



December 2025

The Sage Report

A Monthly Newsletter of Insights, Projects, and Productivity



2025 Year in Review

As Sage Engineering approaches its thirtieth anniversary on January 1, 2026, the past year stands out as one of growth, accomplishment, and continued momentum across every part of the firm.

Leadership Advancement

Kevin Lovett, PE, Group Manager of the Structural Engineering group, was promoted to Principal in January. His leadership continues to strengthen Sage's technical depth and management capacity.

New Hires and Staff Development

The firm welcomed several new team members during the year including:

Joel John, Accountant	Ann Job, Engineer
Luke Danzig, Electrical Engineer	Donaldo Pengu, Mechanical Designer
Ryan Russell, Mechanical Engineer	Aidan Swere, Mechanical Engineer



Sage expanded outreach to local engineering programs, forming a new relationship with Union College's engineering departments. Sage held on-campus information sessions and hired three Union interns, Ella, Brandon, and Elena. The firm also welcomed Tufts student Ani Asadourian as a summer intern. Greg Kirkpatrick continued his guest lecturer role in RPI's HVAC class, supporting and encouraging future engineers entering the industry. Professional milestones included Luke Bowling passing the PE exam, bringing Sage to 15 licensed engineers out of thirty-three technical staff. Ryan Russell and Aidan Swere passed the Fundamentals of Engineering exam, advancing toward future licensure.

Contracts

Sage secured an \$8.5 million engineering term contract with the New York State Office of General Services, continuing a long-standing partnership. The firm also earned a \$3.5 million engineering term contract with the University at Albany. In addition, Sage was selected to design the Knolls Chiller Plant through CEG Solutions, an energy services contractor focused on federal facilities. The construction budget is approximately \$50M, placing it among the largest awards of the year. Sage serves as the prime design firm with support from Spring Line, RAN, EDP, C & S, and Stopen.

Notable Anniversaries

2025 included several impressive career milestones that reflect the long-term commitment of Sage's team members. Rob Wiltsie marked twenty-five years with the firm. Steve Marsh reached twenty years of service. Alva Conklin and Kevin Mitchell each reached ten years.

Technical Growth and Project Delivery

Revit and BIM capabilities expanded substantially. Projects completed in Revit now equal or surpass those completed in AutoCAD. Sage implemented LiDAR in scanning across multiple assignments and invested in firm-owned scanning equipment, which has already proven to be a highly valuable part of daily workflows.

Sales Growth and Performance

Workload remained strong across all disciplines throughout the year. Sage maintained a substantial backlog and is on track to surpass last year's total sales, continuing a six-year trend of steady growth. The firm also reached a new milestone when one month set an all-time sales record at more than twice the typical monthly average. Sage's rise in the Albany Business Review's ranking of Capital Region engineering firms, moving from 11 in 2024 to 7 in 2025, reflected this momentum and the expanding scope of work underway across the company.

Communication and Engagement

This year marked the launch of the company newsletter, which has become a regular source of project updates, achievements, and training material for the entire team. The accomplishments of 2025 reflect steady investment in people, technology, and long-standing client relationships, all supported by the clear communication and collaborative culture that define Sage. As the firm looks ahead to its 30th anniversary year, the same principles that shaped 2025 will continue to guide Sage's work. Technical depth, field-verified design, and consistent quality remain central to how the firm approaches every project. These strengths set Sage apart in the region and have earned the trust of public owners who depend on thoughtful engineering and sound judgment. With strong client relationships, a dedicated staff, expanding technical capabilities, and a healthy backlog, Sage is well positioned for continued growth. The momentum built this year provides every reason to expect similarly strong performance in the years ahead.



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Lesson Learned – Hydronic System Pressure

Correct system pressure is essential to stable hydronic operation. Problems usually begin when the cold static pressure, expansion tank charge, and makeup settings are not coordinated or when the startup crew does not understand how to charge the tank. A few fundamentals prevent most issues.

Cold Static Pressure and the Three to Five Psi Margin

The minimum cold pressure is set by the height of the system. A margin of three to five psi is added so air can be vented from the highest coils without uncovering them. This is the required minimum pool SYSTEM OPERATING PRESSURE and it must be shown on the drawings.

Expansion Tank Air Charge

The tank must always be charged to the same cold static pressure. If the charge is too low the tank fills with water immediately. If it is too high the system cannot fill. The correct way to charge the tank is to isolate it with the provided valve, drain all water from the tank through the drain valve, and add air at the Schrader valve until the reading matches the required cold pressure. This is identical to inflating a bicycle tire. The isolation valve is then reopened and the tank is placed back in service.

Makeup System

The makeup water PRV or glycol makeup pump must be set to the same pressure as the tank charge. This allows the system to return to the correct cold pressure any time air is vented or minor fluid losses occur.

Hot Operating Pressure

When the system heats, the fluid expands and enters the tank, which compresses the air cushion. Compressed air raises the system pressure. A rise of five to ten psi from cold to hot is normal for most commercial systems.

Relief Valve Selection

Most commercial hydronic components are rated for a maximum working pressure of 125 psig. Relief valves are typically set between 60 and 100 psig, with 75 psig common for most systems. The relief valve must be sized for the full Btu per hour input of the connected heating equipment at the selected setting. Manufacturers such as Watts ([Model 174A](#)) provide capacity charts that show the required valve size. Drawings should clearly indicate the relief valve setting. If provided by the contractor, the drawings should also indicate the required capacity and size.

Use the checklist below to ensure the information necessary for proper setup and operation of the system is included in the drawings.

- ☐ Select the minimum *System Operating Pressure* (cold system fill pressure) based on building height plus 5 psig. Include this SYSTEM OPERATING PRESSURE (PSIG) in the expansion tank schedule.
- ☐ Size the relief valve for the system for 60-100 psig (for most systems) with ample margin above the hot system operating pressure.
- ☐ Label the Relief Valve Setting, MBH capacity and size on the flow diagrams and/or equipment details.
- ☐ Ensure that the MAXIMUM OPERATING PRESSURE (PSIG) in the expansion tank schedule matches the relief valve pressure setting.
- ☐ Label the makeup water PRV on the flow diagram and expansion tank detail and indicate the pressure setting. Ensure the pressure setting matches the system operating pressure included on the expansion tank schedule.
- ☐ Include an Expansion Tank Piping Diagram Detail that shows the lockable isolation valve, drain connection and pressure gauge necessary for charging the tank. This is available in the Sage standard CAD detail library.
- ☐ Include a note similar to the following on the expansion tank detail: SET THE SYSTEM COLD STATIC PRESSURE AT THE EXPANSION TANK CONNECTION TO THE 'SYSTEM OPERATING PRESSURE' VALUE INDICATED ON THE EXPANSION TANK SCHEDULE. ISOLATE THE TANK USING THE LOCKABLE ISOLATION VALVE AND DRAIN ALL WATER FROM THE TANK THROUGH THE DRAIN VALVE. CHARGE THE TANK WITH AIR AT THE UNTIL THE TANK AIR PRESSURE MATCHES THE REQUIRED SYSTEM OPERATING PRESSURE. CLOSE THE DRAIN VALVE AND REOPEN THE ISOLATION VALVE TO PLACE THE TANK BACK IN SERVICE. SET THE MAKEUP WATER SYSTEM TO MAINTAIN THIS SAME SYSTEM OPERATING PRESSURE. CONFIRM THAT THE SYSTEM HOT OPERATING PRESSURE REMAINS BELOW THE RELIEF VALVE SETTING WITH THE SYSTEM AT THE 'MAXIMUM OPERATING TEMPERATURE' INDICATED ON THE EXPANSION TANK SCHEDULE.
- ☐ If a glycol makeup pump is utilized with a pressure switch, include the following note on the glycol makeup pump detail: SET THE PRESSURE SWITCH TO START THE GLYCOL MAKEUP PUMP WHEN SYSTEM PRESSURE DROPS TO 2 BELOW THE 'SYSTEM OPERATING PRESSURE' INDICATED ON THE EXPANSION TANK SCHEDULE AND TO STOP THE PUMP WHEN PRESSURE RISES TO TWO PSI ABOVE THAT VALUE.



A Simplified Seismic Path for MEP Engineers - BCNYS 2025

The 2025 Building Code of New York State (BCNYS) introduces an important New York State amendment in [1613.2](#). The section allows designers to assign a building's Seismic Design Category using Figure 1613.2 rather than completing the full ASCE 7 seismic calculations, provided that the site is not classified as Site Class 'DE', 'E' or 'F'. Class 'DE' is a rarely seen category between D and E. This change matters because most sites in New York State fall in Site Class A, B, C or D. For the typical commercial, education, municipal or office project, Figure 1613.2 now becomes a primary tool for determining seismic requirements for MEP engineers. Although this new method simplifies this determination, always confirm the project's assigned Seismic Design Category and corresponding anchorage requirements with the Structural Engineer of Record (if one exists on the project). This ensures MEP seismic decisions are aligned with the governing structural design.

How Figure 1613.2 Is Structured

The figure contains two Risk Category columns as defined in [Table 1604.5](#) of the BCNYS. See image on bottom of this page.

Column 1 applies to Risk Categories I, II and III. These include most buildings MEP engineers work on, such as offices, schools, labs, libraries, prisons, municipal facilities and small assembly spaces.

Column 2 applies only to Risk Category IV. These are essential facilities, such as hospitals, police stations, emergency operations centers and critical utilities.

With Site Class D assumed, nearly the entire state maps to Seismic Design Category A or B for buildings in Risk Categories I, II and III. This reflects the low ground motion characteristics across most of New York State.

Importance Factor: What It Is and What It Means

The importance factor (I_p) as defined in ASCE 7 tells you how critical a component is during an earthquake.

- $I_p = 1.0$ for normal MEP equipment.
- $I_p = 1.5$ for life safety and hazard related systems (i.e. sprinkler piping, emergency power equipment etc.)

The **importance factor only matters once the building is in Seismic Design Category C** or higher.

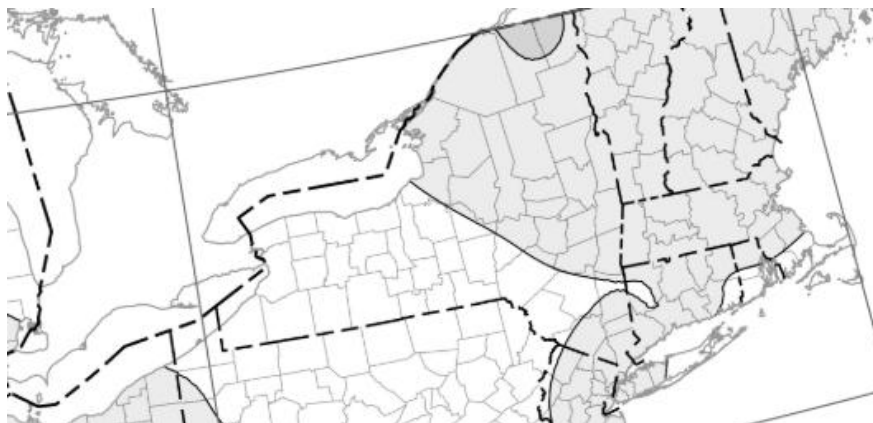
If the building is in Category A or B, I_p does not trigger any seismic bracing or qualification requirements.

Why This Change Benefits MEP Engineers

[Figure 1613.2](#) eliminates the need for full ASCE 7 calculations on typical projects. It establishes a predictable and conservative Seismic Design Category early in design. This reduces uncertainty for anchorage, restraint and coordination. It also keeps most buildings in categories where seismic detailing is either minimal or not required. Only when the project is Risk Category IV, or when geotechnical data identifies Site Class DE, E or F, does the team move into higher seismic categories where I_p becomes relevant.

A Clearer and More Efficient Seismic Workflow

This amendment removes unnecessary complexity on most NYS projects. Figure 1613.2 provides a fast and reliable classification method. When combined with the fact that I_p does not affect categories A or B, MEP engineers gain a predictable framework that simplifies seismic decisions, aligns with actual seismic hazard in the region and reduces design effort where it is not needed.



Partial Section of Figure 1613.2

IBC Seismic Design Category

Risk Category I, II, or III		Risk Category IV	
E		F	
D		D	
C		D	
B		C	
A		A	



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UPCOMING LIVE WEBINARS – December 2025

This month's lists of free live webinars and seminars are 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*.

Date	Event Name	Host / Organization	Time (ET)	Registration
December 3	Lightning Protection System Design	Ron Blank & Associates	12:00 PM – 1:00 PM	Register Link
December 9	Digital Controls in Commercial HVAC Design	Price Industries	12:00 PM – 1:00 PM	Register Link
December 9	Transforming Healthcare Facilities With High-Performance Applied HVAC Systems	NoonPi	1:00 PM – 2:00 PM	Register Link
December 10	The Off-Site Advantage: Redefining How We Build	GFT (webcast series)	1:00 PM – 2:00 PM	Register Link
December 12	Navigating Emissions Standards: Building Resilient and Flexible Systems	Consulting-Specifying Engineer	2:00 PM – 3:00 PM	Register Link
December 17	Fire Detection Challenges in Modern Industrial Facilities	Consulting-Specifying Engineer	2:00 PM – 3:00 PM	Register Link
December 18	Critical Power: Renewable Power Generation	Consulting-Specifying Engineer	2:00 PM – 3:00 PM	Register Link
December 18	Simplicity and Performance in Hydronic Design	Caleffi North America (Coffee with Caleffi)	1:00 PM – 2:00 PM	Register Link

Additional [Free 3 PDH Opportunity \(Self-Study / On-Demand\)](#)

This course does not qualify as live *Course of Learning*, but it does count toward the 18 hours of self-study PDH permitted under New York State engineering continuing education rules.

Free 3-Hour PDH Course: The Plain English Guide to the Clean Air Act

Host: PDHdirect.com

Format: Self-paced online course (not live)

Credits: 3 PDH

Cost: Free

This course provides a straightforward introduction to the 1990 Clean Air Act, covering the major regulatory requirements, public participation pathways, and how Federal air-pollution control programs function today.

To take the course, users will need to create a free PDHdirect account, but the course itself is entirely free. The process is simple: download and review the PDF course outline, then complete a short multiple-choice test. Upon submission, PDHdirect immediately issues 3 hours of verified PDH credit, which can be applied toward the allowable self-study requirement for New York engineers.

Access the Course [Here](#)



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Upgrade Electrical Distribution

Sage Team: Steve M, George C, Mike M

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Wende Correctional, Alden, NY

Sage Engineering led a multidisciplinary team to design the complete replacement of the medium-voltage electrical distribution system at Wende Correctional Facility (pronounced like *Wendy*). The project will be bidding in December 2025, and construction will take place from 2026 through 2029. The design establishes a full rebuild of the campus electrical backbone, including duct banks, feeders, unit substations, pad-mounted equipment, standby power, and the primary utility interface. The project construction estimate is **\$23.5 million**. Sage provided electrical, mechanical, and structural design. Azar Design Co provided architectural and site civil design. Adelaide supported hazardous materials abatement, and Trophy Point provided project estimating.



Aerial View of Wende Correctional

The new system converts the existing 4.16 kV distribution to a 13.2 kV campus loop. This upgrade includes a complete replacement of all medium-voltage feeders serving the site. The design incorporates new underground duct banks routed throughout the facility, using multiple parallel concrete-encased conduit runs and a series of new precast manholes to support cable pulling and long-term maintenance. Civil work will involve trenching, horizontal bores, concrete encasement, and restoration at numerous locations across the facility.

Every major building receiving medium-voltage service will be re-fed through a new 13.2 kV unit substation, replacing equipment originally installed in the mid-1980s. The design includes new pad-mounted 15 kV interrupter switches, 13.2 kV to 480/277 V or 13.2 kV to 208/120 V transformers, and new LV distribution switchboards where required. Most of the 19 buildings include a full removal and replacement of their existing medium-voltage infrastructure.

A dedicated generator building was designed to serve as the central standby power facility. It will house two 1,500 kW, 13.2 kV generators, each capable of carrying the full campus load. The electrical plant will include indoor 13.2 kV switchgear with automatic transfer and generator paralleling capability. The generators will use outdoor remote radiators for heat rejection, and the fuel system will include two redundant above-ground diesel storage tanks with dedicated pump sets and transfer piping to the generator day tanks.

An adjacent outdoor electrical yard will contain all major exterior electrical equipment associated with taking service at 34.5kV. The yard includes the main transformer with its integrated 13.2 kV distribution sections, as well as a 1,500 kW permanent load bank, all installed on concrete pads with a defined maintenance apron and enclosed by an 8-ft-high security fence. The outdoor switchgear supplies an indoor 13.2kV main-tie-tie-main switchgear that supplies the site via a redundant loop distribution system.

The design also includes generator docking stations at nearly every building. These docking stations will allow trailer-mounted generators to supply temporary power during phased cutovers as unit substations and feeders are replaced. This strategy will maintain continuous operation throughout the construction sequence and minimize building outages. Several sites include divided termination boxes to manage multiple feeder transitions.

When construction is complete, Wende will have a modern 13.2 kV electrical distribution system, new transformers and substations at every major building, a fully redundant generator plant, a secured outdoor electrical yard, and a rebuilt duct bank and feeder network designed for reliability, maintainability, and future expansion.