

CASE STUDY ESTIMATING & QUOTATION

Automating the Estimating-to-Quotation Workflow

How a made-to-order electrical equipment manufacturer cut general-arrangement drawing time by around 75% and increased quote throughput, using AI and browser-based tooling instead of a traditional IT project.

ANNUAL SAVING

£41,400

of estimating time released, every year

RETURN ON INVESTMENT

Five tenders a week, three hours of drafting, bill-of-materials build and datasheet compilation removed from each. The estimating team gets a working week back every week, and spends it on quotations rather than on producing them.

The arithmetic: 5 tenders per week × 3.0 hours removed × £60 per hour blended loaded cost × 46 working weeks = £41,400 a year.

Every TEOX build is priced so that it pays for itself inside twelve months on your own figures. That is a binding test we run before quoting, not a sales claim.

~75%

less GA drawing time

~1.5×

more quotes per estimator / week

~90%

fewer BOM & datasheet errors

Zero

CAD licence & token cost

CLIENT CONTEXT

A specialist manufacturer of low-voltage electrical distribution equipment (switchboards and motor control centres) serving industrial and energy-sector clients. Every tender requires a priced quotation supported by a general-arrangement (GA) drawing, a bill of materials, and technical datasheets. Quotation volume, and therefore revenue, was constrained by how quickly engineers could produce these supporting documents by hand.

THE CHALLENGE

- GA drawings were produced manually in CAD, taking two to four hours per board and consuming licensed CAD seats and token-based usage costs.
- No visual GA, single-line diagram or 3D model was offered to customers at enquiry stage. Competitors offered no more, so there was no differentiation.
- Bills of materials and datasheet packs were re-created manually for every quotation, which was slow and error-prone.
- Reconfiguring a layout meant a full redraw.
- Engineering handover relied on verbal and email context, so job data was lost or duplicated between estimating and delivery.

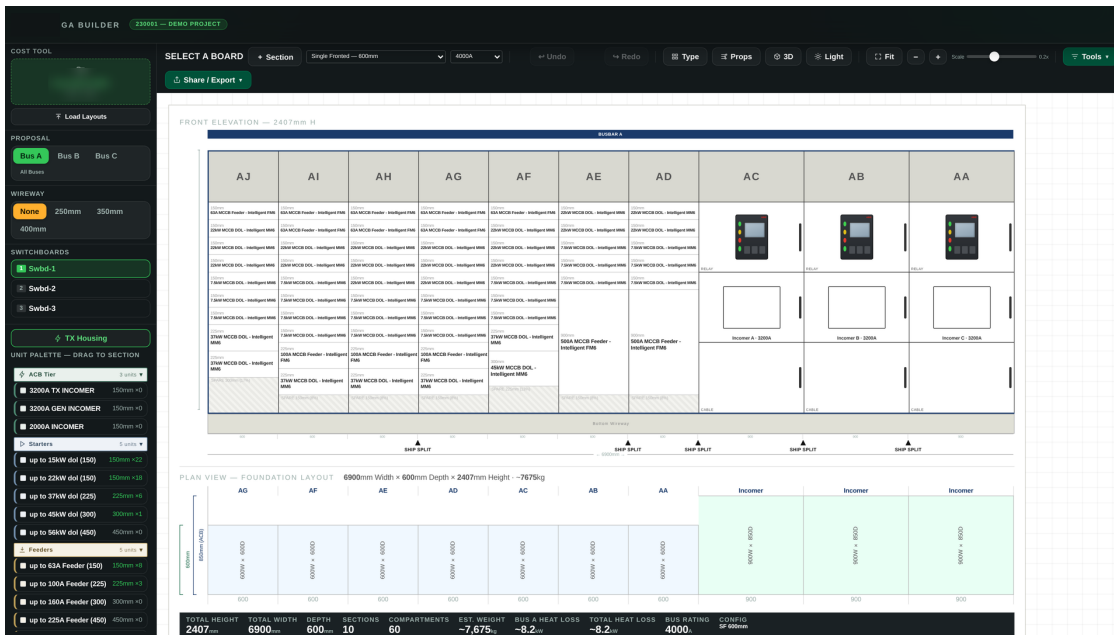
The net effect: GA production was the bottleneck capping quote throughput, manual re-entry introduced errors, and customers saw very little at the point where they were deciding whether to place an order.

THE APPROACH

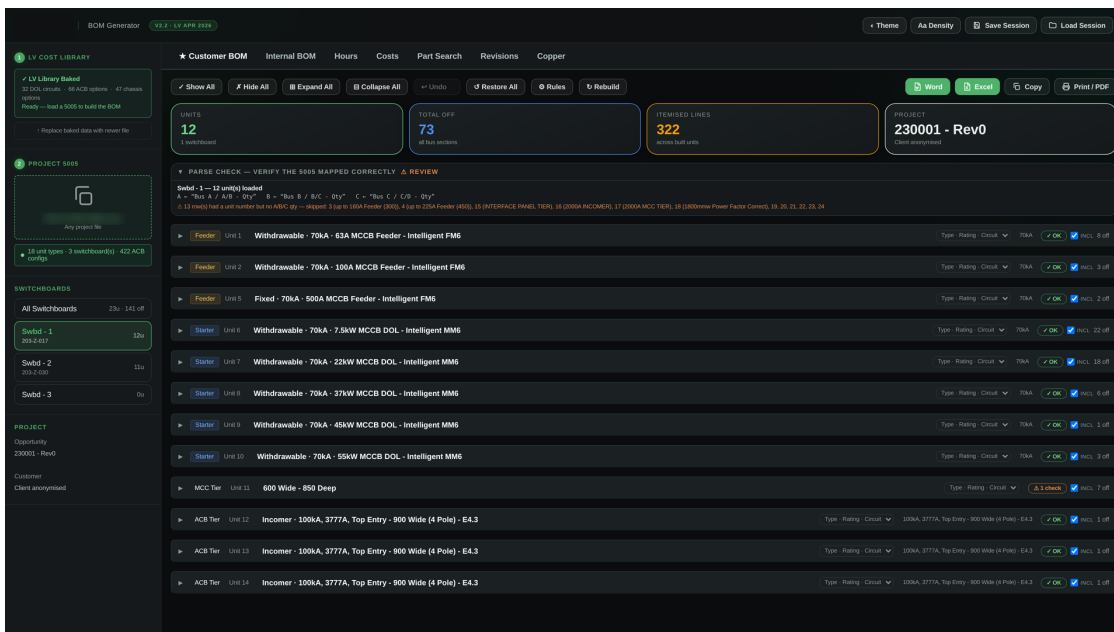
Rather than commission a multi-month software project, a domain expert (an estimating and commercial lead, not a professional developer) used an AI assistant to design and build a suite of single-file, browser-based tools. The tools were built around the existing costing workbook as their data source, so no new infrastructure or data migration was required. Development was iterative: changes could be made and tested the same day, with the domain expert directing and the AI doing the drafting.

The solution: a connected estimating workflow

- 1. Specification intake.** The AI assistant reads the customer specification, identifies the equipment type, flags non-standard or out-of-scope requirements, and proposes a preliminary selection of functional units for the estimator to confirm.
- 2. Pricing.** The estimator confirms or adjusts the selections and prices the job in the existing costing tool. This remains a human judgement call: the AI provides the starting point, the estimator owns the output.
- 3. GA generation.** A browser-based tool renders a scaled, dimensioned general arrangement in minutes from the confirmed selections. Layout and access configuration can be changed in seconds with no redraw, and no CAD seat or usage tokens are consumed.
- 4. Bill of materials.** A structured BOM is generated automatically from the GA, matched exactly to the drawing, with no re-keying and no transcription errors.
- 5. Datasheet pack.** Technical datasheets are compiled automatically from the costing-tool selections, removing manual searching, downloading and version-checking.
- 6. Single-line diagram and 3D visual.** A provisional single-line diagram and a parametric 3D model are generated from the same configuration, giving the customer a clear visual of the finished product at quotation stage.
- 7. Branded quotation pack.** The GA, BOM, datasheet pack, SLD and 3D visual are assembled into one consistent, branded output, ready to issue with the quotation.
- 8. Engineering handover.** All configuration data captured during estimating is packaged automatically into a structured handover document, so delivery teams start from a complete, unambiguous record.



From costing workbook to scaled, dimensioned GA in minutes: front elevation and foundation plan generated directly in the browser, with weight, heat loss and shipping splits calculated automatically.



The bill of materials, generated from the same data: 322 itemised lines across 12 units, with parse checks confirming every selection mapped correctly, and one-click Word, Excel and PDF output.

RESULTS

Beyond the numbers, customers began receiving a visual general arrangement and an itemised bill of materials with their quotation, before placing an order. In a market where competitors provided only schedules and written specifications at that stage, this became a genuine point of difference and reduced post-order queries and disputes.

THE ECONOMICS: AI-ASSISTED BUILD VS TRADITIONAL IT

Procured as a conventional software project, equivalent tools would typically take six to eighteen months each and cost tens of thousands of pounds, with the usual risks of scope creep and delivery delay, and with every later change requiring developer time and budget.

Built by a domain expert directing an AI assistant, the same tools were delivered in days to weeks at negligible external cost, and changes cost minutes rather than weeks. The person who understands the business problem builds the solution directly, which removes the translation layer between requirements and delivery entirely.

WHAT TRANSFERS TO YOUR BUSINESS

This pattern applies to almost any engineering or made-to-order manufacturer where producing a quotation involves configuration, drawings and parts lists. The principles are consistent: build around the data sources you already have rather than replacing them; keep human judgement where it adds value and automate the drafting, re-entry and packaging around it; and let a domain expert direct the AI rather than commissioning a long, expensive IT project that may not survive contact with how the work is really done.

What the time released is worth, on the client's own figures	Figure
Tenders quoted per week	5
Drafting, BOM and datasheet time removed per tender	3.0 hours
Time recovered per week	15 hours
Client's blended loaded labour cost	£60 per hour
Working weeks per year	46
Annual benefit	£41,400

Deliberately excluded from that arithmetic: the tenders that could not be quoted at all because GA production capped throughput, and the rework avoided by removing manual BOM transcription. Both are real and neither is claimed, because neither was measured on the original engagement. The figures above are the ones that were.

Tools used: Browser-based HTML / JavaScript applications · existing Excel-based costing workbook · large language model API (Claude) for specification parsing and document generation · Microsoft 365 for distribution.