break between the deep and shallow portions and at intermediate one-foot increments of depth spaced at not more than 25-feet intervals measured peripherally. The depth on the diving areas will be appropriately marked.

11-2 Depth markers shall be in numerals of four (4) inches minimum height and color contrasting with background. Where depth markers cannot be placed on the vertical walls above the water level, other means shall be used, said markings to be plainly visible to persons in the swimming pool.

12. DISINFECTANT AND CHEMICAL FEEDERS

12-1 Public and restricted access pools or spas shall be equipped with a chlorinator, hypochlorinator, or other disinfectant feeder or feeders which meet the following requirements:

12-1.1 Shall be of sturdy construction and materials which will withstand wear, corrosion, or attack by disinfectant solutions or vapors and which are not adversely affected by repeated regular adjustments or other conditions anticipated in the use of the device. The feeder shall be capable of being easily disassembled for cleaning and maintenance. The design and construction shall be such as to preclude stoppage from chemicals intended to be used or foreign materials that may be contained therein. The feeder shall incorporate failure-proof features so that the disinfectant cannot feed directly into the pool or spa, the pool or spa piping system, water supply system, or the pool or spa enclosure under any type of failure of the equipment or its maintenance.

12-1.2 Shall be capable of supplying at least the equivalent of one (1) pound of chlorine per twenty-four hours for each 10,000 gallons of indoor swimming pool capacity under conditions of operation to be anticipated at the proposed installation, and 1 pound per twenty-four hours for each 5,000 gallons of outdoor pool, plus or minus 25%.

12-1.3 Shall have a graduated and clearly marked dosage adjustment to provide flows from full capacity to 10% of such capacity. The device shall be capable of continuous delivery within 10% of the dosage at any setting.

12-1.4 When the disinfectant is introduced at the suction side of the pump, a device or method shall be provided to prevent air lock of the pump or recirculation system.

12-1.5 When compressed chlorine gas is used, the following additional features shall be provided:

(a) The chlorine and chlorinating equipment shall be in a separate well-ventilated room. Such rooms shall not be below ground level and shall be provided with vents near the floor which terminate out-of-doors, and with a motor-driven exhaust fan capable of producing at least one air exchange per minute and which draws air from floor level. The control switch for this unit shall be located outside the chlorinator room and shall be clearly marked "Turn On Before Entering". The door of the room shall not open to the swimming pool, and shall open to the outside.

(b) The chlorinator equipment shall be of rugged design, capable of withstanding wear without developing leaks.

(c) Chlorine cylinders shall be anchored to prevent their falling over. A valve stem wrench shall be maintained on the chlorine cylinder so the supply can be shut off quickly in case of an emergency. A valve protection hood shall be kept in place except when the cylinder is connected.

(d) The chlorine feeding device shall be designed so that during accidents or interruptions of the water supply, leaking chlorine gas will be conducted to the out-of-doors.

(e) The chlorinator shall be a solution feed type, capable of delivering chlorine at its maximum rate without releasing chlorine gas to the atmosphere.

(f) The chlorinators shall be designed to prevent the backflow of water into the chlorine solution container.

(g) A gas mask designed for use in a chlorine atmosphere and of a type approved by the U.S. Bureau of Mines shall be provided. In addition, replacement canisters shall be provided and a record shall be kept of gas mask maintenance and usage to insure the mask will be serviceable when needed.

(h) The gas mask shall be kept in a closed cabinet, accessible without a key, located outside of the room in which the chlorinator is maintained.

(i) Installation of chlorinator equipment, and operation thereof, shall be carried on by and under the supervision of personnel experienced with installation and operation of such equipment.

12-1.6 When a hypochlorite solution is used to be fed through hypochlorinator equipment, such equipment shall also provide the following additional features:

(a) Feed shall be positive under all conditions of pressure in the circulation system, and without artificial constriction of the pump suction line whether this line be under vacuum or pressure head.

(b) Regulation shall be provided to insure constant feed with varying supply or back pressure.

(c) Positive features to prevent back-flow from recirculation system to the solution container, and provision for reducing to a minimum the entry into swimming pool of free calcium released from calcium hypochlorite.

(d) Provision to prevent syphoning of hypochlorite solution when the recirculation pump and hypochlorinator are both turned off. (This applies to above swimming pool level installations only.)

12-2 Equipment and piping used to apply chemicals to the water shall be of such size, design, and material that they may be cleaned and will be free from clogging, preferably of the positive displacement type. All material used for such equipment and piping shall be resistant to action of chemicals to be used therein.

13. CLEANING SWIMMING POOLS

13-1 Visible dirt on the bottom of the pool or spa shall be removed as necessary to ensure the quality of the pool water.

13-2 Visible scum or floating matter on the pool or spa surface shall be removed within 24 hours by flushing or other effective means.

14. SUPERVISION OF BATHERS

14-1 A qualified attendant, trained in first aid and resuscitation, shall be on duty at all times when the public swimming pool is open to use by bathers. Such attendant should be in full charge of bathers and have authority to enforce all rules of safety and of sanitation. Restricted access pools are exempt from the provisions of Section 14-1.

14-2 A sign enumerating the following regulations shall be placed in plain view within the pool or spa enclosure.

(a) Any person having an infectious or communicable disease shall be excluded from public and restricted access pools and spas. Persons having any considerable area of exposed subepidermal tissue, open blisters, cuts, etc., shall be warned that these are likely to become infected and advised not to use the pool.

(b) No running, boisterous or rough play, except supervised water sports, shall be permitted in in the pool, on the runways, diving boards, floats, platforms or in dressing rooms, shower rooms, etc.

(c) No animals shall be allowed within the pool or spa area or enclosures.

(d) No glass containers shall be allowed within the pool or spa area or enclosures.

15. SAFETY REQUIREMENTS - LIFESAVING EQUIPMENT

15-1 Swimming pools operated primarily for unorganized use and having an area of more than 2,250 square feet of water surface area shall be provided with an elevated lifeguard platform or chair. In pools with 4,000 square feet or more of water surface area, additional elevated chairs or stations shall be provided, located so as to provide a clear, unobstructed view of the pool bottom in the area under surveillance.

15-2 One unit of lifesaving equipment shall consist of the following: A ring buoy not less than 15 inches in diameter to which shall be attached a 60 foot length of three sixteenth (3/16) inch rope; a life pole or shepherd's crook type of pole having blunted ends with minimum length of 12 feet; a separate throwing line of one-quarter (1/4) inch rope with length not less than 1 1/2 times the maximum witdth of pool. Not less than one (1) unit of equipment, as above, shall be provided at every public and restricted access pool. One unit shall be presumed to be adequate for 2000 square feet of water surface area, and one (1) additional unit shall be provided for each additional 2,000 square feet, or major fraction thereof, of water surface area.

15-3 Every public and restricted access pool or spa shall be equipped with a standard 24-unit first aid kit which shall be kept filled and ready for use.

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15-4 Lifesaving equipment shall be mounted in conspicuous places, distributed around pool decks, at lifeguard chairs, or elsewhere, readily accessible, its function plainly marked, and kept in repair and ready condition. Bathers or others shall not be permitted to tamper with, use for any purpose other than its intended use, or remove such equipment from its established location.

15-5 Where no lifeguard service is provided, a warning sign shall be placed in plain view and shall state "WARNING--NO LIFEGUARD ON DUTY" with clearly legible letters, at least four (4) inches high. In addition, the sign shall also state "CHILDREN 12 AND UNDER SHALL NOT USE POOL WITHOUT AN ADULT IN ATTENDANCE."

15-6 There shall be a telephone readily accessible to every public and restricted access pool. Telephone numbers of the nearest ambulance station and physician's office shall be posted near the telephone.

15-7 When not in operation a CLOSED sign shall be in place in plain view with clearly legible letters at least four (4) inches high. Gates into public swimming pool areas shall be securely locked. Water quality will be maintained in such a manner as to prevent breeding of mosquitoes. Restricted access pools shall be exempt from the provision in this Section requiring that gates be locked when the pool is not in operation.

16. FENCES

All outdoor public swimming pools shall be surrounded by at least a 6 foot high fence, constructed in such a manner as to prevent entry by small children, with gates provided with self-closing devices and that are able to be locked when the pool is not in operation. All restricted access pools shall be surrounded by a 4 foot high fence, with gates provided with self-closing devices.

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REGULATIONS ON THE DESIGN, CONSTRUCTION AND OPERATION OF PUBLIC AND PRIVATE RESIDENTIAL SWIMMING POOLS AND SPAS

These Regulations are promulgated under the authority granted to the Abilene/Taylor County Health Department and Building Inspection of the City of Abilene under the provision of the Ordinance regulating design, construction, and operation of swimming pools or spas. They have the force of law as authorized by said Ordinance.

1. WATER SUPPLY

The water supply serving the swimming pool or spa and all plumbing fixtures including drinking fountains, lavatories, and showers shall meet the requirements of the Texas Department of Health and comply with the City Plumbing Code.

2. SEWER SYSTEM

2-1 The sewer system shall be adequate to serve the facility, including bathhouse, locker room, and related accomodations.

2-2 There shall be no direct physical connection between the sanitary sewer system and any drain from the swimming pool or spa or recirculation. When the wastewater from a swimming pool or spa is to be disposed of through a sanitary sewer, a minimum of a three (3) inch P trap shall be required. The tail piece from the trap shall extend a minimum of three (3) inches above the finished grade. Traps need not be vented when located on the exterior of the building. The connection between filter, waste discharge piping and the P trap shall be made by means of a 6" air gap.

2-3 Drainage should be directed to a storm sewer, or to a public drainageway, i.e. a public drainage easement or the public street gutter, but not to an unpaved alley. Where conditions are such that no hazard, nuisance or insanitary condition is evidenced, swimming pool waste water may be used for irrigation by surface or sub-surface spreading.

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3. SWIMMING POOL CONSTRUCTION MATERIALS

3-1 MINIMUM STANDARDS

(a) Unless otherwise provided for in this code, all materials, fixtures, or devices used or entering into the construction of a swimming pool, spa or hot tub plumbing system or parts thereof, shall be submitted to the Building Official for his approval and shall conform to approved applicable standards or to other equivalent standards acceptable to the Building Official and shall be free from defects. All pipe, pipe fittings and fixtures shall be listed or labeled by a listing agency or shall be approved by the Building Official when listing or labeling by a listing agency is not available.

(b) Each length of pipe and each pipe fitting, trap, material and device used in a pool, spa or hot tub system shall be cast stamped, or indelibly marked on it, the maker's mark or name, the weight and the quality of the product, when such marking is required by the approved standard that applies. All materials and devices used or entering into the construction of pool, spa or hot tub system, or parts thereof, shall be marked and identified in a manner satisfactory to the Building Authority. All such marking shall be done by the manufacturer. Field marking shall not be acceptable.

(c) Standards listed or referred to in this chapter cover materials which will conform to the requirements of this code, when used in accordance with the limitations imposed in this or other chapters thereof. Design and materials for special conditions or materials not provided for herein may be used only by special permission of the Building Official after he has satisfied himself as to their adequacy. For the convenience of users of this code a list of generally accepted plumbing material standards is included at the end of this chapter, in Table 1.

(d) The provisions of this Code are not intended to prevent the use of any alternate material, method of construction, appliance or equipment provided any such alternate has been first approved and its use authorized by the Building Official.

(e) The Building Official may approve any such alternate provided he finds that the proposed design is satisfactory and complies with the intent of this code and the material offered is for the purpose intended, at least the equivalent of that prescribed in this code, in quality, strength, effectiveness, durability and safety or that the methods of installation proposed conform to other acceptable nationally recognized plumbing standards.

(f) The Building Official shall require that sufficient evidence or proof be submitted to substantiate any claims that may be made regarding the sufficiency of any proposed material or type of construction.

(g) When there is insufficient evidence to substantiate claims for alternates, the Building Official may require tests, as proof of compliance, to be made by an approved testing agency at the expense of the applicant.

(h) Tests shall be made in accordance with approved standards, but in the absence of such standards, the Building Official shall specify the test procedure.

(i) The Building Official may require tests to be made or repeated if, at any time, there is reason to believe that any material or device no longer conforms to the requirements on which its approval was based.

3-2 PUMPS

Pumps shall have design capacity at the following heads.

a. Pressure Diatomaceous Earth - At least 80 ft.
b. Vacuum Diatomaceous Earth - Twenty (20) inches vacuum on the suction side and 40 ft. total head.
c. Rapid Sand - At least 45 ft.
d. High Rate Sand - At least 60 ft.
e. Cartridge - At least 50 ft.

3-3 FULLWAY VALVES

Valves up to and including two (2) inches in size shall be brass or other approved material. Sizes over two (2) inches may have bodies of cast iron or brass or other approved materials. Each valve shall be a fullway type with working parts of non-corrosive material. No galvanized valves shall be used below grade or in locations where it is not accessible.

3-4 PIPING MATERIAL

(a) Copper tube for above ground drainage and vent piping shall have a weight of not less than that of a copper drainage tube Type DWV. Copper tube shall be permitted only above ground and in accessible locations.

(b) Copper tube for circulation piping shall have a weight of not less than that of a copper water tube Type L, and shall be used above ground and in accessible locations only.

(c) Copper tubing for water piping shall have a weight of not less than that of copper tube Type L. Exception: Type M Copper Tubing may be used for water piping when piping is above ground, in a building and only in accessible locations.

(d) In addition to the required incised marking, all hard drawn copper tubing shall be marked by means of continuous and indelibly colored strip at least one quarter (1/4) inch in width as follows: type K, green; Type L, blue; Type M, red; and Type DWV, yellow.

(e) PVC piping shall be at least schedule 40 and not less than schedule 80 when pressures exceed those for which schedule 40 pipe is rated. Flex PVC schedule 40 piping is permitted. All PVC piping must be protected from ultra violet light by painting or other approved means.

STANDARDS AND WRITING AGENCIES

Abbreviations used in Table 1 refer to standards or specifications issued by the organizations identified below:

ANSI — American National Standards Institute, 1430 Broadway, New York, New York 10018. (Formerly ASA, USASI)

ASTM — American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103. Publish Standards and Tentative Standards.

FS — Federal Specifications, published by the Federal Specifications Board. Obtainable from the Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402

IAPMO (UPC) — International Association of Plumbing and Mechanical Officials, 5032 Alhambra Avenue, Los Angeles, California 90032. Publish Installation (IS) and Product (IAPMO PS) Standards.

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NSF National Sanitation Foundation, 3475 Plymouth Road, P. O. Box 1468, Ann Arbor, Michigan, 48106

UL Underwriters' Laboratories, Incorporated, 207 East Ohio Street, Chicago, Illinois 60148

All standards and specifications for materials are subject to change. Designations, carrying indication of the year of issue may thus become obsolete.

3-5 All corners formed by intersection of walls and floors shall be rounded or to manufacturer's instructions.

3-6 Earth-type construction shall not be permitted under this ordinance.

3-7 Swimming pool or spa finish, except pools accessory to single family dwellings, including bottom and sides must be of white or light colored materials, non-toxic to man, with a smooth finished surface without cracks or joints bonded to the supporting members, excluding structural expansion joints.

4. DESIGN DETAIL AND STRUCTURAL STABILITY

4-1 All swimming pools shall be designed and constructed to withstand all anticipated loading for both full and empty conditions. A hydrostatic relief valve shall be provided in areas having a high water table. The designing engineer shall be responsible for certifying to the structural stability and safety of the pool, except an engineer shall not be required for R-3 construction. All fiberglass pools shall be equipped with a gravel sump with a 1 1/2 inch pipe from the sump, which is accessible at grade level.

4-2 No limits are specified for length and width of swimming pools, except that swimming pools used for competition should meet required dimensions, and the requirements for diving areas as outlined under 16-1 shall be observed. Consideration shall be given to shape from the standpoint of safety and the need to facilitate supervision of bathers using the pool.

4-3 Provisions shall be made for complete, continuous circulation of water through all parts of the swimming pool or spa. All swimming pools or spa shall have a recirculation system with necessary treatment and filtration equipment as required in these standards.

4-4 The shape of any swimming pool or spa shall be such that the circulation of pool or spa water and control of swimmers' safety are not impaired.

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4-5 The minimum depth of water in the swimming pool shall be three (3) feet except for special purpose swimming pools or for restricted or recessed areas in general swimming pools which are set aside primarily for the use of children. Such areas when included as part of the swimming pool shall be separated from the swimming pool proper by means of a safety line supported by buoys and attached to the side walls. Wading facilities for children, physically separated from the swimming pool, are preferred. Such facilities may be served by the swimming pool recirculation system with turnover rates of once every two hours. An exception to this is made for R-3 construction.

4-6 The maximum depth at the shallow end of the swimming pool shall not exceed three (3) feet six (6) inches except for competitive or special purpose swimming pools. An exception is made to this for R-3 construction.

5. DEPTH MARKINGS AND LINES FOR POOLS OTHER THAN THOSE ACCESSORY TO SINGLE FAMILY DWELLINGS

5-1 Depth of the water shall be plainly marked at or above the water surface on the vertical wall of the swimming pool and on the edge of the deck or walk next to the swimming pool at maximum and minimum points and at the points of break between the deep and shallow portions and at intermediate one-foot increments of depth spaced at not more than 25-feet intervals measured peripherally. The depth on the diving areas will be appropriately marked.

5-2 Depth markers shall be in numerals of four (4) inches minimum height and color contrasting with background. Where depth markers cannot be placed on the vertical walls above the water level, other means shall be used, said markings to be plainly visible to persons in the swimming pool.

6. INLETS AND OUTLETS

6-1 All swimming pools shall be provided with an outlet at the deepest point to permit the pool to be completely and easily emptied and through which circulation shall take place. Openings must be covered by a proper grate which is not readily removable by bathers. Outlet openings of the grating in the floor of the pool shall be at least four (4) times the area of discharge pipe or provide sufficient area so the maximum velocity of the water passing the grate will not exceed 1 1/2 feet per second. The minimum width of the grate openings shall be one-half (1/2) inch, and the maximum not over one (1) inch.

6-2 In swimming pools with deep water at or near one end, multiple outlets shall be provided where the width of the pool is more than 30 feet. In such cases, outlets shall be spaced not more than 30 feet apart, nor more than 15 feet from side walls.

6-3 No direct connections to sewers shall be permitted and all drains from the swimming pool or spa to sewers shall be broken with a six (6) inch air gap at a point where any sewage which may back up from the sewer will over flow to waste instead of reaching the pool or spa.

6-4 Valves and/or pumps used for backwashing pools shall be sized to prevent the surcharging of the sanitary sewer at a rate of not greater than 20 gallons per minute.

6-5 Inlets for fresh and/or repurified water shall be located to produce uniform circulation of water and to facilitate the maintenance of a uniform disinfectant residual throughout the entire swimming pool or spa, without existence of dead spots. Inlets from the circulation system shall be flush with the pool or spa wall and submerged at least 12 inches below the water level. (Where water from the public water system is added to the pool, cross-connections between the public water system and the pool water shall be eliminated by pumping make-up water from a pump suction well or admitting water to the pool by means of an air gap connection preferably located under a low diving board.

6-6 An adequate number of inlets shall be provided, properly spaced and located to accomplish complete and uniform recirculation of water and maintenance of uniform disinfectant residual at all times.

6-7 Each inlet shall be designed as an orifice subject to adjustment or must be provided with an individual gate or similar valve to permit adjustment of water volume to obtain the best circulation.

7. SLOPE OF BOTTOM

The slope of the bottom of any portion of the swimming pool having a water depth of less than five feet shall not be more than one foot in 8 feet and said slope shall be uniform. In portions with a depth greater than 5 feet, the slope shall not exceed 1 foot in 3 feet.

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8. SIDE WALLS

8-1 Walls of a swimming pool shall be either (a) vertical for water depth of at least six (6) feet; or (b) vertical for a distance of three (3) feet below the water level below which the wall may be curved to the bottom with a radius not greater than the difference between the depth at that point and three (3) feet, provided that vertical is interpreted to permit slopes not greater than 1 foot horizontally for each 5 feet of side wall (11 degrees from vertical).

8-2 Safety ledges when provided on vertical walls in the deep portion of the swimming pool shall not be over six (6) inches wide, at least four (4) feet below the water surface, and shall slope one-half (1/2) in four (4) inches toward the pool.

9. OVERFLOW GUTTERS

9-1 Pools shall be provided with overflow gutters or surface skimmers.

9-2 Overflow gutters shall extend completely around the swimming pool, except at steps or recessed ladders. The overflow gutter shall also serve as a handhold. This gutter shall be capable of continuously removing 50% or more of the recirculated water and returning it to the filter. All overflow gutters shall be connected to the recirculation system through a properly designed surge tank. The gutter, drains, and return piping to the surge tank shall be designed to rapidly remove overflow water caused by recirculation displacement, wave action, or other causes produced from the maximum pool bathing load. The opening into the gutter beneath the coping shall be no less than four (4) inches wide, and the interior of the gutter shall not be less than three (3) inches wide with a depth of at least three (3) inches. Where large gutters are used, they shall be designed to prevent entrance or entrapment of bathers' arms or legs. The overflow edge or lip shall be rounded and not thicker than 2 1/2 inches for the top two (2) inches. The overflow outlets shall be provided with outlet pipes which shall in any case be at least two (2) inches in diameter. The outlet fittings shall be a clear opening in the grating at least equal to 1 1/2 times the cross-sectional area of the outlet pipe.

9-3 Nothing in this section shall preclude the use of rollout or deck level type swimming pools. Such designs shall conform to the general provisions relating to overflow rates. The design of the curb and handhold shall conform to accepted standards, and the approval of the Health Department shall be based on detailed review of this feature of construction and evaluated in light of the proposed use of the pool.

10. SKIMMERS

Skimmers are permitted on all swimming pools. At least one (1) skimming device shall be provided for each 500 square feet of water surface area or fraction thereof. Where two (2) or more skimmers are required, they shall be located as to minimize interferences with each other and to insure proper skimming of the entire pool surface. Skimming devices shall be built into the pool wall, shall develop sufficient velocity on the pool water surface to induce floating oils and wastes into the skimmer from the water surface of the entire pool area, and shall meet the following general specifications:

(a) The piping and other pertinent components of skimmers shall be designed for a total capacity of at least 65% to 80% of the required filter flow of the recirculation system and no skimmer shall be designed for a flow-through rate of less than 30 gallons per minute or 3.75 gallons per minute per lineal inch of weir.

(b) The skimmer weir shall be automatically adjustable and shall operate freely with continuous action to variations in water level over a range of at least four (4) inches. The weir shall be of such buoyancy and design so as to develop an effective velocity.

(c) An easily removable and cleanable basket or screen through which all overflow water must pass shall be provided to trap large solids.

(d) The skimmer shall be provided with a device to prevent air-lock in the suction line. If an equalizer pipe is used, it shall provide an adequate amount of water for pump suction should the water of the swimming pool drop below the weir level, provided that, if any other device, surge tank, or arrangement be used, a sufficient amount of water for pump suction shall be assured.

(e) Where the equalizer pipe is used, it shall be sized to meet the capacity requirements of the filter and pump and shall in no case be less than two (2) inches in diameter. This pipe shall be located at least one (1) foot below the lowest overflow level of the skimmer. It shall be provided with a valve or equivalent device that will remain tightly closed under normal operating conditions, but will automatically open when the water level drops as much as two (2) inches below the lowest weir level.

(f) The skimmer shall be of sturdy, corrosion-resistant materials.

11. RECIRCULATION SYSTEMS

11-1 A recirculation system, consisting of pumps, piping, filters, water conditioning, and disinfection equipment and other accessory equipment shall be provided which will clarify and disinfect the swimming pool at the following rates:

a. Heavily used public pools and restricted access pools - not more than 6 hours.

b. Other public and restricted access pools - not more than 8 hours.

c. Residential pools - not more than 12 hours.

d. Public and restricted access spas - not more than 30 minutes.

e. Residential spas - not more than 1 hour.

In any case all components of the recirculaltion system shall conform to the current standards of the National Sanitation Foundation for swimming pools and spas.

11-2 All piping shall be designed to reduce friction losses to a minimum and to carry the required quantity of water at a maximum velocity not to exceed twelve (12) feet per second.

11-3 The recirculation system shall include a strainer to prevent hair, lint, etc. from reaching the pump and filters. Strainers shall be corrosion-resistant with openings not more than one-eighth (1/8) inch in size providing a free flow area at least four (4) times the area of pump suction line and shall be readily accessible for frequent cleaning.

11-4 A vacuum-cleaning system shall be provided. When it is an integral part of the recirculation system a sufficient number of connections shall be located in the walls of the swimming pool at least eight inches below the water line.

11-5 A rate-of-flow indicator, reading in gallons per minute, shall be installed and located, preferably on the swimming pool return line, so that the rate of recirculation and backwash rate will be indicated. The indicator shall be capable of flows measuring at least 1 1/2 times the design flow rate, shall be accurate within 10% of true flow, and shall be easy to read. Pools accessory to single family dwellings are exempt from the provisions of this Section.

11-6 Pumps shall be of adequate capacity to provide the required number of turnovers of swimming pool or spa water as specified in Section 11-1, and whenever possible shall be located as to eliminate need for priming. If the pump or suction piping is located above the overflow level of the pool, the pump shall be self-priming. The following criteria should be met according to type of filter used:

a. Sand and pressure diatomaceous earth filters - pumps should be selected to meet design flow and backwash rates under use conditions. Sufficient reserve head must be provided to overcome friction losses in piping and appurtenances through which water flows after discharge from the pump and returning to the pool or spa. Pumps should be matched to the filter units.

b. Vacuum diatomaceous earth filters - Vacuum filters require a pump capable of delivering the design flow rate at a suction of at least 20 inches of mercury without cavitation. Sufficient reserve head must be provided to overcome friction losses in piping and appurtenances through which water flows after discharge from the pump in returning to the pool or spa.

11-7 Swimming pools or spa(s) equipped with heaters shall have a fixed thermometer in the recirculation line at the heater outlet and another near the outlet of the pool. Pools or spa(s) accessory to single-family dwellings are exempt from the provisions of this Section.

12. USER LOADING

12-1 For the purposes of computing user loading, those portions of the swimming pool five (5) feet or less in depth shall be designed as "non-swimmer" areas. Portions of the pool over five (5) feet in depth shall be designated as the "swimming" area.

12-2 In order to compute swimmer and bather capacity, swimming pool areas shall be determined as follows:

(a) Ten (10) square feet of pool water surface area shall be provided for each non-swimmer expected at time of maximum load.

(b) Twenty-four (24) square feet shall be provided for each swimmer expected at time of maximum load.

(c) Three hundred (300) square feet of pool water surface area shall be reserved around each diving board or diving platform and this area shall not be included in computing the area of the swimming section.

(For computing the load for exiting purposes on indoor pools, refer to Table 33-A of the Uniform Building Code.)

12-3 Computed user loading for pools with extensive deck areas for lounging or sun bathing shall be based upon requirements outlined in the City Uniform Building Code.

13. FILTERS

All componente of filtering systems shall conform to the current standards of the National Sanitation Foundation for swimming pools and spas.

13-1 SAND TYPE FILTERS

13-1.1 Sand type filters shall be designed for a filter rate of three gallons per minute per square foot of bed area at time of maximum head loss with sufficient area to meet the design rate of flow required by the prescribed turnover.

13-1.2 Filtering material shall consist of at least 18 inches of screened, sharp filter sand with an effective size between 0.4 millimeter and 0.55 millimeter, and a uniformity coefficient not exceeding 1.75 millimeters, supported by at least 10 inches of graded filter gravel. Anthracite having an effective size between 0.6 millimeter and 0.8 millimeter, with a uniformity coefficient of not greater than 1.8 millimeters, may be used in lieu of sand. The gravel shall effectively distribute water uniformly during filtration and backwashing. A reduction in this depth or an elimination of gravel may be permitted where equivalent perfomance and services are demonstrated.

13-1.3 The underdrain system shall be of corrosion-resistant and enduring material, so designed and of such material that the orifices or other openings will maintain approximately constant area. It shall be designed to provide even collection or distribution of the flow during filtration and backwashing.

13-1.4 At least 12 inches of freeboard shall be provided between the upper surface of the filter media and the lowest protion of the pipes or drains which serve as overflows during backwashing.

13-1.5 Pressure filter systems shall be provided with influent and effluent pressure gauges, backwash sight glass on the waste discharge line and air relief at or near the high point of the filter.

13-1.6 The filter system shall be designed with necessary valves and piping to permit the following:

(a) filtering to swimming pool

(b) individual backwashing of filters to waste at a rate of nine gallons to 15 gallons per minute per square foot of effective filter area;

(c) complete drainage of all parts of the system

(d) necessary maintenance, operation, and inspection

13-1.7 Each pressure type filter tank shall be provided with an opening of not less than a standard 11-inch by 15-inch manhole and cover.

13-1.8 Where needed, means shall be provided for adding chemicals ahead of the filters.

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13-1.9 On pressure type filters, the tank and its integral parts shall be constructed of substantial material capable of withstanding continuous usage and shall be designed for a pressure safety factor of four based on the maximum shutoff head of the pump. This shutoff head for design purposes shall in no case be considered less than 50 pounds per square inch.

13-2 DIATOMACEOUS EARTH-TYPE FILTERS

13-2.1 Sufficient filtering area shall be provided to meet the design pump capacity as required by Section 11-6 of this title (relating to Recirculation Systems).

13-2.2 RATE OF FILTRATION.

(a) Pressure filters: The design rate of filtration shall not be greater than 2.0 gpm/square foot of effective filtering surface without continous body feed and not greater than 2.5 gpm/square foot with continuous body feed.

(b) Vacuum filters: The design rate of filtration shall not be greater than 1.0 gpm/square foot of effective filtering surface without continuous body feed and not greater than 1.5 gpm/square foot with continuous body feed.

13-2.3 Where body feed is provided, the device shall be accurate (10%) and dependable and shall be capable of continually feeding within a calibrated range adjustable from two to six ppm at the design capacity of the recirculation pump.

13-2.4 Filtering area, where fabric is used, shall be determined on the basis of effective filtering surfaces as created by the septum supports, with no allowances for areas of impaired filtration, such as broad supports, folds, or portions which may bridge.

13-2.5 The filter and all component parts shall be of such materials, design, and construction to withstand normal, continuous use without significant deformation deterioration, corrosion, or wear, which could adversely affect filter operation.

13-2.6 The filter should be so designed and constructed, or provision made to preclude the introduction of appreciable quantities of filter-aid into the pool during precoating operations.

13-2.7 The tank containing the filter elements shall be constructed of steel, plastic or other suitable material which will satisfactorily provide resistance to corrosion with or without coating. Pressure type filters shall be designed for a minimum working pressure of 50 pounds per square inch with a four to one safety factor. Vacuum type filters shall be designed to withstand the pressure developed by the weight of the water contained therein, and closed vacuum type filters shall in addition, be designed to withstand the crushing pressure developed under a vacuum of 25 inches of mercury with a safety factor of 1.5 in both instances. The septa or elements which support the filter-aid shall be of corrosion-resistant material. The septa shall be constructed to be resistant to rupture under conditions of the maximum differential pressure between influent and effluent which can be developed by the circulating pump and of adequate stregnth to resist any additional stresses developed by the cleaning operation.

13-2.8 Where dissimilar metals which may set up galvanic electric currents are used in the filters, provision shall be made to resist electrolytic corrosion. The filters shall be designed in such a manner that they may be easily disassembled, with allowances made for adequate working space above and around the filter to allow the removal and replacement of any part and for proper maintenance.

13-2.9 The filter plant shall be provided with such pressure, vacuum, or compound gauges as are required to indicate the condition of the filter. Pressure filters shall be provided with air relief valves. In vacuum type filter installations where the circulation pump is two horsepower or higher, an adjustable high vacuum automatic shutoff should be provided to prevent damage to the pump by cavitation.

13-2.10 All filters shall be equipped for cleaning by one or more of the following methods: backwashing, air-pump-assist backwashing, spray wash (mechanical or manual), or agitation.

13-2.11 Provision shall be made for completely and rapidly draining the filter.

13-3 CARTRIDGE AND HIGH PERMEABILITY-TYPE FILTERS:

13-3.1 INTERIOR COMPONENTS:

o CLEARANCE: If reverse flow backwashing is not provided, there shall be a minimum clearance of 1/4 inch (6.4 mm) between the tank and cartridges or high permeability elements, and between adjacent cartridges. For filtration, there shall be adequate distance between pleats at the outside diameter of cartridges.

o STRUCTURAL STRENGTH: Internal components shall adequately resist damage or deformation affecting flow characteristics. They shall not allow dirt to bypass cartridges or high permeability elements. A differential pressure shall be provided between influent and effluent of at least 75 psi (735 kPa) for pressure units and 20 psi (196.1 kPa) for vacuum units. If units are designed for pressure backwashing, filter element components shall withstand the pressure differential developed during backwashing without permanent damage or deformation.

13-3.2 TURBIDITY LIMITS: Cartridge and high permeability filters shall produce an effluent at least equal to that produced by a sand-type filter complying with Section 13-1.

13-3.3 INLET AND OUTLET WATER COLLECTING OR DISTRIBUTING DEVICES:

o BAFFLES: A suitable baffle, or other device, shall installed in the filter tank to prevent incoming water from following directly against the effective filter area during filtering.

o VACUUM CARTRIDGE FILTERS: Vacuum cartridge filters shall have a trash screen at the inlet to the filter to prevent leaves, paper, and similar large debris from reaching the filter surfaces.

13-3.4 ALIGNMENT IN MULTI-CARTRIDGE UNITS: Cartridges shall be securely fastened to each other. Stacked cartridges shall be aligned for proper sealing. Clearance shall be maintained between adjacent cartridges. Alignment devices shall not obstruct filter area.

13-3.5 CLEANING:

o METHOD: If recommended by the manufacturer, cleaning may be accomplished by backwashing, either in place, or after removal of the cartridge or high permeability element from the filter tank.

o REQUIREMENTS: Cleaning shall remove accumulated dirt, oil, organics, and/or filter aid from filter surface. The recommended procedure shall result in successive runs or cycles reduced to not less than 75 percent of the run obtained with a new cartridge or high permeability element. During laboratory tests, the increase in pressure drop through a filter between the initial and final test run shall not be significant.

o INSTRUCTIONS: If reuse or replacement of cartridges or high permeability element is recommended, the manufacturer shall provide printed removal and cleaning instructions.

o REMOVAL OF WASTE FROM FILTER TANK: Provisions shall be made to remove wash water and dislodged dirt and/or filter aid from the filter tank to prevent accumulation of waste in the tank and connecting piping.

o REMOVING CARTRIDGES: If cartridge stacks are so long that lower cartridges are not readily removable, a lifting device shall be provided.

13-3.6 OPERATION INSTRUCTIONS AND DATA PLATE:

o MANUAL: A manual shall be provided with each filter and include: operating instructions; charts; and parts lists sufficient to permit proper installation, operation, and maintenance. The manual shall also include the size, number, and type of cartridges or high permeability element recommended.

o DATA PLATE: Data plates shall be permanent, easy to read, and securely attached to the filter housing. Data plates shall contain the following:

Manufacturer's name and address
Filter model number
Filter serial number
Effective filtration area in ft^2 (m^2)
Required clearance (vertical and horizontal for service and maintenance)
Design flow rate in gpm (L/min) (See Sections 13-3.7)
Maximum working pressure
Steps of operation
If the unit has been tested for fresh water and/or fresh and saline water application
Recommended replacement cartridge or high permeability element.
The data plate on high permeability filters shall indicate "for residential pool or spa use only" until a design flow rate has been established for public installations (see Section 13-3.7)

The data plate on a cartridge filter shall indicate whether the unit has been evaluated for swimming pools or spas.

o VALVE IDENTIFICATION: All valves shall have a permanent label or tag.

13-3.7 CARTRIDGE FILTERS DESIGN FILTRATION RATE: Design filtration rates shall not exceed the following:

o RESIDENTIAL POOLS OR SPAS

Depth Type - 8 gpm per ft^2 (336 L/min/m^2) effective filtration area

Surface Type - 1 gpm per ft^2 (42 L/min/m^2) effective filtration area

o PUBLIC POOLS OR SPAS

Depth Type - 3 gpm per ft^2 (126 L/min/m^2) effective filtration area

Surface Type - 0.375 gpm per ft^2 (16 L/min/m^2) effective filtration area

13-4 Filters should be readily accessible for cleaning, operation, maintenance, and servicing. Tanks should be positioned for adequate air circulation underneath and on all sides, if necessary to reduce corrosion and permit cleaning. When filters are buried, they should be protected against corrosion and installed according to manufacturer's recommendations.

13-5 If more than one filter is needed to provide the required flow rate, filters should be installed in parallel. Each filter should provide at least 20 percent of the total.

14. LADDERS, RECESSED TREADS, AND STAIRS

14-1 Steps or ladders shall be provided at the shallow end of the swimming pool if the vertical distance from the bottom of the pool to the deck or walk is over two (2) feet. Recessed steps or ladders shall be provided at the deep portion of the swimming pool, and, if the pool is over 30 feet wide, such steps or ladders shall be installed on each side. In pools accessory to single family dwellings, swimouts may be installed in lieu of ladders in the deep end.

14-2 Steps leading into the swimming pool shall be of non-slip design, have a minimum tread of 12 inches and a maximum rise or height of 10 inches. There shall be no abrupt drop off or submerged projections into the pool, unless guarded by handrails.

14-3 Swimming pool ladders shall be corrosion-resistant and shall be equipped with non-slip treads. All ladders shall be so designed as to provide a handhold and shall be rigidly installed. There shall be a clearance of not more than five (5) inches nor less than three (3) inches between any ladder and the pool wall. If steps are inserted in the walls or if step-holes are provided, they shall be of such design that they be cleaned readily and shall be arranged to drain into the pool to prevent accumulation of dirt thereon. Stepholes shall have a minimum tread of 5 inches and a minimum width of 14 inches.

14-4 Where steps, stepholes, or ladders are provided within the swimming pool, there shall be a handrail at the top of both sides thereof, extending over the coping or edge of the deck.

14-5 Supports, platforms, and steps for diving boards shall be of substantial construction and of sufficient structural strength to safely carry the maximum anticipated loads. Steps shall be of corrosion-resistant material easily cleanable, and of non-slip design. Handrails shall be provided at all steps and ladders leading to diving boards more than one (1) meter above the water. Platforms and diving boards which are over one meter high shall be protected with guard railings.

15. DECKS AND WALKWAYS

A continuous deck at least (5) five feet wide shall extend completely around the pool or spa. The deck shall be sloped away from the pool or spa to drain at a rate of 1/4 inch to 3/8 inch per lineal foot and shall have a non-slip surface. Deck drains shall not be connected to the recirculation system. Pools accessory to single-family dwellings are exempt from the provisions of this Section, except they need to be accessible for rescue purposes from two sides.

16. DIVING AREAS

16-1 The dimensions of the swimming pool in the diving area shall conform to the tables listed at the end of this Chapter as Table 2.

16-2 At least 15 feet of unobstructed head room shall be provided above diving boards.

17. DISINFECTANT AND CHEMICAL FEEDERS

17-1 The swimming pool or spa shall be equipped with a chlorinator, hypochlorinator, or other disinfectant feeder or feeders which meet the following requirements: (Single family dwellings will be exempt from the provisions of this section except that when compressed chlorine gas is used, they shall follow the requirements of section 17-1.5.)

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17-1.1 Shall be of sturdy construction and materials which will withstand wear, corrosion, or attack by disinfectant solutions or vapors and which are not adversely affected by repeated regular adjustments or other conditions anticipated in the use of the device. The feeder shall be capable of being easily disassembled for cleaning and maintenance. The design and construction shall be such as to preclude stoppage from chemicals intended to be used or foreign materials that may be contained therein. The feeder shall incorporate failure-proof features so that the disinfectant cannot feed directly into the swimming pool or spa(s), the pool piping system, water supply system, or the swimming pool or spa enclosure under any type of failure of the equipemnt or its maintenance.

17-1.2 Shall be capable of supplying at least the equivalent of one (1) pound of chlorine per twenty-four (24) hours for each 10,000 gallons of indoor swimming pool capacity under conditions of operation to be anticipated at the proposed installation, and 1 pound per 24 hours for each 5,000 gallons of outdoor pool, plus or minus 25%.

17-1.3 Shall have a graduated and clearly marked dosage adjustment to provide flows from full capacity to 10% of such capacity. The device shall be capable of continuous delivery within 10% of the dosage at any setting.

17-1.4 When the disinfectant is introduced at the suction side of the pump, a device or method shall be provided to prevent air lock of the pump or recirculation system.

17-1.5 When compressed chlorine gas is used, the following features shall be provided:

(a) The chlorine and chlorinating equipment shall be in a separate well-ventilated room. Such rooms shall not be below ground level and shall be provided with vents near the floor which terminate out-of-doors, and with a motor-driven exhaust fan capable of producing at least one air exchange per minute and which draws air from floor level. The control switch for this unit shall be located outside the chlorinator room and shall be clearly marked "Turn On Before Entering". The door of the room shall not open to the swimming pool, and shall open to the outside.

(b) The chlorinator equipment shall be of rugged design, capable of withstanding wear without developing leaks.

(c) Chlorine cylinders shall be anchored to prevent their falling over. A valve stem wrench shall be maintained on the chlorine cylinder so the supply can be shut off quickly in case of an emergency. A valve protection hood shall be kept in place except when the cylinder is connected.

(d) The chlorine feeding device shall be designed so that during accidents or interruptions of the water supply, leaking chlorine gas will be conducted to the out-of-doors.

(e) The chlorinator shall be a solution feed type, capable of delivering chlorine at its maximum rate without releasing chlorine gas to the atmosphere.

(f) The chlorinators shall be designed to prevent the backflow of water into the chlorine solution container.

(g) A gas mask designed for use in a chlorine atmosphere and of a type approved by the U.S. Bureau of Mines shall be provided. In addition, replacement canisters shall be provided and a record shall be kept of gas mask maintenance and usage to insure the mask will be serviceable when needed.

(h) The gas mask shall be kept in a closed cabinet, accessible without a key, located outside of the room in which the chlorinator is maintained.

(i) Installation of chlorinator equipment, and operation thereof, shall be carried on by and under the supervision of personnel experienced with installation and operation of such equipment.

17-1.6 When a hypochlorite solution is used to be fed through hypochlorinator equipment, such equipment shall also provide the following additional features:

(a) Feed shall be positive under all conditions of pressure in the circulation system, and without artificial constriction of the pump suction line whether this line be under vacuum or pressure head.

(b) Regulation shall be provided to insure constant feed with varying supply or back pressure.

(c) Positive features to prevent back-flow from recirculation system to the solution container, and provision for reducing to a minimum the entry into swimming pool of free calcium released from calcium hypochlorite.

(d) Provision to prevent syphoning of hypochlorite solution when the recirculation pump and hypochlorinator are both turned off. (This applies to above swimming pool level installations only.)

17-2 Equipment and piping used to apply chemicals to the water shall be of such size, design, and material that they may be cleaned and will be free from clogging, preferably of the positive displacement type. All material used for such equipment and piping shall be resistant to action of chemicals to be used therein.

18. LIGHTING, VENTILATION, AND ELECTRICAL REQUIREMENTS

18-1 Where underwater lighting is used, not less than 0.5 watts shall be employed per square foot of swimming pool water surface area. Such lights shall be spaced to provide illumination so that all portions of the pool, including the bottom may be readily seen without glare.

18-2 Area lighting shall provide at least 0.6 watts per square foot of deck area. If such lighting is used for night swimming, area and swimming pool lighting combined shall provide at least two watts per square foot of pool area with two (2) footcandles of illumination.

18-3 All electrical wiring shall conform with the National Electrical Code of the NFPA.

18-4 Clearances to insulated service drops up to 750 Volts must be 18' radially or 10' horizontally from the water's edge, whichever is greater. Uninsulated service drops or other conductors up to 15 kV must be 25' from the water's edge measured radially. Over 15 kV must be at least 27' measured radially.

18-5 All indoor swimming pool or spas, bathhouses, dressing rooms, shower rooms, and toilet spaces shall be adequately ventilated either by natural or mechanical means.

19. DRESSING ROOMS FOR POOLS OTHER THAN THOSE ACCESSORY TO SINGLE-FAMILY DWELLINGS

19-1 Bathhouses to be used simultaneously by both sexes shall be divided into two parts separated by a tight partition, each designated for men or women. The entrances and exits shall be screened to break line of sight.

19-2 Floors of bathhouse shall be of smooth, impervious material with nonslip surface, impervious to moisture, and sloped to a drain. Junctions between walls and floors shall be coved.

19-3 Walls and partitions shall be of smooth, impervious material, free from cracks or open joints. Partitions between dressing rooms shall terminate at least 10 inches above the floor or shall be placed on continuous raised masonry or concrete bases at least four inches high or on legs with bottom of locker at least 10 inches above the floor. Lockers shall be properly vented.

19-4 The requirement relating to bathhouse, dressing rooms, toilet facilities and showers may be waived when such facilities are conveniently available to swimming pool patrons.

20. TOILETS AND SHOWERS

20-1 Toilet and shower facilities shall be provided on the basis of the following fixture schedule*:

	Males	Females
Water Closets	1/75	1/50
Urinals	1/75	
Lavatories	1/100	1/100
Showers**	1/50	1/50

Sanitary-in-design drinking fountain - minimum of one to be located in swimming pool area.
An exception is made to this for R-3 construction.

20-2 The layout of the bathhouse shall be such that the bathers on leaving the dressing room pass the toilets and showers en route to the swimming pool. An exception is made to this for R-3 construction.

20-3 Showers shall be supplied with water at a temperature of at least 90 degrees F. at a rate of at least three gallons per minute. Thermostatic, tempering, or mixing valves shall be installed if necessary to prevent scalding of the bathers. An exception is made to this for R-3 construction.

*Fixture schedules should be increased for swimming pools at schools or similar locations where bather loads may reach peaks due to schedules of use.

**Minimum of two.

21. FENCES

21-1 Swimming pools or spas which are an accessory use to a single-family residence shall be screened by a solid, opaque wall or fence at least six (6) feet high with gates.

21-2 Restricted access pools or spas shall be screened by a fence or masonry wall at least four (4) feet high and with openings no greater than 4 inches, and gates equipped with self-closing devices.

21-3 Public swimming pools or spas shall be screened by a masonry wall or solid fence at least six (6) feet high with gates equipped with self-closing devices, and that are able to be locked.

TABLE 1 MATERIAL STANDARDS

MATERIALS AND PRODUCTS	ANSI	ASTM	FS	IAPMO	OTHER
FERROUS PIPE AND FITTINGS:					
Black and galvanized steel pipe	B125.2-1970	A120-69			
Cast iron screwed fittings (125 & 250 lbs.)	B16.4-163	A126-66			
Cast iron soil pipe and fittings	A112.5.1-1973	A 74-72	WW-P-401e1974		
Hubless cast iron soil pipe and fittings (Installation)				IS6-75	
Malleable iron screwed fittings (150 & 300 bs.)	B16.3-1971				
Pipe threads (Except Dryseal)	B2.1-1968				
Special cast iron fittings (UPC specials)				PS5-77	
NONFERROUS PIPE AND FITTINGS:					
Cast bronze screwed fittings (125 &250 lbs.)	B16.15-1971				
Cast bronze solder joint drainage fittings	B16.23-1969				
Cast bronze solder joint pressure fittings	B16.18-1983				
Copper drainage tube (DWV)		B306-72			
Copper or red brass tube and drainage tube (Installation)				IS3-75	
Seamless brass tube		B135-71A			
Seamless copper pipe	H26.1-1967	B42-72			
Seamless copper tube		B75-72			
Seamless copper water tube (K,L,&M)	H23.1-1970	B88-72			
Seamless red brass pipe	H27.1-1967	B43-72			
Wrought copper and bronze solder joint pressure tubing	B16.22-1963				

TABLE 1 (CONTINUED)
MATERIAL STANDARDS

	ANSI	ASTM	FS	IAPMO	OTHER
Wrought copper and wrought copper alloy solder joint drainage fittings	B16.29-1968				
NONMETALLIC PIPING:					
Acrylonitrile-butadienestyrine(ABS)-DWV pipe and fittings (installation)				IS5-77	
Acrylonitrile-butadienestyrine(ABS)-DWV pipe and fittings		D2661-73			
Fittings for joining polethylene pipe for water service and yard piping				PS25-77	
Polybutylene (PB) Plastic Pipe (SDR-PR)		D2662-78		IS17-77	
Polybutylene (PB) Plastic Tubing		D2666-81		IS17-77	
Polybutylene (PB) Distribution System		D3309-81		IS22-81	
Polyethylene building supply (water servic and yard piping)				IS7-75	
Polyethylene (PE 3406 natural gas yard piping)				IS12-77	
Poly (Vinyl Chloride) (PVC), Plastic Pipe Fittings, Socket Type Schedule 40		D2466-69			
Poly (Vinyl Chloride) (PVC), Plastic Pipe Fittings, Socket Type Schedule 80		D246769			
Poly (Vinyl Chloride) (PVC), Plastic Pipe, Sch. 40,80,120.		D1785-73			
Poly (Vinyl Chloride) (PVC), Plastic Pipe Fittings, Threaded, Schedule 80		D2464-69			
Poly (Vinyl Chloride) (PVC) natural gas yard piping				IA 10-77	
Poly (Vinyl Chloride) (PVC) -DWV (installation)			IS9-77		

TABLE 1 (CONTINUED)
MATERIALS STANDARDS

	ANSI	ASTM	FS	IAPMP	OTHER
Poly (Vinyl Chloride) (PVC) - DWV Pipe and Fittings		D2665-68			
Solvent Cements for (PVC) Plastic Pipe and Fittings		D2564-73			
Solvent cemented PVC pipe for water yard piping				IS8-78	
VALVES					
Backflow Prevention devices				PS31-75	
Bronze Gate		WW-V-54c1966			
Cast Iron Gate		WW-V-58b1971			
Relief valves & automatic as shut-off devices for hot water supply systems	Z21.22-1971				
APPLIANCES AND EQUIPMENT					
Automatic storage type water heaters with input less than 50,000 BTU/hr.	Z21.10.1-1971				
Circulating tank, instantaneous and large automatic storage type water heaters	Z21.10.3-1971				
Draft Hoods Listing requirement for Gas-Fired Swimming Pool Heaters	Z21.12-1971 Z21.56-71				
Gas-Fired steam and Hot water boilers	Z21.13-1967				
Metal Connectors for gas appliances Addenda to Z21.14-1967, Z21.13B-197	Z21.24a-1968				
Oilfired boilers					UL 726-1963
Oilfired water heaters					UL 732-1955
Vents, gas					UL 441-1964

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TABLE 1 (CONTINUED)
MATERIAL STANDARDS

	ANSI	ASTM	FS	IAPMP	OTHER
MISCELLANEOUS					
Plant applied protective pipe coatings				PS22-78	
Protectively coated pipe, installation of				IS13-75	
Rubber gaskets for cast iron soil pipe and fittings		C654-70			

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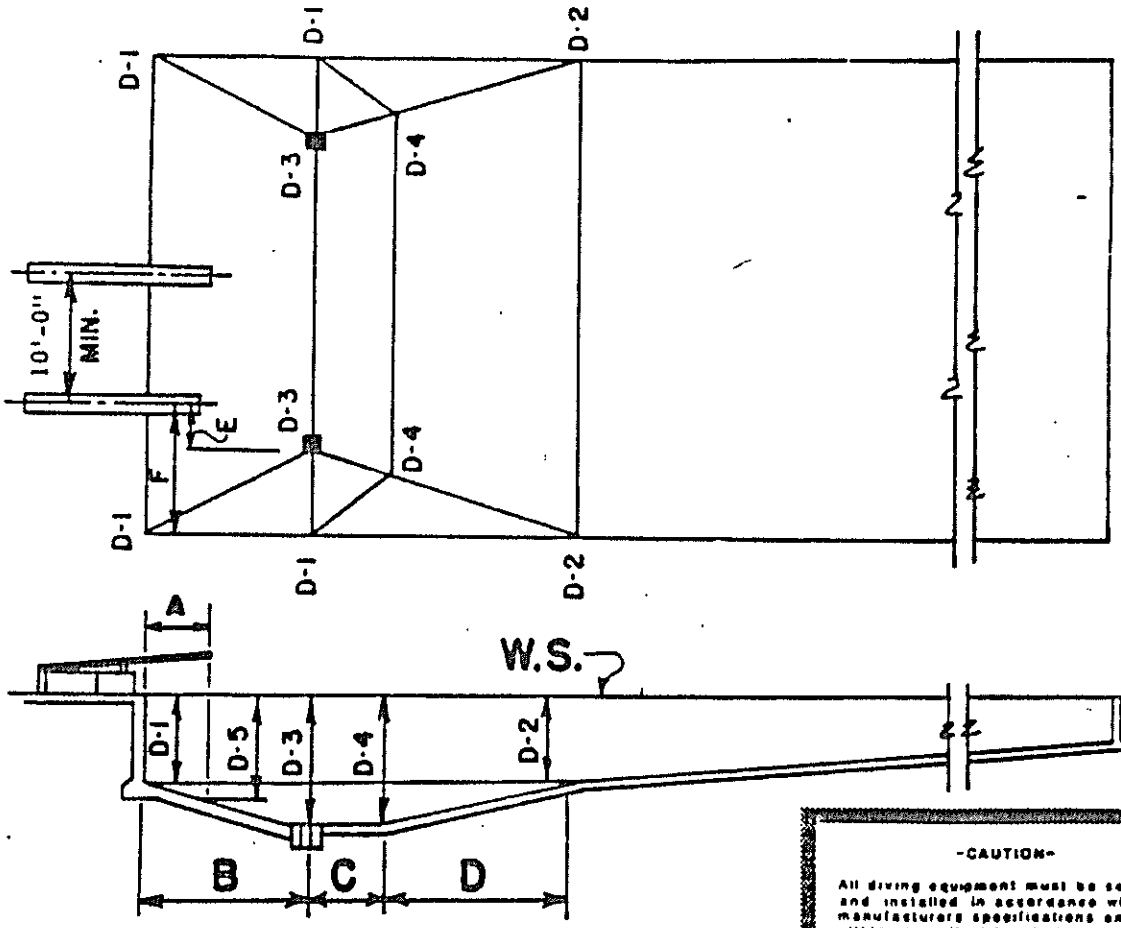
TABLE 2

MINIMUM STANDARDS FOR PUBLIC SWIMMING POOLS
DIVING AREA—SCHEDULE OF DEPTHS AND THEIR LOCATIONS



-CAUTION-

All diving equipment must be selected and installed in accordance with the manufacturers specifications and within prescribed local standards, or those established by the National Spa and Pool Institute. Improper installation may result in serious bodily injury.

D-1 Shall be at End Wall of Diving Area or Not More Than 12" From This Wall.

STANDS & BOARDS		DEPTH - MIN.- MAX.					LENGTH of SECTION					
		D-1	D-2	D-3	D-4	D-5	A	B	C	D	E	F
3- METER BOARD	MIN.	5'-0"	4'-6"	11'-0"	9'-9"	8'-6"	5'-0"	*6'-0"	*9'-0"	20'-0"	1'-0"	12'0"
	MAX.		5'-6"				6'-0"	10'-0"				
1- METER BOARD	MIN.	5'-0"	4'-6"	9'-0"	8'-3"	8'-6"	5'-0"	*6'-0"	*9'-0"	15'-0"	1'-0"	10'-0"
	MAX.		5'-6"				6'-0"	10'-0"				
DECK LEVEL BRD.	MIN.	5'-0"	4'-6"	8'-0"	7'-6"		2'-6"	^6'-0"	^6'-0"	12'-0"	1'-0"	10-0"
	MAX.		5'-6"				4'-0"	10'-0"				
NO BOARD	MIN.	NO DIVING					*B & *C May Vary to Attain Total 15'-0" MIN.					
	MAX.						^B & ^C May Vary to Attain Total 12'-0" MIN.					

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