

From 820 Pages of Documentation to a Validated AI Assistant

An AI that produces accurate, buildable custom-window orders in seconds, work that once took days by hand.

THE CHALLENGE

Spec'ing a single custom window could eat a day or more of skilled labor, poring over hundreds of catalog pages by hand, and one overlooked detail could scrap it or bring it back as a warranty claim. Every window Ital East Corp. makes is built to order, spec'd from the owner's hard-won experience and two dense manufacturer catalogs running over 800 pages. Getting one right meant constantly cross-referencing both, and the margin for error was unforgiving. One wrong calculation and the window would not open. One missed hole and it would not drain, surfacing as a costly field failure months later. The question: could AI comb through the catalogs and the owner's knowledge to produce a complete bill of materials and the exact cut and hole calculations for each custom window, accurately enough to cut both the errors and the warranty work?

THE APPROACH: A PROVEN, REPEATABLE METHOD

- 1. Discover.** Sit with the owner and pull the judgment out of his head: the calls he makes without thinking, where jobs go wrong, what separates a good build from a callback. Most of it had never been written down.
- 2. Ingest.** Work through 800+ pages of dense catalogs, including the image-only drawings and tables no tool can simply scrape. Knowing what actually matters in that pile is the work.
- 3. Cross-reference.** Trace every part and cut on a real finished window back to the exact page and rule behind it, separating what the manuals say from what the owner supplies from experience.
- 4. Pressure-test.** Where the manuals go silent, isolate each unknown one variable at a time until the real rule is proven, not guessed.
- 5. Validate blind.** Hand the AI only what a customer would give it, let it build from scratch, and check it against the shop's own proven output. No grading its own homework.

Seconds

to produce a full
build sheet

800+

pages of manuals in one
reusable knowledge base

Margins up

from fewer errors,
callbacks and rework

"It's doing in seconds what my guys would spend a day or more on. The real gain is we can turn over more projects in less time."

Owner, Ital East Corp. / IEC Manufacturing

WHY IT MATTERS

The answer was a resounding yes, but only because of the order it was built in. The AI was taught to think like the owner first, capturing the judgment that had only ever lived in his head, and only then turned loose on the 800-page catalog. From there it was acid-tested against real, completed jobs: given only the starting inputs, it built each order from scratch and was checked against the owner's own proven output. The result reset the economics of the business. Work that used to eat a day or more of skilled man-hours per job now takes seconds, standardized and correct every time. Fewer errors mean fewer callbacks and less warranty rework, and the real monetary gain is throughput: the same crew turns over more projects in less time. It reproduces owner-quality builds without the owner in the room.

Designed and delivered by an electrical engineer with 15+ years in embedded systems and product development, applying proven engineering principles to the creation of custom AI solutions.