

Swimming pool tank design and operation

The following newspaper account of a child drowning and subsequent prosecution is provided to raise awareness of issues and consequences. Measures that can help prevent accidents of this type are provided in the British and European Swimming Pool Standards.

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Companies fined over Luca's death in pool

By Dan Taylor
dan.taylor@newsquest.co.uk

TWO companies who admitted health and safety breaches following the tragic death of a four-year-old boy have been sentenced.

Described as 'kind' and 'loving' with an 'infectious' laugh, Luca Hurle drowned after getting into difficulty at Old Park Wood caravan park near Grange.

Holker Estates Ltd and health and safety company Newmac have now been fined in relation to health and safety breaches following his death.

They were sentenced at Preston Crown Court yesterday.

The court heard how Luca, from Newport in Wales, had been staying at the holiday park with his father and family friends in August 2016.

On August 8 Luca was swimming in the park's pool with armbands alongside his dad Gavin Hurle and other children.

At one point, a parent at the side of the pool noticed they could no longer see Luca.

Mr Hurle found his son at the bottom of the pool and pulled him out.

Unconscious, Luca was taken to a nearby hospital and later transferred to Alder Hey children's hospital, where he died.

The court was told an alarm by the

pool could only be heard in a small area and CCTV cameras in the site's office were not in use.

Following his death, questions were raised over the safety of the pool.

The court was told there was a steep gradient where the shallow end of the pool passed into the deep end that could have posed a risk of dragging non-swimmers into the deep water by accident.

Signage by the pool was said to have told swimmers the gradient was half as steep as it really was.

Investigations uncovered how potential safety risks had not been addressed in the years prior to Luca's death.

In moving impact statements, parents Mr Hurle and Amanda Collins described their struggle to cope with the loss of their 'energetic' and 'loving' son.

Mrs Collins, who read her statement in court, described how she experienced 'flashbacks' and was 'reliving the trauma' every year.

She described a child with a 'gorgeous smile and an infectious laugh'.

Mr Hurle said: "With the loss of Luca my life and the life of my family will never be the same.

"It's impossible to put into words the impact losing Luca has had. Luca was an energetic, loving and kind boy whose smile and laughter was contagious. We remember him every day

and see him in our dreams.

"But we are left with a gaping hole in our heart that is and will continue to be impossible to fill."

Mr Hurle said he would 'never get to see him see him become the amazing teenager, parent and grandparent that he would've been'.

"I will never be the man I was," he said. "The best of me has gone."

At an earlier hearing, Holker Estates pleaded guilty to failing to conduct an undertaking in such a way to ensure that people not in its employment were not exposed to risks to their health and safety and failing to comply with an improvement notice.

The landowner was fined £127,500 and ordered to pay £27,402 in costs.

Newmac admitted failing to discharge general health and safety duties to a person other than an employee at Old Park Wood caravan park.

The company conducted risk assessments for Holker Estates. It was fined £11,000 and ordered to pay £5,000 in costs. The prosecution was brought by South Lakeland District Council.

After the hearing, Mrs Collins said:

"Today corrects the public perception that what happened to my son was an accident, and acknowledges the failings of the parties that had a legal and public obligation to keep him safe.

"This has been the darkest time of my life, and yet my son's light still shines brightly."



TRAGEDY: Gavin Hurle and son Luca. Mr Hurle said the loss of Luca meant the family's life would never be the same

Swimming pool tank safety considerations provided in BS EN 15288 Swimming pools for public use Part 1: Safety requirements for design and Appendix A of BS EN 15288 – 2 Swimming pools for public use - Part 2: Safety requirements for operation.

Design

Given below are those aspects from the Standard that are related to or cover public swimming pool tank or basin design considerations. They are an individual interpretation of what the Standard covers. They are not complete or intended to cover all that the Standard

requires. They are just a flavour of the aspects covered intended to raise awareness of the issues and how crucial it is that all pool managers/operators are familiar with the Standards.

Pool tanks/basins with freeboards (not deck level)

The handgrip shall be located on the pool basin vertical wall or on the pool basin edge (if possible), in the area from the water level upwards to +300 mm.

Where handrails are used, they shall comply with BS EN 13451-1. (Swimming pool equipment - Part 1: General safety requirements and test methods for equipment installed in pools for public use)

Pool tank/basin: General

Pool tank/basins and the elements of their construction shall have no sharp edges or projections that could cause injury to bathers, especially below the water level. EN 13451-1 requirements should be followed.

Pool basin floor

Areas with a water depth equal to or less than 1.35m are non-swimmer areas.

Non-swimmers areas

In these areas:

- a) abrupt changes in depth are not permitted, except for access steps;
- b) the gradient of the pool tank/basin floor shall be equal to or less than 10%;

Pool tank/basin floor inclination equal to or less than 6% is generally recommended, and 5% in pool tank/basin areas with a water depth less than 0,8 m.

- c) the slip resistance of the floor shall comply:
 - in water depth < 0.8 m with rating group B
 - in water depth 0.8 m to 1.35 m with rating group AAs specified in BS EN 15288 -1

d) changes in inclination (from horizontal to inclined, or from one inclination to another) shall be marked by a contrasting colour and/or with a floor finish of different tactile quality;

e) the surface finish of the pool basin floor in areas with a water depth ≤ 1.35 m shall not cause discomfort to the users walking on it (e.g. due to the quality of floor tiling, edges of the tiles and/or the grout).

Areas with a water depth > 1.35 m are swimmer areas.

Swimmer areas

Transitions between non-swimmers and swimmers areas should be marked on the pool tank/basin floor by a clearly visible line.

Transitions between non-swimmers and swimmers areas

Wherever a means of a physical segregation of a non-swimmers area to a swimmers area is foreseen it shall be placed at least 1 m before the end of the non-swimmer area.

What follows are examples of hazards and possible measures to mitigate these hazards that are given in Appendix A of BS EN 15288 – 2 Swimming pools for public use - Part 2: Safety requirements for operation. They are an interpretation of the standards requirements, not intended to be comprehensive or complete but all pool managers/operators must be aware of the Standards and use them as part of their risk assessment when preparing operational procedures.

Possible hazard	Unexpected changes in water depth in non-swimmers area
Possible cause	Design
Possible consequences (possible harm)	Drowning due to excessive gradients increasing the likelihood of slipping and causing young children to be led into deep water
Possible hazard related measures	<ul style="list-style-type: none"> a) Checking whether the pool gradient exceeds the recommended gradient and whether this occurs in a non-swimmers area b) Ensuring that areas of steep gradient are clearly marked using coloured pool tank floor markings c) Providing separation, by use of dividing line d) Providing warning signs

Possible hazard	Non-swimmers in swimmers area
Possible cause	<ul style="list-style-type: none"> Ineffective admission control Lack of clear signage relating to non- swimmers and depth markings Missing dividing line between non- swimmers and swimmers area Inadequate supervision
Possible consequences (possible harm)	Drowning
Possible hazard related measures	<ul style="list-style-type: none"> Pool supervisory staff supervision; or where not supervised: a) display clear definitive rules signage at entry and in the pool; b) display clear depth markings; c) establish a non-swimmers area; d) checks of the pool to ensure appropriate behaviour

Possible hazard	Excessive pool tank gradient, not in accordance with EN 15288 - 1
Possible cause	Design

Possible consequences (possible harm)	Drowning due to excessive gradients increasing the likelihood of slipping and causing young children to be 'led' into deep water
Possible hazard related measures	a) Checking whether the pool gradient exceeds the maximum recommended gradient and whether this occurs in a non-swimmers area b) Ensuring that areas of steep gradient are clearly marked using coloured pool tank floor markings c) Providing separation, by use of dividing line d) Providing warning signs

Possible hazard	Unsupervised pools, or areas of pools in pools where supervision is needed
Possible cause	Inadequate definition of supervision areas Inadequate definition of supervision points and / or routes
Possible consequences (possible harm)	Accident with various level of severity, including brain damage or death
Possible hazard related measures	a) Defining: <ul style="list-style-type: none"> - number of supervision staff; - supervision areas; - supervision points and / or routes