Stainless steel in *pools*, *spas* and hammams

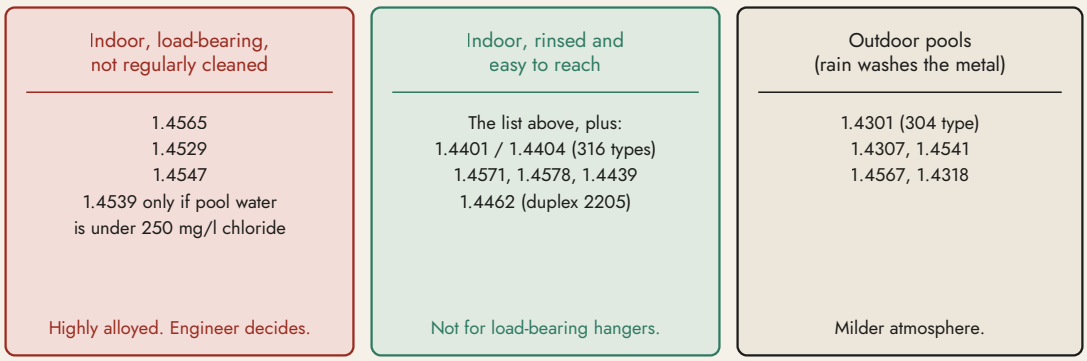
Which stainless parts in an indoor pool hall can crack, as reported by Euro Inox (2013), and what to leave to an engineer. General guidance, not engineering advice.

Compliance guidance. This is guidance, not engineering advice. The grade lists are Euro Inox's 2013 summary of EN 13451-1:2011, which has since been replaced by a newer edition that we have not read. The HSE circular on this subject could not be retrieved. Selecting any load-bearing fixing in a pool hall is a chartered structural engineer's job. Nothing here is a design or a safe working load.

AT A GLANCE

Part	Where	Risk	What the source says	What to write or do
Hangers, rods, anchors and fixings that carry the suspended ceiling	Indoor pool hall, above and behind the ceiling, never washed	Highest: stress corrosion cracking	Euro Inox lists only the highly alloyed grades 1.4565, 1.4529 and 1.4547 for this use (EN 13451-1:2011). Not 304. Not 316.	A structural engineer selects, designs and approves them. Proof test where appropriate. Leave access to inspect.
Lights, signs, loudspeakers, ducts, brackets fixed to the structure	Indoor pool hall	Highest where they carry load	Euro Inox says items not normally thought of as structural can be safety-critical.	Put them on the same schedule as the hangers.
Ladders, rails, benches, doors, windows	Indoor pool hall, rinsed and easy to reach	Lower, if the washing really happens	Euro Inox adds the 316 types (1.4401, 1.4404, 1.4571, 1.4578), 1.4439 and duplex 1.4462 for parts that are regularly cleaned.	Name the grade, the finish and the cleaning routine. Put the routine in the O&M manual.
Decorative panels, cladding, grilles	Indoor pool hall	Not rated by any source we read	Euro Inox sorts parts by whether they are regularly cleaned, not by whether they are decorative.	Treat as not cleaned unless washing and access are agreed. Ask the engineer.
Outdoor pools	Outdoor, rain-washed	Milder	Euro Inox lists 304-type grades (1.4301, 1.4307) and others for outdoor pools.	Still specify cleaning.
Paint or powder coat on stainless	Any pool atmosphere	Does not rescue the grade	Euro Inox: paint adds no protection and cannot justify a lower grade.	Do not trade grade for coating.
Hammam, steam room, spa wet area	Fresh-water steam, or a chlorinated spa pool	No source read for steam rooms	Our reading, not a published rule: fresh-water steam is a rinsed wet room; air above chlorinated water is a pool atmosphere.	Ask the spa consultant and engineer.

Grade numbers are European material numbers: 1.4301 is the 304 type, 1.4404 the 316L type. Lists as reported by Euro Inox (2013).



Grade lists reported by Euro Inox (2013) from EN 13451-1:2011; check the current edition. Original drawing by Make Bespoke Studio.

SPECIFICATION WORDING

SAFETY-CRITICAL FIXINGS IN THE POOL HALL

All hangers, rods, anchors, brackets and fixings that carry load in the pool hall atmosphere, including those for [suspended ceilings, luminaires, signage, ducts and loudspeakers], are to be selected, designed and approved in writing by [name], chartered structural engineer, to [standard and edition confirmed by the engineer]. The supplier may not change grade, size or fixing method without written approval. Proof testing [ ] and access for inspection to be shown on the drawings.

RINSED, ACCESSIBLE PARTS

[Pool ladders, rails and benches] that are not load-bearing and are rinsed [daily] are to be [1.4404 (316L)] stainless steel, finish [ ], welds cleaned of heat tint, no open crevices. No paint or coating is to stand in for the specified grade. The cleaning routine and inspection interval are to be set out in the O&M manual.

SCHEDULE FOR HANDOVER

Provide a schedule of safety-critical metal fixings in the pool hall: location, grade, supplier, installation date, inspection interval [ ] and the name of the engineer who approved each.

TERMS USED

Stress corrosion cracking (SCC)

Cracking of a metal under tensile stress in a particular environment. In pool halls it affects stressed austenitic stainless parts in the chloramine-laden atmosphere, and can leave little visible sign.

Chloramines

Compounds formed when chlorine disinfectant reacts with sweat and urine. They evaporate from the pool and concentrate on surfaces that are not washed.

Safety-critical component

A part whose failure may cause personal injury, such as the hanger of a suspended ceiling or the fixing of a heavy light.

STANDARDS AND SOURCES

- Euro Inox, Safe use of stainless steel in swimming pool environments (Vol. 20, 2013): read in full.
- EN 13451-1 Swimming pool equipment, general safety requirements: Euro Inox cites the 2011 edition; a listing shows 2020+A1:2024 as current. Not read: confirm.
- IMOA pool-building article (Dierschke) and ASSDA indoor pools article: both read 7 Nov 2026.
- HSE, SIM 05/2002/18 Stress corrosion cracking of stainless steels in swimming pool buildings: not retrieved; not read.

Full guide: https://makebespoke.com/trade/technical/stainless-steel-in-pools-spas-and-hammams. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.