

CHAPTER 24. SWIMMING POOLS

Article I. Private Residential Swimming Pools

Section 24.010. Definitions.

The words, terms or phrases listed herein, for the purpose of this article, shall be defined as follows:

“Backwash Piping” means the piping which extends from the backwash outlet of the filters to its terminus at the point of disposal.

“Body Feed” means filter aid fed into a diatomite-type filter throughout the filtering cycle.

“Cartridge Filter” means a filter using filter cartridges.

“Diatomite” (Diatomaceous Earth) means a type of filter aid.

“Diatomite-Type Filter” means a filter designed to be used with filter aid.

“Design Rate” means the average flow rate over the filtration cycle.

“Face Piping” means the piping with all valves and fittings which is used to connect the filter system together as a unit.

“Filter” means any material or apparatus by which water is clarified.

“Filter Aid” means a diatomite type of filter media.

“Filter Cartridge” means a disposable filter element which employs no filter aid.

“Filter Element” means that part of a filtered device which retains the filter media.

“Filter Media” means the fine material which entraps the suspended particles.

“Filter Rock” means graded rock and gravel used to support filter sand.

“Filter Sand” means a type of filter media.

“Filter Septum” means that part of the filter element in a diatomite-type filter, upon which a cake of diatomite is deposited.

“Inlet” means the fitting or opening through which filtered water enters the pool.

“Main Outlet” means the outlet(s) at the deep portion of the pool through which the main flow of water leaves the pool when being drained or recirculated.

“Main Suction” means the line connecting the main outlet to the pump suction.

“Pool Deck” means paved area or walk immediately surrounding or adjacent to a swimming pool.

“Pool Depths” means the distance between the floor of the pool and the maximum operating water level when pool is in use.

“Pool Floor” means that portion of the pool that is horizontal or inclined less 45° to the vertical from the horizontal.

“Pool Walks” means the finished area around the pool.

“Pool Wall” means that portion of the pool that is vertical or inclined more than 45° to the vertical from the horizontal.

“Precoat” means in diatomite-type filter the initial coating of filter aid placed on the filter septum at the start of the filter cycle.

“Recirculating Piping” means the piping from the pool to the filter and return to the pool, through which the water circulates.

“Recirculating Skimmer” means a device connected with the pump suction used to skim the pool over a self-adjusting weir and return the water to the pool through the filter.

“Residential Swimming Pool” means any type of pool used for swimming or bathing, 18 inches or more in depth, and/or with a surface area exceeding 250 square feet. This shall include all appurtenant equipment which is used, or intended to be used, and available to the family of the owner and his private guests.

“Return Piping” means the piping which carries the filtered water from the filter to the pool.

“Skimmer-Filter” means a recirculating skimmer with a filter forming an integral part of the device.

“Transition Point” means point where floor slope changes between shallow and deep area.

“Underdrain” means an appurtenance at the bottom of the filter to assure equal distribution of water through the filter media.

“Vacuum Fitting” means the fitting in the wall of the pool which is used as a convenient outlet for connecting the underwater suction cleaning equipment, or a recirculating skimmer.

“Vacuum Piping” means the piping which connects the vacuum fitting to the pump suction.

“Width and Length” shall be determined by actual water dimensions.

Section 24.015. Regulation of Location.

- A. Private residential swimming pools shall be permitted on property used for residence purposes only, and such pools shall be considered as an accessory building.

- B. All private residential swimming pools, including pool walks, shall provide at least the minimum yard requirements as established in the Zoning Ordinance of the City of Webster Groves.

Section 24.020. Permits and Notification.

It shall be unlawful to proceed with the construction, installation, enlargement or alteration of any private residential swimming pool and appurtenances within the City unless the necessary permits and/or appraisal therefor shall have first been obtained from the City of Webster Groves. Notification of such construction shall be given to the Metropolitan St. Louis Sewer District at the time an application for a permit is requested from the City.

Section 24.025. Plans and Specifications.

- A. All drawings and plans for the construction, installation, enlargement or alteration of any private residential swimming pool and appurtenances for which a permit is required shall first be presented to the City Building Commissioner for examination and approval as to the proper location, construction, and use, and thereafter shall be presented to the City Sanitarian, to the proper officials of the City Water Division and the Metropolitan St. Louis Sewer District for examination and approval with regard to such codes as are within their duty to enforce. After said drawings and plans have been examined and passed upon, the same shall be returned to the Commissioner for examination and approval.
- B. All plans and drawings shall be drawn to a scale of not less than 1/8 of an inch to the foot, on paper or cloth, in ink, or by some process that will not fade or obliterate. All distances and dimensions shall be accurately figured and drawings made explicit and complete, showing the lot lines, and including information pertaining to the pool, walk and fence construction, water supply system, drainage and water disposal systems, and all appurtenances pertaining to the swimming pool. Detail plans and vertical elevations shall also be provided as required by the Building Commissioner.
- C. No person shall construct, enlarge, alter or use any private residential swimming pool and appurtenances until plans have been examined and approved and the necessary permits issued by the proper agencies as set forth herein.
- D. All private residential swimming pools, appurtenances, water supply and drainage systems shall be constructed in conformity with the approved plans. If any deviations from such plans are desired, a supplementary plan covering that portion of the work involved shall be filed for approval and shall conform to the provisions of this ordinance and all other relevant codes and ordinances.

Section 24.030. Construction; Design and Materials.

- A. All private residential swimming pools shall be of the recirculation type in which circulation of the water is maintained through the pool by pumps; the water drawn from the pool being clarified before being returned to the pool.

- B. The pool water shall be disinfected either manually or as a part of the recirculation system.
- C. Private residential swimming pool walls and floor shall be constructed of any impervious material which will provide a tight tank with white or light colored finish easily cleaned surfaces. All walls shall be vertical for a distance up to 30 inches measured from the water surface, and shall present a smooth finish. The floor or bottom surface of the pool shall have a non-slip finish as smooth as possible.
- D. The pool structure shall be engineered and designed to withstand the expected forces to which it will be subjected, and the wall slope shall not be more than 2 feet horizontal in 5 feet vertical to a depth up to 5 feet from the top.
- E. The deck area partially or entirely surrounding the pool shall be made of such size to meet the requirements of general use, shall be safe and sanitary, shall be drained so that soiled water cannot flow into the pool, and shall have a slip-resistant but easily cleaned surface.

Section 24.035. Recirculation.

Every pool shall be equipped with a recirculating system capable of filtering the entire contents of the pool in eighteen (18) hours maximum, but preferably twelve (12) to fourteen (14) hours.

- A. Filters shall be capable of maintaining the clarity of the water to permit the ready identification, through an 8 foot depth of water, of a disc 2 inches in diameter, which is divided into four (4) quadrants in alternate colors of red and white.
- B. All pressure filters shall be equipped with influent and effluent pressure gauge (or approved equal), to determine the pressure differential and frequency of cleaning.
- C. All other filters shall be equipped with at least one pressure vacuum or compound gauge (or approved equal) as applicable, which shall be positioned in such a way as to determine the differential across the filter and the need of cleaning.
- D. All pressure filter systems shall be equipped with air release at the high point in the system. Each sand filter shall be provided with a visual means of determining when the wash water flowing to waste indicates practically all soil has been removed from the sand.
- E. Operating instructions shall be furnished with every filter system.
- F. Where dissimilar metals are used in the construction of the filter, which may set up galvanic currents, then suitable provision shall be made to resist electrolytic corrosion.
- G. Sand Filter Systems where used shall be designed and installed to operate at a rate not to exceed 5 gallons per minute, per square foot of filter area and to

backwash at a minimum rate of 10 gallons per minute, per square foot of surface area.

- H. Filter tanks may be noncode and built for a minimum of seventy-five (75) pounds working pressure and tested at 112 PSI. Flanged heads may be used. The filter underdrain shall have an effective distribution of at least twenty-five percent (25%) of the cross-sectional area of the tank. Tanks placed underground shall be steel plate at least 3/16 inches in thickness, with an approved non-corrosive exterior coating.
- I. Filter tanks shall be supported in a manner to prevent tipping or settling, preferably by jack leg supports.
- J. The following filter media specifications for sand filters shall be met:
 - 1. Filter sand shall be a hard, uniformly graded, silica material with effective particle sizes, between 0.45 and 0.55 millimeters in diameter, with uniformity co-efficient of 1.45 to 1.69. There shall be no limestone, clay or deleterious matter present.
 - 2. Filter sand shall be no less than 19 inches in depth with a freeboard of no less than 9 inches or more than 12 inches.
 - 3. There shall be no less than four (4) grades of rock, which shall be clean, non-crushed, rounded, non-porous, non-calcareous material.
 - 4. The total depth of the rock supporting bed shall be no less than 15 inches and each grade shall be 2 inches or greater in depth. Each layer of rock shall be leveled to prevent intermixing of adjacent grades.
 - 5. The top layer of rock shall vary in size between 1/8 inch and 1/4 inch. The next layer shall vary in size between 1/4 inch and 1/2 inch. The next layer shall vary in size between 1/2 inch and 3/4 inch. The bottom layer shall vary in size between 1 inch and 1 1/2 inches.

Diatomite-type Filters where used shall be designed for operation under either pressure or vacuum. The design capacity shall not exceed 2.5 gpm per square foot of effective filter area for pressure filters and not exceed 2.5 gpm per square foot of effective filter area for vacuum filters, preferably 2 gpm.

- A. The determination of the filter area shall be made on a basis of a true and effective supported septum surface. In the case of fabric septums, the area computation shall be made on the basis of measurements of the septum support in a reasonable constant plane. Area allowance shall not be granted for folds in the septum fabric or deviations in the septum surface which would easily bridge.
- B. The tank containing the filter elements shall be constructed of steel, plastic or other suitable material, which satisfactorily provide resistance to corrosion, with or without coating. Pressure filters shall be designed for a working pressure equal to the shut-off head of the pump, with a factor safety of 4. Vacuum filters shall be designed to withstanding the pressure developed by the weight of the

water contained therein and closed vacuum filters shall, in addition, be designed to withstand the crushing pressure developed under a vacuum of 25 inches of mercury, both with a factor safety of 3.5. In either type filter where the tank is fabricated from material which is corroded by water, a suitable corrosion resistant coating shall be applied to retard such attack.

- C. The filter elements shall be fabricated of corrosion resistant materials throughout. They shall be designed to be adequately resistant to a differential pressure between influent and effluent of not less than the maximum pressure, which can be developed by the circulating pump and shall be of adequate strength to resist any additional stresses developed during the cleaning operation. The filter septum, on which the filter-aid cake is deposited, shall be provided with openings, the minimum dimensions of which shall be no greater than 0.005 inches.
- D. Provisions shall be made to introduce filter aid into the filter in such a way as to evenly precoat the filter septum before the filter is placed in operation. The amount of filter aid shall be selected to provide at least the same protection to the filter septum as would be provided by the use of 0.1 pounds of diatomite filter aid per square foot in filter area. Use of additional equipment to provide body feed to the filter influent is optional. Where provided, such equipment shall have the capacity to continuously and uniformly feed at a rate of not less than 0.1 pounds of filter aid per square foot of filter area per twenty-four (24) hours.
- E. The filter piping shall be so designed that during the precoating operation the effluent from the filter shall be recirculated or run to waste and shall not be fed into the pool until free of filter aid. An exception to this requirement may be made if the filter septum is of such construction that no perceptible quantity of filter aid is introduced into the pool when the effluent discharges therein.
- F. Filters should be so designed and installed that they can be readily disassembled and the filter elements removed.

Cartridge Filters where used, shall be either pressure or vacuum type and shall be subject to the same general piping and tank specifications as diatomite-type filters. Cartridge filters shall not require the addition of any flocculating agents such as ammonium alum, aluminum sulfate or potassium alum. They shall be subject to the same requirements as set forth herein for all types of filters. All types of cartridges shall have sufficient structural strength to resist rupturing, channeling, collapsing, or bursting at a maximum pressure differential of 50 psi. Cartridge seals shall be so designed as to prevent any by-passing of unfiltered water where provision is made for back-washing, any backwash water shall not be permitted to enter the recirculating system. No residue shall be permitted to remain in the filter housing that could be picked up in the following filtering cycle.

- G. Depth type cartridges where used, shall have sufficient depth to provide adequate dirt-holding capacity and be designed for a flow of no more than 1 gallon per minute per 5 cubic inches of volume with a pressure drop not to exceed 2 psi across clean cartridges and not to pass any particulate matter larger than 25 microns.

- H. Area or surface type cartridges, where used, shall follow the same flow per square foot of area as diatomite filters, namely; 2.5 gallons per minute per square foot of area for pressure filters and 2.5 gallons per minute per square foot of filter area for vacuum filters.
- I. All filters shall be designed so as to permit easy removal of the cartridges.

Section 24.040. Pumps.

Recirculating pumps shall have sufficient capacity to provide the rated flows of the filter system, without exceeding the head loss at which the pump will deliver such flows. The pump motor shall not be operated at an overload which exceeds the service factor.

- A. Pool pump shall be equipped on the inlet side with an approved type hair and lint strainer. The basket of the strainer shall be non-corrosive and have an open screen surface of at least four (4) times the cross-sectional area of the inlet pipe.

Section 24.045. Pool Piping.

Pool piping shall be sized to permit the rated flows for filtering and cleaning without exceeding the maximum head, at which the pump will provide such flows. The water velocity in the pool piping may range between 5 and 7 feet per second and, in any case, shall not exceed 10 feet per second. The recirculating piping and fittings shall meet the following requirements:

- A. The vacuum fitting(s) shall be located in an accessible position(s) below the water line, preferably 12 inches to 18 inches so as to be readily accessible.
- B. The main outlet shall be placed at the deepest point in every pool for recirculating and emptying the pool.
- C. Pool recirculation piping, passing through the pool structure, shall be copper tubing (with a minimum wall thickness of type "L"), brass, galvanized steel pipe or an approved equal.
- D. Filtered water inlet(s) shall be provided in sufficient quantity and shall be properly spaced to provide a maximum circulation of the main body and surface of the pool water.
- E. A recirculating skimming device shall be provided to skim the surface of the pool.
- F. Neither the pool recirculating system nor the main pool reservoir shall be directly connected to the fresh water supply or sanitary sewer.
- G. The entire pool piping system shall be proved watertight by contractor before covering or concealing.

Section 24.050. Valves.

Fullway valves shall be installed throughout, to insure proper functioning of the filtration and piping system.

- A. A valve shall be installed on the main suction line located in an accessible place outside the walls of the pool when pump is below overflow rim of the pool.
- B. Valves up to, and including 2 inches in size, shall be brass. Sizes over 2 inches may have cast-iron or brass bodies. All working parts of valves shall be non-corrosive material.
- C. Combination valves may be installed if the materials and design comply with the intent of these standards.

Section 24.055. Pool Accessories.

- A. Swimming pool heaters and swimming pool boilers shall comply with all applicable codes of the City of Webster Groves, and all electric devices and their installation must comply with all applicable codes. Overhead and under-water lights must be designed and installed in such a way that no danger or hazard exists. Lights shall be placed so as to not be offensive to neighbors and neighborhood.
- B. Ladders and/or steps shall be constructed so as to be safe and sanitary.

Section 24.060. Water Source.

No source of water other than that secured from the City of Webster Groves shall be used in private residential swimming pools and such water supply shall be installed in such manner as to comply with American Water Works Association standards.

Section 24.065. Drainage.

Waste water from private residential swimming pools must be disposed of in such a manner that nuisances and/or damage to other property is avoided. The requirements of the Metropolitan St. Louis Sewer District for the use of storm water and sanitary sewers shall be met.

Section 24.070. Disinfection and pH.

The pool owner shall be instructed in the proper care and maintenance of the pool, including the use of high test calcium hypochlorite (dry chlorine) or sodium hypochlorite (liquid chlorine) (or an equally effective germicide and algaecide) and the importance of proper pH (alkalinity and acidity) control. A test kit for disinfection residue and a test kit for pH shall be available. Representatives of the City of Webster Groves Health Department shall be authorized to take water samples at all reasonable times for the purpose of determining if acceptable bacteriological standards are being subscribed to and/or met by the owner of the pool. For reasons of comfort as well as proper water control, the pH shall be maintained preferably within the range of 7.0 to 7.6.

Section 24.075. Fencing.

Every person owning land on which there is situated a private residential swimming pool, which contains 18 inches or more in depth at any point, shall erect and maintain thereon an adequate enclosure either surrounding the property or pool area, sufficient to make

such a body of water inaccessible to small children. Such enclosure, including gates therein, must be not less than 4 feet above the underlying ground; all gates must be self-latching with latches placed 4 feet above the underlying ground or otherwise made inaccessible from the outside to small children. A natural barrier, hedge, pool cover approved by the Director of Public Works or his duly designated representative or other protective device approved by the Director of Public Works or his duly designated representative may be used so long as the degree of protection afforded by the substitute devices of structures is not less than the protection afforded by the enclosure, gate and latch described herein.

Section 24.080. Compliance; Existing Pools.

Every private residential swimming pool as defined herein, constructed after May 1, 1962, shall comply with each and every section of this article and of all other ordinances of the City of Webster Groves. Every private residential swimming pool constructed, or in process of construction, prior to May 1, 1962 shall, within one (1) year thereafter, comply in all respects with this article and all other ordinances of the City of Webster Groves. However, every swimming pool constructed, or in process of construction, prior to May 1, 1962 shall immediately comply with the following sections of this article:

- A. 24.055—Pool Accessories
- B. 24.060—Source
- C. 24.065—Drainage
- D. 24.070—Disinfection and pH
- E. 24.075—Fencing
- F. 24.080—Compliance

No pools, from and after May 1, 1962, shall be permitted to become a nuisance, within the meaning of the general nuisance regulations of the City of Webster Groves, nor violate any of the health and sanitation ordinances of the City, St. Louis County or State of Missouri. Upon notification of any such violation, the owner, lessee or occupant of the premises upon which any such pool is located shall immediately abate and/or remove such violation. Failing to do so within a reasonable time shall subject such owner, lessee or occupant to the penalties of this ordinance.

Section 24.085. Penalties for Violation.

Any person who violates this article, or any part thereof, shall, upon conviction, forfeit and pay a fine not exceeding One Hundred Dollars (\$100.00) or be imprisoned for a term not exceeding ninety (90) days, or both, for each and every offense.