# Transom Boarding Step

Concept design brief | 1-week sprint

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| **CLIENT** | Northline Marine — Scarborough, Moreton Bay QLD |
| **DATE** | 16/08/2026 |
| **REVISION** | Rev B — permanent bolt-on mount; stow-profile constraint removed |
| **COMPETENCY FOCUS** | Weldments & sheet metal · welding-symbol documentation |
| **PRODUCT CLASS** | Bolt-on re-boarding aid, 4.5–6 m trailer boats |

## 1 Client

**Northline Marine** is a fabrication-and-fit-out outfit working out of a shed at Scarborough on Moreton Bay, supplying stainless accessories to the trailer-boat and small-cruiser market up and down the SEQ coast. Mid-size: a handful of boilermakers, one drafty, a polishing bay, and a growing online catalogue.

Their design language is the honest stuff of marine hardware:

- **Form** — 316 stainless tube and folded plate, radiused for barefoot decks; nothing sharp anyone can stub a toe or snag a line on.
- **CMF** — mirror-polished 316 as the hero finish, king-starboard (HDPE) polymer where you don't want metal-on-gelcoat contact. Navy and white brand accents live on stickers and packaging, never on the form.
- **Detail signatures** — drain paths on every horizontal surface, sealed tube ends, all-A4-70 stainless fasteners so nothing weeps rust down a white transom.
- **Register** — sunfast, saltfast, rinse-and-forget. If it can't live bolted to a transom for ten years of salt spray, it's not a Northline part.

## 2 Context

Northline wants a **transom boarding step** — a bolt-on re-boarding aid for the back of trailer boats in the 4.5–6 m runabout / centre-console class. It mounts permanently to the transom (or a bracket beside the outboard) and gives a rigid set of steps down to a submerged rung, so someone in the water can climb back aboard. Salt, sun, sand and the occasional oyster-covered piling are its whole world.

## 3 Client requests

> *“It's bolting on and staying put — mount it like it's part of the boat. Rock-solid, no wobble, no flex when someone big is hauling out.”*
>
> *“Barefoot job. Every edge someone can touch gets a radius. And I want a drain path — no step that sits there holding a puddle.”*
>
> *“Rate it for a 130 kg bloke coming over the side wet and awkward, not a gymnast. Assume he's grabbing a rung and yanking, not standing politely.”*

## 4 Problem & why

Re-boarding a small boat from the water is where people get hurt — divers, older anglers, anyone who's gone in for a swim. The existing market splits two bad ways. The cheap telescoping and folding ladders are alloy or thin-wall, flex like spaghetti under real load, and seize or corrode at their moving joints within a season. The welded steps that *are* genuinely strong are often an afterthought — sharp-edged, poorly drained, and rusting at the fasteners where they meet the transom. Northline's customers keep asking for one that's simply rigid, rated, barefoot-safe and saltproof: a permanent step you trust with your bodyweight and forget about for ten years. That's the brief: **no moving parts to fail, no edges to cut a foot, no water traps to rot it — just a rock-solid climb back aboard.**

## 5 Deliverables

This is a manufacturer client, so it's a full make-it pack — scaled to a single fabricated product:

- **Detail drawings** for each fabricated component: the folded / laser-cut step channels, the solid bar rungs, the stiles and end caps, and the transom mounting hardware. Flat patterns for the sheet-metal parts with bend callouts.
- **One assembly drawing** with item balloons, a Bill of Materials, and installation / overall dimensions only.
- **Weld symbols** on every joint — leg length and which side.
- **Catalogue renders** for the online store: a clean hero, a detail / CMF close-up of the polished finish and drainage, and one in-context lifestyle shot on a transom.

## 6 Standards (AS1100)

Full mechanical pack, A3 workshop sheets, **third-angle projection** with the projection symbol in the title block. Specifically:

- **Sheet-metal parts** — flat pattern + folded views, bend radii and bend-direction callouts, a bend note or table. State the K-factor assumption.
- **Weldment** — member sizes called out (e.g. “Ø25 × 2 wall tube, 316”), overall + locating dimensions, weld symbols at every joint per AS 1101.3 (arrow-side / other-side, fillet leg length, weld-all-round where it applies), and a cut list.
- **Tolerancing** — general tolerance note in the title block (ISO 2768-m is fine for fabricated stainless). Specific tolerances only where they matter: the mounting bolt pattern and rung seats. Don't GD&T the whole thing.
- **Finish notes** — “MATERIAL: 316 STAINLESS”, “FINISH: MIRROR POLISH Ra 0.8 ON EXPOSED SURFACES”, polymer parts noted separately.
- **Title block** — designer, title, drawing number, sheet x of y, scale + sheet size, units statement, projection symbol, material, finish, drawn-by + date (DD/MM/YYYY), and a revision table.

## 7 Render spec

Tool: **SolidWorks Visualize** — native to your pipeline and more than enough here; no need to reach for Blender on a hardware part like this.

- **Hero** — 3/4 view, ~50 mm lens, slight downward angle, studio softbox HDRI on a subtle backdrop consistent with the catalogue. Shown as mounted on the transom.
- **Detail / CMF close-up** — a rung-to-stile weld and a drainage slot, showing the mirror polish and the tube-to-plate transition. Light depth of field. Watch roughness variation so the polish doesn't go plasticky.
- **Lifestyle / in-context** — mounted on a white transom beside an outboard, Moreton Bay light: warm morning-sun HDRI, water, a scale cue. Lowest rung just below the waterline.

– Ground everything with real contact shadows, and bevel every CAD edge in the scene or the polished stainless will catch no highlight and look CG.

## 8 Success criteria checklist

- ☐ Mount is rigid and permanent — no wobble or flex under a climbing load; fixings spread to carry the load into the transom (backing plate / bedded fasteners noted for fitting).
- ☐ Step rated to a 130 kg static load with a sensible safety factor — and you can point to *why* (member sizing, weld throat).
- ☐ Every user-touchable edge radiused; no barefoot hazards.
- ☐ A working drain path — no rung or step that sits holding water; hollow sections drain at their low point.
- ☐ All-316 construction, polymer only where metal-on-gelcoat contact is undesirable; no dissimilar-metal galvanic traps.
- ☐ Design reads as Northline without the sticker (polished tube-and-plate, sealed ends, drainage-as-detail).
- ☐ AS1100-compliant pack: third-angle, correct line weights, flat patterns with bend callouts, weld symbols on every joint, complete title block + BoM.
- ☐ Three catalogue renders delivered (hero, CMF detail, lifestyle) with believable grounding and materials.