System Stack Spec (v1)

Takeoff → Supplier Bid Library → Automated Accounting

Objective

Create a straight-through, auditable process that converts takeoff data into supplier bidding packages and automatically posts approved awards/POs into accounting.

1) Architecture Overview

Core Layers

1. **Input Layer:** Takeoff files + quantity data
2. **Workflow Layer:** OpenClaw orchestration + automation rules
3. **Supplier Layer:** Bid distribution + quote intake
4. **Decision Layer:** Comparison + approvals + PO issuance
5. **Accounting Layer:** AP posting + 3-way match + audit logs

2) Recommended Stack

- **OpenClaw**: orchestration, routing, approvals, digest reporting
- **Supplier Bid Library**: controlled repository of bid packages and returns
- **Email/API Delivery**: supplier distribution channel
- **Accounting System Connector**: PO/AP sync endpoint
- **Storage**: versioned files with immutable history
- **Dashboard**: status by project, package, award, payment state

3) Workflow States (Standard)

1. Draft Takeoff
2. Ready for Bid
3. Bid Package Sent
4. Quotes Received
5. Comparison Complete
6. Approval Pending
7. Awarded / PO Issued
8. Posted to Accounting
9. Closed / Archived

No package can skip approval states.

4) Automation Rules

- Trigger on status = **Ready for Bid**
- Auto-generate bid package (scope, quantities, due date)
- Auto-route to approved suppliers by trade and geography
- Auto-remind suppliers at T-48h and T-24h before due time
- Auto-compile quote comparison table after deadline
- Auto-route approval request by threshold matrix
- On approval, auto-create PO and push to accounting
- Auto-open exception ticket for missing/invalid bids

5) Controls & Compliance

- Role-based access (buyer, approver, finance, audit)
- Full event log (who/what/when)
- Version lock on final award package
- No payment without PO + delivery/invoice match
- Exception queue monitored daily

6) KPI Dashboard

- Bid cycle time
- # invited suppliers / # responding suppliers
- Savings vs baseline estimate
- Approval turnaround time
- PO-to-posting time
- Invoice mismatch rate

7) Implementation Phases

Phase 1 (Week 1–2)

- Field mapping finalized
- Supplier master normalized
- Approval matrix configured

Phase 2 (Week 3–4)

• Pilot on one project/trade

• Validate PO + accounting posting

Phase 3 (Week 5+)

• Scale to all projects

• Add predictive pricing alerts

8) Decision Gates

• Gate A: Data quality pass

• Gate B: Supplier response minimum met

• Gate C: Approval policy met

• Gate D: Accounting posting verified

If any gate fails, package remains open with assigned owner and due date.