



Guidelines for Floatation Tank Installation, Operation, Monitoring and Risk Management

Float tanks, often referred to as floatation pods, iso-pods or sensory deprivation systems are typically small clamshell enclosed pods that contain around 1000 Litres of water. The water inside a float tank usually contains very high concentrations of Epsom salts (Magnesium Sulfate) at around 30-40% by weight, and is normally heated to around 35 degrees Celsius. The tanks are designed to be used by one person at a time, and are marketed as providing a sensation of floating in space combined with various potential health benefits.

Monitoring and managing the potential microbiological risks in float tanks is important as water changeover and disposal occurs infrequently due to the amount and cost of Epsom salts used in each tank (500-550kg).

Float tanks are becoming more popular especially with health salons and the following guidance is provided to assist Local Government and float tank operators to ensure their safe use.

Regulated Aquatic Facilities

- Float tanks used for commercial purposes in WA are considered to be and are regulated as an aquatic facility under the:
 - *Health (Aquatic Facilities) Regulations 2007*, and
 - Code of Practice for Design, Construction, Operation, Management and Maintenance of Aquatic Facilities (the Code of Practice).
- Before installing a float tank an application to the Executive Director Public Health (EDPH) for an approval to construct is required.
- Subsequent to installation, the Department of Health will need to inspect the facility, and the float tank can only be used once the EDPH has signed and issued a Certificate of Compliance and a Permit to Operate.
- An application form and the Code of Practice may be found at the link below:

<http://ww2.health.wa.gov.au/Health-for/Industry-trade-and-business/Water>

Classification

- Float tanks are classified as **Group 3** facilities and are required to meet requirements for Group 3 facilities as set out in the code of practice.

Microbiological Risk

- As the salt water solution used is not changed or disposed of between patrons, there is a potential for various microorganisms including bacteria, amoeba and viruses to transfer from patron to patron. However, the high salt content in float tanks reduces the potential health risk of most bacteria and amoeba. This is due to the concentrated salt solution creating

conditions favourable to leaching of fluid (osmosis) from the cell membranes of microbes which leads to desiccation (drying out) and death of the cell.

- Viruses however, which don't possess cell membranes, along with some salt tolerant bacteria and highly resistant amoeba may not desiccate, though any amoeba present would likely revert to a dormant, non-reproducing cyst form due to the adverse environmental conditions.
- The residual risks are managed through application of an appropriate water disinfection process.

Structural Design

- The Code of Practice prescribes structural requirements for all aquatic facilities including the design and installation of float tanks.
- Tanks are not to leak water, or be designed with niches or surfaces that are favourable to the growth of microorganisms.
- Designs are to include air vents for ingress/egress of air.
- Materials used are to be non-toxic, fit for purpose, chemically resistant, non-flammable and easily cleanable.
- Due to the weight of the pods and their contents, floors situated under float tanks are to be structurally sound and suitable to bear the combined weight.
- Steps and floor surfaces into and out of float tanks are to be non-slip.
- There are to be no entrapment hazards including water outlets.
- There are to be no projection hazards.

Operation

- Float tanks are to be operated in accordance with Group 3 requirements as specified in the Code of Practice.
- A qualified technical operator to be involved in managing water quality, plant and equipment on an ongoing basis is required.

Disinfection, Filtration and Turnover

- The Department of Health only approves chlorine or bromine based primary disinfectants for use in float tanks



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- Hydrogen peroxide and associated solutions are not permitted to be used in float tanks in WA.
- For chlorinated systems, chlorine levels are required to be maintained at a minimum of 3ppm.
- For brominated systems, bromine levels are required to be maintained at a minimum of 6ppm.
- Secondary disinfection measures such as ultraviolet light filters can be used as per manufacturer specifications, but only in combination with a primary disinfectant. This is due to UV light not providing any residual disinfection capacity within the water. UV filters should be fully enclosed and placed in line within the filtration and disinfection system, and not within the float tank itself.
- Ozone should not be used in float tanks due to its potential to build up as a gas within the tank and potentially harm users.
- Four full water turnover cycles is necessary between patrons (i.e. the volume of the water body is to be pumped through the filters four times) to allow for adequate filtration and disinfection. This is all the more important given water is not turned over during float sessions.

Ventilation

- As float tanks are enclosed, adequate air vents on the tanks are required to allow movement of air into and out of the tanks.
- Ventilation providing fresh air exchange is required for rooms hosting float tanks, as well as for removal of by-product gases produced during the water disinfection process, and excess humidity. Minimum required ventilation rates are 10L/s of fresh air per person.
- Air exchange may be provided through the following mechanisms:
 - Mechanical supply combined with mechanical exhaust
 - Mechanical supply combined with passive (always open) vents to allow for stale air egress
 - Passive (always open) vents to allow fresh air intake combined with mechanical exhaust
- Where possible, air inlet and outlets should be on opposing sides of the room to allow effective air flow.



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- Split system air conditioners or systems with air re-circulation/re-cycling functions are not to be used in float tank rooms without some form of fresh air mechanical ventilation system.

Heating Systems

- Water heating systems are to comply with the Code of Practice Appendix 3.

Electrical Systems

- Electrical systems and outlets are to be installed in accordance with the Code of Practice Section 2, with particular emphasis on power outlets being appropriately located so as to not become wet, and installation of residual current device (RCD) systems.

Emergency Alarms

- An emergency alarm button is required to be installed in all tanks to allow a patron in distress to alert the operator to an issue.

First Aid

- Provision of first aid facilities and first aid qualifications of float tanks operators are as required for Group 3 facilities in the Code of Practice.

Hygiene and Use

- Users should not put their face under water.
- Signage should be provided to patrons advising of hygiene requirements and other rules for the facility as per the Code of Practice.
- Sanitary facilities are as required in the Code of Practice, including toilets, showers, hand basins and changing areas.
- Due to the small volume of water used in float tanks, it is critically important that good hygiene measures are adopted, including patrons showering before and after use of float tanks.
- Operators should also be on the lookout for potentially sick patrons seeking to use float tanks, whom may then contaminate the water bodies. This may be done through providing a questionnaire to customers before use.

Wastewater Disposal

- Adequate waste water disposal arrangements are required for water that has become contaminated beyond remedial disinfection measures.



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- The Water Corporation has not approved disposal of float tank water to sewer due to the high salt content potentially precipitating out of solution and clogging piping infrastructure. Disposal to septic tanks or onsite soak wells is also not permitted. Therefore disposal should be arranged through a Controlled Waste contractor.

Monitoring and Testing

- Operators are to monitor water chemistry, and keep a log book in accordance with Group 3 requirements as detailed in the Code of Practice.
- Monitoring and testing by local government environmental health officers is to be conducted as for other aquatic facilities, however, there may occasionally be issues obtaining chlorine readings due to the high salt content. If this occurs, the equipment failure should be marked down as such.
- 2 samples bottles (refrigerated) should be submitted for microbiological analysis for the following:
 - *E. coli* (indicator of possible faecal contamination).
 - *Pseudomonas aeruginosa* (problematic bacteria that grows well in warm water).
 - *Enterococci* (indicator of possible faecal contamination).
 - **Heterotrophic plate count** (indicator of possible issues with disinfection process).
- Amoeba testing is not required due to the hyper saline character of the water creating environmental conditions that are considered non-conducive to amoebic proliferation.

More Information

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Telephone: 08 9388 4999
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