SPECIFIER + DISTRIBUTOR REFERENCE

The central battery system, properly specified.

Sage Em manufactures architectural-grade central battery emergency lighting designed to meet NFPA 101 by design, not by accommodation. 29 products. Five categories. Full CSI specifications. IES photometric files. A specifier toolkit your team can use mid-project to close a spec without leaving the browser.

29	All Cabinets	Compliant
PRODUCTS	UL 924 LISTED	BUY AMERICAN ACT

FOR ENGINEERS + DISTRIBUTORS

Engineers don't need a code primer.
Show me a system that anticipates each line.

The engineering-side companion to Sage's agency-facing introduction — for the specifier writing the basis of design, the engineer running the load math, the lighting designer dropping the photometrics, and the distributor stocking the channel.

CODE-ANCHORED

The code reads like a checklist.
Sage's design reads like a system.

Sage's central battery system locks to these requirements at the architectural level — not by meeting the minimum and hoping the AHJ doesn't push.

Code requirement	Threshold	Where Sage's design answers it
NFPA 101 — minimum egress illumination	1 ft-candle average on path of egress	Sage Relay programmable 5W–60W per fixture; AGI32 photometric study delivered with every project
NFPA 101 — uniformity ratio	40 : 1 maximum to minimum along path	Per-fixture wattage + spacing tuned by Sage engineering; point-by-point output included
NFPA — annual full-burn runtime	90 minutes at battery ≥ 87.5% rated voltage	Cabinets sized for 90-min minimum; programmable extension to 120 min for assisted-living, healthcare, casino

Code requirement	Threshold	Where Sage's design answers it
NFPA 7.9.2.3 — single-circuit egress failure	EM activates in the affected zone even if rest of building has utility power	Local Circuit Monitor (LCM) senses each branch circuit; signals cabinet on a 12V loop within milliseconds
NEC — generator startup gap	10-second max dark period	Sage activates immediately; generator transition handled via standard transfer switch where applicable
NEC 700.3(F) — alternate source during repair	Portable / temporary source required during EM-system maintenance	Low-cost portable battery cart maintains coverage during scheduled cabinet service
NEC 700.17 — branch-circuit independence	Two or more branch circuits from separate systems	Sage's 24V DC circuits are physically and electrically isolated; up to 8 emergency circuits per cabinet
UL 924 listing	Required for emergency lighting equipment	All Sage CB cabinets and Sage Relay modules listed
UL 1008 / ALCR requirements	Required for inverter-fed EM that bypasses normal switching	Not required for Sage. The DC emergency circuit eliminates ALCRs and Life-Safety ATS in egress zones.

SYSTEM ARCHITECTURE

Five parts. One DC loop.

A closed sub-system that mirrors the general-lighting layout without sharing its switching, controls, or panelboard infrastructure. A programmable wattage envelope per fixture. That's the entire architecture.

✓

The cabinet

UL 924 listed. Wall-mounted 24″×30″. Two 12V lead-calcium batteries in series. 500W or 1000W output tier. Up to 8 separate 24V DC emergency circuits. Built-in 12V charger maintains exit-sign load continuously. Self-test diagnostics standard.

✓

Local Circuit Monitor (LCM)

Mounts adjacent to (or up to 1,000 ft from) the lighting circuit panel. Senses utility power on each normal-lighting branch circuit. The moment any monitored branch fails, the LCM signals the cabinet — emergency activates within milliseconds. NFPA 7.9.2.3 satisfied at the device level.

✓

The Sage Relay

Small factory-programmed unit installed in or on selected fixtures. Contains a 24V DC driver and a normally-closed contactor. In emergency mode, the cabinet's DC signal opens the contactor and energizes the LED at a programmed wattage between 5W and 60W — bypassing the general-lighting switch and any building-controls system, as code requires.

✓

The fixture

Either a Sage CB Fixture (designed CB-native), a third-party luminaire fitted with a Sage Relay, or a Sage Luminaire shipped with the relay pre-installed.

✓

MC cable distribution

Low-voltage 24V DC means flexible metal cable on J-hooks is permitted in most jurisdictions — conduit requirements of higher-voltage emergency-circuit installations eliminated.

HOW IT OPERATES

In normal mode, utility power feeds general lighting; the Sage cabinet trickle-charges its batteries on a 120V or 277V input; exit signs draw continuous 12V load from the cabinet's separate 12V charger; system health reports wirelessly. **In emergency mode** — utility loss, branch-circuit fault, or manual test — the

LCM signals the cabinet within milliseconds, all downstream Sage Relays open their normal-power contactors and energize their LEDs at the programmed wattage. Egress is illuminated at the design fc-average for 90 minutes minimum, longer if specified.

In generator-backup configuration, the cabinet provides sub-second emergency lighting during the generator's 10-second startup gap. If the generator subsequently fails during its run window, the cabinet re-energizes within milliseconds — providing redundant emergency lighting beyond the generator's mechanical envelope.

WHAT GETS ELIMINATED

Sage's 24V DC emergency circuit bypasses normal-mode switching by design — so **ALCRs are not required.** The cabinet is the transfer mechanism — so a **Life-Safety ATS is not required.** Sage's 24V DC circuit is the second power source under NEC 700.17 — so **dual branch circuits and panelboards are not required.** And because Sage cabinets use standard commercial-grade lead-calcium batteries sourced locally, **factory-authorized service personnel are not required.**

> These four eliminations alone represent $30K–$80K of removed installation scope on a mid-size commercial project — before the operating-cost differential compounds over the life of the building.

ENGINEERING COMPARISON

Code conformance vs. operations. Only one architecture answers cleanly on both.

Four architectures, two questions. The first table answers the AHJ; the second answers the building owner who pays for service, replacement, and audit over the next 10–20 years.

CODE & COMPLIANCE

	Integral	Inverter	Generator (no CB)	Sage CB
ALCRs / Life-Safety ATS	⚠ Per-fixture ALCRs	✕ Both required	✕ Both required	✓ Neither required
NEC 700.17 branch independence	⚠ Per-fixture only	⚠ Custom wiring	⚠ Generator can't detect	✓ LCM at panel — by design
NFPA 7.9.2.3 single-circuit failure	⚠ Per-fixture sense	⚠ Custom wiring	✕ No detection	✓ LCM by design
Self-testing standard	⚠ Optional / varies	⚠ Optional (paid)	✕ None	✓ Standard
Compliance audit trail	⚠ Manual logbook	⚠ Manual / proprietary	⚠ Manual	✓ Automatic, AHJ-ready
Monitored test categories	None	None	None	✓ 4 / 28 days: BATTERY · CHARGER · LOAD · TRANSFER RELAY

OPERATIONS & LIFE-CYCLE

	Integral	Inverter	Generator (no CB)	Sage CB
Battery count, 350 ksf project	~290+	8–12	N/A	6–8
Battery chemistry	Various	Proprietary	N/A	Standard lead-calcium
Service personnel	Anyone w/ ladder	Factory-authorized	Factory + mech.	Maintenance crew, shoulder-height cabinet
Footprint	Distributed 290+	Refrigerator-sized	Gen + ATS + LS panel	Wall 24″×30″

	Integral	Inverter	Generator (no CB)	Sage CB
Per-fixture programmability	Fixed	Full output only	N/A	5W–60W programmed at factory
Battery + labor replacement	4–6 yr · 2-person rule	4–6 yr · factory tech	Service contract	4–7 yr · maintenance crew

The architectural decision is coupling vs. decoupling. Integral, inverter, and generator all *couple* the EM layer to general lighting — to its fixtures, switching, or panelboards. Central battery *decouples* entirely. Across the life of the install, decoupling compounds — every design revision is local, every audit is automatic, every battery replacement is a building-team task.

THE ECONOMICS

$96,300 saved. Line by line.

Three projects, three architectures, conservative assumptions. Numbers are inputs to the spec book, not afterthoughts.

350,000 SF MIXED-USE

Integral battery design (294 test points)

BASELINE	SAGE
$225,864	$16,920

13× less / 10-yr operating cost

187,000 SF DISTRIBUTION CENTER

AC Inverter (10 proprietary batteries)

BASELINE	SAGE
$40,000	$1,860

20× less / 10-yr operating cost

Redesigned to 7 Sage cabinets (84 test points)

Sage CB w/ 6 standard lead-calcium batteries

HIGH-SCHOOL FACILITY

Generator-only EM lighting

BASELINE	SAGE
$172,800	$76,500

$96,300 saved / project upfront

Generator-only vs Sage CB + generator BOM math

Assumptions: battery replacement labor 15–40 min/fixture · utility power $0.115/kWh · monthly NFPA test 1–2 min/fixture · annual NFPA test 15 min/fixture · contractor labor $60/hr · battery cost $80/each (commercial grade) · 4-year battery service life across all configurations (conservative). Sage's engineering team will run a project-specific economics model alongside the AHJ pre-submittal package — ALCR / Life-Safety panelboard / ATS elimination savings, photometric labor savings, audit-trail simplification.

THE TOOLKIT

Browser-accessible. Engineering tools, not marketing tools.

Available at sageem.co, no login required. Mid-project tools your team can use during a design-review meeting, a value-engineering pass, a contractor-substitution challenge, or an AHJ pre-submittal.

CSI Spec Writer BETA

Stamped CSI Section 26 block — basis of design, performance criteria, monitoring, AHJ language. Paste into the spec book.

NEC Load / VD Calculator BETA

Branch-circuit voltage drop + load math pre-configured for Sage CB. Validates wire size, run length, fixture density.

Coverage Estimator BETA

Per-zone egress coverage from generic space inputs. Outputs fixture count, cabinet sizing, photometric expectations.

IES Photometric Viewer

LM-63 photometric data inline on every product page. Preview candela distribution before requesting full files.

Cross-Reference

1,145 match entries against 7 competitor brands. Type a competitor part number → instant Sage equivalent.

Spec Sheet Customizer

Stamps engineer / firm logo and project name on every Sage spec sheet. Pre-stamped submittal packages.

Product Finder

Ceiling-height, space-type, and architecture filters → Sage product recommendation.

HOW TO SPECIFY SAGE

Basis of design. Approved equal. Engineering review.

SUGGESTED BASIS-OF-DESIGN CLAUSE

> *Emergency lighting shall be a centralized DC battery system providing 24V DC distribution to listed Sage Relay modules and Sage Central Battery Fixtures. Basis of design: Sage Em — Volta Series 1000W central battery cabinet (or Keystone Series 500W) with wireless self-monitoring. UL 924 listed. Self-testing standard. NFPA 101 single-fixture and single-circuit failure detection per NFPA 7.9.2.3 via integral Local Circuit Monitor.*

The CSI Spec Writer at sageem.co/spec-writer generates this clause auto-customized to the project's product mix, with full performance criteria and acceptance language.

ENGINEERING REVIEW — WHAT'S INCLUDED

Every Sage project is reviewed by application engineering before bid release — Sage Relay module selection per fixture, AGI32 photometric point-by-point analysis, a wiring schedule with voltage-drop validation, the fixture schedule with relay-programming wattage, installation guidance with generator-interaction details where applicable, and an NFPA 101 / UL 924 acceptance narrative ready for AHJ submittal.

Lead time is typically 5–7 business days from receipt of reflected ceiling plan and luminaire schedule. Expedited review available on request.

APPROVED-EQUAL LANGUAGE

Sage is comfortable being specified as basis of design, as approved equal, or as substitution-permitted with engineering review. Where an alternate is proposed during procurement, Sage delivers per-system comparison documentation to the spec writer at no charge — photometric equivalency analysis, code-compliance review, and AHJ-facing technical narratives.

ACTIVE SHOOTER ALERT — ALYSSA'S LAW

K-12 specifications in Alyssa's Law states — named after Alyssa Alhadeff, killed at Parkland — require silent (non-audible) panic-alarm emergency notification. Sage's KEY (Keystone) and VOL (Volta) cabinets ship with the **ASA (Active Shooter Alert)** ordering option. When triggered from a wall switch or WiFi activation, every dedicated emergency fixture and exit sign in the building flashes. No additional sensors, fixtures, or wiring required — the system already there.

CUSTOM CSI — ATYPICAL CODE APPLICABILITY

The default CSI Spec Writer covers the common-case office, retail, healthcare-general, and education profiles. Anything outside that envelope gets a custom write-up.

Assisted living + memory care

2-hour egress runtime; cabinet sizing programmable to 120-min full-burn standard.

Healthcare critical-care zones

UL 924 + IEC 60601 medical-device EMI separation; coordination with isolated-power systems on surgical suites.

Federal projects

Buy American Act + NEMA origin-of-manufacture certification; GSA, USACE, NAVFAC, VA-specific drafting.

Gaming + entertainment

Specific exit-sign letter heights, anti-tamper specs, smoke-evacuation interaction requirements.

Maritime + offshore

Class I Div 1/2 hazardous-location ratings; saltwater-corrosive provisions; USCG / ABS compliance.

Refineries + petrochemical

Class I Div 2 hazardous-locations; per-fixture exposure analysis; explosion-proof fixture pairing.

Data centers + mission-critical

Generator + UPS interaction with Sage CB; cold-aisle / hot-aisle photometric studies; redundant feed coordination.

SAGE LIVE

The spec is verifiable any time — without a site visit.

Every Sage Central Battery system reports wirelessly to a web dashboard the facilities team uses for the life of the building. Per-fixture health, automated NFPA-compliance logbook ready for AHJ inspections, real-time fault notifications by email or webhook, battery and charger predictive replacement scheduling, and generator-interaction events when applicable — all in one timeline.

For the engineer of record, the spec is verifiable any time without a site visit; non-conformance surfaces in real time rather than at the next annual inspection. For the facilities-management firm or building owner, the dashboard is a commissioning and maintenance asset for the life of the install.

FOR DISTRIBUTORS

Project pull-through. Specified at the engineering level.

Sage closes specs at the engineering / specifier level; resulting orders pull through the assigned distributor channel. Distributors receive specified projects, not bid-grade exposure — pricing aligned with the architectural-luminaire tier (above bid-grade emergency) and margin posture aligned with premium-spec lighting lines.

The SKU set is 29 V1 products: two central battery cabinet SKUs (Keystone 500W, Volta 1000W) plus the Olympus Local Circuit Monitor are the highest-value line; the six Sage Relay modules are the highest-velocity items; Sage CB Fixtures, Luminaires, and Exit/Emergency carry the volume.

Current lead time on listed products is 4–6 weeks from order to ship; expedite requests honored on AHJ-driven or schedule-critical projects.