



DELIVERED BY FOUR SEASONS HVAC IN PARTNERSHIP WITH TACIT — THE INTELLIGENCE LAYER FOR BUILDINGS

AI HVAC Control & Automatic Energy Management

AI-driven HVAC control and automatic energy management are transforming building performance — cutting energy waste by up to 28% and accelerating Net Zero without ripping out existing infrastructure.

~10%

of building data used
ever leveraged for decision-making

30%

energy wasted annually
through hidden building inefficiencies

72%

hesitate on AI
organisations requiring explainability before deployment

2031

UK EPC "B" deadline
commercial assets must comply or cannot be leased

THE PROBLEM

Buildings Are Wasting Energy at Scale

Buildings account for approximately **40% of global greenhouse gas emissions** — yet only **~10% of building data** is ever used for decision-making. HVAC systems alone account for nearly **half of all building energy consumption**.

Fragmented Data

Every building names its sensors differently, making portfolio-wide analysis nearly impossible without custom engineering for every site.

Reactive Maintenance

Faults surface at the helpdesk long after they've been costing money — a chiller offline can silently drain £52,920/yr.

Manual Reporting

Sustainability teams reconstruct Scope 1 and 2 emissions once a year from spreadsheets, with no reliable audit trail.

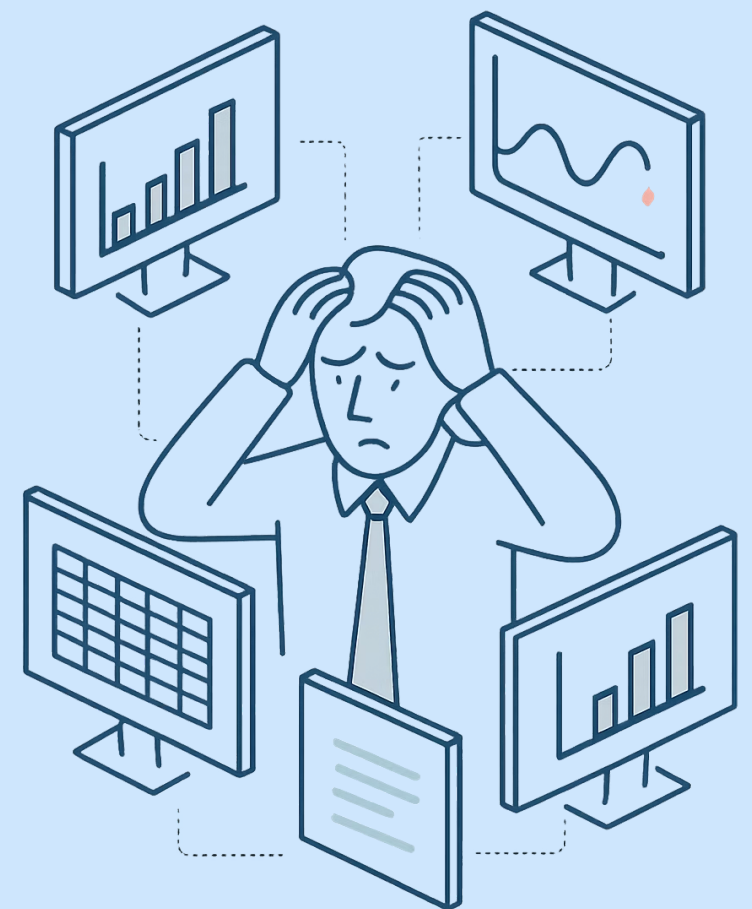
Siloed Systems

Facilities managers check several disconnected platforms just to answer one question, with no unified asset history.

Static Scheduling

BMS setpoints are set at commissioning and rarely revisited — manual overrides left running for 72+ hours silently drain budgets.

⚠ Four Seasons HVAC in partnership with Tacit has identified **£182,440/yr** in actionable energy waste across just 81 open issues — each ranked by cost and ready to fix.



What AI HVAC Control Actually Means

FOUR SEASONS HVAC IN PARTNERSHIP WITH TACIT

AI HVAC control replaces static schedules with continuous optimisation — detecting faults before they escalate, ranking issues by cost impact, and executing corrective actions automatically.

❏ "AI doesn't optimise a building. People do. AI just gives them what they need to do it."

Core Capabilities



Closed-Loop Optimisation

AI computes optimal setpoints every 15 minutes, adapting to occupancy, weather, and seasonal changes — without human interaction or BMS replacement.



Controls Integrity Auditing

The agent audits deadbands, schedules, and overrides against the sequences the building was commissioned for.



Indoor Air Quality Management

The agent reads CO₂, dewpoint, and ventilation effort together, flagging zones where the loop has lost its balance.



Fault Detection & Diagnostics

AI agents read valve travel, supply-air deviation, and pump runtime — catching problems before the helpdesk does.



Demand Response Automation

AI pre-cools buildings ahead of DR events and recovers without overshoot — turning curtailment into a predictable, revenue-generating capability.



Neuro-Symbolic Reasoning

AI agents combine pattern recognition with explicit rules — flagging drifting sensors or simultaneous heating and cooling automatically, with a full audit trail.

Proven Energy Savings: What the Research Shows

Independent research consistently shows AI-driven HVAC optimisation delivers significant energy reductions with ROI periods well within capital planning cycles.

~10%

Building Data Used

Of all building data collected, only ~10% ever informs decisions (IBM)

30%

Energy Wasted

Of building energy is wasted through inefficiencies (ENERGY STAR)

72%

AI Hesitancy

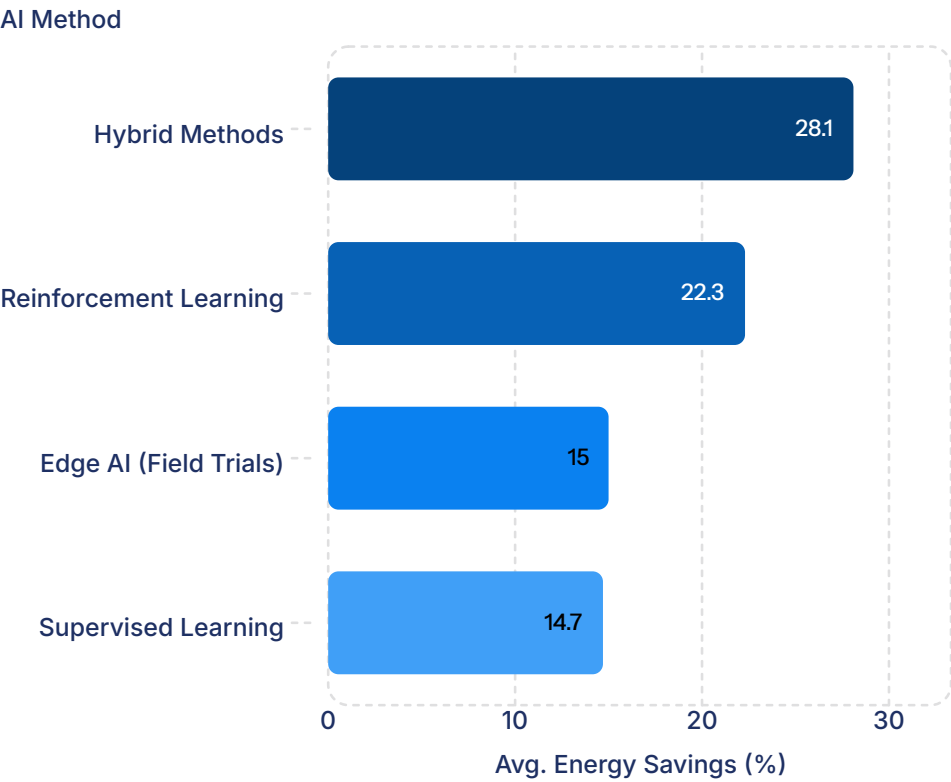
Of organisations hesitate to deploy AI without explainability (Deloitte)

Days→Hours

Investigation Time

Reduced with a live contextual pipeline vs. manual building contextualisation

"Without a contextual layer, a language model has nothing to reason from. It fills the gap with confident guesswork."



Source: Springer meta-analysis of 126 studies (2025) + Schneider Electric field trials.

22.3% ±8.4%

Reinforcement Learning — average energy savings, 95% CI: 20.2–24.4%. Highest heterogeneity ($I^2=73\%$) reflecting building variability.

28.1% ±12.3%

Hybrid AI Methods — combining ML with MPC. 95% CI: 23.4–32.8%. Peak performance where physics models meet learned behaviour.

2.1–5.8 years

ROI range — median 3.4 years. Implementation costs \$8,000–\$47,000 per facility. Comfort compliance maintained above 85% in field trials.



Four Seasons HVAC in partnership with Tacit-monitored buildings surface £182,440/yr in actionable energy waste across 81 open issues.

How Four Seasons HVAC in Partnership with Tacit Delivers AI HVAC Control

Four Seasons HVAC in partnership with Tacit unifies BMS, BIM, IoT, asset registers, and maintenance history into one connected model using the **Brick Schema ontology**. Every sensor, space, and asset gets one shared name across every building — no custom engineering per site.

The 3-Step Contextualisation Process

Step 1 — Export

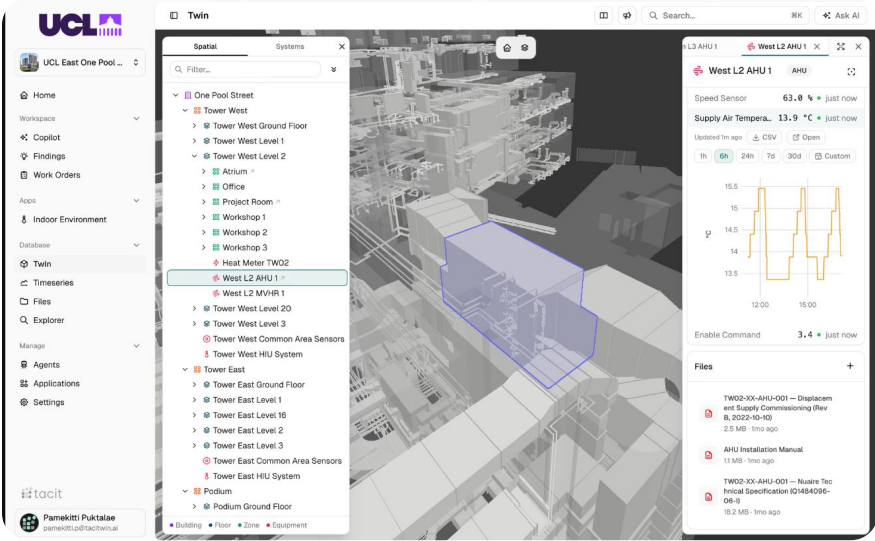
BIM models, point registers, and O&M documents are processed through standardised templates — bringing every data source into a common structure ready for transformation.

Step 2 — Transform

An ETL pipeline turns each template into graph chunks using AI-driven matching and a rules engine — resolving naming conflicts and aligning schemas automatically.

Step 3 — Merge

Graph chunks are combined into one connected graph — "CH-01" in the BMS and "Chiller 1" in the CMMS become a single node. One truth. No duplication.



Four Seasons HVAC in partnership with Tacit's Twin AI platform — unified building intelligence across every asset, space, and system.

Customer Benefits

No Rip-and-Replace

Reads existing BMS, sensor, and CAFM feeds — compatible with Trend, Cylon, Tridium, Niagara, BACnet, Modbus, and MQTT.

Deployed in Days

Connects to existing infrastructure with no new sensors required, delivering live insight within days.

Data Stays On-Premises

No data leaves your perimeter — plain-language answers grounded in your real assets and history.

Research-Backed

Backed by H2020 and UKRI funding across 7 grants, built on peer-reviewed research deployed across UK and European portfolios.

One Shared Language

Class hierarchy inference and pattern matching enable queries that work identically across every building in your portfolio.

Specialist AI Agents

Dedicated agents for HVAC optimisation, energy management, carbon reporting, and predictive maintenance — each trained on real building data.

AI Agents: A Specialist for Every HVAC System

Four Seasons HVAC in partnership with Tacit deploys purpose-built AI agents, each trained on a specific building system — surfacing findings with evidence, not just alerts.



Air Handling Agent

Detects AHUs drifting out of sequence — economisers pinned at minimum or heating valves cracked into cooling season — by reading valve travel against commissioned sequences.



Central Plant Agent

Monitors chiller ΔT , pump runtime, and lead-lag rotation to catch a CHW loop moving water without doing work before it appears on the energy bill.



Energy & Cost Agent

Normalises meter feeds across tariffs and operating hours so a cost spike on a single AHU becomes something you can point at, not an unexplained invoice line.



Demand Response Agent

Pre-cools against forecast DR events, holds the building through the event window, and recovers without overshoot — turning curtailment into predictable revenue.



Carbon Reporter Agent

Maintains Scope 1 and 2 numbers month-over-month from meter, fuel, and tariff feeds with the evidence chain attached, eliminating the annual spreadsheet reconstruction.



Critical Spaces Agent

Tracks both halves of every redundant pair in clean rooms and server halls, flagging a silently failed backup unit before the primary is overloaded.



Tenant Comfort Agent

Correlates comfort complaints by zone with BMS data to surface the root cause — so the fix goes to the right place, not just the loudest complaint.

Live Applications: From Raw Data to Real Decisions

Four Seasons HVAC in partnership with Tacit turns existing BMS, sensor, and CAFM feeds into structured, actionable views — built around how engineers, operators, and sustainability teams actually work.

	Indoor Environment Temperature, humidity, and CO₂ tracked by zone and floor in real time, with red-dot flagging for any zone outside target bands.
	Energy App Shows where the building uses and wastes energy, with attribution down to individual AHU level — a live feed, not a monthly bill.
	Sustainability App Carbon and energy tracked live against Net Zero goals, updated continuously rather than reconstructed quarterly from spreadsheets.
	Work Orders Findings flow directly into work orders — from fault detection to fix, tracked to close, with full asset history attached.
	BMS Direct Raw BMS points normalised into one consistent model, so the same query works across every building in the portfolio regardless of vendor or naming convention.
	Occupancy App Shows how spaces are actually used versus the schedule, enabling smarter ventilation setback strategies and avoiding heating empty rooms at full load.
	Building Copilot Ask any question in plain English and get an answer with evidence attached — not a guess.

Why AI HVAC Control Matters for Your Organisation

Four Seasons HVAC in partnership with Tacit delivers quantifiable benefits across every dimension of building performance — augmenting expertise rather than replacing it.

6 Key Benefits

Energy Cost Reduction

15–28% energy savings from AI-driven HVAC optimisation — lower utility bills and measurable progress against energy intensity targets.

Net Zero Acceleration

Continuous Scope 1 & 2 tracking with full evidence chains — ESG reporting that stays audit-ready year-round.

Predictive Maintenance

Faults caught before they escalate — fewer emergency call-outs, longer equipment life, and no hidden reactive maintenance costs.

Occupant Comfort

CO₂, temperature, and humidity held within target bands across every zone — fewer complaints and no productivity drag from poorly controlled spaces.

Regulatory Compliance

Automated audit trails for BMS configuration, conservation bands, and water safety — ready for inspection at any time.

Portfolio Scalability

One unified model that scales across every building — no custom engineering per site, from Building 1 to Building 100.

Who Benefits



Head of Estates

Board-ready evidence on cost, risk, and compliance — in one screen, not weeks of spreadsheet work.



Sustainability Lead

Carbon and energy tracked live against your Net Zero target — not reconciled by hand every quarter.



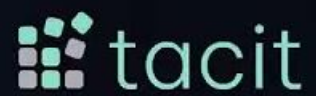
Facilities Manager

Performance, cost, and risk for every site in one view — less time reconciling data just to answer one question.



Field Engineer

Faults caught early with each asset's full history in one place — one clear instruction instead of hunting across systems.



Turning Every Insight into Real Savings.

Book a Demo — See AI HVAC Control in Action

Four Seasons HVAC in Partnership with Tacit: Turning Every Insight into Real Savings.

Built on a decade of peer-reviewed research and deployed across UK and Europe. Four Seasons HVAC brings Tacit's intelligence layer to your buildings — no data leaves your perimeter.

Get a Free Consultation

Contact our team today to discuss upgrading your building with intelligent climate control.

[Get a Free Quote →](#)

Download the Whitepaper

Trustworthy AI in Buildings: why the built environment has yet to harness AI, and how contextualised data changes that.

Explore the Platform

Discover agents, applications, integrations, and documentation at tacitwin.ai

[Visit tacitwin.ai →](https://tacitwin.ai)

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Sources

All factual claims in this document are grounded in peer-reviewed research, independently published field trial data, and primary source material from Tacit's platform documentation. Energy savings statistics are drawn from independent research sources and represent research-backed figures, not Tacit's own claimed outcomes.

1. [Artificial intelligence, real efficiency — KPMG Agentic Corporate Services](#)
2. [Artificial intelligence for energy optimization in smart buildings: A systematic review and meta-analysis — Energy Informatics, Springer Nature \(2025\)](#)
3. [Efficient and assured reinforcement learning-based building HVAC control with heterogeneous expert-guided training — Scientific Reports, Nature](#)
4. ['Edge AI' product can reduce HVAC energy consumption by 15%: Schneider Electric — Facilities Dive](#)
5. [Building X Comfort AI Data Sheet \(2025-06-25\) — Siemens](#)
6. IBM — "Roughly 90 percent of data generated by sensors and analog-to-digital conversions never gets used." IBM Institute for Business Value.
7. ENERGY STAR (U.S. EPA / Department of Energy) — "Out of all that energy, often up to 30 percent or more is wasted through inefficiencies."
8. Deloitte — Enterprise AI adoption research: 72% of organisations hesitate to deploy AI in critical operations due to a lack of explainability.
9. UK Government — Minimum Energy Efficiency Standards (MEES), non-domestic private rented sector: EPC "B" implementation deadline 2031.
10. Tacit Analytics Ltd — "Trustworthy AI in Buildings: the role of context." Whitepaper, July 2026.
11. [Tacit — The Intelligence Layer for Buildings](#)
12. [Agents — Tacit](#)
13. [Applications — Tacit](#)
14. [Tacit Twin — How It Works](#)
15. [Featured Capabilities — Tacit](#)
16. [docs.tacitwin.ai — API Reference, Brick Schema Guide, Integration Surface](#)



Get in Touch

Specialists in Commercial HVAC Control Systems & AI Energy Management

Ready to reduce your energy costs and take control of your building's performance? Four Seasons HVAC in partnership with Tacit is here to help — from free consultation through to full deployment.

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