

Glossary of Pool Terms

Abrasion Hazard: A surface that presents an unreasonable risk of irritation to the skin upon contact.

Accessible: 1. Easily and readily exposed for inspection and the replacement of materials and/or parts with the use of tools. 2. Methods providing access to persons with disabilities.

Acid: A liquid or dry chemical used to lower the pH and/or alkalinity of pool or spa water.

Acid Demand: A measure of the amount of acid required to lower the pH to a desired level.

Acid Demand Test: Acid of known strength is added in increments to a measured water sample to determine the amount of acid necessary to make an adjustment in a pool to achieve the desired pH.

Acidic: Having a pH below 7.0. Opposite of basic.

Acid Wash: A procedure using an acid solution to clean an interior surface of a pool with subsequent neutralization of the acid.

Acrylic: A thermoplastic material that can be extruded, injection molded, or vacuum formed into usable shapes and surfaces.

Action Pool: A wave pool in which standing waves are generated in an assortment of patterns.

Activated Carbon: A charcoal-like material used to remove colors, odors, and/or excess oxidizer from water.

Activity Pool: Any pool designed primarily for play activity that uses constructed features and devices including lily pad walks, flotation devices, small slide features and similar attractions.

Admixture: A material (other than aggregate, cement, or water) added in small quantities to concrete to produce some desired change in properties.

Adult Supervision: A situation whereby a child at rest or play is within the constant sight and hearing of an adult charged with safeguarding the child. Such supervision must be of a nature that is uninterrupted without absences, voids, or distractions that separate adult from child by distance, obstacles, or any hindrance to sight and sound communication.

AF: See ALKALINITY FACTOR.

Aggregate: Marble dust, sand, rocks, pebbles, colored quartz, dolomite, and other similar materials used as components of concrete or plaster.

Aggressive Water: Water that is corrosive because it is low in pH, and/or calcium hardness, and/or alkalinity.

Air Blower: A device that produces a continuous flow of air.

Air Channel: A system whereby a volume of air is introduced into hollow ducting built into a spa floor, bench or other location. The air channel is activated by a separate air power unit (blower).

Air Control: A means for spas and hot tubs to regulate air flow in the air induction system, increasing or decreasing hydrotherapy action.

Air Entrainment: Process in which minute air bubbles, ranging in size from 0.01 inches to 0.001 inches are mixed in a concrete mortar mix. Improves workability and frost resistance of the mix.

Air Induction System: A system whereby a volume of air is introduced into hollow ducting built into a spa floor, bench, or hydrotherapy jets.

Air Switch System: An isolated device that utilizes a pulse of air sent down a tube to remotely operate electrical equipment.

Algae: Microscopic plant-like organisms that contain chlorophyll.

Algicide: Any chemical or material that kills algae.

Algistatic: Able to inhibit the growth of algae.

Alkali: A term applied to bases, usually carbonates, bicarbonates, and hydroxides, that raise the pH and alkalinity when added to water.

Alkaline: Having a pH above 7.0.

Alkalinity: See TOTAL ALKALINITY.

Alkalinity Factor (AF): Used to calculate the saturation index of water.

Alum (Aluminum Sulfate) (Al₂SO₄)₃): A compound used to cause suspended solids in the water to form filterable masses (floculate).

Alteration: See REMODEL AND RENOVATE.

Alternative Method: A substitute way of achieving the same goal or purpose.

Ammonia (NH₃): A chemical compound of hydrogen and nitrogen that combines with free chlorine in pools to form chloramines or combined chlorine. It also combines with free bromine to form bromamines.

Amperage: The strength of a current of electricity expressed in amperes.

Ampere (Amp): A unit of electrical current that is equivalent to a flow of one coulomb per second or to the steady current produced by one volt applied across a resistance of one ohm. It also applies to the strength of a current of electricity expressed in amperes.

Amphoteric: Having the ability to serve as either an acid or a base.

Analog Meter: A testing device in which a needle is used to indicate readings on the dial face.

Ancillary Facility: Area used in conjunction with, or the operation of, a pool such as public dressing, locker, shower, or bathroom area, equipment room, pool deck area or building space intended to be used by pool users.

Anti-Entrapment Cover: See LISTED SUCTION OUTLET COVER/GRATE.

Anti-Vortex Cover: An outlet cover designed to prevent air entrainment from the surface of the water. This term is no longer used to describe LISTED SUCTION OUTLET COVER/GRATE.

Approved Safety Outlet Cover: See LISTED SUCTION OUTLET COVER/GRATE.

Aquatic Recreation Facility: A facility that is designed for free-form aquatic play and recreation. The facilities may include, but are not limited to, wave or surf action pools, leisure rivers, sand bottom pools, vortex pools, activity pools, inner tube rides and body slides, and interactive play attractions.

Available Chlorine: A rating of a chemical's total chlorine content based on a comparison to elemental (gaseous) chlorine having 100% available chlorine.

Backboard: Device for immobilizing a person with a suspected injury to the spinal column.

Back Pressure: Resistance to flow, normally expressed in pounds per square inch (kilograms per square centimeter).

Backwash: The process of cleansing the filter medium and/or elements by the reverse flow of water through the filter.

Backwash Cycle: The time required to backwash the filter medium and/or elements and to remove debris in the filter vessel.

Backwash Rate: The rate of water flow through the filter media per unit of area (U.S. gallons/minute/square feet) of effective filter area.

Bacteria: Single-celled microorganisms of various forms, some of which cause infections or disease.

Bactericide: Any chemical or material that kills bacteria.

Balance: In pools and spas, used to refer to a condition of the water that is neither scaling nor corrosive.

Ball Valve: A device that can partially or totally obstruct the flow of water, using a ball-shaped diverter.

Barrier: A means to limit, delay, or restrict access to a pool, spa, or hot tub.

Base: A chemical used to raise pH and/or total alkalinity of pool or spa water.

Base Demand: A measure of the amount of alkaline material required to raise pH to a predetermined level. This can be accomplished by use of a base demand test, whereby a standard base is added by drop to the pH test solution until the desired pH is reached.

Basic: Having a pH above 7.0. Opposite of acidic.

Bather: Any person using a pool, spa, or hot tub and adjoining deck area for the purpose of water sports, recreation, therapy or related activities.

Bather Load: The number of persons in the pool/spa water at any given moment or during any stated period of time.

BCDMH (Bromo Chloro-Dimethyl Hydantoin) Products: Sanitizer product that is used to generate available bromine. Contains available bromine and available chlorine.

Bench (Underwater): See SEAT.

Bentonite: Highly absorptive and compressible clay material tamped into place to restrict water seepage or suspended in water slurry to keep earth from falling into an excavation.

Biofilm: A community of microorganisms such as bacteria, algae, or fungi that are encased in a gelatinous matrix and usually attached to surfaces. The matrix protects the microorganisms

from harsh environmental conditions and confers greater resistance to sanitizers and aldehydes. SLIME.

Bleach (NaOCl): Sodium hypochlorite. A chlorine source that typically has between 5% and 16% available chlorine. LIQUID CHLORINE.

Bleeder Valve: A device that allows air to be vented from a system.

Blister: An area of raised surface detached from the structural matrix of a material.

Body Coat: A layer of diatomaceous earth or similar materials on a filter element that acts as the filtering media.

Body Feed: A controlled amount of diatomaceous earth or similar materials that are continuously added to the filter element during the course of a filter run to help maintain filter porosity.

Bond Beam: Traditional extra-structural strength or rigidity provided along the top edge of a pool wall.

Bond Failure: Failure of plaster or other surfaces to adhere to the underlying subsurface; delamination.

Bonding, Electrical: The joining of metallic parts to form an electrically conductive path that will ensure electrical continuity.

Booster Pump System: A pump that is completely independent of the filtration and heating system. Used to provide support for hydrotherapy jets, cleaning systems, and gas chlorinators, or special water features.

Bottom Rail: The lower portion of an aboveground pool frame used as a structural retainer for aboveground pool wall.

Branch Piping: Multiple suction outlet covers/grates: all pipe and fittings, including the tee, located between covers/grates and the single suction pipe feeding the pump or pumps.

Break In Grade: Occurs when the slope of the pool floor changes to a greater slope.

Breakpoint Chlorination: The addition of a sufficient amount of chlorine to water to destroy the combined inorganic chlorine present. Normally, the amount added is equal to ten times or more the combined chlorine concentration.

Bridging: Build-up of a body coat on diatomaceous earth filter elements to the point where the body coats of two adjacent elements touch.

Broadcast: A method of applying chemicals into a pool or spa by spreading them uniformly over the water surface.

Bromamines: Bromine-ammonia compounds exhibiting sanitizing properties similar to hypobromous acid.

Bromide: A salt that contains a bromide (Br^-) ion. Bromide becomes hypobromous acid when it reacts with oxidizers such as chlorine, ozone, or persulfates.

Bromine (Br₂): One of several chemicals that yield hypobromous acid when added to water.

Bromine Feeder: A device to add or deliver bromine sanitizer at a controlled rate.

Bromine Generator: See ELECTROLYTIC CHLORINE/BROMINE GENERATOR.

BTU: British thermal unit. A unit of measurement used to define the capabilities of heaters. One BTU is capable of raising the temperature of one pound of water by one degree Fahrenheit.

Buffer: Chemical that when dissolved in water will resist pH change. Also a chemical solution used to calibrate pH instrument.

Bullnose: 1. A convex rounding of an object. 2. A brick, stone, or coping with a rounded edge.

Burner: The component of the heater where the combustion of fossil fuel takes place.

Bypass Valve: A valve used to limit or adjust the amount of water flowing through a device in a bypass loop to divert flow to an alternate plumbing path.

Calcification: Formation of calcium carbonate on walls of pools or pipes, or in a filter or heater, due to low solubility of calcium salts.

Calcium Carbonate (CaCO₃): An insoluble, calcium compound that is the major component of scale. CaCO₃ occurs normally in limestone, marble, various eggshells, seashells, etc.

Calcium Chloride (CaCl₂): A soluble white salt used to raise the calcium hardness of pool and spa water.

Calcium Hardness: A measure of the amount of calcium dissolved in water and expressed in parts per million (ppm) or milligrams per liter (mg/L) as calcium carbonate.

Calcium Hardness Factor (CF): Used to calculate the saturation index of water.

Calcium Hypochlorite (Ca(OCl)₂): A solid white form of chlorine found in both granular and tablet forms (65% - 75% available chlorine).

Cantilever: A projecting beam supported only at one end.

Capacitor: A device that consists essentially of two conductors (such as parallel metal plates) insulated from each other by a dielectric and that introduces capacitance into a circuit, stores electrical energy, blocks the flow of direct current, and permits the flow of alternating current.

Carbon Dioxide (CO₂): Common gas found in air. Can be used to lower pH in a pool.

Cardiopulmonary Resuscitation (CPR): A lifesaving technique involving both chest compressions and mouth-to-mouth breathing, to circulate oxygen and blood to vital organs.

Cartridge: A replaceable porous element designed to retain suspended particles from water.

Cartridge Filter: A filter that utilizes a porous element that acts as a filter medium.

Catch Basin: A body of water supplied by gravity overflow from another pool. This is different from the terminology in storm water drainage.

Catch Pool: A pool or designated section of a pool used as a terminus for waterslide flumes. See SPLASH POOL.

Caustic: Sodium hydroxide, lye; used in pools, an extremely high pH alkali; referring generally to high pH.

Caustic Soda (NaOH): Sometimes called caustic sodium hydroxide or lye. A highly alkaline substance sometimes used to raise pH.

Cavitation: Formation of partial vacuums when the pump capacity exceeds water replacement supply.

Cement: A powdered substance of lime and clay generally mixed with water and aggregate to make concrete.

Centrifugal Force: The outward force exhibited by a circular motion.

Centrifugal Pump: A pump to circulate water using an impeller, powered by an electric motor or gasoline engine. The centrifugal force of the spinning impeller creates the flow through the pump.

Certified Safety Outlet Cover: See LISTED SUCTION OUTLET COVER/GRATE.

CF: See CALCIUM HARDNESS FACTOR.

CFU (colony forming units): Used to express the concentration of microorganisms per unit of volume, most often as CFU per ml of bacteria in water.

CFM: Cubic feet per minute of air.

Channelization: The undesirable process whereby filter sand is permeated by tubes or channels of calcified or oily material allowing water to pass freely, without filtration.

Check Valve: A mechanical device in a pipe that permits the flow of water in one direction only.

Chelating Agent: A chemical used to bind (sequester) metals dissolved in water, to prevent them from precipitating and staining pool surfaces.

Chemical Feeder: A device (floating or mechanical) for adding a chemical to pool or spa water.

Chemical Feeder Output Rate: Amount of chemical or active ingredient delivered by a feeder per unit time (for example, pounds of chlorine per hour). One pound per hour is equivalent to 0.45 kilograms per hour.

Children's Pool/Ride: Ride, flume ride, or other slide attraction, at a water theme park, designed primarily for the use of small children.

Chine: That portion of the stave of a hot tub below the bottom of the croze.

Chine Joist: A brace that provides support to the floor of a hot tub.

Chloramines: They are formed when free chlorine combines with nitrogen-containing compounds (for example: perspiration, ammonia). These compounds can cause eye and skin irritation, have strong objectionable chlorine-type odors, and low sanitizing capability. COMBINED CHLORINE.

Chlorinated Isocyanurates (ISOS): Sanitizer products that are self-stabilizing due to release of free available chlorine and cyanuric acid when they dissolve.

Chlorinator: A device to add or deliver a chlorine sanitizer at a controllable rate.

Chlorine: See Calcium Hypochlorite, Sodium Dichlor, Isocyanurates, Sodium Hypochlorite, and Trichloro- Iso-Cyanurate.

Chlorine Demand: The amount of chlorine that will be consumed by readily oxidizable impurities in pool or spa water.

Chlorine Gas (Cl₂): A gaseous form of chlorine used to sanitize pools and spas; contains 100% available chlorine.

Chlorine Generator: See ELECTROLYTIC CHLORINE/BROMINE GENERATOR.

Chlorine Neutralizer: A chemical used to reduce chlorine residuals.

Chlorine Residual: See RESIDUAL.

Circuit: The complete path of an electric current.

Circuit Breaker: A device designed to open and close an electrical circuit manually and to open a circuit automatically at a predetermined level, thus providing protection to the wiring and electrical components.

Circulation Equipment: The components of a circulation system.

Circulation System: The mechanical components that are a part of a recirculation system on a pool or spa. Circulation equipment may be, but is not limited to, categories of pumps, hair and lint strainers, filters, valves, gauges, meters, heaters, surface skimmers, inlet/outlet fittings and chemical feeding devices. The components have separate functions, but when connected to each other by piping, perform as a coordinated system for purposes of maintaining pool or spa water in a clear and sanitary condition.

Clarifier: A chemical that causes fine suspended solids in water to combine into filterable clusters. See FLOCCULANT.

Clarity: The degree of transparency of pool water. Characterized by the ease with which an object can be seen through a given depth of water.

Coliform Bacteria: Bacteria found in the intestines and fecal matter of warm-blooded animals. The detection of coliforms is used to indicate the possibility of disease-causing bacteria.

Collector, Solar: An assembly of components used to collect solar energy for heating, i.e., rooftop structure, floating devices, etc.

Combined Chlorine: COMBINED AVAILABLE CHLORINE. See CHLORAMINES.

Commercial/Public Pool: Any pool, other than a residential pool, that is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee, or concessionaire, regardless of whether a fee is charged for use.

Competitive Diving Equipment: Competitive diving equipment includes diving boards and adjustable fulcrum-setting diving stands intended for competitive diving.

Coping: The cap on the wall that provides a finishing edge around the pool/spa. Can be formed, cast in place, precast, brick, stone, or pre-fabricated from metal or plastic materials. It may be used as part of the system that secures a vinyl liner to the top of the pool wall.

Copper Sulfate (CuSO₄): A blue inorganic salt, sometimes used as an algicide. BLUESTONE.

Cove: The radius that joins the floor and wall of a pool or spa.

Cover: Something that covers, protects, or shelters a pool, spa, or hot tub. Types of covers are:

- 1. Safety Cover:** A barrier (intended to be completely removed before entry of users) for swimming pools, spas, hot tubs or wading pools, attendant appurtenances and/or anchoring mechanisms that will, when properly labeled, installed, used, and maintained in accordance with the manufacturer's published instructions, reduce the risk of drowning of children under five years of age by inhibiting their access to the contained body of water and by providing for the removal of any substantially hazardous level of collected surface water. (These covers may be power or manual.)
- 2. Solar Cover:** A cover that when placed on a pool or spa surface increases the water temperature by solar activity and reduces evaporation and heat loss.
- 3. Thermal Cover:** An insulating cover used to prevent evaporation and heat loss from pools or spas.
- 4. Winter Cover:** A cover that is secured around the perimeter of a pool or spa that provides a barrier to debris, when the pool or spa is closed for the season.

Craze: See SURFACE CHECKS.

Cross Connection: An unprotected connection between domestic water supply and pool water or other non-potable water, where a contamination of the domestic system could occur.

Cross-Over Deterrent: A feature to deter a person from crossing over a barrier wall or fence to the opposite side (e.g., pointed picket fences).

Cyanuric Acid: A chemical that reduces the loss of chlorine in water due to the ultraviolet rays of the sun. STABILIZER, ISOCYANURIC ACID, CONDITIONER, TRIAZINETRIONE.

Dead Load: The weight of all permanent structural and nonstructural components of a building, such as walls, floors, roofs, ceilings, stairways, and fixed service equipment.

Debris Removal System: A system comprised of a large opening suction outlet, large diameter pipe and a debris collection basket, typically located in the deck or the pump basket. Because of unique challenges passing debris through the drain cover and suction piping, these systems are designed specifically for debris removal and are commonly sold as kits with detailed installation requirements to address suction safety.

Deck Dive: A dive performed from the deck area of a pool into five feet (5') or more of water depth.

Decks: Those areas immediately adjacent to or attached to a pool or spa that are specifically constructed or installed for sitting, standing, or walking. Generally made of concrete, wood, or masonry.

Deep Area: Water depth areas exceeding five feet (5').

Design Rate of Flow: The rate of flow used for design calculations in a system.

Diatomaceous Earth (DE): A white powder used as a filtering medium composed of microscopic fossil skeletons of diatoms.

Diatomaceous Earth Filter: A filter that utilizes a coating of diatomaceous earth (DE) or other filter media over a porous fabric as its filter medium.

Diatomite Filter Element: Device used in a filter tank called a filter grid or element coated with a fabric that traps diatomite on its surface.

Dichlor: See SODIUM DICHLOR.

Diethylphenylene Diamine (DPD): A chemical testing reagent that measures bromine or free available and total chlorine; produces a series of colors from pale pink to dark red.

Diffuser: A component of a pump whose function is to reduce velocity and increase static pressure of a fluid passing through a system.

Digital Multimeter: This meter is read by means of an LED or LCD display.

Discharge Head: The resistance, caused by friction and/or changes in elevation, of the water flow encountered on the discharge side of the pump back to the swimming pool or spa.

Dive: A free-fall entry into water from a planned acrobatic maneuver into a designated diving area of a pool.

Diving Area: The area of a swimming pool that is designed for diving.

Diving Board: A flexible board secured at one end that is used for diving.

Diving Platform: Stationary platform designed for diving.

Diving Stand: Any supporting device for a springboard or diving board.

Draft Hood: Part of a heater venting system used to prevent a downdraft.

Drain: an obsolete term for suction outlet, which is a fitting, fitting assembly, cover/grate, and related components that provide a localized low pressure area for the transfer of water from a swimming pool, wading pool, spa, or hot tub.

Drawdown: Drawdown is the decrease of water level in a vented reservoir from the rest condition to operating condition.

Dry Acid (NaHSO₄): See SODIUM BISULFATE.

Dynamic Head: The sum of the total resistance, caused by friction and/or changes in elevation, of the water flow through the entire circulation system that the pump has to overcome to achieve the necessary flow rate.

Edge Guards: Shields designed to cover sharp edges in aboveground pools.

Effluent: The outflow of water from a filter, pump, or pool.

Egress: Means of exit.

Electrical Induction: The process by which an object having electrical or magnetic properties produces similar properties in a nearby object, usually without direct contact. See AIR INDUCTION SYSTEM.

Electrolysis: The decomposition of material by an outside electrical current.

Electrolytic Chlorinator: See ELECTROLYTIC CHLORINE/BROMINE GENERATOR.

Electrolytic Chlorine/Bromine Generator: An electrolytic device used to generate free available chlorine or total bromine from either chloride or bromide salts.

Electron: A minute particle of negatively charged electricity.

Entrapment:

1. Hair entrapment: hair entangled in a suction outlet cover.

2. Limb entrapment: a limb inserted or drawn into an unprotected opening resulting in a mechanical bind or swelling.

3. Body suction entrapment: suction applied to a large portion of the body, resulting in entrapment.

4. Evisceration/disembowelment: when suction draws out intestines and organs through an unprotected suction opening.

5. Mechanical Entrapment: Jewelry, bathing suits or other materials are entangled in a drain cover

Entry Pool: Pool at a water theme park that is provided at the entrance of a water slide or inner tube ride.

EPA-Registered Product: A product bearing the EPA stamp indicating that it meets EPA standards for efficacy, human health and safety, environmental impact, use instructions, and product labeling. All products that claim to kill or control bacteria, algae, etc., are required to be registered.

Equalizer Line:

1. A pipe with a listed suction outlet cover/grate located below the waterline and connected to the body of a skimmer to prevent air from being drawn into the pump if the water level drops below the skimmer weir.

2. A pipe connecting two bodies of water to equalize water levels.

Equipment Area: Area used to house recirculation and disinfecting equipment and related appurtenances.

Erosion: **1.** Act of destroying or dissolving by slow disintegration or wearing away. **2.** In an erosion feeder, it is the way water dissolves the chemical being fed.

Erosion Feeder: A device that dispenses a sanitizer by directing a flow of water past tablets, briquettes, or pellets.

Etching: Corrosion on the surface; the pitting or eating away of a material such as the surface of plaster.

Evaporation: Conversion of liquid molecules into vapor.

Exercise Bar: A tubular device installed in the wall as a handhold.

Expansive Soil: Clay soil that absorbs moisture and swells, creating the potential for structure damage.

Fecal Streptococci: The fecal streptococcus group of microorganisms includes, but is not limited to, the organisms *S. faecalis*, and *S. faecium*, which inhabit the gastrointestinal tract of warm blooded animals. These organisms are indicators of contamination in water. The ingestion of the fecal streptococci can cause illness.

Feet of Head: The resistance in a hydraulic system based on the equivalent to the height of a column of water that causes the same resistance (100 feet of head equals 43 pounds per square inch). The total dynamic head is the sum of all resistances in a complete operating system.

Ferric Iron (Fe+3 or Iron III): Generally insoluble in water, commonly precipitating as rust.

Ferrous Iron (Fe+2 or Iron II): Found in groundwater. It is soluble in water and will generally impart a pale green color. In the presence of oxidizers, it will convert to Iron III.

Fiberglass: Fine-spun filaments of glass that are available in a rope or mat form. When used in a process with polyester resins and hardeners, can be formed and molded into pools, spas, and related equipment.

Field Fabricated Outlets: non-manufactured suction outlets constructed in the field with individual components.

Filter: A vessel that removes undissolved particles from water by recirculating the water through a porous substance (a filter medium or elements).

1. Cartridge Filter: A filter that utilizes a porous element that acts as a filter medium.

2. Diatomaceous Earth Filter: A filter that utilizes a thin coating of diatomaceous earth (DE) or other filter aid over a porous fabric as its filter medium.

3. Sand Filter: A filter that utilizes sand, or sand and gravel as the filter medium.

Filter Agitation: The mechanical or manual movement to dislodge the filter aid and dirt from the filter element.

Filter Aid: Usually refers to powder-like substances such as diatomaceous earth or volcanic ash used to coat a septum type filter. Also used as an aid to sand filters. Finely divided medium (diatomaceous earth, processed perlite, etc.) used to coat a septum of a diatomite-type filter.

Filter Area: Total surface area through which designed flow rate will be maintained during filtration.

Filter Cartridge: A filtering element, usually of fibrous material.

Filter Cycle: The operating time between cleaning or backwash cycles.

Filter Element: A device within a filter tank designed to entrap solids and conduct water to a manifold, collection header, pipe, or similar conduit and return it to the pool, spa, or hot tub. A filter element usually consists of a septum and septum support, or a cartridge.

Filter Medium: A finely graded material (such as sand, diatomaceous earth, polyester fabric, anthracite, etc.) that removes solid particles from the water.

Filter Sand: A hard silica-like material free of carbonates or other foreign material used in sand filters as the media.

Filtration: The process of removing undissolved particles from water by recirculating the water through a porous substance (a filter medium or elements).

Filtration Flow: The design rate of flow, in volume per time (GPM, GPH), through the filter system installed per manufacturer's instructions with a new, clean filter medium.

Filtration Rate: The rate of water flowing through a filter during a given period of time, expressed in U.S. gallons per minute per square foot of effective filter area. FILTRATION FLOW RATE.

Firebox: A chamber in the pool/spa heater where combustion takes place.

Firebrick: A refractory brick capable of sustaining high temperatures.

Fireman's Switch: A mechanism adapted to the time clock that will turn the heater off long enough for it to cool down before the time clock turns the pump off.

Float Valve: A valve controlled by the level of a fluid.

Flocculant (floc): A chemical that causes fine suspended solids in water to combine into large clusters that settle out.

Floor: The interior bottom surface of a pool or spa.

Flow: The rate of the movement of water, typically in gallons per minute.

Flow Balance Valve: Device that regulates the flow from skimmers, drains, or other outlets.

Flow Meter: A device that measures the rate of flow of water or other liquid through piping.

Flow Rate: The volume of liquid flowing past a given point in a specified time period. Usually expressed as U.S. gallons per minute (GPM) or gallons per hour (GPH).

Flow Switch: A safety device that prevents the equipment from firing if there isn't adequate water flow through the system.

Flume: A trough-like or tubular structure, generally recognized as a water slide, that directs the path of travel and the rate of descent by the rider.

Flume Slide: Slides of various configurations that are characterized by having deep riding channels, vertical and lateral curves, high water flows, and accommodate riders using or not using mats, tubes, rafts, and other transport vehicles. Included but not limited to family raft rides, inner-tube rides, body slides, and speed slides.

Frame: The structure that defines and/or supports the outline or shape of the aboveground pool wall.

Free Available Chlorine: That portion of the total chlorine that is not combined chlorine and is available as a sanitizer.

Freeboard: The clear vertical distance between the top of the filter medium and the lowest outlet of the upper distribution system in a permanent medium filter.

Freeze-Thaw Cycle: Seasonal weather and temperature changes that can cause stress to a surface.

Friction Head: Head specifically caused by friction or drag.

Friction Water: Resistance created by the liquid passing the inner surface of the conductor pipe and fittings.

Fusible Link (Gas Heater): A thermal safety cut-off device in the control circuitry that melts if temperature parameters are exceeded.

GPD, GPH, GPM: Abbreviations for gallons per day, hour, and minute.

Gallonage: A specific quantity of fluid in terms of gallons.

Galvanic Action: The creation of electrical current by the process of electro-chemical action of dissimilar metals in a liquid.

Galvanic Corrosion: The deterioration of metal produced when two dissimilar metals are exposed to the electrical current produced by electro-chemical action.

Gate Valve: A device in a pipe that can partially or totally obstruct the flow of water, using an internal "gate" that moves in and out as the valve is operated.

Gelcoat: A colored polyester-resin material applied in liquid form that hardens to a smooth, durable form when applied over a mold.

GFCI: See GROUND FAULT CIRCUIT INTERRUPTER.

GPD: Gallons per day.

GPH: Gallons per hour.

GPM: Gallons per minute

Grab Bar/Rail: Rails used to enter or leave a pool or spa.

Ground Clearance: Distance between the surface of the ground and the bottom of the fence. The distance should be small enough to prevent entrapment or entry.

Ground Fault Circuit Interrupter (GFCI): A device intended for the protection of people and/or equipment that functions to de-energize an electrical circuit within an established period of time when current to ground exceeds some pre-determined value (5/1000th of an ampere (0.005)).

Grounding: Connecting to or providing a conducting path to earth or to some conducting body that serves in place of earth.

Gunite: A pneumatically applied (sprayed) concrete that is a dry mixture of cement, aggregate, and/or sand. Water is applied to the mix at the hose nozzle.

Gutter: Overflow trough at the perimeter wall of a pool or at the bottom of a vanishing edge wall of a pool that is a component of the circulation system or flows to waste.

Hair and Lint Strainer: A device attached on or in front of a pump to which the influent line (suction line) is connected for the purpose of entrapping lint, hair, or other debris that could damage the pump.

Halogen: Any of the family of chemical elements including fluorine, chlorine, bromine, and iodine. Chlorine and bromine are commonly used as sanitizers or oxidizers in recreational water.

Handhold/Handrail: A support device that is intended to be gripped by a user for the purpose of resting or steadying. It is typically located within or at exits to the pool or spa or as part of a set of steps.

Hardness: The amount of calcium and magnesium dissolved in water; measured by a test kit and expressed as parts per million (ppm) of equivalent calcium carbonate.

Hazard: A condition or set of circumstances that has the potential of causing or contributing to injury or death.

Head: A measure of the amount of pressure or resistance in a hydraulic system expressed in "feet."

Head Loss: The amount the flow would reduce as the head increases.

Header: A manifold in a heater that directs the flow of water into and out of the heat exchanger.

Heater: Fossil-fueled, electric, or solar device to heat the water of pools or spas.

1. Direct Electric: Uses resistive heating element placed in line with the circulation system.

2. Fossil-Fueled: Natural gas, propane gas, or fuel oil. They utilize an open flame to heat a heat exchanger.

3. Heat Pump: Uses a compressor with a closed freon loop to exchange heat between either the ambient air or external water source with the pool or spa water.

4. Solar: Uses energy from the sun to heat the collector or through the blanket to heat the water. Other ways to categorize heaters include: Direct Heaters that heat the tubes in which water circulates. Indirect Heaters that circulate steam or hot water inside a heat exchanger through which water flows.

Heat Exchanger: A device with coils, tubes, and plates that takes heat from any liquid, or air, and transfers that heat to another fluid without intermixing the fluids.

Heat Loss: The natural drop in water temperature as heat is transferred to the surrounding air.

Heat Pump: A refrigeration compressor, usually electrically driven, that is operated in reverse. To obtain heat, the evaporator side (cooling coil) is exposed to water, air, or ground. The coil takes the heat from this source and transfers it to the condenser coil where it discharges the heat to the pool/spa to be heated.

Heat Sink: A type of device capable of absorbing and dissipating heat.

High Limit Switch: A temperature control switch that can deactivate a control circuit at a preset temperature. They are normally preset at the factory and are non-adjustable. Some must be manually reset.

High Permeability Element:

Mechanically interlocked, non-woven filter material designed to remove suspended solids.

Hoop: 1. A circular constraint that provides the structural bonding of staves of a hot tub to prevent separating. 2. A device used to secure sections of a filter together.

Hoop Connector: A tightening and connection device.

Horsepower: A unit for expressing the power of motors or engines, equal to a rate of 33,000 foot-pounds per minute. One horsepower is equivalent to 42.41 BTU per minute. One horsepower is also equivalent to 745.7 watts.

Hose Bib: A valve with a threaded connection and specifically used as a hose connection.

Hot Tub/Spa: A warm water reservoir with hydromassage jets that are manufactured from prefabricated materials at a factory. Hot tubs/spas may be "self-contained," or "non-self-contained."

1. Self-Contained Hot Tub/Spa: A hot tub/spa that has a cabinet that houses the controls, the pump, heater, and filter. Most "portable hot tubs/spas" are made of an acrylic thermoplastic shell and are surrounded by a cabinet made of wood, alternative wood, or thermoplastic. A "self-contained hot tub/spa" can be moved to another location and reinstalled. A "self-contained hot tub/spa" has all control, water heating and water circulating equipment as an integral part of the product. A "self-contained hot tub/spa" may be permanently wired or cord connected. Also known as a "portable hot tub/spa."

2. Non-Self-Contained Hot Tub/Spa: A hot tub/spa that is made of an acrylic or thermoplastic shell molded at the factory to comfortably fit the body's contours. A "non-self-contained hot tub/spa" does not have water heating and circulating equipment as an integral part of the product. "Non-self-contained hot tubs/spas" may employ separate components such as an individual filter, pump, heater and controls, or they may employ assembled combinations of various components.

Hydraulics: Deals with the physical movement of water through the entire circulation system and is concerned with such matters as friction and turbulence generated in the pipes and other components of the system by the moving water.

Hydrochloric Acid (HCl): Also called muriatic acid when diluted. A very strong acid used in pools or spas for pH control and for certain specific cleaning needs. A by-product of the addition of chlorine gas to water. Use extreme caution in handling.

Hypochlorous Acid (HOCl): Formed when any chlorinating product is dissolved in water. This is the most active sanitizing form of chlorine. Its dissociation in water into H+ and OCl- is pH dependent.

Hydrogen Peroxide (H2O2): Compound consisting of hydrogen and oxygen supplied in an aqueous solution, used as an oxidizer. Will neutralize halogen sanitizer in water.

Hydrostatic Pressure: The pressure created by a depth of water, such as the upward pressure that high ground water may exert on the bottom.

Hydrostatic Relief Valve: A fitting installed in the bottom of the pool designed to open automatically or manually to relieve upward ground water pressure by allowing water to flow into the pool or spa.

Hydrotherapy Jet: A fitting that blends air and water, creating a high-velocity turbulent stream of air enriched water.

Hypobromous Acid (HOBr): A chemical compound that acts as a sanitizer and algicide in water.

Hypochlorinator: A chemical feeder through which liquid solutions of chlorine-bearing chemicals are fed into the pool water at a controlled rate. See CHLORINATOR.

Hypochlorite: A family of chemical compounds including calcium hypochlorite, lithium hypochlorite, sodium hypochlorite, etc., found in various forms for use as a chlorine carrier in pool/spa water.

Hypochlorite Ion (OCl): The anion from ionization of hypochlorous acid.

Hypochlorous Acid (HOCl): A chemical compound that acts as an algicide. The most powerful sanitizer of chlorine in water.

Impeller: The rotating part of a centrifugal pump that creates the flow of water.

Inches of Mercury (in Hg): Traditional units of measuring pressure below atmospheric ("suction" or "vacuum") (1.0 inch Hg = 0.4912 psi). See PSI.

Inertia: The tendency of all matter to persist in its state of rest or uniform motion until acted upon by some external force.

Influent: The water entering a filter or other device.

Ingress: Means of entry.

Inlet: See RETURN INLET.

Insulator: In electricity, any device that serves as a nonconductor.

Intermediate Pool: Any section of a quiescent water flow between the entry and landing pools in attractions at a water park that utilize a series of pools.

Intermittent Ignition Device: An electrical spark device used to ignite a gas heater.

Iodine (I2): A chemical element that exists as a grayish-black granule in its normal state or as a part of a chemical compound that is a biocidal agent.

Ionization: The process whereby a compound in solution separates into positive ions (cations) and negative ions (anions).

Ionizer: A device that electro-chemically generates metal ions such as silver and/or copper ions from anodes of these metals.

Iron: See FERRIC IRON AND FERROUS IRON.

Isocyanurates: See CHLORINATED ISOCYANURATES.

Jets: See HYDROTHERAPY JET.

Jointer: Tool used to prepare, make, or simulate joints in concrete flat work. Tool used to smooth out coping joints or brick joints. GROOVER.

Joist: See CHINE JOIST.

Jump Board: A premanufactured diving board that has a coil spring, leaf spring, or comparable device located beneath the board that is activated by the force exerted by jumping on the board's end.

Jumping Jet: A hydraulic device used in fountains to fluctuate the stream of water by blowing through the stream of water with another stream of water to deflect its flow. Can also be accomplished with air.

Kicker: A block of wood attached to formwork to take the thrust from other formwork. To stabilize forms commonly placed at the bottom of forms to prevent spreading during concrete placement.

Kilowatt: A unit of power equal to 1,000 watts.

Kilowatt Hour: A unit of work or energy equal to that expended by one kilowatt in an hour.

Ladder: A structure for ingress/egress that usually consists of two long parallel side pieces joined at intervals by crosspieces (treads).

Landing Pool: Pool at a waterpark that is located at the end of a flume that is designed to safely receive the rider of an attraction.

Langelier Index: A numerical calculation, based on the Langelier water balance equation, that indicates whether the water may be corrosive or scale forming. See SATURATION INDEX.

Leaching: The extracting of a soluble substance from some material, commonly tannic acid from redwood or cedar in hot tubs or a mineral extracted from plaster.

Lifeguard: A qualified person who is responsible for supervision and lifesaving at a pool.

Lifeline: An anchored line thrown to aid in rescue.

Line Level: A small spirit level that can be suspended from a stringline.

Liner: See VINYL LINER.

Liquid Acid (HCl): Chemical used to lower pH and total alkalinity, most commonly muriatic acid.

Liquid Chlorine: See SODIUM HYPOCHLORITE.

Liquid Propane Gas: The liquid form of propane gas, a heavy hydrocarbon occurring naturally in petroleum.

Listed/Listing: The published certification by a nationally recognized testing laboratory that a device, system, or alternate method has been tested and certified to be in conformance with the full intent of a standard.

Listed Suction Outlet Cover/Grate – Manufactured: A suction outlet cover/grate that has been tested, certified, and listed by a nationally recognized testing laboratory in accordance with the most recent edition of ANSI/ASME A112.19.8 Suction fittings for swimming and wading pools, spas, hot tubs and whirlpool bathtub appliances.

Listed SVRS: A manufactured safety vacuum release system tested and certified by a nationally recognized testing laboratory in accordance with ANSI/ASME A112.19.17 or ASTM F 2387-04.

Lithium Hypochlorite (LiOCl): A white solid used as a sanitizer and oxidizer in pools and spas that has a pH of approximately 9 and that typically contains 35% available chlorine.

Lower Distribution System: A device used in the bottom of a permanent medium filter to collect water during filtering and distribute it during backwashing (underdrain).

Magnesium Hardness: A measure of the amount of magnesium dissolved in water and expressed in parts per million (ppm) or milligrams per liter (mg/L) as calcium carbonate.

Main Drain: See DRAIN.

Make-Up Water: Water used to fill or refill a pool/spa. SOURCE WATER.

Manifold: A branch pipe arrangement that connects several influent pipes into one chamber or pump or one chamber into several effluent pipes.

Manometer: An instrument that measures vacuum or pressure differential.

Manufactured Diving Equipment: Manufactured diving equipment shall include diving boards, jump boards, springboards, and starting platforms. Architectural features such as decorative rocks and elevated bond beams are not considered to be manufactured diving equipment.

Marcite: Marcite is a registered trademark of Paddock of California Inc. See PLASTER.

Maximum Allowable Flow Rate: See FLOW RATING, COVER/GRATE.

Maximum Pool User Load: The maximum number of people allowed in a pool/spa at any one time.

Maximum pump capacity: The maximum flow capacity may be determined by one of the following methods: Simplified TDH Calculation (see definition); or – The maximum flow possible by a pump(s) as indicated on the manufacturer's pump curve. **Notice:** The flow condition of this method will likely be outside the pump's recommended operating range and shall be used only in the absence of a Simplified TDH Calculation.

Maximum System Flow Rate: The flow resulting from the lowest possible total dynamic head (TDH) for a circulation system.

Mechanical Seal: A device to prevent the passage of water in or out of a centrifugal pump at the motor shaft.

Medical Facility Pool: Special purpose pool used by a medical institution.

Mesh Restraining Barrier/Fence: A combination of materials, including fabric, posts, and other hardware to form a barrier around a swimming pool (or other areas).

Micron: One millionth of a meter. Used to describe the size of particles that filters are capable of trapping.

Microorganism: A microscopic plant or animal life. Usually refers to bacteria, protozoa, and algae in the water.

Millivolt: A measure of electrical potential equal to one thousandth of a volt.

Millivolt Ignition (Flame): Heat from a continuous pilot is used to generate electrical energy that opens the main gas valve.

Moment: A point at which load or stress can cause bending in a structural member.

Motor: A machine for converting electrical energy into mechanical energy. When electrical current is supplied to a series of wires (windings), a magnetic field is created that spins the rotor and shaft to drive a pump impeller.

Mottling: A different coloration of plaster similar to the shading difference of cumulus clouds with no apparent pattern. A blotch, spot, or streak of different shades of color, usually in a variegated pattern.

Multiple Function Filter: CONTROL VALVE. See MULTIPORT VALVE.

Multiport Valve: A device that allows for the multidirectional control of the passage or flow of water through a system.

Muriatic Acid (HCl): A commercial name for hydrochloric acid.

National Sanitation Foundation (NSF International): An independent, nonprofit organization of scientists, engineers, educators, and others engaged in research and testing and in the development of standards in selected public health and environmental areas.

National Swimming Pool Foundation (NSPF): A nonprofit organization dedicated to research and education in aquatic safety.

Natural Gas: Admixture of gaseous hydrocarbons, chiefly methane, occurring naturally underground, often in association with petroleum products.

Negative Edge: See VANISHING EDGE.

Nitrogen (N₂): An element present in ammonia, sweat, urine, fertilizers, and a variety of personal care products and environmental sources. When inadvertently introduced into pools or spas it readily reacts with chlorine to form chloramines.

Non-Swimming Area: Any portion of a pool where water depth, off-set ledges, or other irregularities prevent normal swimming activities.

Non-Toxic: Generally having no adverse physiological effect on human beings or other living organisms.

Ohm: A unit of measure of electrical resistance.

Ohm's Law: An electrical relation between volts, amperes, and ohms that can be expressed as follows: $\text{amps} = \text{volts/ohms}$, or $\text{current} = \text{voltage/resistance}$, or $I=E/R$.

Operating Point: The condition at which the pump will operate. It is the intersection of the pump curve and system curve.

Organic Matter: Carbon-based substances, generally originating from living organisms, often introduced to pools or spas by bathers and the environment. For example, perspiration, urine, saliva, suntan oil, cosmetics, lotions, and dead skin.

Organisms: Plant or animal life. Usually refers to algae or bacteria-like growth in pool water.

Orifice: An opening in a device, usually calibrated in size, through which water, air, or gas flows.

Orifice Plate: A disk, placed in a water flow line, with a concentric, sharp-edged circular opening in the center that creates a differential pressure to measure flow and to operate feeders and instruments or other hydraulic equipment.

ORP: See OXIDATION REDUCTION POTENTIAL.

Orthotolidine (OTO): A colorless reagent that reacts with chlorine or bromine to produce yellow-to-orange colors that indicate the amount of total chlorine or bromine in water. OTO measures total chlorine. Because OTO is a suspected carcinogen and very acidic, use caution when handling this chemical.

Outlet: The aperture or fitting through which the water flows from the pool, spa, or hot tub. Also See UNBLOCKABLE.

Overflow Gutter: The gutter around the top perimeter of the pool/spa, which is used to skim the surface of the water and carry off the waste or collect it for return to the filters.

Overflow Pipe: See STANDPIPE.

Overflow System: An outlet with flow across a fixed or movable weir and where there is a free surface interface with atmosphere.

Oxidation-Reduction Potential (ORP): A measure of the oxidation-reduction potential of chemicals in water. It is generally measured in millivolts by means of an electronic meter and depends upon the types and concentrations of oxidizing and reducing chemicals in the water.

Oxidizers: Products used to destroy organic and inorganic contaminants in water.

Ozone (O₃): A gaseous molecule composed of three (3) atoms of oxygen that is generated on site and used for oxidation of water contaminants. It can also be used to regenerate bromine from bromide ions and as a supplemental contact sanitizer in conjunction with an EPA-registered sanitizer that provides a constant residual.

Ozone Contact Concentration: The amount of ozone that is dissolved in pool/spa water.

Ozone Generator: A device that produces ozone, generally exposing oxygen or air to corona discharge or ultraviolet light.

Ozone, Low Output Generating Equipment (Ozonator): Refers to units that will produce ozone in air at a concentration less than 500 ppm. Usually this term will refer to ultraviolet (UV) generators.

Parallel: A piping arrangement allowing flow through multiple paths.

Parts Per Million (PPM): The unit of measurement used in chemical testing that indicates the parts by weight in relation to one million parts by weight of water. It is essentially identical to the term milligrams per liter (mg/L) in pool water.

Pass Through: Openings between vertical pickets of a fence.

Pathogens: Disease-causing microorganisms.

Pathological Agents: Toxins, microbes, etc. capable of causing diseases.

Permanently Installed Swimming Pool: A pool that is constructed in the ground or in a building in such a manner that it cannot be readily disassembled for storage.

pH: A value used to express acidity of a substance. Expressed as a number on a scale of 0 to 14, with 7.0 being neutral; values less than 7.0 are acidic and values greater than 7.0 are basic.

Phenol Red: A pH indicator used in water analysis in the range between 6.8 and 8.4. The color changes from yellow to red to purple as pH increases.

pH Meter: An electronic device that measures pH by means of a pH electrode immersed in the water to be tested.

Pilot Flame Generator: The component in a millivolt system that transforms heat from the pilot into electrical energy. THERMAL COUPLING, THERMOCOUPLE.

Pilot Light: A small permanent flame used to ignite gas at the burner.

Pitting: A form of etching or the deterioration of the integrity of the surface.

Plaster: Mixture of portland cement, water and sand; used as an interior and exterior wall finish material. Variety of finishes and ornamental designs may be formed with plaster.

Polyvinyl Chloride (PVC): Thermoplastic resin commonly used for pool piping and plumbing components and pool liners.

Pool: A body of water contained in a reservoir used for recreational purposes. See RESIDENTIAL/COMMERCIAL/PUBLIC POOL.

Pool Slide: An attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.

Pool User: Any person using a pool and adjoining deck area for the purpose of water activities or other related activities.

Potable Water: Water that is safe and satisfactory for drinking.

Potassium Monopersulfate (KHSO₅): A solid oxidizer used to prevent the build-up of contaminants in pool and spa water. POTASSIUM PEROXYMONOSULFATE.

Pozzolan: Siliceous and/or aluminous material in cement that reacts with calcium hydroxide when finely divided to improve cementitious value. May be mixed with portland cement. Also is an admixture.

Precipitate: A substance separating out in the form of solid particles from a liquid. A result of a chemical or physical change that settles out or remains as a haze in suspension (turbidity).

Pre-Coat: The coating of filter aid on the septum of a diatomaceous earth type filter at the beginning of each filter cycle.

Pre-Coat Feeder: A chemical feeder designed to inject filter agents such as diatomaceous earth into a filter in sufficient quantity to coat the filter septum at the start of a filter run.

Pressure: A type of force that is exerted uniformly in all directions. It is expressed as pounds per square inch, feet of liquid, or feet of head.

Pressure Differential: The difference in pressure between two parts of a hydraulic system, such as the influent and effluent of a filter.

Pressure Gauge: Instrument for measuring pressure in a closed system.

Pressure Switch (Heater): A device that will not allow the equipment to operate unless there is adequate water pressure in the system.

Pressure Test: A test for leaks in a closed system.

Primary Structural Members: Any part of the aboveground/on ground pool structure that carries or retains any static load or stress caused by water pressure, surge, and/or natural forces, and for the reasonable foreseeable use.

Priming: A term used to define re-establishing the water flow by the recirculating pump.

Properly: According to the manufacturers' instructions or to workmanlike practices as taught in vocational schools.

PSI: An abbreviation for pounds per square inch.

Public Pool: See COMMERCIAL/PUBLIC POOL.

Pump: A mechanical device, usually powered by an electric motor, that causes hydraulic flow and pressure for the purpose of filtration, heating, and circulation of pool and spa water. Typically a centrifugal pump is used for pools, spas, and hot tubs.

Pump Capacity: The volume of liquid a pump is capable of moving during a specified period of time against a given total head.

Pump Curve: Also called the pump performance curve. A graph that represents the pressure rise of a pump plotted against flow rate. See SYSTEM CURVE AND OPERATING POINT.

Pump Strainer: A device, placed on the suction side of a pump, that contains a removable strainer basket designed to trap debris in the water flow with a minimum of flow restriction. Sometimes referred to as a hair/lint pot or trap.

Puncture Hazard: Any protrusion that is capable of causing injury to skin.

Purpose: Where used, the phrase "tested and listed for the purpose" shall require the device, system, or alternative method to be tested and certified by a nationally recognized testing laboratory, or a licensed professional engineer, as performing the required function(s) in accordance with the referenced standard.

Push-pull Valve: A device that allows for the dual directional control or flow of water through a system.

Quaternary Ammonium (QUAT): Organic compound of ammonia used as an algistat and an algicide.

Radius of Curvature: The curved surface from the springline (vertical sidewall) to the pool bottom. WALL COVE.

Rated Pressure: The pressure rating specified for a piece of equipment.

Rate of Flow: The quantity of water flowing past a point within a specified time, such as the number of gallons flowing in one minute (GPM).

Reagents: The chemical used to test various aspects of water quality.

Rebar: See REINFORCING BAR.

Recessed Treads: A series of vertically spaced cavities in a pool/spa wall creating tread areas for step holes.

Recirculation System: See CIRCULATION SYSTEM.

Reinforcing Bar: Steel rod with deformed surface. Used to reinforce concrete construction. The deformations of the steel rods interlock with the concrete mix to give a structure the required tensile strength. REBARS.

Relay: A device that responds to a current or voltage change by activating switches or other devices in an electric circuit.

Remodel: To install cosmetic changes, accessory add-ons, or modernizations. Includes both residential and commercial installations.

Remote Switch: Any device used to activate/ deactivate an apparatus from a distance.

Removable: Capable of being easily disassembled or removed.

Renovate: Material alteration. The activity of restoring all or part of a pool or spa structure and its component parts including the rebuilding and/or replacing of worn and broken components. See REMODEL.

Residential Pool: Any pool that is intended for noncommercial use as a swimming pool by 3 families or less and their guests and that is over 24 inches in water depth and has a volume greater than 3,250 gallons.

Residual: The measurable sanitizer present in water.

Response Time: The time between recognition of pool user distress and rescue by a lifeguard.

Retrofit: The act of adding a component or accessory to the pool and spa that was not part of the original installation, for example, replacing a non-listed suction outlet cover/grate with one that is listed.

Return Inlet: The aperture or fitting through which the water under pressure returns into the pool or spa.

Return Piping: The piping that is referred to as effluent, returning water to the pool or spa.

Rimflow Overflow System: Perimeter overflow system in which the overflow rim is at the same elevation as the deck.

Ring Buoy: A ring-shaped floating buoy capable of supporting a user. Usually attached to a throwing line.

Risk: The possibility of suffering harm or loss.

Rope and Float Line: A continuous line not less than one-fourth inch (1/4") in diameter that is supported by buoys and attached to opposite sides of a pool to separate the deep and shallow ends.

Run out: That part of a waterslide where riders are intended to decelerate and/or come to a stop. The run out is a continuation of the waterslide flume surface.

Safety Drain Cover: See LISTED SUCTION OUTLET COVER/GRATE.

Safety Vacuum Release System (SVRS): A system capable of providing vacuum release at a suction outlet in case of a high vacuum occurrence due

to a suction outlet flow blockage. Methods may include, but are not necessarily limited to, venting the suction line to atmosphere and/or turning off the circulation pump, or reversing the circulation flow.

Salinity: The salt content of water.

Sand Filter: A filter that utilizes sand or sand and gravel as a filter medium.

Saturation Index: A number that indicates whether water will have a tendency to deposit calcium carbonate from a solution, or whether it will be potentially corrosive. Five factors are used in the computation: pH, total alkalinity, calcium hardness, temperature, and TDS. When correctly balanced, the water will be neither scale-forming nor corrosive.

Scale: The precipitate that forms on surfaces in contact with water when the calcium hardness, pH, or total alkalinity levels are too high.

Screed: In cement masonry flatwork, the wood or metal straightedge used to strike off or level newly placed concrete.

Sealant: A substance that is applied on a surface or between surfaces to prevent the entry of moisture.

Seat (Underwater): An underwater ledge that is placed completely inside the perimeter shape of the pool; generally located in the shallow end of the pool. BENCH (UNDERWATER).

Secondary Structural Members: Any part of the aboveground/on ground pool structure that is not subject to load caused by water pressure.

Sediment Trap: A device used on gas piping and other systems to collect sediment and moisture.

Self Priming: A rating given to centrifugal pumps indicating that the pump is capable of operating above pool water level, after initial filling with water.

Septum: Part of a diatomite-type filter element consisting of cloth, wire screen, or other porous material on which filter aid is deposited.

Sequestering Agent: A chemical that combines with metals keeping them in solution and preventing them from depositing on and staining pool surfaces. Some sequestering agents are chelating agents.

Service Factor: The degree to which an electric motor can be operated above its rated horsepower without danger of overload failure.

Shallow Areas: Portions of a pool or spa with water depths less than five feet (5').

Shock: Product used to treat microbial infestations as well as destroy non-living organic and inorganic contaminants in water. Because shock products are used to kill bacteria and algae, they must be registered by EPA. See EPA REGISTERED PRODUCT.

Shock-Oxidizer: Product used to destroy nonliving organic and inorganic contaminants in water. This product is neither a sanitizer nor algicide. For control of microorganisms in pool, spa, or hot tub water, or algae control, use an EPA registered product.

Shock Treatment: The practice of adding significant amounts of an oxidizing chemical to water to destroy inorganic and organic contaminants in water.

Shotcrete: 1. Shotcrete wet is a pneumatically applied mixture of sand, cement, aggregate and water and pumped wet through a nozzle where air is added. 2. Shotcrete dry is a mixture of sand and cement, blown through a nozzle where water is added. Both methods are used as a method of building the concrete floors and walls of swimming pools or water features.

Sight Barrier: A fence system that prevents entry but allows visual observation. See BARRIER.

Simplified TDH calculation: A method of determining the maximum system flow rate using hydraulic calculations based on the lowest possible total dynamic head (TDH) for a circulation system. For example, using the shortest distance between the pool and the pump, omitting the calculations for fittings/valves, and using the best performance ratings for filters and heaters.

Single Outlet, Alternative Suction Systems: A single listed suction outlet cover/grate and an alternative suction system, including a venture driven system, turbine driven system, or any other mechanical means of circulating water without the use of a pump.

Single-Phase Current: Electrical alternating current flow that reaches one peak in each direction per cycle.

Skimmer: A device installed in the pool or spa that permits the removal of floating debris and surface water to the filter.

Skimmer Cover: A removable lid to close deck opening to the skimmer housing.

Skimmer Equalizer Pipe: Connection from skimmer housing to the pool, spa, or hot tub below the weir and sized to satisfy pump demand and prevent air lock or pump loss of prime.

Skimmer Equalizer Valve: A device on the equalizer line that operates to draw water from the equalizer line when water level inside the skimmer body drops below operating level.

Skimmer Housing: Structure that attaches to or contains skimmer weir, strainer basket, float valve, and other devices used in the skimming operation.

Skimmer Weir: Part of a skimmer that adjusts automatically to small changes in water level to ensure a continuous flow of water to the skimmer.

Slip Resisting: A surface that has been so treated or constructed to significantly reduce the chance of a user slipping. The surface shall not be an abrasion hazard.

Slope: An inclined surface.

Slump: A measurement of water in concrete. A lowslump concrete has a stiff consistency.

Slurry: A free-flowing, pumpable suspension of fine, solid material in liquid.

Smooth: Having a surface free from irregularities, roughness or projections.

Soda Ash: See SODIUM CARBONATE.

Sodium Bicarbonate (NaHCO₃): Also baking soda or sodium hydrogen carbonate. A white powder (pH = 8.3) used to raise total alkalinity in water.

Sodium Bisulfate (NaHSO₄): Also known as dry acid. A granule used to lower pH and/or total alkalinity in water.

Sodium Carbonate (Na₂CO₃): A white powder used to raise pH of the water.

Sodium Dichlor (Sodium Dichloro-Isocyanurate) (C₃N₃O₃Cl₂Na): Contains between 56% and 64% available chlorine. Sanitizer product that is self-stabilizing due to release of free available chlorine and cyanuric acid when they dissolve. SODIUM DICHLORO-S-TRIAZINETRIONE.

Sodium Hypochlorite (NaCl): A clear liquid form of an inorganic chlorine compound obtainable in concentrations of 5% to 16% available chlorine. LIQUID CHLORINE, BLEACH.

Sodium Thiosulfate (Na₂S₂O₃): A chemical used to neutralize chlorine.

Soft Water: Water that has a low calcium and magnesium content.

Solar Panel: See COLLECTOR.

Soot: A black, powdery, carbonaceous substance created by improper air-fuel mixture in combustion of fossil fuels. Soot is a by-product of incomplete combustion.

Spa: A warm water reservoir permanently installed with hydromassage jets that are constructed out of concrete (gunite, shotcrete, etc.). Spas may or may not be attached to a pool.

1. Permanent Residential Spa: A spa in which the water heating and water circulating equipment is not an integral part of the product. The spa shall be intended as a permanent plumbing fixture and shall not be intended to be moved.

2. Public Spa: Any spa other than a permanent residential spa or hot tub that is intended to be used for bathing and is operated by an owner, licensee, concessionaire, regardless of whether a fee is charged for use.

3. Hydrotherapy Spa: A unit having a therapeutic use, but that is not drained, cleaned, or refilled for each individual. It includes, but is not limited to hydrotherapy jet circulation, hot water, cold water mineral baths, air induction bubbles, or any combination thereof. Industry terminology for a spa includes, but is not limited to (1) a therapeutic pool, (2) a hydrotherapy pool, (3) a whirlpool, (4) a hot spa, etc.

Spalling (Concrete or Plaster): The separation of the top layer of cement-rich material, exposing the underlying aggregate layer.

Spa User: Any person using a spa and adjoining deck area for the purpose of water activity or other related activity.

Special Purpose Pool: A pool intended to be used exclusively for a specific activity, such as instruction diving, competition, or medical treatment.

Splash Pool: A pool having a water depth not exceeding 18 inches (18") (0.46 meters) that has as its intended primary use random play by small children. The pool could include constructed play devices including small flume type water slides and other play devices. See CATCH POOL.

Splasher (Wader) Pools: A splasher pool shall have a maximum water depth of 36 inches (0.91 meters). These pools are not intended to be covered within the scope of NSPI standards.

Spray Pool: A pool or basin occupied by constructed features that spray water in various arrays for the purpose of wetting the persons playing in the spray streams. Maximum depth of accumulated water in the pool or basin area is 6 inches (15.24 centimeters).

Springline: A line from which the pool wall breaks from vertical and begins its radius arc of the curvature.

Stabilizer: See CYANURIC ACID.

Stairs: A series of steps, each consisting of a riser and a tread.

Standpipe: Vertical outlet pipe with open top end to control liquid level. OVERFLOW PIPE.

Static Head: Head resistant caused by the weight of a standing water column to be moved. It is encountered on both the suction and discharge side.

Static Suction Head: The vertical distance in feet (meters) between the pump centerline and the level of the liquid being pumped when the liquid is below the impeller centerline, expressed in feet of head.

Static Suction Lift: Vertical distance in feet (meters) from center line of the pump impeller to pool water level.

Steps: See STAIRS.

Story Pole: A pole marked to measure vertical heights during construction and to set elevations.

Strainer Basket: Readily removable, perforated, or otherwise porous container used in the pump lint strainer to catch coarse material.

Structural Crack: A break or split that weakens the structural integrity of the pool.

Suction Head: The head, in feet, that a pump must provide on the inlet side to raise the liquid from the pool/spa supply well to the level of the pump.

Suction Outlet: A fitting, fitting assembly, cover/grate, and related components that provide a localized low pressure area for the transfer of water from a swimming pool, wading pool, spa, or hot tub. See also LISTED SUCTION OUTLET COVER/GRATE.

Suction System Piping: All piping on the suction side of the system between the pool and the pump.

Sump: The vessel between the suction outlet cover/grate and suction outlet piping. This may be manufactured or field built.

Sumps in Series: An arrangement of outlets such that effluent of one sump is influent to another sump. It is commonly used in piping submerged suction outlet(s) to skimmer body(s).

Superchlorination: The practice of adding a sufficient amount of a chlorinating compound to reduce cloudy water, slime formation, musty odors, algae and bacteria

counts, and/or improve the ability to maintain sanitizer residuals.

Surface Checks: Spider-webbing pattern in a surface. Not all the way through, not an open crack.

Surface Crack: A repairable break in the surface, not major, not self-curing.

Surface Skimming System: A device or system installed in the pool/spa that permits the removal of floating debris and surface water to the filter.

Surge: Displacement of water in a pool — static and dynamic. WAVE ACTION.

Surge Capacity: The storage volume in a surge chamber, gutter, and plumbing lines. See SYSTEM CAPACITY.

Surface Cracking: A network of fine cracks in the surface of a plastic part, such as a cover, grate, or ring.

Surge Chamber: A storage vessel within the pool recirculating system used to absorb the water displaced by bathers. SURGE PIT.

Swim Jet Systems with Hydrotherapy Combination Fitting: Combination fitting or fittings that incorporate(s) a suction outlet and inlet designed to move a large volume of water at high velocity in a single direction.

Swimming Area: Area of pool in excess of three feet (3') in depth that is devoted to swimming.

Swimout: An underwater seat area that is placed completely outside of the perimeter shape of the pool. When located at the deep end, swimouts are permitted to be used as the deep-end means of entry/exit of the pool. LOVE SEAT.

System Curve: A graph that shows the pressure difference required to induce flow through the entire piping system. It is plotted against flow rate.

System Surge Capacity: The total storage, including surge chamber, gutter system and piping, within the pool recirculating system used to absorb the water displaced by bathers.

Tamperproof: Requiring tools to alter or remove portions of the equipment. VANDAL-PROOF.

Tangent: Straight line or curve that contacts an arc or curve at one point only.

TDH: See TOTAL DYNAMIC HEAD.

Tee: A fitting in the shape of a "T" used to connect pipes. The "branch" is perpendicular to the two "run" connections.

Temperature Factor (TF): Used when determining the saturation index.

Temperature Rise: The difference between the desired water temperature and the temperature of the body of water.

Testing: For the purposes of this standard "testing" shall mean the physical activity of performing an evaluation in accordance with the procedures and protocols defined by this standard and/or a referenced standard.

Total dynamic head (TDH): The sum of all resistances in a complete operating system. See FEET OF HEAD.

Test Kit: Equipment used to determine specific chemical residual and physical properties of water.

Texture: The visual or tactile condition of a surface.

Therm: A unit of thermal measurement equal to 100,000 BTUs.

Thermostat: A temperature-controlling device that cycles the heater on and off to maintain the desired temperature.

Three-Phase Current: Current flow that reaches a peak in each direction three times during a cycle.

Time Clock: A device that automatically controls the periods that a pump, filter, heater, blower, and other electrical devices are in operation.

Titration: A method for measuring alkalinity, hardness, available chlorine or other such chemical parameters by measured addition of reagents that yield a foreseeable end point as indicated by a change in color.

Top Coat: See PLASTER.

Top Rail: The part of the frame located on top of or adjacent to the outer edges of the aboveground/on ground pool wall.

Total Alkalinity: A measure of the pH buffering capacity of water. Alkalinity is generally expressed in terms of the equivalent concentration of calcium carbonate in mg/L (or ppm).

Total Alkalinity (TA) Factor: Used when determining the saturation index.

Total Chlorine: The sum of both the free available and combined chlorines.

Total Dissolved Solids (TDS): The measure of the total amount of dissolved matter in water.

Total Dynamic Head: See FEET OF HEAD.

Toxic: A substance having an adverse physiological effect on human beings or other living organisms.

Transfer System: A device, or combination of devices, that include a platform, steps, and other structures to facilitate user access to a pool.

Transition: Any point(s) on the floor of a pool where the angle/slope changes.

Tread Contact Surface: Foot contact surfaces of a ladder, step, stair, or ramp.

Trichloro: A form of organic chlorine, most commonly found in compressed form (tablets or sticks).

Trichloro-Iso-Cyanurate (C3N3O3Cl3): Sanitizer product that is self-stabilizing due to release of free available chlorine and cyanuric acid when it dissolves. A form of organic chlorine that reacts with water to form 90% available chlorine and cyanuric acid. TRICHLORO-S-TRIAZINETRIONE. See ISOCYANURATES.

Tsunami Pool: A wave pool designed to generate a single transitional wave in each cycle. These pools are characterized by strong cross currents and counter currents after the passage of each wave. The operating pattern for the Tsunami pool produces a single wave form at frequencies ranging from several seconds to several minutes.

Tube Ride: A gravity flow attraction found at a waterpark designed to convey riders on an inner tube-like device through a series of chutes, channels, flumes, or pools.

Turbidity: Cloudy condition of water due to the presence of extremely fine particulate materials in suspension that interfere with the passage of light.

Turnover Rate: The period of time (usually in hours) required to circulate a volume of water equal to the pool or spa capacity.

Two-Speed Pump: A centrifugal pump that has a motor that operates at two different speeds.

Ultra-Violet Light: A component of sunlight and can be generated artificially. Ultra-violet light stimulates many types of organic molecules to become chemically reactive and can decompose a variety of chemical species. UV light-generating devices may be used as a supplemental sanitizer to inactivate microorganisms. UV light is often characterized as UVA, UV-B,

or UV-C, indicating wave lengths of 315 – 400 nanometers (nm), 290 – 315 nm, and 220 – 290 nm, respectively.

Unblockable Drain: a suction outlet defined as all components, including the sump and/or body, cover/grate, and hardware such that its perforated (open) area cannot be shadowed by the area of the 18" x 23" Body Blocking Element of ASME/ANSI A112.19.8-2007 and that the rated flow through the remaining open area (beyond the shadowed portion) cannot create a suction force in excess of the removal force values in Table 1 of that Standard. All suction outlet covers, manufactured or field-fabricated, shall be certified as meeting the applicable requirements of the ASME/ANSI A112.19.8 standard.

Underwater Ledge: A narrow shelf projecting from the side of a vertical structure whose dimensions are defined in the appropriate standard.

Underwater Light: A fixture designed to illuminate from beneath the water surface. **Wet Niche Light:** A watertight and water cooled light unit placed in a submerged niche in a pool, spa, or hot tub wall and accessible only from the interior. **Dry Niche Light:** A light unit placed behind a watertight window in the pool, spa, or hot tub wall.

Upper Distribution System: Those devices designed to distribute the water entering a permanent medium filter in a manner to prevent movement or migration of the filter medium. Also collects water during filter backwashing unless other means are provided.

Upright Support: That portion of the frame that is adjacent to the aboveground/ on ground wall in a vertical position that supports the top rail and braces the wall.

Usable Perimeter: The perimeter of a pool that is available for ingress and egress. Perimeter areas available only to staff or for emergency situations are not included.

User: Any person engaging in water activities or related activities at a pool, spa, or hot tub, including the adjoining deck.

User Load: The total number of persons permitted in the pool/spa complex at any given time. See BATHER LOAD.

Vacuum: The reduction of atmospheric pressure within a pipe, tank, pump, or other vessel. Vacuum is measured in inches of mercury. One inch of mercury is equivalent to 1.13 Feet of Head. One inch of mercury is also equivalent to 345.3 kilograms per square meter.

Vacuum Filter: A filter through which water is pulled by a pump mounted on the effluent side of the filter.

Valve: Any device in a pipe that will partially or totally obstruct the flow of water (such as a ball, gate, globe, or butterfly valve) or permit flow in one direction only (as with a check or foot valve).

Vanishing Edge: A design feature incorporated into a pool wall wherein the water flows over the wall (edge) into a catch gutter or catch pool creating the illusion that the water vanishes.

Velocity: The speed at which a liquid flows between two points, expressed in feet per second.

Velocity Head: When applied to a hydraulic system, a measurement of resistance or pressure that is equal to the height of a column of water than would cause the same pressure or resistance. $Velocity\ head = v^2/(2g)$. The principal factors of "head" are vertical distances and resistance due to friction of the flow of water against the walls of a pipe or vessel.

Vented Reservoir: A receptacle or container incorporated as part of a circulation system that is vented to atmosphere and receives water from the pool/spa or water feature by force of gravity, from which the pump draws its water supply. Systems including vented reservoirs are commonly referred to as gravity flow systems, gravity feed systems or gravity drainage systems. Vented reservoirs include but are not limited to the following: catch pools or catch basins, surge tanks, collector tanks, skimmers open to atmosphere, atmospheric vent pipe tees, gutters, overflow gutters, or perimeter gutter systems.

Venting (Heaters): The system responsible for the introduction of air for combustion and for dispersal of the flue products.

Venturi Jet: See HYDROTHERAPY JET.

Venturi Tube: A tube mounted in a circulation line so as to cause restrictions of flow. The restriction causes a pressure differential that is used to measure flow rate or to operate hydraulic chemical feeders such as sanitizers, clarifiers, etc.

Vertical Wall: A wall that may slope outward up to 11° from plumb.

Vinyl Liner: A suitable material constructed of vinyl or vinyl compounds that acts as a container for water when used in conjunction with a structural support system.

Voltage: The measure of electrical potential or electromotive force in units called volts.

Volume: The capacity of a specified container (e.g., a pool or spa) expressed in gallons or liters.

Wading Pool: A shallow depth pool used for wading.

Whaler: A horizontal bracing member used in form construction. RANGER, WHALER.

Wall: The surface of a vertical barrier.

Wall Closure: The fastening device(s) that connect the aboveground wall ends together.

Wall vacuum fitting: A fitting in the wall of a pool intended to provide a point of connection of suction for suction side cleaners.

Warning: See SIGNAL WORD.

Waste Water Disposal System: All water disposal systems approved by the authority having jurisdiction, such as a storm sewer, sanitary sewer, open pit, leach field, or irrigation system.

Waterline: The waterline shall be defined in one of the following ways: **1. Skimmer System:** The waterline shall be at the midpoint of the operating range of the skimmers when there are no users in the pool or spa. **2. Overflow System:** The waterline shall be at the top of the overflow rim.

Water Pressure Switch: See PRESSURE SWITCH.

Water Velocity: The speed at which water flows through a pipe, expressed in feet per second (meters per second).

Watt: The measure of electrical power computed by multiplying voltage times current (volts x amperes). Equal to 1/746 of one horsepower unit.

Watt Density: The amount of watts generated in a heating element per inch. The lower the amount of watts per square inch, the lower the density.

Wave Pool Caisson: A large chamber used in wave generation. This chamber houses pulsing water and air surges in the wave generation process and is not meant for human occupancy.

Weir: See SKIMMER WEIR.

White Coat: See PLASTER.

Winterized Liner: A vinyl liner that is manufactured with sufficient plasticizers to withstand exposure to its rated lowest temperature or -20 °F.

Winterizing: Preparation of pools and spas for cold or freezing weather.

Wrinkle: A small ridge or crease in an otherwise smooth vinyl liner.

Zero Entry: Sloping entry starting above the water line at deck level and ending below the water line. (Does not refer to sand only).