

TECHNICAL GUIDE • QUICK REFERENCE

Metalwork and Steelwork Glossary

This glossary explains common metalwork and structural steelwork terms in plain English, including stair geometry (rise, going, pitch), balustrade terms, steel sections (UB, UC, PFC, RHS), grades such as S355, bolt property classes, weld types, glass, coatings and fire protection. Each term links to the guide that covers it in more detail.

2R + G The sum of twice the rise and the going of a stair step. Approved Document K asks for 550 to 700mm.

Anchor bolt A bolt or fixing set into concrete or masonry to connect steelwork, such as a resin anchor or cast-in bolt.

Approved Document K Government guidance for England on protection from falling, collision and impact, covering stairs, ramps, guarding and glazing.

Balustrade A barrier along the edge of a stair, landing, balcony or floor, made of posts, rails and infill such as glass or bars.

Baseplate A steel plate welded to the foot of a column or post, bolted to the foundation or structure below.

Bevel An angled edge cut on a plate before welding, to let the weld penetrate the joint.

Butt weld A weld joining two parts edge to edge, often with bevelled edges for full penetration.

Capping run The final run or layer on the surface of a weld.

Cleat A short piece of angle or plate used to connect one member to another, usually with bolts.

Corrosivity category A class from C1 (very low) to CX (extreme) describing how corrosive the atmosphere is, to ISO 9223 and ISO 12944.

Deflection How far a member bends under load. Often limited to a fraction of the span for comfort and finishes.

Dip transfer Short-circuit MIG/MAG transfer at low current and voltage. Works in all positions.

Dry film thickness (DFT) The thickness of a paint or coating once dry, measured in microns.

Duplex coating Paint or powder coating applied over hot-dip galvanising, for colour and longer life.

Duty cycle The minutes out of ten a welding set can run at a given current before it needs to cool, shown as a percentage.

Execution class (EXC) A class from EXC1 to EXC4 in BS EN 1090 that sets the quality and inspection requirements for fabrication.

Fillet weld A triangular weld joining two surfaces at an angle, such as a T-joint or lap joint.

Flange The wide top or bottom part of an I-section or channel.

Flat bar Hot-rolled steel bar of rectangular cross-section, specified by width and thickness.

Galvanising (hot-dip) Dipping steel in molten zinc to give a bonded zinc coating, to BS EN ISO 1461.

Gauge (SWG) An old numbering system for sheet and wire thickness. 16 SWG is 1.626mm.

Going The horizontal depth of a stair step, measured nosing to nosing.

Grade (steel) The strength class of structural steel, such as S275 or S355, where the number is the minimum yield strength in N/mm².

Guarding A barrier that stops people falling from an edge, such as a balustrade or parapet.

Handrail A rail to hold for support on stairs and ramps, usually 900 to 1000mm above the pitch line.

Headroom The clear height above a stair or landing. 2.0m minimum in England.

Helical stair A stair that curves around a central open space without a central column.

Hp/A (section factor) Heated perimeter divided by cross-section area, in m⁻¹. Used to size fire protection.

Infill The panels or bars between the posts and rails of a balustrade.

Intumescent coating A fire protection coating that swells into an insulating char when heated.

Juliet balcony A balustrade fixed across a full-height opening, with no platform to stand on.

Lack of fusion Weld metal that has not melted into the plate or the run below.

Laminated glass Two or more glass plies bonded with an interlayer, which holds the glass together if it breaks.

Landing A level area at the top or bottom of a stair flight, or between flights.

Leg length (z) The size of a fillet weld measured along each plate from the root to the toe. A '6 mm fillet' usually means a 6 mm leg.

Line load A load per metre along the top of a barrier, in kN/m, from BS 6180 or BS EN 1991-1-1.

Low-hydrogen electrode A basic-coated stick electrode, such as E7018, that gives weld metal low in hydrogen. Must be kept dry.

Mass per metre The nominal weight of a steel section per metre length, in kg/m.

Nosing The front edge of a stair tread.

PFC Parallel flange channel: a hot-rolled C-shaped section.

Pitch (stair) The angle of a stair from horizontal. 42° maximum for a private stair in England.

Pitch line An imaginary line joining the nosings of a stair flight.

Porosity Gas holes in a weld, often from damp consumables, lost shielding gas or dirty metal.

Powder coating A dry powder paint sprayed on and cured in an oven to form a hard finish.

Preloaded bolt A high-strength bolt tightened to a set tension so the joint resists slip by friction.

Property class (bolt) The strength class of a bolt, such as 4.6, 8.8 or 10.9, to ISO 898-1.

RAL A colour system of numbered standard colours, such as RAL 7016. RAL is a registered trademark of RAL GmbH.

RHS / SHS / CHS Rectangular, square and circular hollow sections.

Rise The vertical height of a stair step.

Root run The first run of a multi-run weld, laid into the corner or root of the joint.

RSJ Rolled steel joist: strictly an I-beam with tapered flanges; often used loosely for any steel beam.

Secondary steelwork Smaller steel members supporting cladding, balconies, plant or finishes, rather than the main frame.

Spigot A clamp that holds a glass panel at intervals instead of a continuous channel.

Stringer The inclined beam on each side of a stair that carries the treads.

Stringer bead A straight weld run made without weaving.

Throat thickness (a) The design size of a fillet weld: the height of the largest triangle that fits in the weld.

Toughened glass Glass heat-treated to be much stronger than ordinary annealed glass. It breaks into small, blunt pieces.

Tread The part of a stair step you stand on.

UB / UC Universal beam and universal column: hot-rolled I and H sections with parallel flanges.

Undercut A groove melted into the parent plate along the toe of a weld and left unfilled.

Weave Moving the rod or gun from side to side while welding, to make a wider run. Used mainly for vertical-up welds.

Web The vertical part of an I-section or channel joining the flanges.

Welding positions (PA, PB, PF, PD) ISO 6947 position codes: PA flat, PB horizontal-vertical fillet, PF vertical-up, PG vertical-down, PD overhead fillet.

WPS Welding procedure specification: the approved method for a weld, giving process, consumable, position and settings.

Yield strength The stress at which steel starts to deform permanently, in N/mm².

Questions about a metalwork or steelwork package? Send us your drawings.

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