



ENVIRONMENTAL HEALTH



5050 Commerce Drive, Baldwin Park, CA 91706
Telephone: (626) 430-5200 • Website: <http://www.publichealth.lacounty.gov/eh>

Recreational Waters Program Guidelines for Construction and Operation Of Spray Grounds, Splash Pads and Interactive Features

Background:

Spray grounds / interactive water features / splash pads typically consist of water spray or jet devices located in an area accessible to the public. They are intended to provide individuals with a means to play in the water without going into a swimming pool. These spray grounds are becoming very popular in settings around swimming pools and in nontraditional settings, such as outdoor malls and amusement parks.

In the recent past, spray grounds have been associated with the transmission of waterborne disease outbreaks of shigellosis and cryptosporidiosis.

The purpose of these guidelines is to clarify the requirements necessary to properly construct and operate spray grounds in a safe and sanitary manner.

Scope:

These guidelines apply only to spray grounds as defined below, regardless of where the attraction is located.

Definitions:

Spray Grounds:

Spray grounds with recirculated water are considered special purpose pools. Spray grounds are water features where interaction with the water by the public is encouraged and not discouraged. These types of pools are constructed and designed so that there is no accumulation or ponding of water on the surface of the ground. Water is stored in an underground reservoir. A separate booster system is used to introduce treated water to the spray ground through various features (i.e., jet nozzles, tumble buckets, water canons, etc.). After the water hits the ground it drains back to the reservoir. A recirculation system draws water from the reservoir where it is filtered, disinfected and returned to the reservoir.

Enforcing agency:

The local health agency having jurisdiction over the Spray ground.

Splash Zone: The area of the Spray ground that comes in direct contact with recirculated water from the water features.

Requirements:



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1. A plan review and approval is required by the Enforcing Agency prior to construction.
2. All parts of the spray grounds must be designed, constructed, maintained and operated so there are no slip, trip or fall hazards or other conditions that may pose a safety hazard.
3. The splash zone must be properly sloped so that only water from the features flows back to the reservoir. Areas adjacent to the splash zone must be sloped away from the collection drains. Plants, vegetation or other safety hazards within the immediate area of the splash zone are prohibited. A continuous clear deck shall surround the entire spray pad perimeter. It shall be not less than four feet wide. The deck shall be of a uniform, easily cleaned, impervious material.
5. Hose bibs shall be provided to facilitate flushing of the spray pad and deck area.
6. There shall be no ponding of water within the splash zone.
7. The spray devices must be designed, constructed and installed so that they do not create a safety hazard. Nozzles that spray from the ground level must be flush with the ground, with openings no greater than one-half inch. Spray devices that extend above the ground must be high enough so they can be clearly seen and are not a trip hazard.
8. All foggers and jet nozzle sprays that produce finely atomized mists must be connected to a separate potable water source.
9. The recirculation pump must be in operation at all times that the spray ground is open for use and a minimum four (4) turnovers prior to opening for proper disinfection and filtration.
10. Artificial lighting shall be provided so that all portions of the spray ground and deck may be easily seen. A minimum 3 foot-candles (f.c.) of artificial light shall be provided, measured 30" from the deck, at all spray pads which are used at night or which do not have adequate natural lighting.
11. The total volume in the reservoir, including all piping, must be at least 4,000 gallons. The volume in the reservoir, including all piping, must be a minimum of 3 times the flow rate of all attraction pumps and the recirculation pump combined (e.g. if the flow rate of all pumps is 2,000 gpm, a volume of at least 6,000 gallons would be needed).
12. The turnover rate shall not exceed 30 minutes.
13. An adequate number of sanitary facilities shall be provided for all spray grounds. These facilities shall include restrooms, showers and drinking fountains. Additionally diaper changing facilities must be provided at the restrooms.



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14. The suction intake of the water features' pump in the reservoir must not be located in the immediate vicinity of the suction intake of the recirculation pump. It must be located as close as possible to the recirculation return line. The location of inlets shall facilitate good circulation of water to all areas of the reservoir.
 15. The suction intake from the recirculation pump must be located in the lowest portion of the reservoir. An overflow pipe to convey excess water to waste through a suitable air gap must be provided.
 16. The spray pad reservoir shall be constructed of materials which are corrosion resistant, nontoxic, and watertight such as concrete, fiberglass, or stainless steel, which can withstand all anticipated loads under full and empty conditions. The reservoir design shall be wet stamped by a California Registered Structural Engineer. Reservoir floors shall be smooth to facilitate vacuuming of silt and debris.
 17. A potable water source shall be provided with an automatic water level controller for the spray pad reservoir. The makeup water shall be introduced into the spray pad reservoir through an air gap or by another method which will prevent back flow and back-siphonage.
 18. The reservoir must be designed to have easy access for cleaning and inspection. Reservoir shall have at least one ladder access. Provide one three foot by three foot (3X3) access opening for every six (6) ft. of reservoir length. Lids shall be locked or require a tool to open.
 19. A free chlorine residual of at least 3.0 ppm and pH of 7.2 – 7.6 must be maintained at all times the fountain is in operation. This level must be present as measured at the spray ground features. An automatic controller shall be provided for continuously monitoring and adjusting the disinfectant and pH.
 20. The spray ground feature pump must be provided with an automatic shut-off that shuts down the feature pump if the chemical controller registers a reading below 650mv.
 21. U.V. light disinfection units:
 - a. Treatment systems shall include an ultraviolet disinfection system unless another treatment process is provided that has been determined by the State Department of Public Health to be capable of providing the equivalent level of reduction of cryptosporidium as the ultraviolet light disinfection system specified in this section. All water that is provided to the spray pad shall be treated with ultraviolet light during spray pad operation. The ultraviolet light unit validated dosage shall be equivalent to 40mJ/cm² or greater at the end of lamp life.
 - b. All ultraviolet light units must be validated. The validation process must determine the ultraviolet light unit's disinfection performance by



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- indicating that a dose of 40mJ/cm² (at end of lamp life) is achieved at a flow rate equal to or greater than the design flow rate at the set point intensity. Validation testing must be performed by an independent agency.
- c. An accurately calibrated ultraviolet light intensity meter, properly filtered to restrict its sensitivity to the disinfection spectrum shall be installed in the wall of the disinfection chamber at the point of greatest water depth from the tube or tubes.
 - d. The unit shall be designed to protect the operator against electrical shock or excessive radiation.
 - e. UV system must have an automatic wiper.
 - f. UV systems must be certified to NSF standards 50.
 - g. A spare ultraviolet lamp and other necessary equipment to affect prompt repair by qualified personnel properly instructed in the operation and maintenance of the equipment shall be provided on-site.
 - h. The ultraviolet light unit shall be located between the spray pad water feature pump discharge and the spray features.
 - i. The UV systems must be equipped with an automatic shutdown feature to inactivate the water feature pump if the UV dosage rate drops below 40 mJ/cm².
22. A diverter valve shall be installed on the spray ground drainage piping before the reservoir to divert rain water to the storm drainage system when the splash ground is closed for the season.
23. A removable and cleanable catch screen or basket shall be installed on the spray ground drainage pipe before it enters the reservoir to prevent larger debris from collecting in the reservoir.
24. Each spray ground must be provided with one or more signs stating:

CAUTION:
WATER IS RECIRCULATED
DO NOT DRINK

4" lettering must be provided. Signs must be visible from any part of the spray ground.