مينالك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

Background

This article has been written to assist those operating water parks or operators with recreational water features containing water play features with a specific focus on the range of regulatory standards either published or in development.

Context

Theme parks rose to popularity in the in the 50's and 60's, whereas water parks are several decades younger. The first commercial water park opened in Orlando, Florida in the year 1977. Water parks have been a developing science since. Legislation and international safety standards have been evolving based upon the specific risks, but there are still a lot more opportunities to further reduce risks as water attractions get more and more sophisticated each year and totally new attraction concepts arise.

مينالاك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

Regulatory Framework

There are currently a multitude of international standards, codes, and guidelines - which can differ and sometimes provide ambiguity. Some are more proven and recognised than others and additional considerations include adapting local codes and the cross reference of other related buildings standards.

Nevertheless, the main industry standards can be found in the EN and ASTM family of standards.

EN are European Standards, published and developed by CEN, the European Committee for Standardization. It is an association that brings together the National Standardization Bodies of 34 European countries. European Standard (EN) automatically becomes a national standard in each of the CEN-CENELEC member countries.

مينالك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

ASTM are North American standards, managed by the Association for Testing Materials, which is a not government related private organisation. ASTM standards are "Living standards" which are continuously updated and react fast to new products of the industry. All standards are developed within related technical committees.

Meanwhile water parks often have a wide range of attractions like pools, wave pools, lazy rivers, action rivers, spray pads, water play units, surf machines, surf lagoons, body slides, kids slides, raft slides, LIM slides, and water propelled coasters.

Compared to amusement parks the specialty and different risk factor is the active and free user situation e.g. there are no restrain systems, no enclosed vehicles, limited controls system, no brakes, limited speed control and limited user behaviour control.

To mitigate those risks and establish international relevant guidelines, EN and ASTM publish ongoing new standards to cover currently unregulated water park attractions.

Well-established Standards Are:

Water Slides

EN 1069-1 - Safety Requirements and Test Methods

EN 1069-2 - Instructions

General safety requirements for water slides in swimming pools of public use and specific requirements for defined types of water slides. These requirements concern safety and the technical rules for design, calculation, and testing.

ASTM F2376-21a - Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems

مينالك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

Public Pools

EN 15288-1 - Safety Requirements for Design

EN 15288-2 - Safety Requirements for Operation

Specifies safety requirements for the design and construction for three classifications of swimming pools: covering layout, safety information, materials, areas for bathers, wave pools, first aid rooms, control points, storage rooms and areas for water treatment chemicals and plant rooms.

EN 13451-1:2020 - Swimming Pool Equipment

EN 13451-1 - General Safety Requirements and Test Methods

EN 13451-2 - Additional Specific Safety Requirements and Test Methods for Ladders, Stepladders, and Handle bends

EN 13451-3 - Additional Specific Safety Requirements and Test Methods for Inlets and Outlets and Water/Air-based Water Leisure Features

مينالك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

EN 13451-4 - Additional Specific Safety Requirements and Test Methods for Starting Platforms

EN 13451-5 - Additional Specific Safety Requirements and Test Methods for Lane Lines and Dividing Line

EN 13451-6 - Additional Specific Safety Requirements and Test Methods for Turning Boards.

EN 13451-7 - Additional Specific Safety Requirements and Test Methods for Water Polo Goals.

EN 13451-10 - Additional Specific Safety Requirements and Test Methods for Diving Platforms, Diving Springboards and Associated Equipment

مينالك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

EN 13451-11 - Additional Specific Safety Requirements and Test Methods for Moveable Pool Floors and Moveable Bulkheads

There is no specific ASTM standard for public pools as this is regulated by each US state separately, but several supplementary standards for technical details as below.

ASTM F2387-21 - Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming Pools, Spas and Hot Tubs

ASTM F1908-08(2018) - Standard Guide for Fences for Residential Outdoor Swimming Pools, Hot Tubs, and Spas

Newer Published Water Park Standards:

EN 17232 - Water Play Equipment and Features – Safety Requirements, Test Methods, and Operational Requirements.

EN 17164 - Climbing/Bouldering Walls for Use in the Water Area of Swimming Pools of Public Use - Safety and Operational Requirements.

There is no specific ASTM standard for climbing/bouldering walls in public pools.

مينالك
MENALAC
مجلس الشرق الأوسط وشمال أفريقيا للترفيه والجذب السياحي
Middle East and North Africa Leisure & Attractions Council

LET'S TALK SAFETY - JANUARY 2024

ASTM F2461-20a - Standard Practice for Manufacture, Construction, Operation, and Maintenance of Aquatic Play Equipment

ASTM F3133-21 - Standard Practice for Classification, Design, Manufacture, Construction, Maintenance, and Operation of Stationary Wave Systems
There are no specific EN standards for Stationary Wave Systems, but several supplementary standards for details.

ASTM F3158-21- Standard Practice for Patron Transportation Conveyors used with a Water Related Amusement Ride or Device

There is no specific EN standard for Patron Transportation Conveyor, but technical details covered by EN13814.

New ASTM Standards in Development:

ASTM F24.70 - Task Group on Surf Lagoons

ASTM F24.70 - Task Group on Water Slide Acceleration Testing

Going forward there will be accelerated further development of the main proven water park codes (EN/ASTM) and at the same time their worldwide adaptation will rise. Therefore, it is important for designers, manufacturers, and operators to keep track of that development.

Written By

Alex Schrott
TUV SUD
Head of Water Parks – Global
Head of Amusement Rides & Structures – Middle East