Walk into any metal fabrication shop or CNC machining shop and you'll hear the same two phrases thrown around as if everyone was born knowing the difference: build to print, and build to spec. They sound similar, and both end with a finished part or machine in your hands, but the path and risk profile could not be more different. Choosing the wrong one can add weeks, blow a budget, or set you up for finger-pointing when things get hot on the production floor.

I've worked on both sides of this fence: as a Machinery parts manufacturer executing a drawing to the letter, and as part of an Industrial design company taking a napkin sketch all the way to commissioning. If you're a Canadian manufacturer scoping new mining equipment, a food processing equipment manufacturer scaling a hygienic line, or a logging equipment builder modernizing a drivetrain, it helps to know where the boundaries sit. Let's untangle the two models with real examples, cost and schedule implications, and some honest trade-offs that don't fit neatly in a brochure.

Plain-language definitions that survive the shop floor

Build to print means you own the design. You hand a manufacturing shop a complete drawing package and model, with tolerances, materials, finishes, and inspection criteria. The Shop builds exactly what is shown. The responsibility for fit, function, and performance sits with you. The manufacturing partner is responsible for making it per print and demonstrating conformance.

Build to spec means you own the problem, and your partner owns the design that solves it. You supply requirements, constraints, standards, and performance targets, not the how. The partner designs, validates, procures, fabricates, assembles, and often tests. Responsibility for meeting the functional spec lies with the partner, with shared boundaries spelled out in a contract.

Think of build to print like a recipe card sent to a Steel fabricator who follows it line by line. Build to spec is hiring a chef. You tell them what you can't eat, the budget, and the event type, then trust their craft.

Where each model shines

Build to print is ideal when your design is mature, you need predictable lead times, and you want to source competitively. In industrial machinery manufacturing, that might be a standard gearbox housing you've run for years. The CNC machine shop gets your GD&T, material callouts, and heat treatment notes, runs precision CNC machining on the bores, and ships with a traceable inspection report. If you need ten of them every quarter, this is the way.

Build to spec is smart when you're exploring a new product or when internal engineering bandwidth is swamped. Think of a custom machine for biomass gasification feed handling. You know the infeed rate, moisture range, allowable footprint, regulatory codes, and maintenance preferences. A custom metal fabrication shop with a solid Industrial design team will own the design, run FEA on the frame, select drives and controls, and deliver a machine that hits your KPIs.

In Underground mining equipment suppliers' projects, I've seen a hybrid. The OEM sets system-level specs for a roof bolter subassembly, then issues build-to-print packages for brackets and guards. This division lets mining equipment manufacturers protect core IP while farming out repeatable components to CNC machining services that can turn parts quickly.

A practical walk-through: same part, two paths

Let’s say you need a stainless washdown conveyor for a mid-size food plant. Under build to print, your engineers finalize drawings with 316L sheet thicknesses, weld symbols, radius specs for sanitary design, and a belt vendor part number. You bid it to three metal fabrication shops in Canada. The low bidder wins, and they’re responsible for weld quality, passivation, and dimensional conformance. If the belt mistracks due to an unconsidered cleanliness feature that changes flow, that’s your design miss.

Under build to spec, you give a performance document: length, speed, load, washdown pressure, required surface roughness, cleanability standards like 3-A where relevant, maximum noise, safety ratings, and a target price and lead time. Your partner chooses the belt type, designs the frames and drip trays, selects bearings and seals, validates ergonomics, and delivers a conveyor that passes a FAT. If mistracking shows up, it is on their design and they adjust.

Both models can work. The right choice depends on where you want the risk to sit and how much internal detail you want to control.

Contracts, drawings, and evidence

On build to print, the drawing package is the contract. If your title block calls out ASTM A240 Type 304 but your process actually needs 316L, the shop will buy 304, certify to it, and still be right. Your only remedy is an engineering change. I once watched a client spend five days rewriting a welding symbol schema because an old standard in their PDM called for double-sided fillets where single-sided would do. The shop met the symbols and the parts did not fit the mating enclosure because the stack-up changed. It wasn’t a workmanship problem. It was a print problem.

On build to spec, the spec becomes the legal anchor. That means you must write performance requirements that can be tested. “Robust” and “user friendly” won’t cut it. “Achieve throughput of 120 units per hour with no more than 1 percent jams over an 8-hour shift” is testable. So is “IP66 washdown capable with no water ingress to the control box at 100 liters per minute at 100 kPa, 3 minutes per face.” Your partner will generate drawings and test plans as deliverables. You review and approve at defined gates.

Cost and schedule: where the dollars really move

Build to print looks cheaper at first glance because you shrink the scope. The quote covers materials, machining, welding, coatings, inspection, and sometimes assembly. For a medium-size weldment with CNC metal cutting, welding, and a few machined datums, I see North American quotes ranging from CAD 3,000 to CAD 20,000 depending on thickness, tolerance, and quantity. If you provide a clean STEP file, flat patterns, and clear tolerances, you get sharper pricing.

The hidden costs appear if the design is not fully producible. Over-tolerancing drives price. Calling out ±0.01 mm where ±0.1 mm suffices can triple CNC time or force extra fixturing. Specifying a non-standard tube size in a steel fabrication when a standard metric or imperial would do forces mill runs or long lead imports.

Build to spec carries a visible design and project fee. You'll see line items for engineering hours, prototyping, documentation, and testing. That sticker shock can be real, yet you often save on change orders, rework, and downtime at commissioning. On a custom steel fabrication for a mobile logging equipment attachment, we quoted CAD 65,000 design-to-delivery including FEA, a prototype build, and field testing. The alternative was CAD 30,000 for a build-to-print version of the client's old drawing set, which we knew would crack again at the same weld toe. The spec route halved field failures, saved service trips, and paid back inside one season.

Schedule follows similar logic. Build to print can move fast if the package is tight and the shop is staffed. A CNC precision machining run of 50 parts with two operations and anodize can be 2 to 4 weeks in a well-run cnc machining shop. Add complex welding, coatings, and CMM reports and you're at 4 to 8 weeks. Build to spec takes longer up front, with design reviews and prototypes, but can shorten commissioning because problems were solved earlier.

Tolerances, finishes, and the art of enough

When you choose build to print, the power of the pen is yours. Use it wisely. GD&T is a scalpel, not a shovel. Datums should mirror how the part locates in real life. A Machine shop can hold 0.01 mm true position on a small bore if you pay for it, but if the mating shaft tolerance is looser, you are burning money. For sheet metal, avoid general tolerances that fight physics. Calling out ±0.25 mm on a 2-meter weldment will cause quoting heartburn and rejected parts for no

functional gain. For food equipment, finish specs matter. A Ra of 0.8 micrometers on contact surfaces is reasonable, but blanket-polishing every non-contact surface to the same level is waste.

With build to spec, your partner should present a tolerance stack-up that traces back to your performance goals. That is where a good Canadian metal fabrication shop shines: they propose a weld sequence that reduces distortion, a heat treatment that stabilizes a frame, and a machining process that locates off functional datums. You review, challenge where you must, then let them do the work.

Real-world examples from heavy industry

Mining equipment manufacturers deal with loads, shock, and dirt. On a chute liner system for an iron ore application, the client provided legacy drawings under a build-to-print PO. The prints called out a specific AR400 plate thickness and a bolt pattern we knew from experience would egg out under impact. We flagged it, but the contract said build to print so we manufactured exactly that. Six months later, they came back with a redesign. The second round was build to spec with a target wear life and a service constraint. We changed materials to a mix of AR450 and chromium carbide overlay, adjusted fastener spacing, and added replaceable wear shoes. The system lasted twice as long between changeouts. Same shop, different responsibility line.

In biomass gasification, conveyors and metering screws encounter fibrous, variable-density feed. A client gave us a throughput spec, moisture range, and gasifier inlet pressure limits. We owned the design. We tried a double-flight auger with progressively tighter pitch, ran it on a test stand, and logged amperage spikes. That data told us where to relieve the core and how to line the trough. If that had been a build-to-print package, we would have built the first concept and watched it struggle in the field.

Food processing equipment manufacturers live under hygienic codes and mining equipment manufacturers audits. A build-to-spec washdown enclosure we delivered used sloped horizontal surfaces, standoff mounts, and continuous TIG on the seams. Our welding company team built coupons, passivated samples, and ran swab tests. These steps do not appear in a build-to-print scope unless you write them down, so if they matter, they belong in your spec.

Supplier capability matters more than the label

Not every metal fabrication shop is set up for both models. Some excel at throughput, tight scheduling, and repeatability. They want your finished models and prints. Others are an Industrial design company with a fabrication wing that loves ambiguous problems. A few do both well, which is gold when you move from prototype to production.

If you are in metal fabrication Canada circles, you'll find regional strengths. Southern Ontario has deep bench strength in cnc metal fabrication and precision machining, with many shops tied to automotive standards and PPAP discipline. Western Canada has more heavy plate and structural steel fabricators used to oil, gas, and mining scale weldments. Maritime regions often combine shipbuilding practices with small-batch CNC machining services. None of this is a hard rule, but it helps when you source. A Steel fabricator with a blasting booth that fits your 12-meter frame and a CMM that reaches your datums can save you from awkward split builds.

Hidden traps and how to avoid them

On build to print, the trap is assuming the shop will "know what you meant." They will not. Nor should they, because guessing creates liability. Ambiguous weld symbols, missing hole callouts, contradictory title block notes, and references to obsoleted standards all slow the job. Put inspection points on the print and align them with your receiving inspection. If you need material certs to CSA or ASTM grade, list the revision and acceptance criteria.

On build to spec, the trap is a hand-wavy spec and a soft SOW. Write down acceptance tests, who pays for failed tests, and what constitutes a change. Plan engineering change protocol with thresholds. Decide early how you will handle bought-out components with supply risk, like gearboxes or control hardware. If your partner must buy to your AVL, say so. If they have latitude, define brand or performance guardrails.

I once watched a build-to-spec job drift because the client thought the supplier would include installation. The supplier assumed delivery to dock and a 4-hour phone support window. Neither party was wrong, but the gap cost two weeks. Spell out installation, commissioning, operator training, and spares. Especially spares. For harsh-duty applications like underground mining, define a recommended spares list with part numbers and lead times.

Quality systems and traceability

If you operate under ISO 9001, AS9100, or CFIA oversight, your supplier's quality system matters. Build-to-print jobs benefit from shops that can run FAIRs, PPAPs, and solid MSA on their gauges. For cnc precision machining of safety-critical parts, look for climate-controlled inspection, calibrated CMMs, and process capability data when needed. For weldments, WPS and PQR documentation shows a welding company that treats quality as a process, not an afterthought.

Build-to-spec pushes you toward partners who can manage design control, risk analysis, DFMEA, and validation plans. Ask to see a sample design history file from a previous project with redacted IP. You are buying their engineering discipline as much as their fabrication muscle.

How pricing mechanisms change behavior

On build to print, fixed price with defined deliverables is common and fair. On build to spec, a hybrid model works best: fixed price for defined phases, then a target price or time-and-materials with a not-to-exceed for development. Milestones with exit criteria keep both parties aligned. If you want cost transparency on COTS components and markup, negotiate it. For custom items like CNC metal cutting or precision machining, a blended shop rate is typical. What matters is clarity. Misaligned incentives create shortcuts or scope creep.

Fit for purpose across sectors

- Mining and logging: Harsh loads, impact, and safety. Use build to spec for structural systems that benefit from analysis and field feedback, then move subcomponents to build to print once proven. Keep your Machine shop close for spares.
- Food processing: Hygiene, documentation, and audit trail. Build to spec for systems where cleanability and compliance matter. Build to print for brackets, guards, and fixtures after the design matures.
- Energy and biomass: Variable feed and thermal effects. Spec routes help manage unknowns during early development. When you stabilize, print it and let the manufacturing machines run.

A short decision checklist you can actually use

- How clear is the design? If you have a clean model, full prints, and proven function, build to print. If you have performance goals and unknowns, build to spec.
- Where should the risk sit? Keep risk in-house if you have the bandwidth and want control. Push risk to the partner if you value speed and holistic accountability.
- What does your timeline allow? Short lead on repeat parts favors build to print. Willing to invest up front to shorten commissioning? Build to spec.
- Do you have the right partner? A cnc machining shop with stellar on-time delivery is wasted on a fuzzy spec. An Industrial design company with FEA chops is wasted on a bracket run.
- How will you measure success? If quality is dimensional, prints suffice. If success is throughput, noise, or uptime, specs and tests matter.

What great collaboration looks like

The best projects I have seen, regardless of model, share habits. The client shares context, not just files. Why the part matters, where it lives, how it fails. The supplier asks questions that cut to risk: which surfaces are functional, which tolerances are negotiable, what happens if a supplier part goes obsolete. Reviews are short and honest. Someone keeps a risk register and a simple open-issue list. Procurement stays in lockstep with engineering so a last-minute ECO does not miss the PO cut.

When a Canadian manufacturer pairs with a shop that values this cadence, the results show up on the floor. Fewer surprises, less rework, and fewer emails that start with "urgent."

A final word on capability ramp and lifecycle

Think beyond the first order. If you are launching a new product, a build-to-spec engagement can birth it. But plan the ramp. Capture the design in a way that lets you run competitive build-to-print bids later for subassemblies. Decide what you want to standardize. For example, specify fasteners, bearings, and coatings that your maintenance team already stocks. If the project is service-heavy, make drawings advanced cnc machining techniques that show wear limits and machining allowances so your cnc machining services partner can refurbish instead of replace.

Conversely, if you start build to print and discover field issues, be willing to switch tracks. Ask your Steel fabricator or Machining manufacturer what they would change if they owned the spec. That question has saved me more than once. Shops see failure patterns you may not, because they witness how parts distort, where fixtures fight geometry, and which welds crack first under vibration.

Bringing it back to your decision

There is no universal right answer. Build to print gives you control, cost clarity, and speed on mature designs. Build to spec gives you outcomes, design accountability, and a smoother path through uncertainty. The right choice is the one that aligns with your internal resources, risk appetite, and the maturity of the thing you are building.

If you are sourcing in metal fabrication Canada circles and want a partner comfortable in both modes, look for evidence, not promises. Has the shop delivered a turnkey custom fabrication with documented test results? Can they also knock out a 200-piece precision CNC machining order with repeatable CpK? Do they have weld procedures for the alloys you care about, and metrology to match your drawings? Strong answers there matter more than any label on the bid.

Pick the model with clear eyes, write the documents you wish someone had handed you last time, and choose a partner who will tell you when the print or the spec needs work. That, more than anything, decides whether your next project rolls onto the floor with a quiet confidence or arrives with a scramble of emails and urgent calls.

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Saturday: Closed
Sunday: Closed

Google Maps (View on Google Maps):
https://maps.app.goo.gl/Gk1Nh6AQeHBFhy1L9

Map Embed:

Short Brand Description:
Waycon Manufacturing Ltd. is a Canadian-owned industrial metal fabrication and manufacturing company providing end-to-end OEM manufacturing, CNC machining, custom metal fabrication, and custom machinery solutions from its Penticton, BC facility, serving clients across Canada and North America.

Main Services / Capabilities:
• OEM manufacturing & contract manufacturing
• Custom metal fabrication & heavy steel fabrication
• CNC cutting (plasma, waterjet) & precision CNC machining
• Build-to-print manufacturing & production machining
• Manufacturing engineering & design for manufacturability
• Custom industrial equipment & machinery manufacturing
• Prototypes, conveyor systems, forestry cabs, process equipment

Industries Served:
Mining, oil & gas, power & utility, construction, forestry and logging, industrial processing, automation and robotics, agriculture and food processing, waste management and recycling, and related industrial sectors.

Social Profiles:
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Waycon Manufacturing Ltd. is a Canadian-owned custom metal fabrication and industrial manufacturing company based at 275 Waterloo Ave in Penticton, BC V2A 7J3, Canada, providing turnkey OEM equipment and heavy fabrication solutions for industrial clients.
Waycon Manufacturing Ltd. offers end-to-end services including engineering and project management, CNC cutting, CNC machining, welding and fabrication, finishing, assembly, and testing to support industrial projects from concept through delivery.
Waycon Manufacturing Ltd. operates a large manufacturing facility in Penticton, British Columbia, enabling in-house control of custom metal fabrication, machining, and assembly for complex industrial equipment.

Waycon Manufacturing Ltd. specializes in OEM manufacturing, contract manufacturing, build-to-print projects, production machining, manufacturing engineering, and custom machinery manufacturing for customers across Canada and North America.
Waycon Manufacturing Ltd. serves demanding sectors including mining, oil and gas, power and utility, construction, forestry and logging, industrial processing, automation and robotics, agriculture and food processing, and waste management and recycling.
Waycon Manufacturing Ltd. can be contacted at (250) 492-7718 or info@waycon.net, with its primary location available on Google Maps at https://maps.app.goo.gl/Gk1Nh6AQeHBFhy1L9 for directions and navigation.
Waycon Manufacturing Ltd. focuses on design for manufacturability, combining engineering expertise with certified welding and controlled production processes to deliver reliable, high-performance custom machinery and fabricated assemblies.
Waycon Manufacturing Ltd. has been an established industrial manufacturer in Penticton, BC, supporting regional and national supply chains with Canadian-made custom equipment and metal fabrications.
Waycon Manufacturing Ltd. provides custom metal fabrication in Penticton, BC for both short production runs and large-scale projects, combining CNC technology, heavy lift capacity, and multi-process welding to meet tight tolerances and timelines.
Waycon Manufacturing Ltd. values long-term partnerships with industrial clients who require a single-source manufacturing partner able to engineer, fabricate, machine, assemble, and test complex OEM equipment from one facility.

Popular Questions about Waycon Manufacturing Ltd.

What does Waycon Manufacturing Ltd. do?

Waycon Manufacturing Ltd. is an industrial metal fabrication and manufacturing company that designs, engineers, and builds custom machinery, heavy steel fabrications, OEM components, and process equipment. Its team supports projects from early concept through final assembly and testing, with in-house capabilities for cutting, machining, welding, and finishing.

Where is Waycon Manufacturing Ltd. located?

Waycon Manufacturing Ltd. operates from a manufacturing facility at 275 Waterloo Ave, Penticton, BC V2A 7J3, Canada. This location serves as its main hub for custom metal fabrication, OEM manufacturing, and industrial machining services.

What industries does Waycon Manufacturing Ltd. serve?

Waycon Manufacturing Ltd. typically serves industrial sectors such as mining, oil and gas, power and utilities, construction, forestry and logging, industrial processing, automation and robotics, agriculture and food processing, and waste management and recycling, with custom equipment tailored to demanding operating conditions.

Does Waycon Manufacturing Ltd. help with design and engineering?

Yes, Waycon Manufacturing Ltd. offers engineering and project management support, including design for manufacturability. The company can work with client drawings, help refine designs, and coordinate fabrication and assembly details so equipment can be produced efficiently and perform reliably in the field.

Can Waycon Manufacturing Ltd. handle both prototypes and production runs?

Waycon Manufacturing Ltd. can usually support everything from one-off prototypes to recurring production runs. The shop can take on build-to-print projects, short-run custom fabrications, and ongoing production machining or fabrication

programs depending on client requirements.

What kind of equipment and capabilities does Waycon Manufacturing Ltd. have?

Waycon Manufacturing Ltd. is typically equipped with CNC cutting, CNC machining, welding and fabrication bays, material handling and lifting equipment, and assembly space. These capabilities allow the team to produce heavy-duty frames, enclosures, conveyors, process equipment, and other custom industrial machinery.

What are the business hours for Waycon Manufacturing Ltd.?

Waycon Manufacturing Ltd. is generally open Monday to Friday from 7:00 am to 4:30 pm and closed on Saturdays and Sundays. Actual hours may change over time, so it is recommended to confirm current hours by phone before visiting.

Does Waycon Manufacturing Ltd. work with clients outside Penticton?

Yes, Waycon Manufacturing Ltd. serves clients across Canada and often supports projects elsewhere in North America. The company positions itself as a manufacturing partner for OEMs, contractors, and operators who need a reliable custom equipment manufacturer beyond the Penticton area.

How can I contact Waycon Manufacturing Ltd.?

You can contact Waycon Manufacturing Ltd. by phone at (250) 492-7718, by email at info@waycon.net, or by visiting their website at https://waycon.net/. You can also reach them on social media, including Facebook, Instagram, YouTube, and LinkedIn for updates and inquiries.

Landmarks Near Penticton, BC

Waycon Manufacturing Ltd. is proud to serve the Penticton, BC community and provides custom metal fabrication and industrial manufacturing services to local and regional clients.

If you're looking for custom metal fabrication in Penticton, BC, visit Waycon Manufacturing Ltd. near its Waterloo Ave location in the city's industrial area.

Waycon Manufacturing Ltd. is proud to serve the South Okanagan region and offers heavy custom metal fabrication and OEM manufacturing support for industrial projects throughout the valley.

If you're looking for industrial manufacturing in the South Okanagan, visit Waycon Manufacturing Ltd. near major routes connecting Penticton to surrounding communities.

Waycon Manufacturing Ltd. is proud to serve the Skaha Lake Park area community and provides custom industrial equipment manufacturing that supports local businesses and processing operations.

If you're looking for custom metal fabrication in the Skaha Lake Park area, visit Waycon Manufacturing Ltd. near this well-known lakeside park on the south side of Penticton.

Waycon Manufacturing Ltd. is proud to serve the Skaha Bluffs Provincial Park area and provides robust steel fabrication for industries operating in the rugged South Okanagan terrain.

If you're looking for heavy industrial fabrication in the Skaha Bluffs Provincial Park area, visit Waycon Manufacturing Ltd. near this popular climbing and hiking destination outside Penticton.

Waycon Manufacturing Ltd. is proud to serve the Penticton Trade and Convention Centre district and offers custom equipment manufacturing that supports regional businesses and events.

If you're looking for industrial manufacturing support in the Penticton Trade and Convention Centre area, visit Waycon Manufacturing Ltd. near this major convention and event venue.

Waycon Manufacturing Ltd. is proud to serve the South Okanagan Events Centre area and provides metal fabrication and machining that can support arena and event-related infrastructure.

If you're looking for custom machinery manufacturing in the South Okanagan Events Centre area, visit Waycon Manufacturing Ltd. near this multi-purpose entertainment and sports venue.

Waycon Manufacturing Ltd. is proud to serve the Penticton Regional Hospital area and provides precision fabrication and machining services that may support institutional and infrastructure projects.

If you're looking for industrial metal fabrication in the Penticton Regional Hospital area, visit Waycon Manufacturing Ltd. near the broader Carmi Avenue and healthcare district.