




**SPLASH  
PADS =  
PLAYGROUNDS  
+ WATER**



**Introducing NSF Standard 50:25**  
Interactive Waterplay Venue Surfacing Systems



A photograph of two young children playing on a splash pad at a swimming pool. The splash pad has a blue surface with white circular patterns and a yellow star. In the background, there are colorful umbrellas and a swimming pool. The text is overlaid on the right side of the image.

# SPLASH PADS = PLAYGROUNDS + WATER

In 2019, after four years of research, testing, and careful deliberation, NSF/ANSI 50 has created a new standard for splash pad surfaces.

This new standard emphasizes slip resistance, impact attenuation, and durability to perform in the aquatic environment.

This standard was created because experts have seen how similar splash pads and playgrounds are. Children use them in similar ways. The success of playground design standards provides an important template for the future of splash pad safety.

*Before 1981,  
many playgrounds  
looked like **this.***

Unsurprisingly, injuries were common.



# Today, playgrounds look like **this.**

In the late 1970s, there were no rules or industry standards when it came to playground safety. **Some 200,000 children visited the emergency room for playground-related injuries annually during the 1970s.**

The industry realized it could do better, and in 1981, the Consumer Product Safety Commission published the **Handbook for Public Playground Safety**. The ASTM published its own guidelines soon after.



# Over the past 25 years, **splash pads** have appeared everywhere.

A new kind of play area has joined the playground at local parks: the splash pad.

Unfortunately, in the rush to meet the growing demand, and without a surfacing product durable enough for aquatics, history has repeated itself. Key safety regulations were not immediately created for splash pads. And people have been injured.

According to the National Electronic Injury Surveillance System database, in 2014 alone, there were an estimated **20,000 injuries on pool decks, splash pads, or water parks resulting in an emergency room visit.** All over North America, splash pads have been closed due to safety concerns.






## *A new standard-* **NSF/ANSI 50**

The safety revolution that transformed playgrounds is long overdue for splash pads.

Following years of rigorous testing and research, NSF created **NSF/ANSI 50 (Interactive Water Play Venue Surfacing Systems)**, concluding that for a surface to meet an appropriate standard for splash pad surfacing, it must fill six unique performance-based requirements:

- Slip Resistance
- UV Resistance
- Impact Attenuation
- Cleanability
- Chemical Resistance
- Impermeability



After a decade of designing, testing, and building aquatic surfaces, **Life Floor** has been proud to contribute to the process of creating these new requirements.

**LIFE**  <sup>TM</sup>  
**FLOOR**

is the first surface to meet all six performance requirements, and the first splash pad surface to be certified by **NSF/ANSI 50**.

# How is a splash pad surface certified to NSF/ANSI 50?

## 1. Slip Resistance

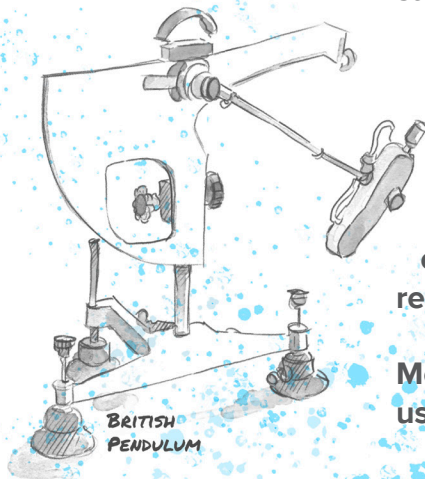
Certified splash pad surfaces must be slip-resisting to minimize slip-and-fall injuries, while providing a minimum level of traction without being abrasive.

A certified surface needs to be independently tested via the **British Pendulum Method**, the most accurate test for simulating real world conditions.

Testing is conducted with three sets of materials: a **controlled sample as well as samples exposed to UV light and chemically treated pool water.**

**Life Floor is certified to this standard**, receiving more than a **40 British Pendulum Number (BPN)** and a **P5 on the Australian Standard**, effectively exceeding the requirements by 50%.

Most of the developed world already uses the British Pendulum Test.



## 2. Impact Absorption

Certified surfaces must be cushioned to absorb inevitable falls. The standard requires a HIC (Head Injury Criterion) value of 750, with a .20 meter minimum fall height.

Keeping the HIC value below 1000 is key. At a HIC of 1000, there is an 18% probability of a severe head injury, a 55% probability of a serious injury, and a 90% probability of a moderate head injury to the average adult.

The test will include virgin samples as well as samples exposed to UV light and to pool water. Each group of samples would be assembled on a grid, with a **drop test** performed on both the center of a tile, a joint between two adjoining tiles, and a junction where the greatest number of tiles meet.

**Life Floor is certified to this standard, and exceeds its requirements by 50%.**



### 3. *Chemical Resistance*

Certified surfaces must maintain their traction and impact attenuation even after exposure to harsh chemicals.

To determine this, a surface is independently tested by exposing samples to specifically treated water for 100 days, including three elevated chlorine “shock” periods lasting at least 24 hours each.

**Life Floor is certified to this chemical resistance standard.** Life Floor maintains both traction and impact attenuation after undergoing this process, and our safety messaging retains its visual clarity.

### 4. *UV Resistance*

Resistance to ultra-violet radiation is essential, as many splash pads experience intense, year-long sun exposure.

To determine UV resistance, a surface is independently tested for 750 hours under a fluorescent UV light in accordance with ASTM G154.

Any erosion is not acceptable if it compromises the surface’s traction and impact attenuation. Safety messaging must also retain visual clarity. **Life Floor is certified to this standard.**



### 5. *Cleanability*

A certified surface must respond well to cleaning and sanitization.

To test cleanability, a dirty slurry with two major bacterial groups found in aquatic environments is applied to the surface and any surface joints. These organisms are then allowed to incubate, with one set of samples kept as a control.

The challenge organisms are first counted before placing the samples in a bleach solution. The organisms are counted again after removal from the solution. **Life Floor is certified to this standard as it demonstrated a 99.9% reduction of organisms after being sanitized.**

This also includes the area between the joints of each tile.

### 6. *Impermeability*

A certified surface must not absorb water.

According to the standard, a surface must be at least as impermeable as concrete, which is rated as 98.3% impervious, based on how much water a sample may absorb over 24 hours.

**Life Floor is certified to this standard and exceeds it, being rated 99.6% impervious**



## What is NSF/ANSI 50?

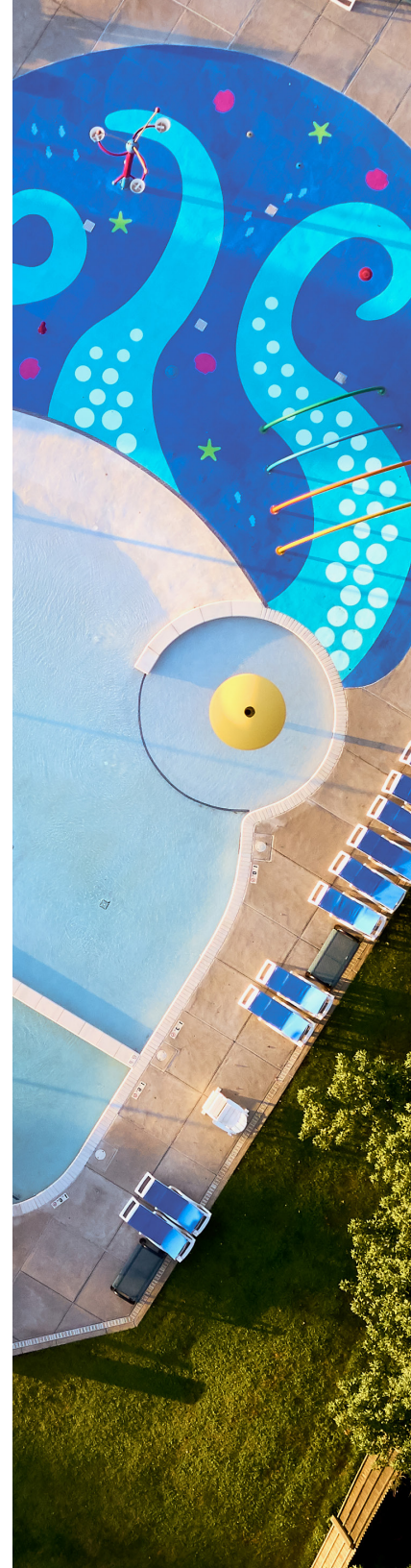
NSF International is an objective third party certification group that works with industry professionals and stakeholders to provide public health and safety-based risk management solutions. NSF/ANSI 50 are a set of standards that establish minimum performance requirements for equipment, products, and systems related to recreational water facility operation. The NSF/ANSI 50 standards cover much of the equipment that goes in and around recreational water areas (i.e. splash pads, pool decks) including water sanitation, filtering, pumps, and surfacing.

## What are the new standards around safety surfacing within NSF/ANSI 50?

The new standard within NSF/ANSI 50 outlines the performance testing characteristics of a safety surface around “interactive water venues” (which is a term that includes splash pads and areas like splash pads). Specifically, the amount of slip resistance, chemical resistance, impact cushioning, UV resistance, cleanability, and impermeability a surface needs in order to be certified to the standard.

## How does this affect aquatic operators?

Currently, 37 states reference NSF/ANSI 50 and an additional 4 states have counties that reference NSF/ANSI 50. Different state pool codes reference the NSF/ANSI 50 standards, which can be found on this interactive map: [http://www.nsf.org/images/nsf/pools\\_nsf-50\\_map\\_us.jpg](http://www.nsf.org/images/nsf/pools_nsf-50_map_us.jpg)



A list of Canadian providences can be found here: [http://www.nsf.org/images/nsf/pools\\_nsf-50\\_map\\_canada.jpg](http://www.nsf.org/images/nsf/pools_nsf-50_map_canada.jpg)

Additionally, the Model Aquatic Health Code as set out by the CDC has adopted NSF/ANSI 50 standards. In this case, the Model Aquatic Health Code outlines what specifically is mandatory for facilities to adhere to (the code) and the NSF/ANSI 50 standard provides guidelines on how to comply with the code.

## If not mandatory, why should aquatic operators care?

It is always in a facility’s best interest to adhere to NSF standards in terms of both operational excellence and risk mitigation. Meeting NSF standards for sanitation, health and safety provide facilities additional protection from potential lawsuits. The NSF/ANSI 50 standard reduces the chance of injuries. However, should an injury occur, operators can point to the fact that they were operating under the best and safest practices in the industry.

On a product level, using NSF/ANSI 50 certified products takes the guesswork out of finding safe, high-performing products and services for aquatic operators. Independent testing ensures that a product with NSF certification can be trusted to serve public health.

For further information, videos, and more, visit [lifefloor.com/NSF50](http://lifefloor.com/NSF50)

Special thanks to Westfield Memorial Pool.





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