Engineer Webinar Series

BOMA OEB

Smart Seasonal Reset Strategies for HVAC & BAS

November 19, 2025

Today's Speakers

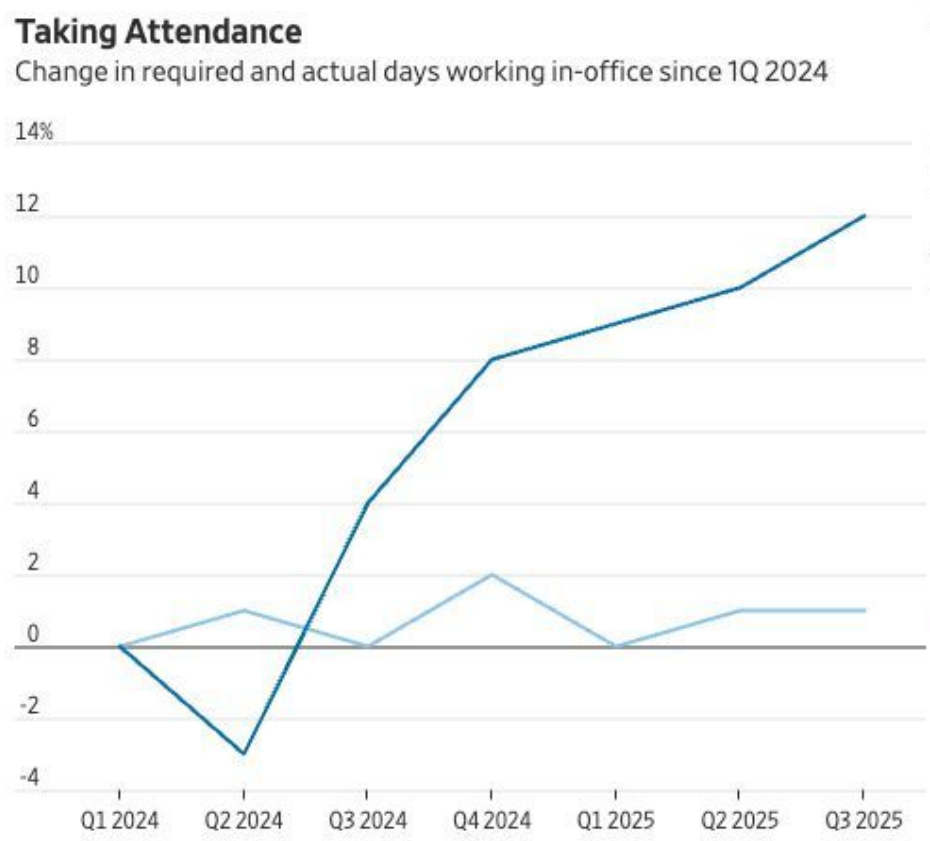
Tom Arnold
CEO AND CO-FOUNDER

Gridium

SHORENSTEIN

Mark Jones, Chief Engineer 601 City Center

Some Fodder for today's discussion



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LIFESTYLE | WORKPLACE

The Rush to Return to the Office Is Stalling

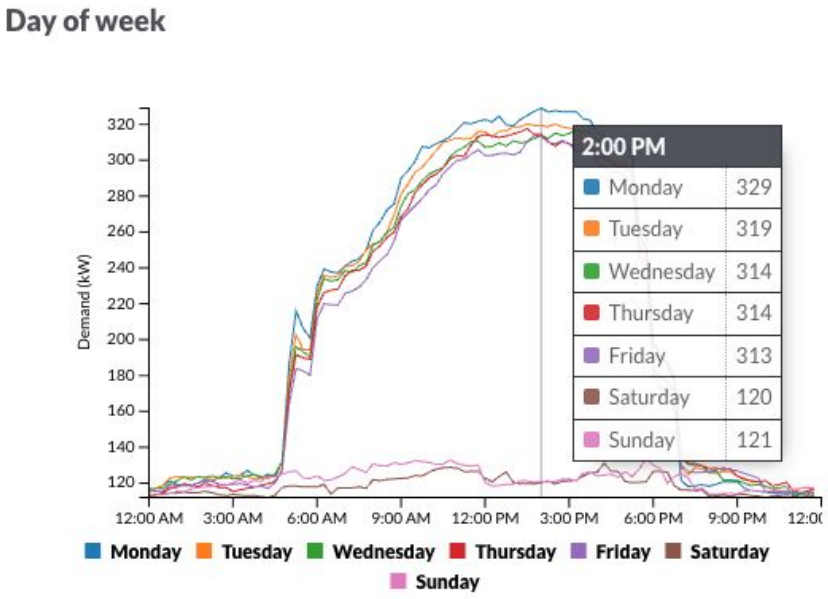
Microsoft, Paramount and other companies are stepping up calls to get back to the workplace. Many of their employees are still phoning it in.

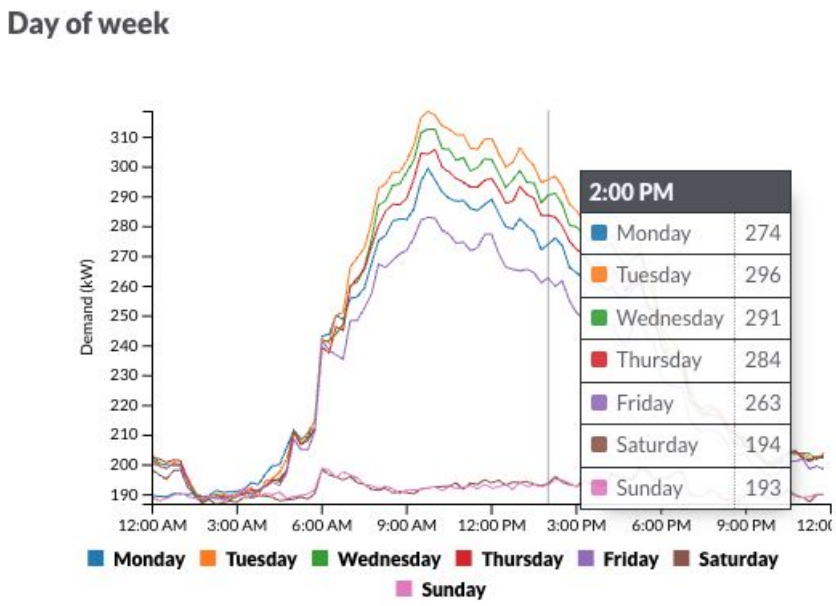
By Theo Francis Follow

Sept. 21, 2025 9:00 pm ET

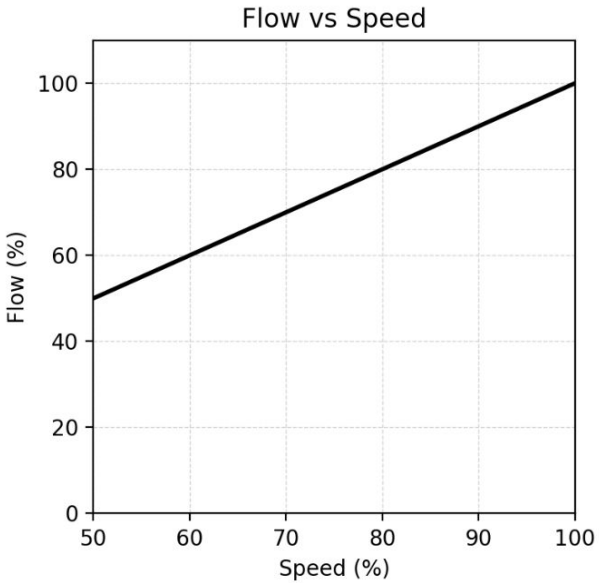
Source: WSJ, "The Rush to Return to the Office Is Stalling", Sep 21, 2025. Data from FlexIndex (Required), Survey of Working Arrangements and Attitudes (Actual)

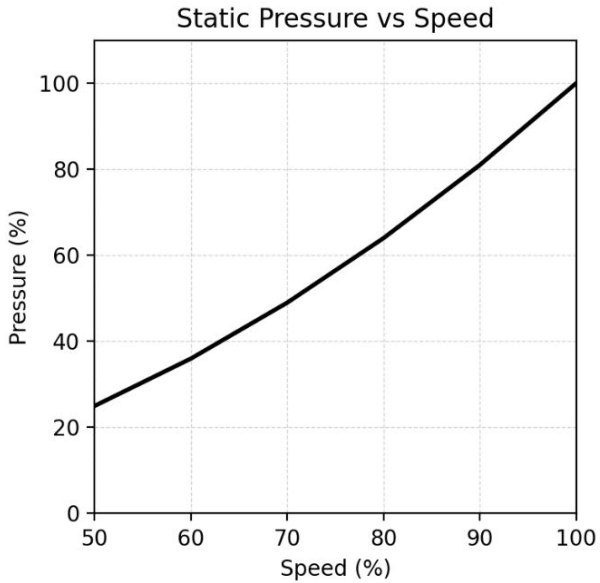
Tale of Two Buildings

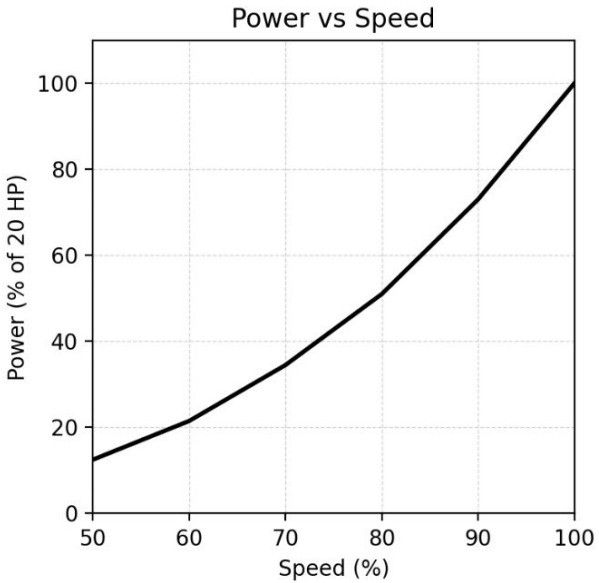




Fan Laws: Cubic relationship between motor speed and power







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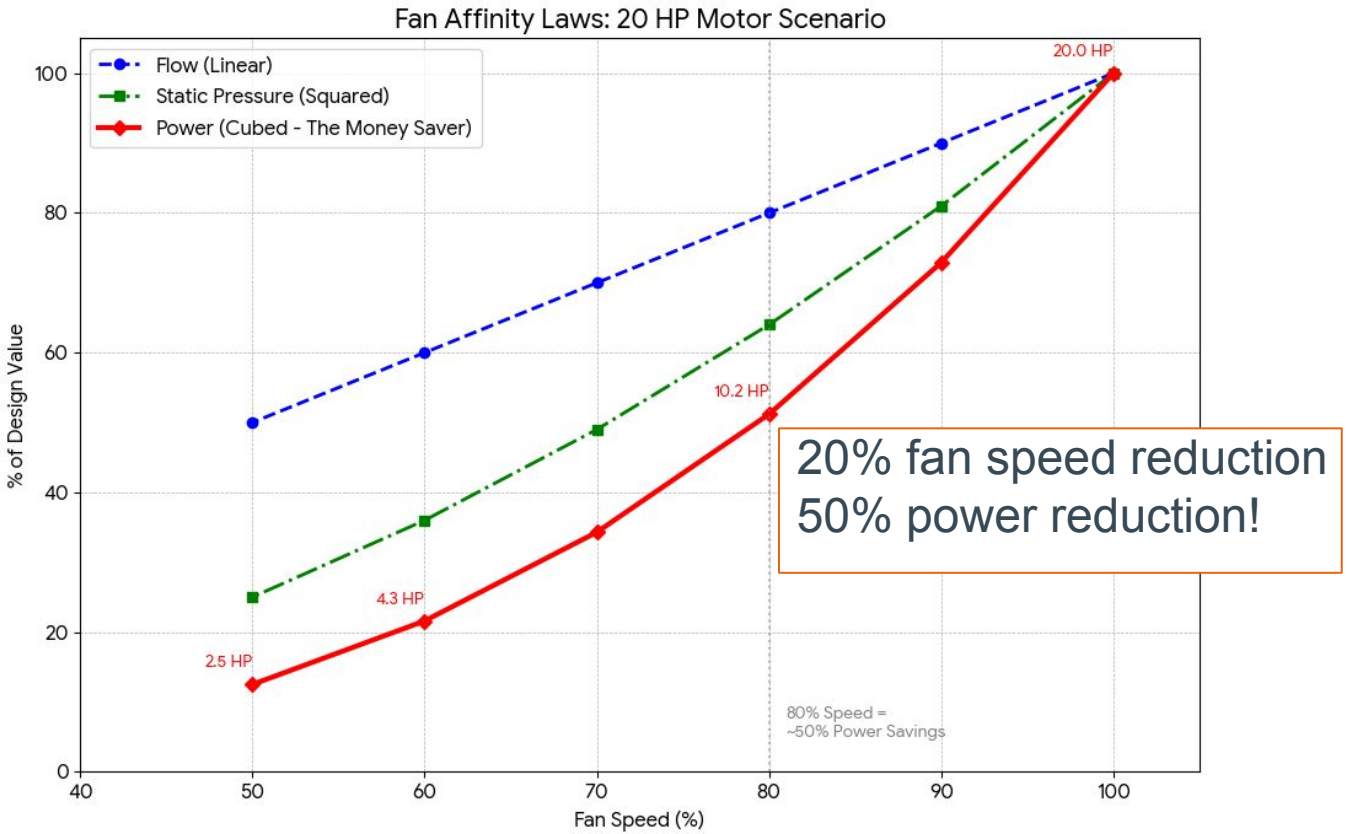
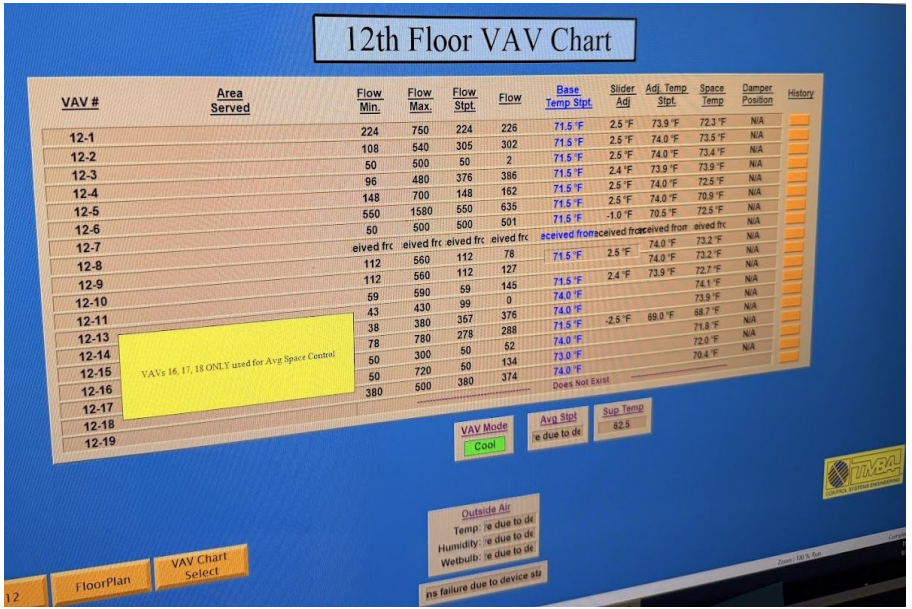


20% fan speed reduction
50% power reduction!

Thinking about those design conditions

- Design conditions
  - When were these calculated?
  - What was the occupancy assumed?
  - What has changed in your building since then?
- Many times these are not well documented or they are layers upon layers in a large building



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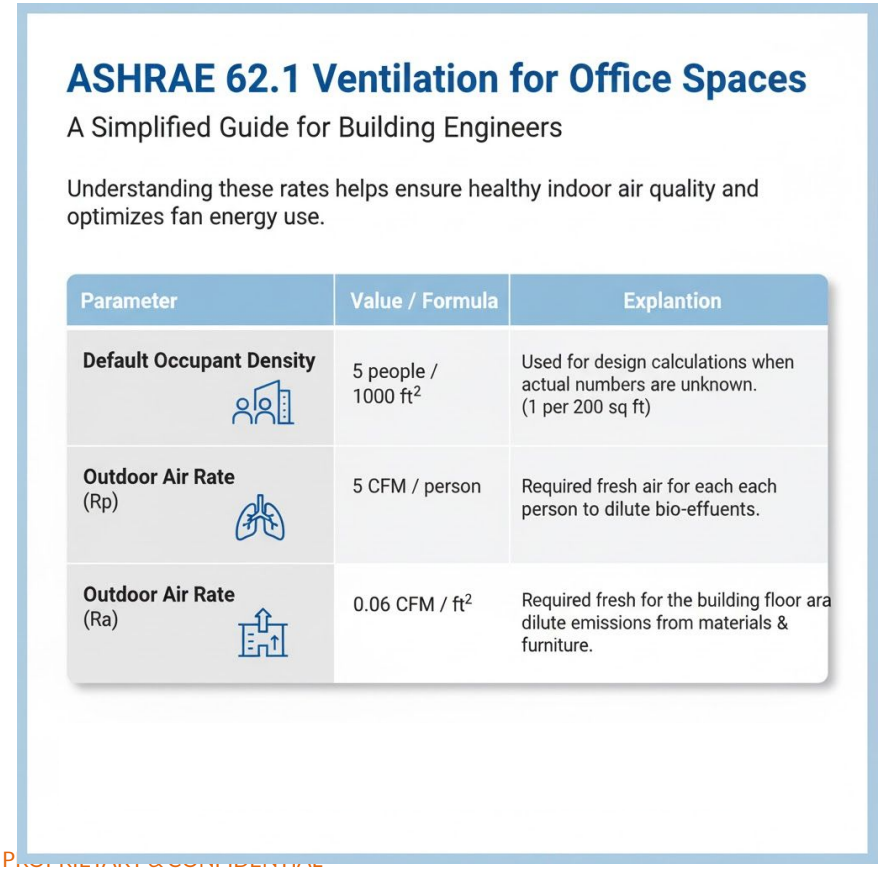


ASHRAE 62.1 Ventilation for Office Spaces

A Simplified Guide for Building Engineers

Understanding these rates helps ensure healthy indoor air quality and optimizes fan energy use.

Parameter	Value / Formula	Explantion
Default Occupant Density	5 people / 1000 ft^2	Used for design calculations when actual numbers are unknown. (1 per 200 sq ft)
Outdoor Air Rate (Rp)	5 CFM / person	Required fresh air for each each person to dilute bio-effuents.
Outdoor Air Rate (Ra)	0.06 CFM / ft^2	Required fresh for the building floor ara dilute emissions from materials & furniture.

- How does your minimum VAV flow compare to the standard?
- Many engineers do this math and are shocked at over-ventilation, at full occupancy
- **If you are meeting setpoint, why exactly are you moving all that air?**
  - **Balancing act vs comfort and perception**
- LLM Prompt: “total the 12th floor VAV CFM mins. Assuming 11,293 sq ft floor space calculate and comment on ventilation rates compared to ASHRAE 62.1”

Two Paths

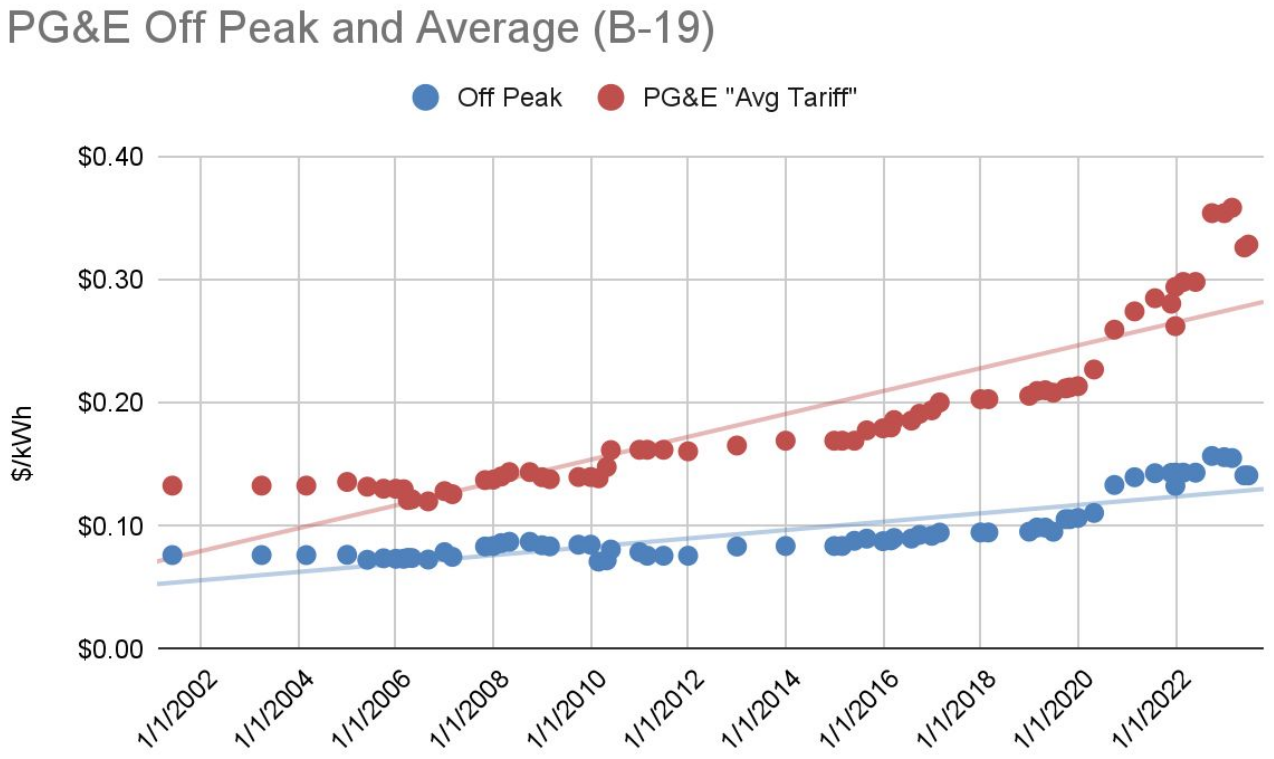
Sophisticated/ Contractor

- Full DDC (or near full DDC)
- Implement G36 Programing
- Zone (VAVs) have requests, match energy needs of zones to high level systems at lowest cost
- Trim and Respond concept
- Controls programming
- 2-3 year payback, if you are already DDC
- Must tune, but once tuned, set and forget it.

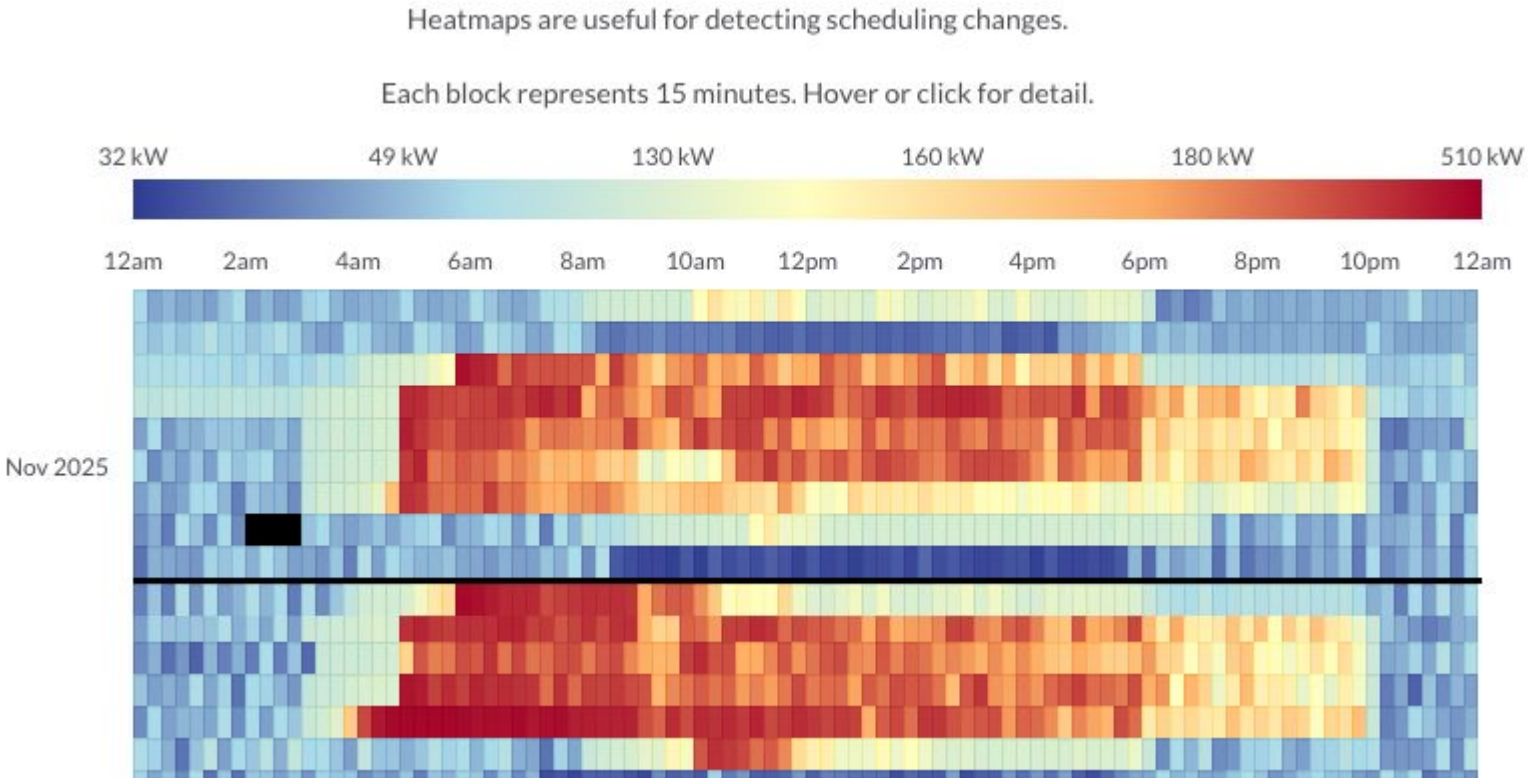
Simple

- Will need some DDC zones to ensure setpoint and comfort
- Operator comfort with a single change, often static pressure
- Rough calculations on minimum ventilation rates to ensure safe margin
- “Yelp” method of building tuning
- Operator intuition for mild days, low occupancy days, problematic zones

Side note, these paybacks only get better and better!



Not ready for duct static? work on Startup, Shutdown



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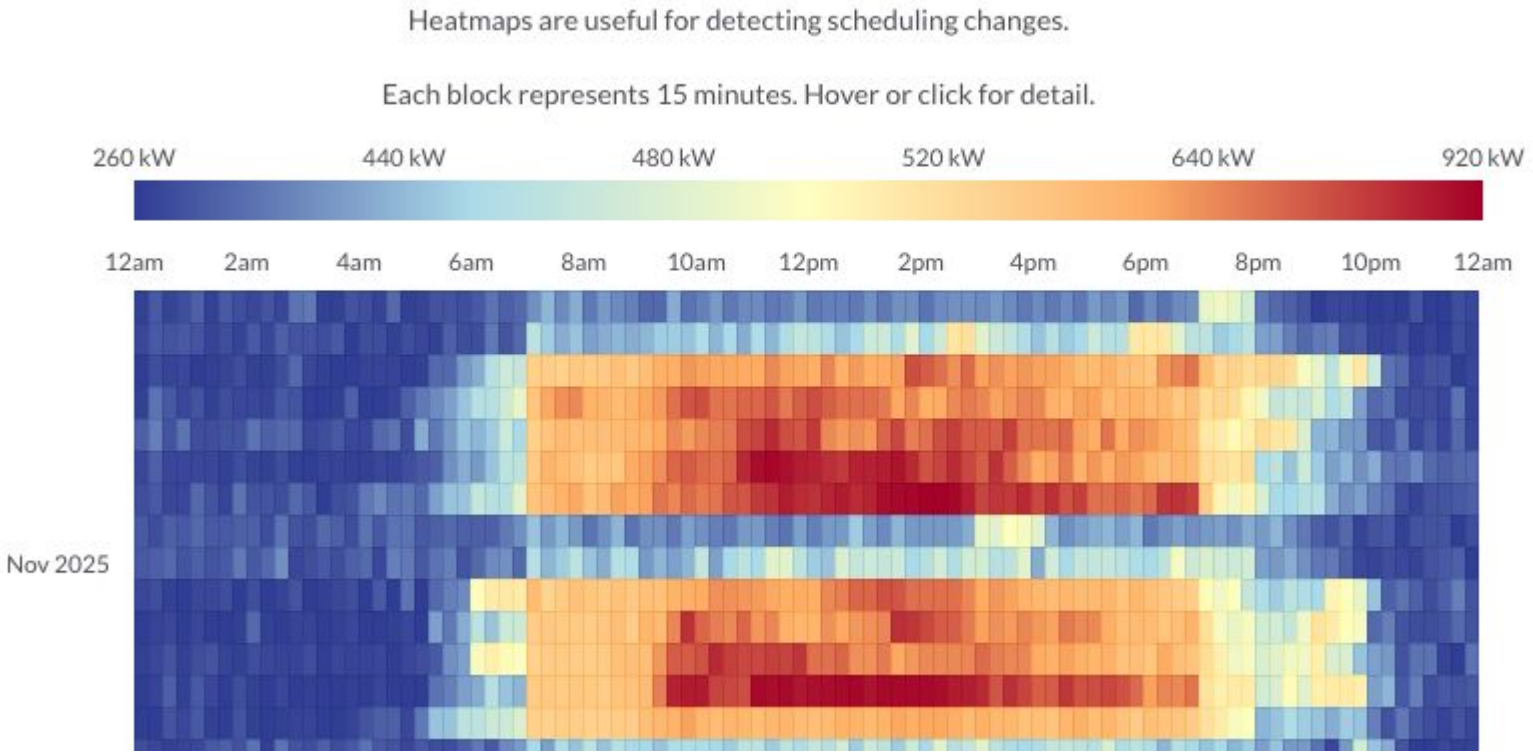

Summing it up

- Your building is programmed for pre-COVID occupancy, and five years later is it really coming back?
- Resets match energy services to energy demand. Do you know your major resets and how deep they go?
- Most hours, you are probably over-ventilating.
- Fan laws are your energy savings friend.
- Engineer intuition and skills are extremely useful.
- Run experiments in low risk times (Friday after lunch), fine tune and measure results

Thank you!

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