INSIDE IN-LINE / FABRICATION · COATINGS · DURABILITY

We Build It. Then We Dip It in Molten Zinc.

Why every piece of steel we fabricate leaves the shop hot-dip galvanized — and why that decision belongs to us, not to a paint crew three years from now.



School handrail, fabricated in the In-Line shop, back from the galvanizing kettle and banded for delivery. Every weld, every joint, every inch of tube — inside and out — is now under zinc.

PROCESS

Hot-dip galvanizing, full immersion

STANDARDS

ASTM A123 · A153 · A385

BATH

Molten zinc, roughly 840 °F

BOND

Metallurgical, not a surface film

SEQUENCE

Fabricate first. Then dip

SERVICE LIFE

Measured in decades

WHAT YOU ARE LOOKING AT

That is a school's handrail, stacked in our yard on a Tuesday afternoon. It was cut, drilled, fitted and welded in our Ramona shop, then sent out, hung on a rack, and lowered into a kettle of molten zinc.

It came back the colour you see — dull, bright, and permanent.

Nobody who walks that campus in 2050 will know this photograph exists. They will just have a handrail that still works. **That is the entire point.**

PAINT SITS ON STEEL. ZINC BECOMES STEEL.

This is the difference that most specifications gloss over and every owner eventually pays for.

Paint and powder coat are *films*. They lie on top of the metal and they are only as good as their adhesion. Chip one, scratch one, drill through one, and the steel underneath is bare and rusting from that day forward — quietly, under the coating, spreading outward from the wound.

Hot-dip galvanizing is not a film. When clean steel enters molten zinc, the two metals react. What forms is a series of **iron-zinc alloy layers, metallurgically bonded to the steel** and, in the case of the intermetallic layers, actually *harder than the base steel itself.* It is not on the handrail. It is part of the handrail.

You cannot peel it, you cannot chip it off, and you cannot miss a spot — because the steel was underneath the surface of the zinc, not underneath a spray gun.

And it protects the steel it is not even touching

Zinc is **sacrificial**. Scratch galvanized steel down to bare metal and the surrounding zinc corrodes preferentially to protect the exposed steel — cathodic protection, working automatically, with no maintenance and nobody watching.

Paint cannot do that. Paint has no opinion about a scratch. Zinc defends it.

THE ORDER MATTERS MORE THAN THE COATING

Here is where cheap work gets exposed, and it is invisible on a submittal.

There are two ways to deliver "galvanized" handrail:

- **The right way.** Fabricate everything first — cut, drill, fit, weld, grind — then send the finished assembly to the kettle. Every cut end, every weld, every drilled hole, every interior surface of every tube goes under zinc at the same moment.
- **The fast way.** Buy pre-galvanized tube, then cut it and weld it in the shop. Every cut is now bare steel. Every weld has burned the zinc off for an inch either side. Then somebody brushes on cold-galv paint from a can and calls it repaired.

Both arrive on site looking silver. One of them starts rusting at the welds in year three, at exactly the joints that carry the load.

In-Line fabricates first and galvanizes after. Every time. It costs more, it takes longer, and it is the only version we are willing to put our name on.

BUILT TO BE GALVANIZED

A fabricator who does not understand the kettle will hand you an assembly that cannot be properly coated — and you will not find out for a decade.

Hot-dip galvanizing is total immersion. Molten zinc has to *flow into* every closed section, and air has to get out. That means vent and drain holes, sized and located per **ASTM A385**, designed into the piece from the first drawing.

- **Vent it wrong** and you get trapped air — uncoated interior pockets that rust from the inside out, where no inspection will ever see them.
- **Drain it wrong** and zinc pools in the assembly — weight, runs, and unusable tolerances at the connections.
- **Seal a closed section completely** and trapped moisture flashes to steam at 840 °F. That is not a coating defect. That is a safety incident at the plant.

Detailing for the kettle is a craft, and it happens on our drawings before a single piece of steel is cut. It is one of the reasons In-Line runs its own shop and its own shop drawings rather than reselling somebody else's product.

THE STANDARDS WE BUILD TO

- ASTM A123 — coatings on fabricated steel
- ASTM A153 — hardware & fasteners
- ASTM A385 — design for galvanizing
- Shop fabrication
- Certified galvanizing plant
- Coating thickness verified

Zero

Repaint cycles in the coating's service life

100%

Of the assembly coated — inside and out

Decades

To first maintenance in normal service

1990

Doing it this way since

Hot-dip galvanized coatings applied to ASTM A123 are verified by coating-thickness measurement at the plant. Actual service life depends on coating thickness and the corrosivity of the environment; the American Galvanizers Association publishes service-life data by both.

WHAT THIS BUYS A SCHOOL DISTRICT

Every public owner buys a handrail twice: once at construction, and once every time somebody has to come back and deal with it.

- **No repaint line item.** A painted rail on a coastal or inland-heat campus needs prep, primer, and coats on a cycle — forever, out of a maintenance budget that is already short.
- **No rust bleed on the concrete.** The orange staining down a stair wall is not cosmetic. It is the fastener and the base plate telling you what is happening inside.
- **No safety letter in year twelve.** A guardrail is a life-safety element. Corrosion at the base of a post is the failure nobody sees coming.
- **No scaffolding to maintain it.** The rails that are hardest to reach are the ones that get skipped. Galvanizing does not care whether anyone can reach it.
- **Lowest life-cycle cost, not lowest bid.** The cheapest coating in the world is the one you only pay for once.

We are not protecting the steel from the weather. We are protecting the district from the phone call.

WHY WE STAND BEHIND IT

It is easy to warrant work you will never hear about again. It is a different thing to build so that you never have to.

In-Line stands behind what leaves this yard because of what happens before it leaves this yard: our own fabricators, our own shop drawings, our own detailing for the kettle, our own inspection of what comes back from it — and the sequence done in the right order even when nobody would ever have checked.

That is the same standard we teach in the room four times a year: do it right when no one is watching, because on a galvanized rail, *no one is ever watching*. The coating on the inside of a tube is the purest test of a contractor's integrity there is. Nobody will ever see it. It either got done or it did not.

Ours got done.

A warranty is a promise about the future. Galvanizing is a decision made in the past. We prefer to be judged on the second one.

WHAT WE FABRICATE AND GALVANIZE

- **Handrail and guardrail** — schools, campuses, transit platforms, bridges, public buildings.
- **Ornamental and decorative tube steel** — fence, gates, custom emblems and picket systems.
- **Security fence and gates** — federal installations, utilities, substations, corp yards.
- **Bollards, posts, frames, structural supports** and the miscellaneous metals that hold them.
- **Automated gate frames** built to carry operators for twenty years of daily cycles.

Cut, drilled, fitted, welded, and detailed in Ramona. Hot-dip galvanized before it ships. Installed by the same company that built it — so there is never a question about whose scope a problem

belongs to.

One shop. One crew. One standard. One phone number when it matters.

SPECIFY IT ONCE. OWN IT FOR DECADES.

In-Line Fence & Railing fabricates handrail, guardrail, ornamental steel, and security fence in its own Ramona shop and hot-dip galvanizes it before it ships. Public works, school districts, utilities, and government agencies across California since 1990.

Call (760) 789-0282 | **Request an Estimate**

In-Line Fence & Railing Co., Inc. · Ramona, California

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