JES White Paper Series

The Hidden Cost of In-House Takeoffs

The Strategic Value of Enhanced Engineering Workflows

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Executive Summary: **The $200,000 Blind Spot Undermining Your Margins**

Across the building systems industry, in-house quantity takeoffs are quietly eroding profitability. Primary research from 40 manufacturer's rep firms reveals a consistent pattern: estimators initiate 5–8 takeoffs per day but complete only 2–3.

The root cause is interruption—not inefficiency. Task-switching from supplier calls, internal meetings, emails, site visits, OEM roadshows, and personal appointments routinely doubles the time required for each takeoff.

At an average loaded salary of $85,000 (~$50/hour), the true cost per takeoff is $200–$300. Equivalent or superior results can be achieved for under $90, with dedicated QA/QC and 24-hour turnaround.

This is not just cost savings. It is a strategic shift. By offloading repetitive tasks, firms redeploy top engineers to high-value work: solving complex problems, building client relationships, securing new business, and mentoring the next generation.

Many new sales engineers are eager to move from cubicle QTOs to outside sales—drawn by higher compensation, schedule freedom, and the reward of closing deals

Introduction: Rethinking Expertise and Efficiency

A common misconception persists: that expertise is built by manually poring over drawings. In reality, judgment is forged through exposure to diverse projects, rapid feedback loops, and up-to-date OEM logic—not by counting boxes.

Warren Buffett built a $140 billion enterprise by learning what actually works:

> ***"You only have to do a very few things right… but the only way to know the difference is to see a lot of deals—and learn from the ones that go bad."***[1]

Expertise grows in the field, not the office. It comes from walking jobsites, seeing 50 projects, and hearing from GCs who won't return your calls—**not from four hours on one set of plans.**

> "The optimal takeoff is not the fastest or cheapest. It is the one that wins the job and avoids costly rework."

The Chess Master Revelation

In a 2005 freestyle chess tournament, neither the world's top grandmaster nor the most powerful supercomputer won.

Two amateurs with three modest laptops did.[2]

The key wasn't raw power—it was synergy.

The human asked "What if?"

The machine calculated the branches.

This hybrid model applies directly to takeoffs.

AI-driven speed combined with human QA/QC creates a system that outperforms either approach alone.

The Takeoff Time Trap

Estimators rarely work uninterrupted.

A typical day fragments into:

- 8:30 AM – Start takeoff

- 9:15 – GC call

- 9:30 – Email check

- 10:00 – Site visit invite, checking on delivery

- 11:00 – In-house meetings

- 12:00 – OEM roadshow

- 3:00 PM – Back to takeoff… 40% done

Research confirms:

- Each interruption costs 23 minutes to recover focus[3]

- Frequent task-switching increases stress, errors, and burnout[4]

Offloading routine takeoffs eliminates this trap. Plans are submitted, and a peer-reviewed takeoff is returned in 12–72 hours. Engineers stay in flow.

What Enhanced Takeoffs Can't Do Remotely

Enhanced takeoffs cannot:

- Walk a jobsite at 6 AM with the GC

- Build trust over coffee with a contractor

- Interpret ambiguous specs with field intuition

That's where your engineers shine.

Outsourcing routine takeoffs empowers them to do what machines can't—and what clients value most.

Comparison: In-House vs. Enhanced Takeoffs

Metric	In-House	Enhanced
Takeoffs Completed/Day	2–3	5–8+ (equivalent)
Cost per Takeoff	$200–$300	<$90
Error Rate	~4.5%	~0.6%
QA/QC Depth	Varies, often minimal	Dedicated team (30–45 min)
Opportunity Revenue	Limited	High

*Based on 40-firm study and 13,000+ takeoffs

Call to Action: Review Your Workflow and Potential Savings

"The genius of the AND is far superior to the tyranny of the OR."

— Jim Collins, Good to Great

You don't have to choose between all in-house or all outsourced. The most effective firms reject the false dichotomy and instead ask: Which takeoffs belong in-house, and which are best enhanced externally?

A strategic hybrid model—using your team for high-judgment work and enhanced takeoffs for volume and precision—unlocks capacity, reduces risk, and accelerates growth.

If you're interested in examining your current process to identify the optimal blend, send a sample takeoff or workflow description.

No cost. No commitment. Just clarity. Email: info@jerseyeng.com

Notes

[1] Warren Buffett, derived from 1996 Berkshire Hathaway Shareholder Letter and interviews on learning from volume and failure.

[2] Kenneth W. Regan, "Freestyle Chess Versus Computers Alone," University at Buffalo, 2005–2010.

[3] Gloria Mark, Daniela Gudith, and Ulrich Klocke, "The Cost of Interrupted Work: More Speed and Stress," in Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '08) (Florence, 2008), 107–110.

[4] Nitin Koundal et al., "Effect of Interruptions and Cognitive Demand on Mental Workload: A Critical Review," IEEE Access 12 (2024): 54405–54425.

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About the author
Bruce R. Dorey is a former sales engineer with Trane, McQuay, and Daikin (Trane Class 82-II) and an experienced consultant & executive. He holds a BSc, Mech Eng. from U of Toronto, a PhD, and is an Executive Fellow at Harvard. Bruce is one of the founding partners of JES.