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Material Choices for Handrails - A Design Guide

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1. What are the four key variables to assess when specifying handrail materials?

Exposure, use, maintenance and lifespan.

2. What is the key difference between Grade 304 and Grade 316 stainless steel, and what environments is 316 best suited to?

Grade 316 contains added molybdenum, giving superior resistance to chlorides, making it better suited to coastal, chemical or chlorinated environments.

3. What role does anodising play in extending the service life of aluminium handrails?

Anodising thickens aluminium's natural oxide layer into part of the metal itself, giving strong corrosion and abrasion resistance that won't peel or flake.

4. What distinguishes marine-grade aluminium alloys from general-purpose aluminium?

Their higher magnesium content forms a more stable oxide layer with significantly improved resistance to saltwater and salt-laden atmospheres.

5. What is galvanic corrosion?

Galvanic corrosion occurs when dissimilar metals are in contact in the presence of moisture, causing one to corrode preferentially.

6. Why is timber generally not recommended for handrails in demanding environments?

Timber can swell, split and rot in demanding conditions. Its higher maintenance burden and shorter service life make it a poor fit compared to metal alternatives.