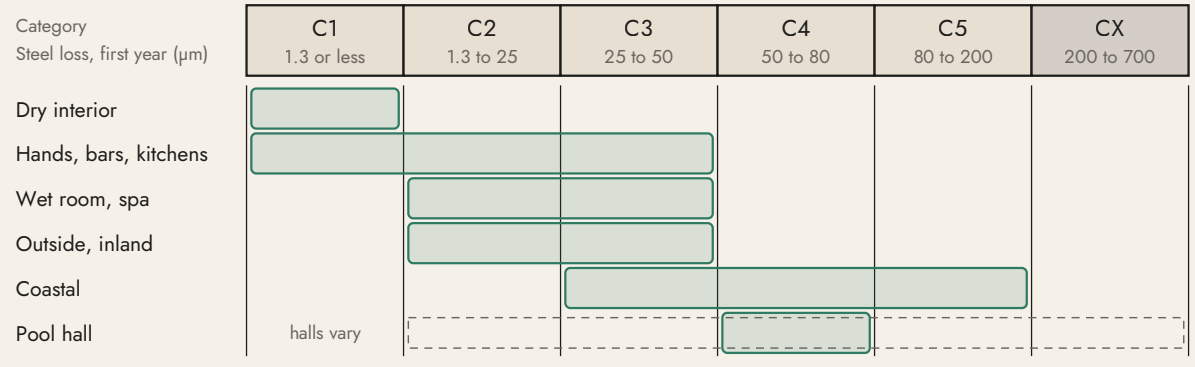
Which metal for which *environment*

Eight metals against six environments, from a dry interior to an indoor pool hall. Each caveat names its basis; where it is trade practice, we say so.

AT A GLANCE

Metal and its caveat	Dry interior	Hands, bars	Wet room, spa	Outside, inland	Coastal	Pool hall
Brass and bronze	Suits	Care	Care	Care	Care	Expert
Name the alloy: some brasses lose zinc when wet. Both change with touch; lacquer wears where hands land. Basis: trade practice.						
Copper	Suits	Care	Care	Suits	Care	Expert
Brown then green, faster near the sea (Zahner); run-off stains neighbours; tarnishes under hands unless waxed. Basis: fabricator.						
Mild steel, coated or sealed	Suits	Care	No	Care	Expert	Expert
No protective coating needed in dry heated interiors (steelconstruction.info); elsewhere the coating protects, and fails at edges.						
Weathering steel	Care	No	No	Suits	No	No
Needs wet-dry cycles; not in damp shelter or standing water, nor within 2 km of coastal water (ArcelorMittal). Rusts onto hands.						
Stainless 304	Suits	Care	Care	Suits	Care	No
Finish and cleaning matter as much as grade; no chloride cleaners. Coastal only if the IMOA score is 2 or less. See TL-MET-01.						
Stainless 316	Suits	Suits	Suits	Suits	Suits	Expert
Resists chloride pitting better than 304, not immune. Pool hall: washed parts only; suspended parts need an engineer. TL-MET-01.						
Duplex stainless	Suits	Suits	Suits	Suits	Suits	Expert
Higher resistance than 316 (IMOA), stronger, magnetic, less formable. Not for load-bearing parts in indoor pool air (Euro Inox).						
Aluminium, anodised or coated	Suits	Care	Care	Care	Care	Expert
The coating or anodic layer is the protection; edges and scratches matter. Acid cleaners for stainless attack it (Euro Inox).						

Key. Suits: normally suitable. Care: suits only with the finish, coating, detail or upkeep in the caveat, or if the client accepts visible change. No: not recommended. Expert: a specialist decides; do not choose from this table. Coastal is about 30 m to 1.6 km from the sea.



Six environments on the ISO 12944-2 scale (examples and steel losses from steelconstruction.info); dashed: pool halls vary (Euro Inox). Original drawing; the placing is indicative.

HOW TO USE THE MATRIX

- Find the harshest environment the piece will meet, including cleaning and site work, not only its final room. Where two apply, use the harsher column.
- Read Care as a condition: the finish, coating or upkeep in the caveat becomes part of the specification.
- Ask the partner workshop to confirm the metal, finish and warranty for that environment before a sample is approved, and show the client the sample aged, not only new.

SPECIFICATION WORDING

ENVIRONMENT STATEMENT

Exposure for [element]: [dry heated interior, ISO 12944-2 category C1] [interior damp or washed, C2 to C3] [exterior inland, C2 to C3] [coastal, C3 to C5] [indoor pool hall, C4 or higher]. Metal and finish are chosen for this exposure. Any change of metal, finish or exposure to be referred back for approval. ISO 12944-2 edition [to be confirmed].

METAL AND FINISH RECORD

Element [ ]: metal [grade or alloy, for example EN 1.4404 or CW508L], finish [name, code and Ra or sample reference], environment [as above], living finish accepted by the client [yes, sample approved on [date] / no, sealed with [ ]]. Finish sample approved [date].

DISSIMILAR METALS AND RUN-OFF

Dissimilar metals not to touch where moisture can reach the joint unless isolated by [gasket, sleeve or coating]. Fasteners [stainless steel / the same metal]. Run-off from [carbon steel, weathering steel, copper] not to fall on [stainless steel, aluminium, stone]. Cleaning product for each metal named in the maintenance schedule.

TERMS USED

Corrosivity category (C1 to C5, CX)

A scale from ISO 12944-2 and ISO 9223 for how aggressive an atmosphere is, from first-year loss of low-carbon steel. C1 is a heated clean interior, C5 very aggressive, CX extreme.

Weathering steel

Low-alloy steel that forms a stable rust-coloured skin outdoors. It needs wet and dry cycles and fails in damp shelter or near the coast. Corten is a trademark.

Galvanic corrosion

Faster corrosion of one metal where it touches a different metal in the presence of moisture.

STANDARDS AND SOURCES

- steelconstruction.info: Corrosion protection (ISO 12944-2:2017 and ISO 9223:2012 as cited there)
- ArcelorMittal: Indaten and Arcorox self-protecting steels brochure (producer guidance, citing EN ISO 9223)
- IMOA: Which Stainless Steel Should Be Specified for Exterior Applications? (IMOA ABC 00/03; via BSSA)
- Euro Inox: Building Series Vol. 15 (cleaning, 2011) and Vol. 20 (swimming pools, 2013)
- Zahner: Copper in architecture (fabricator guidance)
- Make Bespoke Studio, TL-MET-01: 304 vs 316 stainless: the grade-by-environment detail behind the stainless rows.

Full guide: https://makebespoke.com/trade/technical/metal-by-environment. 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.