



# The Sage Report

A Monthly Newsletter of Insights, Projects, and Productivity

## The AI Workbench

### Four AI Tricks You Can Use Right Now

AI isn't just for brainstorming ideas. It can handle real project tasks and save you time. Here are four practical ways to put it to work:

#### Turn Field Photos into a Report Draft

Upload site photos from a walkthrough and ask AI to generate narrative text with figure callouts. It won't replace your judgment, but it gives you a great starting point for a field report so you spend time editing, not typing from scratch.

Prompt Example:

"Write a draft site observation report using these photos. Refer to each photo in the text (e.g., 'See Photo 2'). Use professional engineering report style."

#### Generate Drawing Notes from Specs

First, upload a spec section (Word or PDF). Then give AI a focused prompt to create a single drawing note that's short, all caps, and imperative.

Prompt Example:

"Write one drawing note about insulating outdoor ductwork based on this spec. Make it concise, all caps, and imperative."

#### Create a Project-Specific Spec Section

Upload a manufacturer's cut sheet and have AI convert it into CSI Part 2 spec language. This saves hours of manual editing and gives you a draft that fits seamlessly into your documents.

Prompt Example:

"Using this product data sheet, write a Part 2 specification section in CSI format. Include materials, performance, and accessories. Keep it concise and professional."

#### Summarize and Respond to Long Email Chains

Paste in a messy back-and-forth with clients, OGS, or contractors, and AI can condense it into one clean recap. You can even have it draft a professional response email with next steps already written.

Prompt Example:

"Summarize this email chain into one paragraph with decisions and action items. Then draft a professional reply email that confirms understanding and outlines next steps."

The common thread: upload once, prompt clearly, and AI gives you a polished draft in seconds.

## Sage Corner

### Sage Awarded New Term Contract with University at Albany

Sage is pleased to announce we have been awarded a three-year term agreement with the University at Albany, valued at \$3.5 million in design fees. The contract will support ongoing renovations, modernization, infrastructure replacement, and new construction projects across UAlbany's Uptown, Downtown, and East Campuses.

Located only a few minutes from our Albany office, the University at Albany is both a neighbor and a long-standing client. This award builds on our strong partnership with the University and positions our team to continue providing high-quality engineering solutions that support its academic and research mission. This marks the second consecutive term of this nature that Sage has been awarded.

### Save the Date: Sage Holiday Party

Mark your calendars. Our Sage Holiday Party will be Saturday, December 13 at 5:00 PM at the Franklin Terrace Ballroom in Troy, where we've enjoyed celebrating together for several years. It's only October, but December fills up fast, so consider this your early reminder.

As always, employees and their families are invited. It's a great time together outside the office. We hope to see you there! Sarah will forward more details as the date approaches.





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## Lesson Learned - Balancing Domestic Water Systems

Balancing domestic hot water (DHW) return systems is critical for consistent temperature and user comfort. But balancing is often skipped or done incorrectly, leading to hot water delays, wasted energy, and warranty headaches.

**The Pitfall:** HVAC Test and Balance (TAB) contractors sometimes attempt to balance DHW using hydronic hoses or gauges. These are not NSF-certified for potable water and risk contaminating the system. Many balancers refuse to connect after disinfection for this reason. Ultrasonic strap-on style meters may be used but rarely practical.

**The Fix:** Specify balancing valves designed for DHW systems. All of these products are NSF 61/372 certified and lead-free, making them safe for potable use. Two main options are available:

### Manual Balancing Valves with Integral Flow Meters

- [Caleffi 132 Series](#) – manual balancing valve with integral GPM indicator.
- [Watts LF iDROSET™ CSD Series](#) – Manual balancing valve with calibrated flow setting and visual scale.



Watts iDROSET

**Thermostatic** (Adjustable, Self-Modulating) Balancing Valves – worth considering on larger or more complex systems:

- [Caleffi ThermoSetter 116 Series](#) – adjustable 95–150 °F, models with check valve or disinfection bypass.
- [Bell & Gossett TempSetter™ TS Series](#) (117678LF) – thermostatic balancing for DHW return risers.

Both these adjustable thermostatic valves allow the return temperature to be tuned in the field. The Caleffi model includes a built-in thermometer which helps in troubleshooting and allows easy temperature confirmation. This flexibility ensures each riser can be fine-tuned to match design intent and adjusted later if operating conditions or user needs change. In practice, this makes commissioning smoother and avoids future rebalancing headaches. These valves can easily be adjusted by the plumbing contractor without the need for a TAB contractor.



Caleffi ThermoSetter

**Takeaway:** Don't rely on TAB. Don't contaminate potable. Specify valves designed for DHW; manual with integral flow meters for most jobs, and consider thermostatic valves where system size or complexity justifies it.

## Lesson Learned – Equipment Efficiencies

Energy code minimum HVAC equipment efficiencies are based on **AHRI ratings**, not performance at project design conditions. Yet, sales reps and selection software usually provide only the **design-condition efficiency** which is often lower and can make compliant equipment appear noncompliant.

To stay clear:

- Always request the AHRI efficiency in addition to the design-condition value.
- Show both values in the drawing schedules: AHRI for code compliance and design condition for real performance.
- Use the AHRI rating for COMcheck.

This simple step ensures your design complies with the energy code and avoids confusion during review.



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## Construction Classification: How to Identify It and Why It Matters

Last month, we reviewed occupancy classification and its role in building code compliance. The other piece of information that is typically required on virtually every State project form is the **Construction Classification**. Both occupancy and construction type must be identified early in design because together they establish the foundation for allowable building area, height, fire-resistance ratings, and the need for sprinkler systems. The New York State Building Code (2020 BCNYS, Chapter 6) defines construction classification as a combination of:

1. The materials used (noncombustible vs. combustible).
2. The degree of fire-resistance protection applied to structural elements.

This designation drives critical decisions such as:

- Maximum allowable floor area and building height (BCNYS §503).
- Minimum fire-resistance ratings for structural members (BCNYS Table 601).
- Requirements for exterior wall ratings and fire separation distance (BCNYS §602).
- Whether sprinkler systems are required to offset larger areas or heights (BCNYS §504).

For State projects, engineers are often required to state the construction classification on forms even when no architect is on the team. Understanding the basics and having a default method to classify buildings allows design teams to fill out code forms confidently and consistently.

### Overview of Construction Types (BCNYS §602.2 – §602.5)

- Type I (A & B): Fire-resistive, noncombustible; concrete and protected structural steel.
- Type II (A & B): Noncombustible; steel and masonry without the same protection as Type I.
- Type III (A & B): Exterior walls are noncombustible; interior may be wood or unprotected steel.
- Type IV: Heavy timber or mass timber construction.
- Type V (A & B): Wood frame; both exterior and interior are combustible.

The “A” subcategories require protected (rated) structural members, while the “B” subcategories allow unprotected members.

### How to Classify: A Step-by-Step Guide

When record drawings are unavailable, or an architect is not engaged, engineers can follow this logical process in the field.

**Step 1** – Are the structural elements noncombustible (steel, concrete, masonry) everywhere?

- Yes → Step 2
- No → Step 4

**Step 2** – Is fireproofing (spray-on, encasement, gypsum) applied to steel or other structural members?

- Yes → Type I-A or II-A
- No → Type I-B or II-B

**Step 3** – Is the structure primarily reinforced concrete (no fireproofing required)?

- Yes → Often Type I-B
- No → Type II-B

**Step 4** – Are the exterior walls noncombustible (brick, block, concrete)?

- Yes → Type III
- If interior protected → III-A
- If interior unprotected (wood or bare steel) → III-B
- No → Step 5

**Step 5** – Are the interior members large solid wood (heavy timber) or CLT mass timber?

- Yes → Type IV
- No → Type V
- If interior protected (1-hr) → V-A
- If unprotected → V-B

### Default Guidance When Uncertain

- Steel with no fireproofing → II-B (unless masonry exterior with wood/steel → III-B).
- Masonry exterior with wood or bare steel → III-B.
- Reinforced concrete frame with protected steel → I-A.
- Light wood framing throughout → V-B.
- Big heavy timber → IV.
- If protection level cannot be verified → always default to the “B” subtype.



*Typical Type IIB Construction*



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## UPCOMING WEBINARS AND SEMINARS – October 2025

This month's list of free live webinars and seminars is below. Each offers at least one PDH and qualifies as a *Course of Learning* – a format that includes traditional classroom-style courses or live webinars with real-time interaction with an instructor. As a reminder, New York State requires that 18 of the 36 total continuing education hours for professional engineers be completed through *Courses of Learning*.

### Engineer's Code of Conduct: Key Ethics Violations

Host: NoonPi

Date: October 8, 2025 | Time: 12:00 PM – 1:00 PM EDT

Format: Webinar | Credits: 1 PDH | Cost: Free

[Register Here](#)

### Green Building Through Sun Control Design

Host: GreenCE (sponsored by MASA Architectural Canopies)

Date: October 8, 2025 | Time: 12:00 PM – 1:00 PM EDT

Format: Webinar | Credits: 1 AIA HSW/LU CE Hour | Cost: Free

[Register Here](#)

### Designing Post-Installed Reinforcement for Concrete Structures

Host: Hilti North America

Date: October 8, 2025 | Time: 12:00 PM – 1:00 PM EDT

Format: Webinar | Credits: 1 PDH | Cost: Free

[Register Here](#)

### Retaining Wall Failures and How to Prevent Them

Host: NoonPi

Date: October 14, 2025 | Time: 12:00 PM – 1:00 PM EDT

Format: Webinar | Credits: 1 PDH | Cost: Free

[Register Here](#)

### Fundamentals of Cast-in-Place Anchor Design

Host: Hilti North America

Date: October 14, 2025 | Time: 1:00 PM – 2:00 PM EDT

Format: Webinar | Credits: 1 PDH | Cost: Free

[Register Here](#)

### Post-Installed Rebar Design for Structural Concrete

Host: Hilti North America

Date: October 15, 2025 | Time: 12:00 PM – 1:30 PM EDT

Format: Webinar | Credits: 1.5 PDH | Cost: Free

[Register Here](#)



### Carrier – The Specifier's Guide to Mastering BAS

Host: HPB Magazine Supplier Webinar Series (sponsored by Carrier)

Date: October 15, 2025 | Time: 11:00 AM – 12:00 PM EDT

Format: Webinar | Credits: 1 CEU | Cost: Free

[Register Here](#)

### Unlocking Energy Efficiency in Industrial Power Systems

Host: Association of Energy Engineers (AEE)

Date: October 15, 2025 | Time: 11:00 AM – 12:00 PM EDT

Format: Webinar | Credits: 0.2 CEU | Cost: Free

[Register Here](#)

### Electrical Design for Hospitals and Healthcare, Part 2

Host: Electrical PE Review (Josh Button, P.E.)

Date: October 15, 2025 | Time: 2:00 PM – 3:00 PM EDT

Format: Webinar | Credits: 1 PDH | Cost: Free

[Register Here](#)

### Electrical Design Fundamentals for Hotels

Host: Electrical PE Review (Irena Jovanovska, P.E.)

Date: October 22, 2025 | Time: 2:00 PM – 3:00 PM EDT

Format: Webinar | Credits: 1 PDH | Cost: Free

[Register Here](#)

### How AI Supports Green Growth: Applications and Practices

Host: Association of Energy Engineers (AEE)

Date: October 23, 2025 | Time: 12:00 PM – 1:00 PM EDT

Format: Webinar | Credits: 0.2 CEU | Cost: Free

[Register Here](#)

### Designing Touchless Solutions for Proper Hand Hygiene in Commercial Restrooms

Host: GreenCE (sponsored by Excel Dryer, Inc.)

Date: October 28, 2025 | Time: 12:00 PM – 1:00 PM EDT

Format: Webinar | Credits: 1 AIA HSW/LU CE Hour | Cost: Free

[Register Here](#)

### The IAPMO Water Demand Calculator in Practice

Host: Caleffi North America

Date: October 23, 2025 | Time: 1:00 PM – 2:00 PM EDT

Format: Webinar | Credits: Certificate of Attendance | Cost: Free

[Register Here](#)

### Decarbonization & Electrification with AHU & Source Heat Pumps

Host: Association of Energy Engineers (AEE)

Date: October 28, 2025 | Time: 11:00 AM – 12:00 PM EDT

Format: Webinar | Credits: 0.2 CEU | Cost: Free

[Register Here](#)



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## J. Watson Bailey Middle School – Phase 1

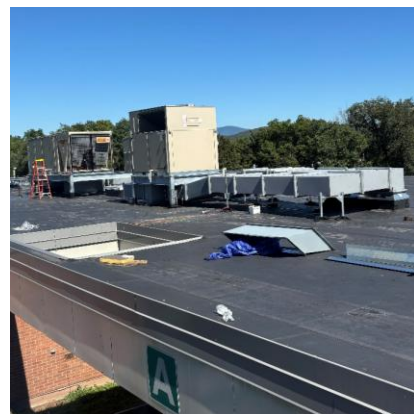
Sage Team: John V, Steve P, Jim C, Mike M, Jim T

Kingston, NY

Sage Engineering Associates partnered with KSQ Architects to deliver major mechanical, electrical, and plumbing upgrades at J. Watson Bailey Middle School in Kingston, New York. The project replaced outdated unit ventilators with a modern system centered on variable refrigerant flow (VRF) technology, an efficient and flexible approach to classroom climate control. Each classroom was outfitted with VRF fan coil units to provide heating and cooling, while energy recovery ventilators (ERVs) were added to improve indoor air quality and reduce energy waste by capturing and reusing exhaust air energy. Large spaces such as the cafeteria were equipped with fin tube heaters as supplemental backup heat to ensure reliable performance during the coldest winter conditions. By shifting the school's primary heating source to high-efficiency heat pumps, the design reduced reliance on fossil fuels, aligned with New York State's clean energy goals, and qualified the District for a NYSERDA rebate.

Plumbing modifications supported these HVAC upgrades with reconfigured domestic water and condensate drainage connections, along with selective natural gas piping extensions for the supplemental heaters. Additional floor drains and cleanouts were provided in mechanical areas to improve access and serviceability for maintenance staff. Electrical improvements included new branch circuits, panels, and disconnects to serve VRF condensing units, indoor fan coils, and ERVs. Existing circuits, devices, and fire alarm equipment were carefully removed, relocated, or reinstalled to coordinate with the HVAC replacements. Renovated areas also received upgraded LED lighting fixtures, improving both energy efficiency and illumination quality while reducing long-term maintenance costs.

This project was one of many K-12 school improvements delivered by the Sage team in partnership with KSQ Architects, reflecting a longstanding collaboration focused on modernizing educational facilities. Together, the firms have helped districts across New York State implement forward-looking design strategies that enhance comfort, reduce operating costs, and advance sustainability. The Bailey Middle School upgrades are a continuation of that commitment, providing the Kingston community with a healthier, more energy-efficient, and more resilient learning environment.



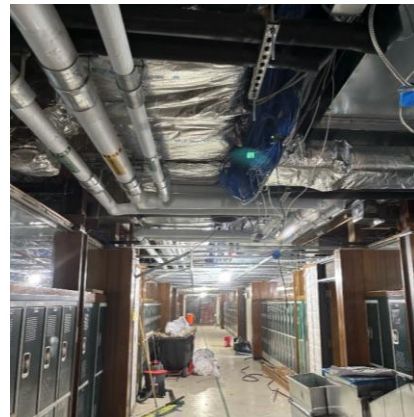
Rooftop VRF condensing units and energy recovery ventilators



Ceiling-mounted VRF cassette unit providing efficient heating and cooling for classrooms



New Rooftop electrical conduits serving the new VRF and ERV systems



New VRF piping, ductwork, and electrical distribution installed above the corridor ceilings