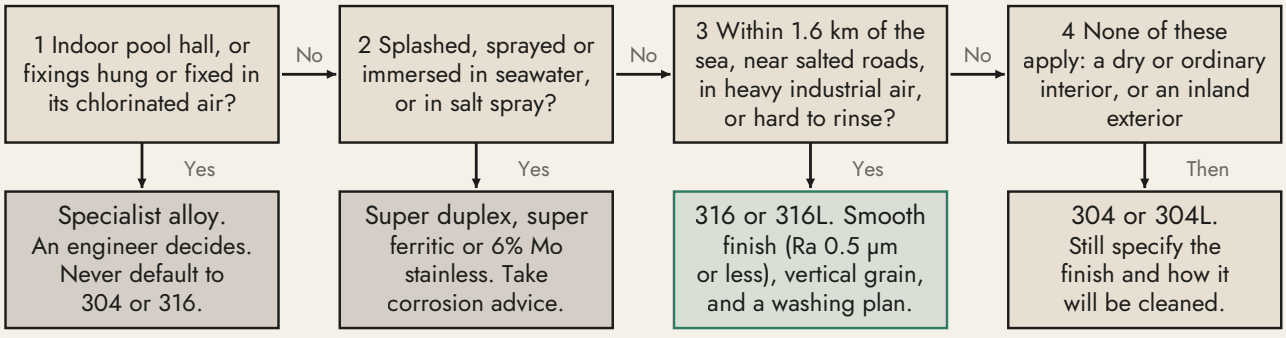
304 or 316 stainless steel: *which, and where*

304 suits most dry and ordinary interior work. 316 is the step up where salt or chlorides reach the surface. Neither is a safe default in an indoor pool hall.

AT A GLANCE

Where it is used	304	316	What decides it
Dry interior, little handling: frames, plinths, shelving, trim	Suits	Suits	304 is enough (IMOA: 304 suits most interior use). 316 works but is more than the site needs.
Interior, handled all day: door furniture, rails, lift cabs, bar fronts	Suits	Suits	The grade is not the issue; the finish is. Avoid plain 2B and bead-blast where hands land (Euro Inox).
Kitchen, back-bar or bar top, washed with detergent or sanitiser	Conditional	Suits	304 works if no chloride cleaner or bleach reaches it and it is rinsed. Where that cannot be controlled, specify 316.
Bathroom, shower or steam room: fresh water, rinsed and wiped	Conditional	Suits	Edges and open joints hold deposits. 304 needs a smooth finish, sealed joints, no chloride cleaners; 316 is safer.
Pool hall or spa: washed, unstressed ladders, rails, benches	Avoid	Conditional	Euro Inox lists the 316 family for washed parts (citing EN 13451-1); ASSDA also accepts 304. Default to 316.
Pool hall: hangers, rods or fixings in the pool air, or never washed	Specialist	Specialist	Chloride stress corrosion cracking: 304 rods failed at Uster (1985). Highly alloyed grades and an engineer's sign-off.
Exterior, inland, rain-washed	Suits	Suits	304 suits low-risk exteriors even with little cleaning (IMOA). Keep run-off from carbon steel off it.
Exterior in city or industrial air, or sheltered (canopies, soffits)	Conditional	Suits	304 needs a smooth finish, vertical grain and regular washing (IMOA). 316 stays presentable with little cleaning.
Near the sea (30 m to 1.6 km), or beside salted roads and car parks	Conditional	Suits	Score the site: 304 only if the total is 2 or less, 316 at 3, a higher alloy above that. Test for chlorides on site.
Seafront: within 30 m of salt water, or in salt spray	Avoid	Specialist	The location alone scores 4: IMOA suggests 317L or a higher alloy, and expert advice at 5 or more.
Splashed or immersed in seawater, or direct de-icing salt	Avoid	Avoid	IMOA: needs super duplex, super ferritic or 6% molybdenum super austenitic stainless. Not a 304 or 316 job.

Key. Suits: normally specified. Conditional: only with the finish or cleaning at right. Avoid: not recommended. Specialist: an engineer chooses the alloy. Distances and bands are IMOA's.



A first filter, drawn from IMOA and Euro Inox guidance. Original drawing; it does not replace a site score.

Total site score (add the five sections)

304 or 304L			316 or 316L	317L or better	Corrosion expert
0	1	2	3	4	5 or more

Adds points

+3 Within 1.6 km of salt water (+4 within 30 m)
+2 Moderate urban pollution (+3 industrial)
+2 Rough finish, Ra above 1 µm (+1 for 0.5 to 1)
+1 each: horizontal surface, horizontal grain, sheltered spot or open crevices

Takes points off

−2 Pickled, electropolished, or Ra 0.3 µm or less
−1 Ra over 0.3 and up to 0.5 µm
−1 washed yearly, −2 four times a year, −3 monthly
−1 Climate with regular heavy rain

IMOA's site score bands and a selection of the points that move it (IMOA ABC 00/03). Redrawn by Make Bespoke Studio; not every line is shown.

SPECIFICATION WORDING

INTERIOR STAINLESS STEEL (304)

Stainless steel to EN 10088, grade [1.4301 (304)]; [1.4307 (304L)] for welded sections thicker than about 6 mm. Finish [2J brushed, grain vertical on vertical faces], maximum Ra [0.5] µm, measured [across the grain]. Welds blended to match, heat tint removed. Mill certificate type 3.1 for each batch.

COASTAL, WET OR HOSPITALITY STAINLESS STEEL (316)

Stainless steel to EN 10088, grade [1.4401 (316)]; [1.4404 (316L)] for welded sections thicker than about 6 mm. Finish [2K satin polish, or electropolished], maximum Ra [0.5] µm, grain vertical on vertical faces. Crevices sealed. Passivated after fabrication [method to be agreed] unless the supplier confirms sulphur of [0.005] per cent or less. Stainless fasteners only. Mill certificate type 3.1 for each batch [and a material identification check on a sample].

HANDLING AND CLEANING

No carbon steel tools, abrasives, wire brushes or steel wool used on, or previously used for, stainless steel. Clean along the grain with soapy water or mild detergent, then rinse. No chloride-containing cleaners (including hydrochloric acid), hypochlorite bleaches or silver-cleaning solutions. Cleaning frequency [monthly] and responsibility [facilities manager] in the maintenance schedule.

TERMS USED

Tea staining
Brown staining, often over tiny pits, where chloride sits on stainless steel. A sign the grade, finish or cleaning is marginal.

Chloride stress corrosion cracking
Sudden cracking of stressed austenitic stainless parts exposed to chlorides, notably hangers and rods in indoor pool halls.

Surface roughness (Ra)
Average roughness in micrometres. Euro Inox generally recommends a maximum Ra of 0.5 µm for architectural use.

STANDARDS AND SOURCES

- IMOA: Which Stainless Steel Should Be Specified for Exterior Applications? (ref. IMOA ABC 00/03, 2003; via BSSA)
- Euro Inox: Cleaning Architectural Stainless Steel, Building Series Vol. 15, 2nd ed. 2011
- Euro Inox: Safe use of stainless steel in swimming pool environments, Vol. 20, 1st ed. 2013
- Euro Inox: Tables of Technical Properties, 2nd ed. 2007 (composition after EN 10088-1:2005)
- ASSDA: Stainless steel for indoor swimming pools (updated 2023)
- BSSA: Mechanical surface treatments

Full guide: https://makebespoke.com/trade/technical/stainless-304-vs-316. 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.