DC Health Check

# Warehouse Operations Audit
# Meridian Fulfillment Co.

## E. KPI definitions & calculation bases

| KPI | Computed as |
|---|---|
| Units per labor hour | total units picked ÷ total paid warehouse hours (all functions, payroll basis) |
| Pick UPH | total units picked ÷ PICK-department paid hours |
| Pack throughput | parcel shipments (non-B2B, cartonized) ÷ PACK-department paid hours; peer basis per station in §10 |
| Overtime % | OT hours ÷ (regular + OT hours), payroll basis |
| Indirect % | LEAD + ADMIN/CS + FACILITIES + MAINTENANCE hours ÷ total hours |
| Dock-to-stock | putaway timestamp – trailer arrival timestamp, per receipt line; median and >72h tail |
| Adjustment rate | sum of absolute adjustment units ÷ units shipped, monthly and annual |
| Mispick rate | MISPICK-reason adjustment events ÷ orders |
| Click-to-ship | first shipment ship_ts – order_ts; weekend orders normalized to Monday 08:00 (business-hours basis) |
| Same/next-business-day | orders whose first shipment departs the order's business day or the next (Fri→Mon counts) |
| Split rate | orders with >1 shipment ÷ orders, by ship month |
| Golden-zone % | A-SKUs (top 20% of item master by annual pick lines) with primary bin in Zones A/B |
| Avoidable expedite % | 2-Day pkgs to zones 2–4 plus Next-Day pkgs to zones 2–3 ÷ all expedited parcels |
| Oversized carton % | parcels packed ≥1 catalog size above the cube-fit carton at 68% fill |
| CPO | (loaded labor cost + total transportation spend) ÷ orders; labor rates per Assumption 1 |
| Health grade | area scores banded per §2 table, weighted Labor 25 / CPO 20 / Inventory 20 / Slotting 15 / Inbound 10 / Shipping 10 |

One building · 90,000 sq ft · Independent 3PL · 14 brand clients
Data window: August 2025 – July 2026 (12 months)

| BUILDING HEALTH GRADE | C | **61 / 100**<br>Identified savings: **$328,097**/yr<br>Bookable (70%): **$229,668**/yr |
|---|---|---|

**SAMPLE REPORT — FICTIONAL DATA.** Meridian Fulfillment Co. is an invented company. Every record in the underlying dataset — 219,152 shipments, 343,121 order lines, 92,290 labor hours — was generated by script and is traceable to no real operation. Everything else about this document is exactly what a paying client receives: the metrics are computed from the raw files, every dollar figure shows its formula, and the fix list is ranked the way we'd rank yours.

Prepared by DC Health Check · Standard-tier engagement · Delivered [date] · dchealthcheck.com

# 1 · Executive summary

Meridian is a functioning C-grade building with an A-grade order book. Volume grew, service held near band (87% of orders ship same or next business day), and nothing here is broken. But the building is quietly paying for its own success in five places, and the bill is **$328,097 a year identified** — **$229,668 bookable** at our 70% conservatism haircut. That is 46× the fee for this audit, and the top three fixes require no capital.

The story of the year in one paragraph: a client mix shift (outdoor gear client Kestrel Peak Outfitters roughly tripled its share starting December) was absorbed by effort instead of process. Slotting was never revisited, so 14 of the building's 50 fastest SKUs still live in the far reserve aisles; pickers walk further, so overtime never comes back under 9%; multi-line orders fragment into split shipments (2.9% → 6.2%), each one buying a second parcel charge; and the pack wall absorbs the strain unevenly — one station has run 32% below its peers all year without anyone seeing it in a report. None of these show up on a P&L; line. All of them show up in this one.

## Top five findings

| # | Finding | Annual $ (Identified) | Confidence | Effort |
|---|---|---|---|---|
| 1 | **Avoidable expedite spend** — 2,662 expedited parcels went to zones ground reaches inside the same promise. A service-selection rule at rate-shop recovers it. | $39,277 | High | 1 / 5 |
| 2 | **Pack station PS-04** — 31.6% below peer throughput for 12 straight months, across two different packers. It's the station, not a person. | $35,186 | High | 1 / 5 |
| 3 | **Oversized cartons** — 19.3% of parcels packed 1–2 sizes above cube fit; you pay the DIM difference on every one. | $33,940–$47,274 | High | 2 / 5 |
| 4 | **Split-shipment creep** — 2.9% → 6.2% of orders, concentrated in multi-line apparel/outdoor. Each split is a second full parcel charge. | $61,085 | Medium | 3 / 5 |
| 5 | **Sustained overtime** — 12 consecutive months at 7.7–10.5% OT. This is a staffing-model problem wearing a peak-season costume. | $33,040 | High | 3 / 5 |

Also in the ledger: a February–March inventory-adjustment spike traced to one client's inbound packaging ($32,195 annualized), a re-slot of the far-slotted A-movers ($23,579), indirect-labor compression ($62,355), and mispick tightening ($7,440). Section 11 prices all nine and ranks them by dollars per unit of effort.

## What we'd do first

Three moves inside 30 days, none requiring capital: (1) add the ground-meets-promise rule to rate shopping — it pays for this audit roughly eight times over by itself; (2) put a stopwatch and a supervisor on PS-04 for one shift — the data says fixture, layout, or flow, and a morning of observation will name it; (3) re-slot the 14 far-zone A-movers into Zones A/B — reclaims pick travel and takes direct pressure off overtime. Then rebuild the staffing model against the new client mix before Q4, because the current one budgets for a business Meridian stopped being in December.

Scale context: 210,000 orders · 219,152 shipments · 949,710 units · 343,121 lines · $4,067,817 annual ship spend · 92,290 labor hours · 3,640 active SKUs · 14 clients. All figures computed from raw exports; formulas shown inline throughout.

## 2 · KPI scorecard — 16 metrics

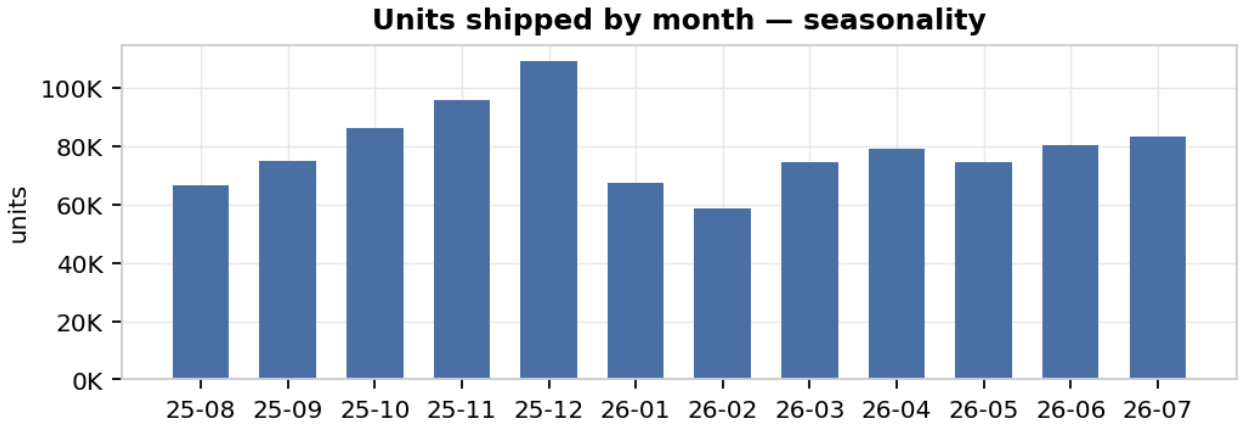
Benchmarked two ways: against the building's own demonstrated best, then against mid-market fulfillment bands. Bands are ranges, not points; sources and definitions in the appendix.

| # | KPI | Value | Band (Green / Watch / Red) | RAG |
|---|---|---|---|---|
| 1 | Building-wide units per labor hour | 10.3 | 15–25 / 8–15 / <8 | WATCH |
| 2 | Pick UPH (units per pick-dept hour) | 52.6 | 70–120 / 45–70 / <45 | WATCH |
| 3 | Pack throughput (parcel ships / pack hr) | 10.4 | internal-peer basis — see §8 | WATCH |
| 4 | Overtime % (sustained) | 9.0% | <5% / 5–10% / >10% | WATCH |
| 5 | Indirect labor % | 24.8% | 15–22% / 22–30% / >30% | WATCH |
| 6 | Dock-to-stock median | 39 h | <24h / 24–72h / >72h | WATCH |
| 7 | Receipts beyond 72h dock-to-stock | 24% | tail flag — see §7 | RED |
| 8 | Inventory adjustment rate (abs units) | 0.69% | <0.3% / 0.3–1% / >1% | WATCH |
| 9 | Mispick rate (adj events / orders) | 0.64% | <0.3% / 0.3–0.8% / >0.8% | WATCH |
| 10 | Click-to-ship median (business hrs) | 21 h | <12h / 12–24h / >24h | WATCH |
| 11 | Same / next business-day ship | 87% | >95% / 85–95% / <85% | WATCH |
| 12 | Split-shipment rate (trailing month) | 6.2% | <3% / 3–8% / >8% | WATCH |
| 13 | A-SKUs slotted in golden zone | 66% | >80% / 60–80% / <60% | WATCH |
| 14 | Avoidable share of expedite spend | 49% | <10% / 10–30% / >30% | RED |
| 15 | Oversized-carton share of parcels | 19.3% | <10% / 10–25% / >25% | WATCH |
| 16 | Cost per order (loaded labor + ship) | $30.29 | mix-dependent — see §6 | WATCH |

### Health grade build-up

| Labor (25%) | CPO (20%) | Inventory (20%) | Slotting (15%) | Inbound (10%) | Shipping (10%) | Weighted |
|---|---|---|---|---|---|---|
| 66 | 62 | 63 | 57 | 54 | 59 | 61 = C |

Grade bands: A ≥85 · B 70–84 · C 55–69 · D 40–54 · F <40. A C-grade is the most common grade we issue and the most profitable to receive: it means the mechanisms are intact and the money is in tuning, not rebuilding.



# 3 · Methodology & data quality

We received the full 8-file export pack plus payroll labor: shipments (219,152 rows), order lines (343,121), item master (3,640 SKUs), locations (4,000), slotting (2,760), on-hand snapshot (2,939), inventory adjustments (3,616), receipts (11,793), and daily labor hours by anonymized ID and department (10,627 rows). Date coverage is complete across the 12-month window with no gaps. Employee identifiers arrived pre-anonymized; our first processing step confirms no names or personal identifiers are present.

| File / area | Quality | Note |
|---|---|---|
| Shipments, order lines, receipts | HIGH | Complete timestamps, consistent IDs, carrier/service/cost populated on parcel rows |
| Labor (payroll source) | HIGH | Daily hours by department and wage band; no task-level detail (see limits) |
| Slotting & locations | HIGH | Primary bins resolvable for all A-SKUs; ~66 A-SKUs carry a second bin |
| Inventory adjustments | HIGH | Reason codes populated; MISPICK/DAMAGE/CYCLE_COUNT usable as written |
| On-hand snapshot | MEDIUM | Single snapshot date (Jul 31); trends inferred from adjustments, not serial snapshots |
| Carton / dims | MEDIUM | Carton catalog inferred from carton IDs + dims on parcel rows; B2B/LTL rows carry no cartons (correct) |
| Wage rates | ASSUMED | Payroll provided hours and bands, not dollars. Rates assumed and stated in the appendix; every labor $ scales linearly with them |

What this data cannot support (and we therefore do not claim): task-level pick rates by individual (payroll granularity is daily), location-level inventory record accuracy (needs cycle-count history), and true carrier-invoiced DIM charges (we model them from carton cube and the rate structure implied by your own ship costs — the modeled and exact-recompute figures are both shown in §9). Dock-to-stock economics carry a Low confidence tag and are excluded from guarantee math.

## Conservatism policy

Every finding is priced with its formula shown inline. **Bookable = 70% × Identified** across the board, and Low-confidence findings are excluded from the guarantee arithmetic entirely. Where a range exists we quote the range and bank the low end. The intent is that the number you defend to your CFO is the one printed here.

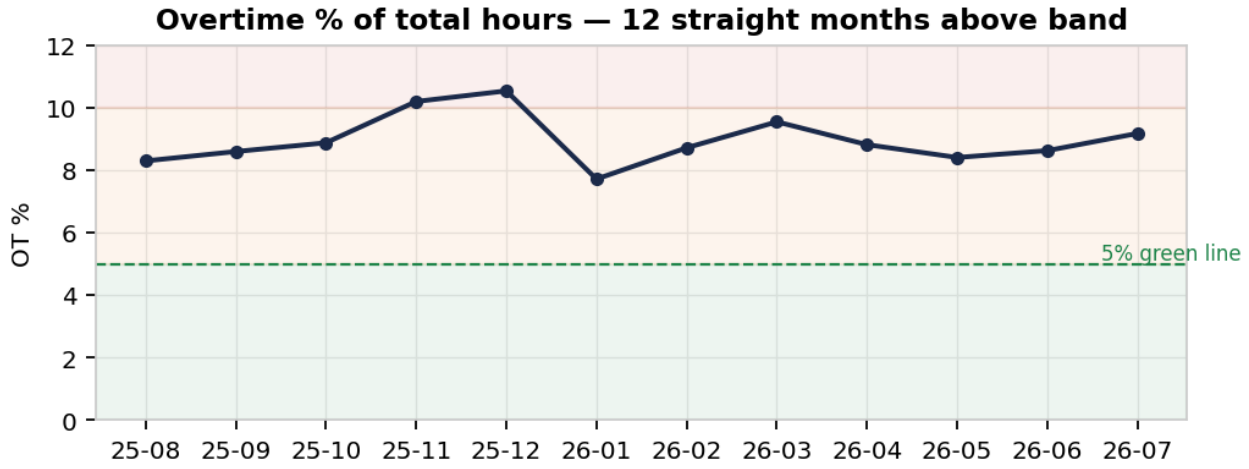
The 5x guarantee, measured: Bookable savings of $229,668 vs. the $4,995 threshold = **46.0×**. Restricting to High-confidence findings only: $104,218 bookable = 20.9×.

# 4 · Area A — Labor productivity & utilization

The building ran 92,290 paid hours to move 949,710 units: 10.3 units per building hour, 52.6 units per pick-department hour. Both sit mid-Watch — ordinary for a high-mix 3PL, and both are being taxed by the slotting debt quantified in §8. The two labor findings that clear the materiality bar are overtime and the indirect ratio.

## Finding A1 — Overtime is structural, not seasonal

OT ran 9.0% of total hours for the year — and the shape matters more than the level. November–December peak at 10.2–10.5% is expected physics. What isn't: January's "recovery" only reached 7.7%, and no month all year re-entered the sub-5% band. The floor never resets. That pattern says base staffing is calibrated to the pre-December order book — the one before Kestrel Peak tripled — and the gap is being closed with time-and-a-half, every week, as policy.




`FORMULA · OT normalization: (8,284 OT hrs − 5% × 92,290 total hrs) × 0.5 OT premium × $18.01 blended base = **$33,040/yr** · Confidence HIGH · Effort 3/5`

This is the premium-only arithmetic — hours in excess of a healthy 5% OT floor, priced at the 0.5× premium, not the wage itself. The work still has to happen; the finding is that it should happen on straight time. The fix is a staffing model rebuilt against the current client mix and a hiring trigger tied to weekly volume, not to supervisor pain tolerance. [FLOOR CHECK: confirm no deliberate OT-in-lieu-of-headcount policy exists before re-modeling.]

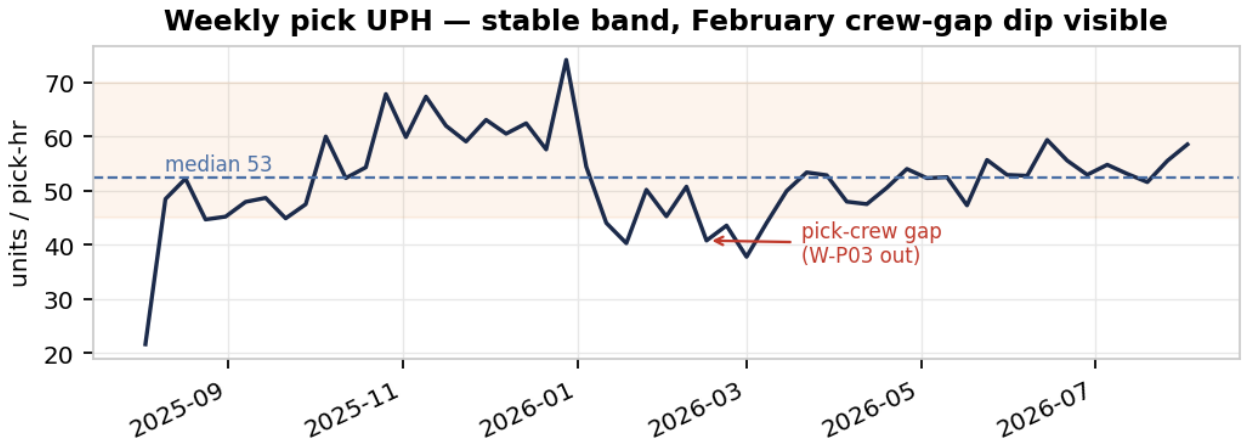
| Month | Total hrs | OT hrs | OT % |
|---|---|---|---|
| 2025-08 | 7,310 | 606 | 8.3% |
| 2025-09 | 7,728 | 664 | 8.6% |
| 2025-10 | 8,015 | 711 | 8.9% |
| 2025-11 | 7,640 | 778 | 10.2% |
| 2025-12 | 8,606 | 906 | 10.5% |
| 2026-01 | 7,593 | 585 | 7.7% |
| 2026-02 | 6,896 | 600 | 8.7% |
| 2026-03 | 7,782 | 742 | 9.5% |
| 2026-04 | 7,654 | 674 | 8.8% |
| 2026-05 | 7,323 | 615 | 8.4% |
| 2026-06 | 7,725 | 665 | 8.6% |
| 2026-07 | 8,014 | 734 | 9.2% |

Twelve months, twelve entries above the 5% line. The two worst months are the two peak months — but the ten non-peak months average 8.6%, which is the number the staffing model answer has to explain.

## Finding A2 — Indirect labor runs 2.8 points heavy

Leads, admin/CS, facilities, and maintenance consumed 24.8% of hours against a 15–22% healthy band. In a 42-FTE building the gap is roughly one full-time-equivalent of coordination that direct processes should absorb. We cap this finding at 3 points and tag it Medium — org-design findings deserve skepticism until a floor walk confirms which roles are load-bearing.

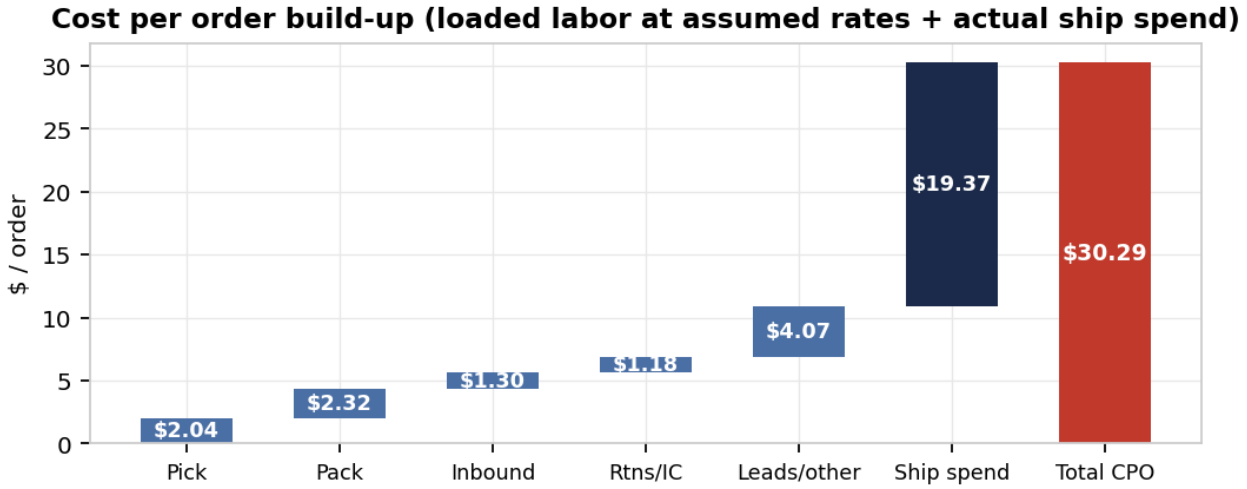
`FORMULA · Indirect compression: (24.8% − 22% band top, capped 3 pts) × 92,290 hrs × $23.77 loaded = **$62,355/yr** · Confidence MEDIUM · Effort 4/5`




Weekly pick UPH is otherwise stable — including through a one-week crew gap in early February when a departing picker's replacement hadn't started, visible above as the sharpest dip in the series. The team covered it with OT; the OT chart shows the receipt.

# 5 · Area B — Cost per order

Fully loaded cost per order lands at **$30.29**: $10.91 of loaded labor plus $19.37 of transportation across parcel and freight. For a 14-client, high-mix book averaging 4.5 units and 1.63 lines per order, with B2B freight in the mix, this is within the mid-market envelope — the finding is not the level, it's the composition. Ship spend is 64% of CPO, and §9 shows three separately-priced leaks inside it (expedite, DIM, splits) totalling roughly $134K identified.

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FORMULA · Labor CPO: 92,290 hrs × $23.77 loaded blended (incl. OT premium) ÷ 210,000 orders = $10.91
· Ship CPO: $4,067,817 ÷ 210,000 = $19.37
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## The 3PL shadow-price test

For a self-fulfilling brand this section compares CPO to a 3PL quote for the same volume. Meridian is the 3PL, so we run it inward: at list-equivalent pick/pack fees for this order profile, the building's labor cost per order leaves normal 3PL gross-margin room, but the margin is being spent — on OT premium, on second cartons for split orders, on DIM overpay. The leaks land on Meridian's own P&L;, not a client invoice, which is why they've been easy to not see. [FLOOR CHECK: validate against actual client rate cards — out of scope of provided data.]

Wage sensitivity: every $1.00/hr change in the blended loaded rate moves labor CPO by $0.44 and total identified labor savings by ~4%. Rates assumed are listed in the appendix; swap in actuals and every figure re-derives linearly.

## Unit economics

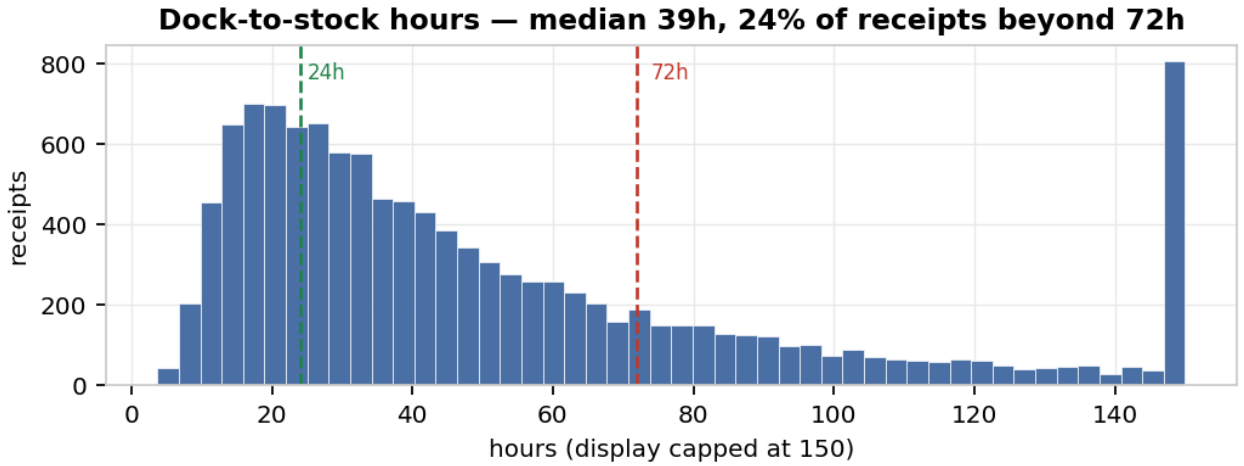
Per-unit basis: $2.41 loaded labor and $4.28 transportation per unit shipped, 4.5 units per order, 1.63 lines per order. The per-unit labor figure is the one to watch as the Kestrel mix grows: outdoor gear carries more cube per unit, more Zone-D travel per line under current slotting, and a higher split propensity — three of this report's findings compound specifically in that client's order profile. When the re-slot (§8) lands, per-unit labor should fall ahead of any headcount action; if it doesn't, the staffing model (§4) is the next lever, not discipline on the floor.

## What a client-level P&L; would show

The data pack doesn't include client rate cards, so we can't print client-level margin — but the cost side is computable and the pattern is clear enough to act on: CLT-10 (Kestrel Peak) orders consume disproportionate pick travel and split roughly 3× the building average; CLT-09 (Maison Verre) consumes disproportionate receiving effort and damage write-offs (§6–7). If either account is priced on pre-2026 assumptions, these findings are also a repricing agenda. [FLOOR CHECK: run the two client rate cards against this cost picture before the next renewal conversation.]

# 6 · Area C — Inbound & dock-to-stock

Median dock-to-stock is 39 hours — mid-Watch — but the tail is the story: **24% of receipts take longer than 72 hours** to reach a pickable location. A quarter of inbound spending three-plus days in limbo is working capital parked on the receiving dock and a standing invitation to phantom stockouts: inventory the system owns but pickers can't reach, which drives exactly the kind of adjustment noise Area D documents.




The tail is not random. Receipts for CLT-09 (Maison Verre Beauté — glass beauty product) show putaway times stretching materially in the same February–March window as the damage spike in §7 — receiving crews slowing down to deal with fragile, poorly-packaged inbound is the connective tissue between this section and that one. One vendor-packaging conversation addresses both.

| Median dock-to-stock (h) | 25-08 | 25-09 | 25-10 | 25-11 | 25-12 | 26-01 | 26-02 | 26-03 | 26-04 | 26-05 | 26-06 | 26-07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLT-09 receipts | 36 | 36 | 44 | 54 | 81 | 38 | 40 | 60 | 32 | 26 | 25 | 30 |
| All other clients | 34 | 36 | 37 | 55 | 63 | 36 | 35 | 35 | 38 | 35 | 39 | 35 |

CLT-09's putaway medians separate from the building's in exactly the spike window and reconverge after — the receiving floor experienced the packaging change before the adjustment log recorded it. In future months, this table is the early-warning indicator: a client whose putaway median drifts +10h from building median deserves an inbound QC look that week, not at the next cycle count. · Confidence on dock-to-stock dollar effects: LOW — excluded from guarantee math by policy; the operational flag stands on its own.

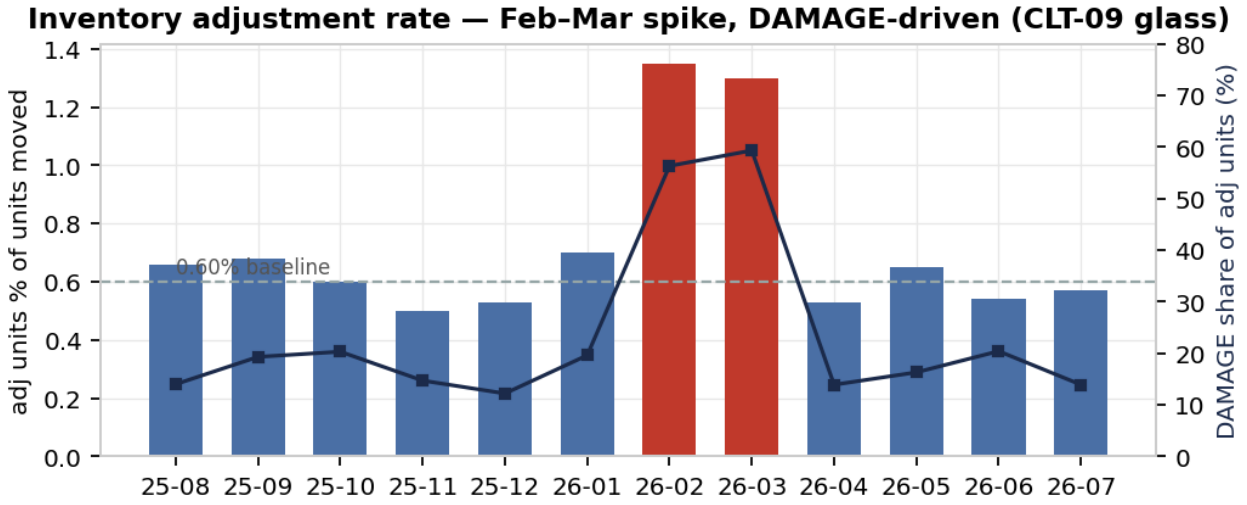
## What good looks like

For a building this size on this order profile: median dock-to-stock under 24h, tail-over-72h under 5%, and receiving staffed to the arrival calendar rather than a fixed crew. The current 39h median is one focused month of work — putaway wave discipline and a same-day rule for A-SKU receipts — and it pays back in Area D noise reduction and fewer forward-area stockouts feeding the split problem (§9). We flag it, price nothing for it, and note that buildings that fix inbound first usually find Areas D and F improve before they're touched.

# 7 · Area D — Inventory integrity

Annualized adjustment rate is 0.69% of units moved — inside the 0.3–1% Watch band — and it would rate a shrug if the year were flat. It isn't. February and March ran 1.35% and 1.30%, more than double the 0.60% baseline of the other ten months, and the composition of the spike names its own cause.

## Finding D1 — The Feb–Mar adjustment spike is a packaging problem, not a discipline problem




In spike months, DAMAGE write-offs are 56–59% of adjusted units versus ~16% in a normal month, and 91% of spike-window damage units belong to one client: CLT-09, whose product is glass. 1,019 damaged units worth $20,168 at cost in eight weeks. Cross-referencing receipts: CLT-09's inbound putaway times stretch in exactly this window (§6) — consistent with a vendor packaging change on inbound, breaking in handling, slowing putaway, and writing off stock. The cycle-count team is finding the bodies; the packaging spec is the murder weapon.

`FORMULA · Shrink recovery: (0.69% adj rate − 0.30% band floor) ÷ 0.69% × $56,880 annual net inventory loss at unit cost = **$32,195/yr** · Confidence MEDIUM · Effort 2/5`

Priced conservatively on net loss (write-offs minus found stock), not gross adjustment activity. The fix is a packaging spec + inbound QC gate with CLT-09 and a chargeback clause for non-conforming inbound — a contract conversation, not a warehouse project. [FLOOR CHECK: pull 10 CLT-09 receipts from the spike window and photograph the inbound packaging before the client call.]

## Adjustment composition, full year

| Reason code | Units (abs) | Share |
|---|---|---|
| DAMAGE | 1,808 | 27.5% |
| MISPICK | 1,530 | 23.3% |
| CYCLE_COUNT | 1,334 | 20.3% |
| RETURN_RESTOCK | 801 | 12.2% |
| RECEIVING_ERROR | 655 | 10.0% |
| SHRINK_UNKNOWN | 437 | 6.7% |

Outside the spike window this is a healthy Pareto — cycle-count corrections and mispicks trading places at the top is what a functioning IC program looks like. DAMAGE at 27.5% of annual units is entirely a two-month artifact; strip

Feb–Mar and it drops to roughly baseline.

## Housekeeping flags

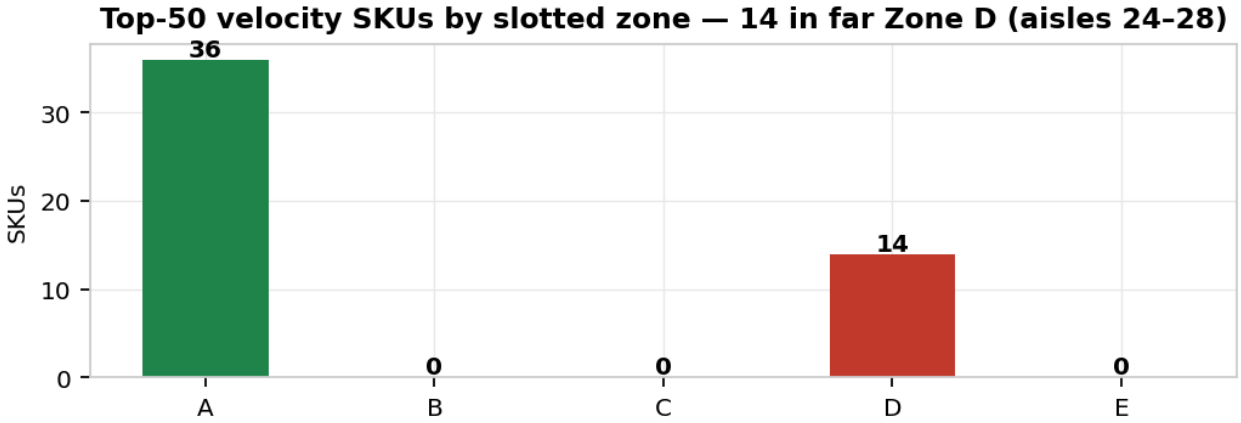
Mispick-reason adjustments run 0.64% of orders (Watch; formula-priced at $7,440 — (rate − 0.40%) × 210,000 orders × $15/event). Twelve locations show negative on-hand in the July snapshot — impossible states that mean transactions post out of sequence; each is a 10-minute reconciliation. And 66 A-SKUs carry a second active pick bin, splitting velocity across faces and doubling replenishment touches. None of these are crises; all belong on the 90-day list.

The twelve negative-on-hand locations (July 31 snapshot) — a one-day reconciliation list:

| Location | SKU | On-hand qty | Client |
|---|---|---|---|
| A-03-23-2 | 01-1237 | -2 | CLT-01 |
| C-16-01-3 | 02-1693 | -2 | CLT-02 |
| B-05-11-2 | 02-1700 | -2 | CLT-02 |
| A-04-10-1 | 02-1726 | -4 | CLT-02 |
| D-20-11-3 | 03-1831 | -1 | CLT-03 |
| A-04-11-3 | 04-2109 | -4 | CLT-04 |
| B-09-24-2 | 06-2676 | -3 | CLT-06 |
| C-13-11-2 | 06-2822 | -3 | CLT-06 |
| C-13-18-3 | 12-4124 | -2 | CLT-12 |
| B-05-06-3 | 12-4127 | -2 | CLT-12 |
| C-13-04-3 | 12-4208 | -2 | CLT-12 |
| C-14-02-3 | 13-4419 | -5 | CLT-13 |

# 8 · Area E — Slotting & pick path

Only 66% of A-SKUs (top 20% by pick lines) are slotted in the golden zones A/B against a >80% target — and the miss is not random drift. **Exactly 14 of the building's top-50-velocity SKUs live in Zone D, aisles 24–28** — the far reserve rows, the longest walk in the building.




The 14 have a common biography: six are Kestrel Peak Outfitters SKUs (the outdoor client whose volume share went from ~4% to ~11.5% starting December), plus risers from Arden Kinetic (apparel), Blue Forty (sporting goods), and Waggle Works (pet). They were slotted correctly for what they were — slow movers — and nobody moved them when they stopped being slow. Every pick against them since December has paid a Zone-D walk tax, which is part of why OT never re-entered band (§4) and why multi-line orders increasingly can't be packed complete from the forward area (§9, splits).

`FORMULA · Slotting travel recovery: 18,037 pick hrs × 50% travel share × 11% modeled travel reduction × $23.77 loaded = **$23,579/yr** · Confidence MEDIUM (modeled reduction) · Effort 2/5`

## The fourteen, by name

| Velocity rank | SKU | Description | Client | Slotted |
|---|---|---|---|---|
| #1 | 01-1001 | Run Short - Red | Arden Kinetic Apparel | D-28 |
| #2 | 04-1941 | Rope Toy - Red | Waggle Works Pet Co. | D-28 |
| #4 | 01-1000 | Training Tee - S | Arden Kinetic Apparel | D-28 |
| #5 | 01-1002 | Compression Legging - Sand | Arden Kinetic Apparel | D-28 |
| #8 | 04-1940 | Dental Chew Bag - S | Waggle Works Pet Co. | D-28 |
| #9 | 06-2500 | Practice Jersey - S | Blue Forty Athletics | D-28 |
| #11 | 10-3344 | Insulated Flask 32oz - Slate | Kestrel Peak Outfitters | D-28 |
| #13 | 06-2502 | Resistance Band - Sand | Blue Forty Athletics | D-28 |
| #16 | 10-3341 | Camp Stove Mini - Red | Kestrel Peak Outfitters | D-28 |
| #20 | 06-2501 | Agility Cone Set - Red | Blue Forty Athletics | D-28 |
| #22 | 10-3342 | Dry Bag 20L - Sand | Kestrel Peak Outfitters | D-28 |
| #23 | 10-3343 | Headlamp 400lm - Gry | Kestrel Peak Outfitters | D-28 |
| #28 | 10-3340 | Trek Pole Pair - S | Kestrel Peak Outfitters | D-28 |

| | | | | |
|---|---|---|---|---|
| #29 | 10-3345 | Trail Pack 24L - Nvy | Kestrel Peak Outfitters | D-28 |

The move list is 14 pallets and a weekend: swap the heroes into A/B faces currently held by demoted movers (the same velocity file names the demotion candidates). Re-slot cadence — monthly velocity review, quarterly full re-slot — prevents recurrence; the Plus-tier deliverable includes the full top-100 move list with target bins. [FLOOR CHECK: confirm Zone A/B face sizes accept the hero SKUs' cube and case-pack.]

## Fragmentation, while you're in there

66 A-SKUs carry two active pick bins. Some dual-binning is deliberate (case vs. each), but at this count it mostly reflects overflow slotting that never got consolidated — each fragmented SKU splits its velocity across two faces, halves the replenishment trigger accuracy, and doubles the chance a picker finds one face empty (which is a mispick and a travel event at once). Fold the consolidation into the same weekend as the hero move: same labor, same aisles.

# 9 · Area F — Order flow & shipping

Transportation is the building's biggest spend category ($4,067,817) and its biggest fix-list concentration: three independent leaks totalling ~$134K identified, all correctable at the pack wall and rate-shop layer without touching a carrier contract.

## Finding F1 — Avoidable expedite: paying for speed the ground network already delivers

Of 5,445 expedited parcels, **2,662 (49%) went to zones where ground meets the same delivery promise** — 2-Day shipments to zones 2–4 and Next-Day to zones 2–3. Ground transit to those zones is 1–3 days; the customer experience is identical, the invoice is not. This is a RED-band result: the service-selection logic simply isn't zone-aware.

`FORMULA · 2,662 qualifying pkgs × (expedited cost − ground cost at same billable weight), avg $14.75/pkg =` **`$39,277/yr`** `· Confidence HIGH · Effort 1/5`

| Service | Expedited pkgs | Ground-eligible | Avg delta/pkg | Annual delta |
|---|---|---|---|---|
| 2-Day (zones 2–4) | 4,361 | 2,263 | $13.11 | $29,661 |
| Next-Day (zones 2–3) | 1,084 | 399 | $24.10 | $9,617 |

The rule change is one line of rate-shop logic and one client-communication template (for the accounts whose SLAs specify service level by name rather than by delivery day — check before flipping; most specify the day). [FLOOR CHECK: confirm which client contracts, if any, name the service rather than the promise.]

## Finding F2 — DIM waste: 19.3% of parcels ship in oversized cartons

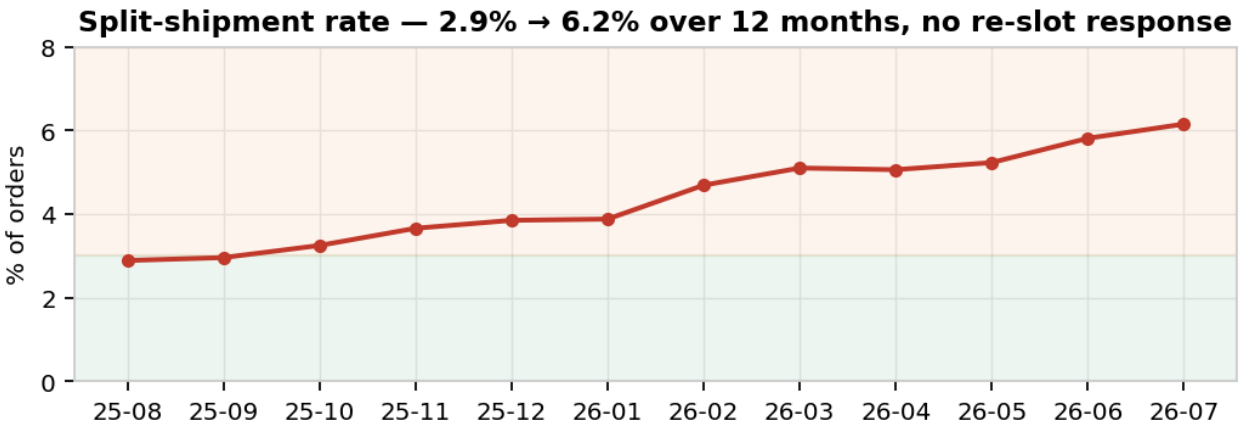
Comparing each parcel's carton against the smallest catalog carton that holds the order cube at a 68% fill assumption: **41,317 parcels (19.3%) packed one to two sizes over**, concentrated in small-cube orders landing in mid-size boxes. Dimensional billing charges the air.

`FORMULA · Σ oversized pkgs × (billable wt at packed carton − at right-size carton) × service/zone rate =` **`$47,274/yr`** `modeled; exact right-size recompute $33,940/yr sets the floor. Quote the range, bank the floor. · Confidence HIGH · Effort 2/5`

| Sizes above cube-fit | 0 (right-sized) | +1 size | +2 sizes | +3 sizes |
|---|---|---|---|---|
| Parcel shipments | 168,604 | 36,810 | 4,471 | 36 |

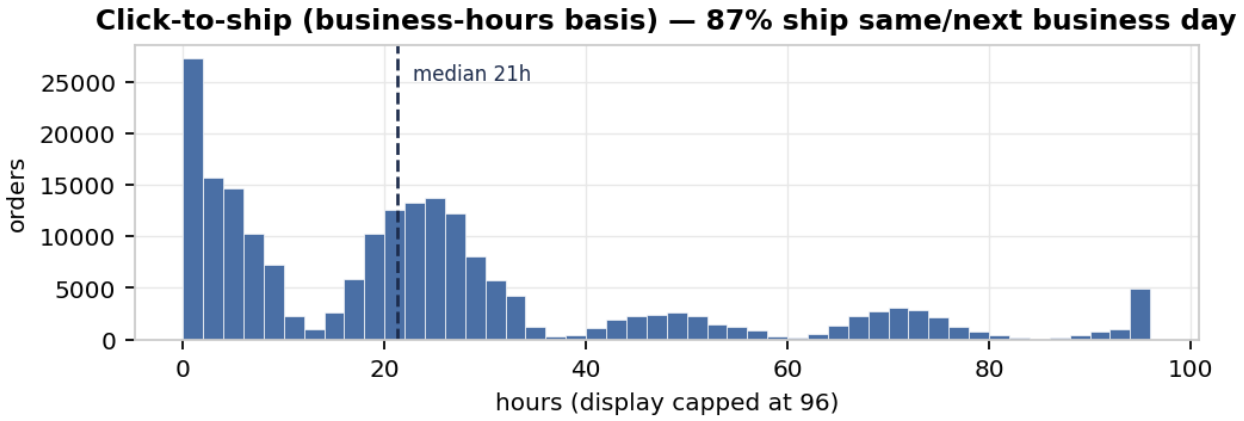
Fix is two-part: enforce carton logic at pack (suggest-a-box by cube), and check the catalog itself — the +1-size concentration and the void-fill it implies suggest one or two missing intermediate sizes. [FLOOR CHECK: verify void-fill practice at stations; heavy void fill confirms the missing-size hypothesis.]

## Finding F3 — Split shipments doubled, and each one is a second invoice



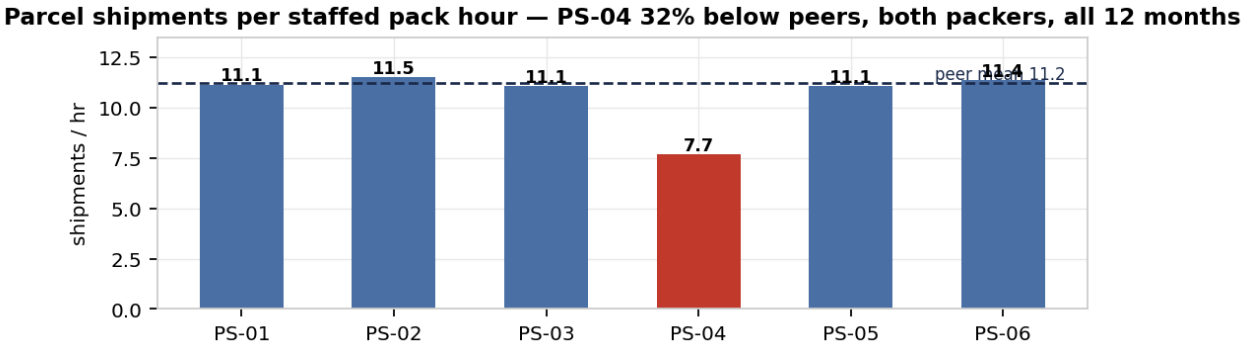

Orders shipping in multiple parcels rose from 2.9% to 6.2% across the year — monotonically, no step change, concentrated in multi-line apparel and outdoor orders. That shape rules out a policy change and points at slow structural drift: as hero SKUs migrated far (§8) and forward-area completeness decayed, more multi-line orders couldn't be consolidated and shipped partial. Every split buys a second base charge and often a second DIM minimum.

`FORMULA · (6.2% trailing − 2.9% baseline) × 210,000 orders × $8.95 avg second-package base charge (fixed component only — the freight weight ships either way) =` **`$61,085/yr at run-rate`** `· Confidence MEDIUM · Effort 3/5`




Order flow otherwise holds: click-to-ship median 21 business hours, 87% same/next-business-day — Watch-band, stable across the year, and worth protecting while the fixes above are implemented.

# 10 · The pack wall — one station is quietly 32% slow




Parcel shipments per staffed pack hour by station, all 12 months: five stations cluster at 11.1–11.5; **PS-04 runs 7.68 — 31.6% below the peer mean**. Two different packers held that station across the year (one left in March; the replacement shows the same deficit), and the gap is stable in every month. When a number survives a personnel change and twelve months of variation, it belongs to the station: fixture, layout, scale placement, printer distance, or the flow feeding it.

`FORMULA · 35,960 PS-04 shipments ÷ 7.68/hr actual − ÷ 11.23/hr peer mean = 1,480 recoverable hrs × $23.77 loaded =` **`$35,186/yr`** `· Confidence HIGH · Effort 1/5`

| Station | Parcel shipments | Staffed pack hours | Ships / hr | vs peer mean |
|---|---|---|---|---|
| PS-01 | 50,799 | 4,559 | 11.14 | -0.8% |
| PS-02 | 25,688 | 2,231 | 11.51 | +2.5% |
| PS-03 | 25,251 | 2,283 | 11.06 | -1.5% |
| PS-04 | 35,960 | 4,683 | 7.68 | -31.6% ■ |
| PS-05 | 25,483 | 2,305 | 11.05 | -1.6% |
| PS-06 | 50,795 | 4,469 | 11.36 | +1.2% |

The diagnostic costs one morning: put a supervisor with a stopwatch on PS-04 and a peer station for the same two hours, time the same five elements (scan, box selection, void fill, label, stage), and the difference will name itself. [FLOOR CHECK: this is the single highest-certainty observation in the report — schedule it first.]

# 11 · Prioritized fix list — ranked by dollars per unit of effort

| Rank | Fix | Annual $ (Identified) | Bookable (70%) | Conf. | Effort | Payback |
|---|---|---|---|---|---|---|
| 1 | **Zone-aware service selection** — add ground-meets-promise rule at rate shop (2-Day z2–4, Next-Day z2–3 → ground) | $39,277 | $27,494 | High | 1 | Immediate |
| 2 | **PS-04 station diagnosis + fix** — one-morning time study, then fixture/layout correction | $35,186 | $24,630 | High | 1 | < 1 month |
| 3 | **Right-size carton program** — suggest-a-box logic + 1–2 added intermediate sizes | $33,940–$47,274 | $23,758+ | High | 2 | 1–2 months |
| 4 | **Re-slot the 14 far-zone A-movers** (weekend, 14 pallets) + monthly velocity re-slot cadence | $23,579 | $16,505 | Med | 2 | 1–2 months |
| 5 | **CLT-09 inbound packaging spec** + receiving QC gate + non-conformance chargeback | $32,195 | $22,536 | Med | 2 | next spike avoided |
| 6 | **Mispick tightening** — verify-scan at pack for top-error SKUs; bin-face relabel in fragmented aisles | $7,440 | $5,208 | High | 2 | 2–3 months |
| 7 | **Staffing model rebuild** — re-base to current client mix; hiring trigger at sustained volume threshold | $33,040 | $23,128 | High | 3 | 1 quarter |
| 8 | **Split-shipment reduction** — forward-area completeness target + hold-for-consolidation rule on multi-line orders | $61,085 | $42,760 | Med | 3 | 1 quarter |
| 9 | **Indirect structure review** — role-by-role after fixes 1–8 land (they remove the chaos the coordination exists to manage) | $62,355 | $43,648 | Med | 4 | 2 quarters |

| | Identified | Bookable (70%) | vs. $4,995 guarantee |
|---|---|---|---|
| All findings | $328,097 | $229,668 | 46.0× |
| High-confidence only | $148,883 | $104,218 | 20.9× |

Dock-to-stock tail effects (§6) are flagged operationally but carry Low confidence and are excluded from every total above, per policy. Carton-program dollars are banked at the $33.9K floor in the totals.

# 11b · Guarantee arithmetic — shown, not asserted

The 5x Guarantee is measured against Bookable savings: 70% of Identified, excluding every Low-confidence finding. Here is the complete ledger and the inclusion decision on each line.

| Finding | Identified $/yr | Confidence | In guarantee? | Bookable $/yr |
|---|---|---|---|---|
| Avoidable expedite (§9-F1) | $39,277 | High | Yes | $27,494 |
| PS-04 pack station (§10) | $35,186 | High | Yes | $24,630 |
| Oversized cartons / DIM — floor (§9-F2) | $33,940 | High | Yes | $23,758 |
| Sustained OT normalization (§4-A1) | $33,040 | High | Yes | $23,128 |
| Mispick tightening (§7) | $7,440 | High | Yes | $5,208 |
| Split-shipment run-rate (§9-F3) | $61,085 | Medium | Yes | $42,760 |
| Shrink / CLT-09 packaging (§7-D1) | $32,195 | Medium | Yes | $22,536 |
| Slotting travel recovery (§8) | $23,579 | Medium | Yes | $16,505 |
| Indirect compression (§4-A2) | $62,355 | Medium | Yes | $43,648 |
| Dock-to-stock economics (§6) | flagged only | Low | No — excluded | — |
| **Total** | $328,097 | | | $229,668 |

Bookable $229,668 ÷ $4,995 threshold = **46.0×**. The guarantee measures savings identified in this report; implementation, and therefore realization, is the operator's domain — which is why every formula is printed, every assumption is listed, and eleven [FLOOR CHECK] flags mark exactly where physical validation should precede action.

## Against your own best

| Metric | Best month in your data | Trailing / current | The gap is the prize |
|---|---|---|---|
| OT % | 7.7% (Jan) | 9.2% (Jul) | Your building already knows how to run leaner Januaries |
| Split rate | 2.9% (Aug) | 6.2% (Jul) | August's slotting fit August's mix; July's doesn't |
| Adjustment rate | 0.50% (Nov) | 0.57% (Jul) | Peak months were cleaner than spike months — discipline wasn't the |

Internal-best benchmarking is the honest kind: no industry survey can be argued with the way your own November can.

## 12 · 90-day roadmap

| Days | Actions | Owner | Exit criteria |
|---|---|---|---|
| 0–30 | Rate-shop rule live (Fix 1) · PS-04 time study + correction (Fix 2) · weekend re-slot of 14 heroes (Fix 4) · reconcile 12 negative-on-hand locations | Ops Mgr | Expedite share of parcels falling week-over-week; PS-04 within 10% of peers; heroes picking from A/B |
| 31–60 | Suggest-a-box logic at pack + carton catalog review (Fix 3) · CLT-09 packaging spec signed + QC gate live (Fix 5) · verify-scan pilot on top-error SKUs (Fix 6) | Ops Mgr + CS lead | Oversized share <12% and falling; zero non-conforming CLT-09 receipts unflagged; mispick trend down |
| 61–90 | Staffing model re-based + hiring trigger adopted (Fix 7) · split-reduction rules live (Fix 8) · indirect review scheduled against post-fix workload (Fix 9) · monthly re-slot cadence institutionalized | GM | OT trending toward <7% with peak plan documented; split rate <5% and falling; Q4 staffing plan approved |

Sequencing logic: fixes 1–2 are pure recovery with no dependencies — do them while attention is high. Fix 4 (re-slot) must precede the split-reduction work (Fix 8) because forward-area completeness is the split mechanism. Fix 7 (staffing model) waits until the re-slot lands so the model absorbs the improved pick rates rather than baking in the walk tax. Fix 9 goes last on purpose: right-sizing coordination before removing the chaos it manages guarantees a rebound.

Then hold the gains: the Ops Intelligence Briefing tracks these same KPIs monthly off refreshed exports, with deltas against this report as the baseline. First month is included with your Q&A; window.

# 13 · Appendix

## A. Formula library (canonical, as applied)

| Finding | Formula |
|---|---|
| Pick productivity gap | (units ÷ UPH_actual – units ÷ UPH_target) × loaded rate |
| OT normalization | (OT hrs – 5% × total hrs) × 0.5 premium × blended base rate |
| Mispick reduction | (mispick rate – 0.40%) × annual orders × $15 per event |
| Avoidable expedite | qualifying pkgs × (expedited cost – ground cost at same billable wt) |
| Cartonization / DIM | oversized pkgs × (billable at packed carton – at right-size carton) × zone rate |
| Slotting / travel | pick hrs × 50% travel share × 10–12% modeled reduction × loaded rate |
| Shrink recovery | (adj rate – 0.30%) ÷ adj rate × annual net inventory loss at unit cost |
| Indirect compression | (indirect % – 22%, capped 3 pts) × total hrs × loaded rate |
| Split-shipment | (trailing split % – baseline %) × orders × second-package fixed charge |
| Dock-to-stock | LOW-confidence proxy — flagged, never included in guarantee math |

## B. Assumptions log

| # | Assumption | Basis / sensitivity |
|---|---|---|
| 1 | Base wages by band: B1 $16.50 · B2 $18.50 · B3 $21.00 · L1 $24.50; benefits load ×1.32 | Payroll provided hours + bands, not dollars. Blended base $18.01, loaded $23.77. All labor $ scale linearly; swap actuals on request in the Q&A; window |
| 2 | Carton right-size at 68% fill of catalog carton cube | Industry-typical practical fill; exact-recompute floor also shown (§9) |
| 3 | Ground/expedite rate structure inferred from the building's own ship-cost data by service and zone | Modeled rates reproduce actual parcel costs; deltas, not absolutes, drive findings |
| 4 | A-SKU = top 20% of item master by annual pick lines; golden zone = Zones A + B | Standard ABC convention; stated because velocity basis (lines vs units) changes membership at the margin |
| 5 | Split baseline = first-month rate (2.89%); savings priced at run-rate on fixed charge only | Conservative: excludes weight-consolidation upside and any DIM second-minimum |
| 6 | 5% OT floor treated as healthy structural overtime | Below 5%, flex capacity typically costs more than it saves |

## C. Glossary

**UPH** units per hour · **CPO** cost per order · **DIM weight** dimensional billing weight (carton cube ÷ 139) · **Golden zone** forward pick zones with shortest travel (A/B) · **Dock-to-stock** trailer arrival to pickable putaway · **Click-to-ship** order placement to first shipment, business-hours basis · **Split shipment** one order, multiple parcels · **Identified savings** annualized opportunity quantified with formula shown · **Bookable** 70% of Identified, the guarantee basis · **IRA** inventory record accuracy · **[FLOOR CHECK]** a claim the analyst flags for physical validation before you act on it.

## D. Data files received

shipments.csv (219,152) · order_lines.csv (343,121) · items.csv (3,640) · locations.csv (4,000) · slotting.csv (2,760) · inventory_onhand.csv (2,939) · inventory_adjustments.csv (3,616) · receipts.csv (11,793) · labor.csv (10,627) · clients_ref.csv (14). Raw files deleted 60 days after delivery on written request per the engagement letter; derived metrics retained up to 12 months for the Q&A; window and follow-up.

**SAMPLE — FICTIONAL DATA.** This report demonstrates the DC Health Check deliverable on a synthetic dataset. No real company's data appears anywhere in it. Your report follows this exact architecture, computed from your exports, with every formula shown. dchealthcheck.com · $999 · 10 business days · $4,995+ identified or it's free.