



GENERAC®



A decorative graphic consisting of a 2x2 grid of squares. The top-left square is white, while the other three are black.

**PROFESSIONAL
DEVELOPMENT**
SEMINAR SERIES

A series of seminars for the Engineering Community based upon “real-world” experiences...

Who Should Attend?

These courses were developed for practicing Design, Sales and Consulting Engineers involved in supplying standby power to commercial, industrial, municipal and health care facilities.

Course Design

These seminars are designed to be conducted over a 90-minute period. Ideally, they can be conducted as an early morning breakfast meeting or over an extended lunch hour. This minimizes the impact on individual productivity within your firm.

General Seminar Context

- Introductions
- Course outline
- Course material with exercise(s)
- Online course assessment
(For CEU and PDH qualification)

Development Team

The Professional Development Seminar Series was designed by engineers who are experts in the power generation field. Their goal is to provide you with a thorough understanding of the applications and advances associated with standby power.

Standby power systems are increasingly in demand for a variety of applications. For many of these projects, the reliability of the standby power system is crucial to facility operations. Too often, emergency power systems are applied to a project without a thorough understanding of generator system capability, functionality, reliability and site specific load requirements. These two-hour seminars, consisting of a 90-minute in-class session and 30-minute outside exercise, will focus on key factors necessary to ensure the highest degree of reliability in your emergency power system design.

Each seminar was designed specifically for practicing engineers who wish to expand their understanding of current technologies, sizing, codes & standards, switching technologies and reliable design characteristics surrounding emergency power systems. If you are a design, sales or consulting engineer, this series is for you. It's a joint effort of the Milwaukee School of Engineering (MSOE) and Generac Power Systems.

Participants who successfully complete an individual seminar will receive 2 Professional Development Hours (PDH) accredited by the Milwaukee School of Engineering. Those who complete 5 Professional Development Seminar Series modules and complete the final assessments will be awarded 1 Continuing Education Unit (CEU) and/or 10 PDH.



Professional Development Seminar Series Curriculum Abstracts

GPS – 100 Generator Sizing Pitfalls

Presents methods and calculations for proper sizing of engine-generators. Explores the alternator and engine responses to different types of loads. Presents different techniques to optimize engine-generator performance.

Load types covered:

- Limitations of traditional generator sizing programs
- Dealing with load uncertainty in new construction
- Recognizing leading power factor pitfalls
- And so much more!!

GPS – 110 Generator Switching

Discusses performance criteria used to select transfer switches to connect engine-generator power into loads. Explores different grounding considerations and techniques for different applications, plus the selection of overcurrent protection and transfer switch controls.

Switch types covered:

- Open transition
- Soft loading
- Closed transition
- Paralleling switchgear
- Bypass Isolation

GPS – 120 Paralleling Concepts & Implementation

Introduces generator paralleling and basic concepts of paralleling engine-generators to form larger power systems. Emphasizes paralleling controls for load sharing (real and reactive power), synchronization and protection of paralleled systems.

Discusses control integration, elimination of serial reliability paths and the advantages of parallel power systems over traditional single engine-generator solutions.

GPS – 130 Understanding Generator Reliability

Explores strategies for value engineering projects through utilization of best available technologies and innovations without sacrificing overall power system reliability. Provides guidelines for selection of the system best suited to meet the project's cost, reliability and performance criteria.

Establishes measures for determination of reliability and provides tools to establish reliability criteria for overall engine-generator power system.

GPS – 140 National Electrical® Code (NEC®)

Presents reasons for standby power generation from the Electrical Code perspective. Explains the various articles and requirements covering standby power generation.

Articles covered:

- 225 – Outside Branch Circuits and Feeders
- 240 – Overcurrent Protection
- 250 – Grounding and Bonding
- 445 – Generators
- 517 – Health care Facilities
- 695 – Fire Pumps
- 700 – Emergency Systems
- 701 – Legally Required Standby Systems
- 702 – Optional Standby Systems
- 705 – Interconnected Electrical Power Production Systems

GPS – 150 Generator UL Listing & NFPA Standards

Introduces Underwriters Laboratories' (UL) standards and the impact of those standards for standby power generation; including the engine-generator set and transfer switch.

Discusses specific NFPA standards and application/installation details for health care, life safety, and fire pumps.

GPS – 160 Generator Provisioning & Installation

Examines engine-generator configurations and the selection of optional items such as block heaters, base tanks, enclosures, etc. Explores standard configurations versus custom options that may be required based on site-specific criteria.

Introduces good design practice guidelines for the installation of engine-generator sets based on site and application specific details. Emphasizes cooling system selection, unit placement, piping requirements, etc.

GPS – 170 Engines & Emissions

Introduces engines and engine technologies used in design and implementation of standby power generation. Discusses fuel types, selection, design criteria for standby generator engine selection and testing required to prototype and validate a product.

Discusses emissions, diesel injection technology, power and engine-generator ratings, RPM considerations, life cycle testing, etc.

GPS – 180 Alternators & Generator Controls

Outlines terminology and performance expectations of the engine-generator alternator. Identifies construction methods, temperature rise criteria and the fault capacities of alternators.

Discusses the impact of engine-generator controls and the evolution of those controls from simple relay-based designs to fully integrated digital platforms.

GPS – 190 Specifications for Engine Generator Sets & Transfer Switches

Presents techniques for effective performance-based specifications for engine-generator sets, generator accessories and transfer switches without manufacturer specific language.

Provides tools for writing specifications and general guidelines applicable to typical standby power generation applications.

Generac Power Systems Professional Development Seminar Series

As a leader in the standby power generation industry, Generac is committed to innovation and outstanding service to meet the needs of a wide variety of customers. This commitment guided the creation of an educational program for the architectural and engineering communities.

Generac Power Systems' Professional Development Seminar Series consists of 10 individual, 2-hour sessions. It offers Architects and Engineers valuable information regarding the theory and practice of standby power generation while incorporating proven learning methodologies. These sessions include 90 minutes of direct contact with participants in a "Lunch and Learn" format plus an additional 30 minutes to be used post class for independent participation in an online assessment to receive credit.

Highlights of the program:

- A Generac dealer representative will come to your organization to conduct this lunch and learn
- Continuing Education Units (CEU) and Professional Development Hours (PDH) are available
- Learners guides, binder and other useful tools
- An expert on-site during the training to answer questions

Customer Promise

Generac puts you, the customer, first to ensure your peace of mind by delivering a superior product and ownership experience.

The Professional Development Seminar Series is presented by...

GENERAC[®]

Founded in 1959, Generac Power Systems is a leading manufacturer of diesel and

gaseous-fueled, engine-driven power generation equipment, transfer switches, paralleling switchgear, and small engines for industrial, commercial, residential, communication, and recreational applications. Generac is headquartered in Waukesha, Wisconsin and has additional manufacturing facilities in Eagle and Whitewater, Wisconsin.

Awarding Continuing Education Units

The Milwaukee School of Engineering (MSOE), which sponsors the CEU/PDH units, accredited the Generac Power Systems Professional Development Series. MSOE was founded in 1903 on the basis of an educational philosophy that integrates two basic elements of learning; theory and practice. MSOE offers 14 bachelor's degrees and 6 master's degree programs in areas related to engineering, business, nursing, and construction management. MSOE is well known for its close association with business and industry. In 2006, U.S. News & World Report ranked MSOE among the top colleges in Engineering Programs and Engineering Specialties.

The purpose of the Continuing Education Unit is to provide a permanent record of the educational accomplishment of the individual who has attained certain competencies as a result of one or more significant non-credit educational experiences. One CEU is defined as 10 contact hours of student participation in an organized educational experience under responsible leadership, capable direction, and qualified instruction.

In adhering to MSOE standards, policies, and procedures Generac Power Systems Professional Development Series was developed with the following guidelines requested by MSOE to award CEU credits:

MSOE requirements for earning CEUs include:

- A minimum acceptable attendance requirement
- Active class participation
- Pre-determined outcome(s) using student assessment tool(s)
- Proof of accomplishment



Founded in 1903, MSOE is a private, coeducational university located in downtown Milwaukee. The university offers undergraduate and graduate degrees in areas related to engineering, business, nursing, and construction management. Theory is brought to life for students through extensive integration of laboratory experimentation.

Reserve Your Date Today! *Courtesy of your Industrial Generac Power Systems Dealer*

CLASS INFORMATION

	Class Name	Targeted Date Your Firm Would Like to Attend
Check the class(es) your firm would like to attend	<input type="checkbox"/> GPS-100 Generator Sizing Pitfalls	_____
	<input type="checkbox"/> GPS-110 Generator Switching	_____
	<input type="checkbox"/> GPS-120 Paralleling Concepts & Implementation	_____
	<input type="checkbox"/> GPS-130 Understanding Generator Reliability	_____
	<input type="checkbox"/> GPS-140 National Electrical® Code (NEC®)	_____
	<input type="checkbox"/> GPS-150 Generator UL Listing & NFPA Standards	_____
	<input type="checkbox"/> GPS-160 Generator Provisioning & Installation	_____
	<input type="checkbox"/> GPS-170 Engines and Emissions	_____
	<input type="checkbox"/> GPS-180 Alternators & Generator Controls	_____
<input type="checkbox"/> GPS-190 Specifications for Engine Generator Sets & Transfer Switches	_____	

FIRM INFORMATION

Firm Name _____ Firm Web/URL _____

Address _____

City _____ State _____ Zip _____ Country _____

Contact Name _____ Contact Title _____

Contact E-mail _____ Contact Phone _____

If there are any associates that you would like us to invite, please list their names below:

Name: _____ Title: _____ E-mail: _____

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REGISTRATION

Fax your completed form to your dealer.
Please see contact information on reverse side.
To find your Industrial Dealer, visit generac.com or call 888-generac.

