



AFE
Certified Plant Engineer
Application Packet



8200 Greensboro Drive
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McLean, VA 22102
Phone: (571)-395-8777 | Fax: (571)-766-2142
www.AFE.org

Frequently Asked Questions

What does the exam cover? What is it like?

The exam – which you have up to eight hours to complete –has a total of 100 questions in multiple-choice format. Questions cover the electrical engineering, mechanical engineering, civil engineering, economics/management, environmental engineering, maintenance, OSHA, energy, controls and instrumentation and HVAC. A score of 70% is required to pass.

Is there an application or exam fee?

Yes. There is an application and exam fee, please see application for pricing. All fees are non-refundable. If AFE finds you are not eligible for the exam fees will be returned.

Am I eligible?

There are two ways in which you can qualify for the CPE (1) category A, you are eligible if you have a minimum of 4 yrs in management in plant/facility engineering (or) 6yrs in field overall with a 4-yr degree in engineering architecture or related field. If you do not have a degree you must have a minimum of 6 yrs in management in plant/facility engineering (OR) 8 yrs in field overall. (2) Category B, you are eligible if you have a minimum of 4 yrs experience as a registered professional engineer. Category B applicants are exempt from the module you are licensed in.

Do I need to show proof of my employment history?

Yes. Included in this packet is an Employment Verification form. This needs to be completed by your employer(s) based on your employment history and eligibility (i.e. if you have been with your current employer for 8 or more years, one form is required. If you have been with several companies within a 4-year period, a form from each employer is required).

Do I have to be an AFE member to take the test?

No. However, you must be an AFE member to renew your certification when it expires in three years.

How can I prepare for the exam?

AFE offers a CPE Review Pak, (please see application for pricing) which covers the 11 topics contained in the exam. Assessment tests are available on our web site. These tests can give you an idea of how prepared you are in each subject matter. We also offer Virtual Seminars and three National Review Programs throughout the year. If you do not wish to attend a seminar or review you can do self-study and prepare on your own.

How much time do I have to complete the process of becoming certified?

Once you have submitted your application and it is approved by AFE, you will be notified and you have one year to prepare for and complete the certification examination.

What happens if I wait longer than one year to take the exam?

If it has been more than a year since you applied for the CPE and you have not taken the exam, you will need to re-apply and submit the necessary fees and required paperwork.

Where is the exam given?

You can take the CPE exam at either (1) a national review program site or (2) at your workplace, using a proctor from your employer's human resources. If that is not an option, a boss or supervisor may act as your proctor. If you take the exam at your facility you have two options you can take it in either paper-based or on-line format. Test materials are forwarded to the proctor one day in advance of your exam date. Upon completion of the exam, the proctor will return the materials to the certification department for grading.

Frequently Asked Questions (cont.)

Is the CPE exam broken into modules?

Yes, we give you the choice of either taking the full 100 question exam or you can choose to take it in modules. The modules are broken up into four exams each covering 2-3 sections of the CPE. Each module exam is a 2 hour exam.

If I fail, can I take the exam again?

Yes, however you are subject to a re-test fee. If you attend a review program and do not pass the exam you will not be subjected to a re-test fee. Please see application for fees. If I pass, what happens? Several things. You will be notified by AFE's certification department and so will your boss. We do this because we think you deserve congratulations and your boss deserves to know what you have achieved to become a more valuable employee. Also, you will receive a certificate and a CPE identification card.

Is my certification good for life or does it expire?

You must earn at least eight recertification credits every three years. Three of those credits come simply from being continuously employed in the plant/facilities field. The other credits will come from professional development seminars, workshops etc. When it is time to recertify you will be notified by AFE national and you will be sent the CPE recertification guidelines along with the recertification application.

Certified Plant Engineer Program

Certification Exam

AFE's certification exam is a comprehensive multiple choice exam covering mechanical, electrical, civil, and environmental engineering, HVAC, controls, energy, OSHA, economics, management and maintenance. You are permitted to use reference materials common to your on-the-job function.

You may take the exam at an AFE CPE Review program or have the exam scheduled at your place of employment at your convenience.

Conducted by Plant Engineers for Plant Engineers

AFE's Certified Plant Engineer program is conducted by your colleagues in plant engineering and facilities management who serve of AFE's Certification Board and Board of Directors. AFE's Certification Board has the sole authority to approve individual applications, using the policies and procedures approved by AFE's Board of Directors.

Exam Review Materials

A comprehensive booklet outlining all the topics covered on the CPE exam has been developed. Designed to assist individuals in preparing for the CPE exam, the booklet includes sample test questions and can also serve as a desk reference. The prices of the booklet are

\$125 for AFE members, \$150 for non-members.

Review Program

To prepare applicants for the CPE exam, AFE offers national review sessions. This is a four-day review and the exam is offered on the fifth day. Contact AFE at (571) 395-8777 for more information.

Exams

Exams are conducted regularly at live courses, held by AFE or an AFE Chapter. Exams are also available on-line or Exams may be proctored under the supervision of an accredited educational institution (high school, community college, university) or proctored by the human resources department of your employer.

Recertification

AFE's CPE certification program is currently based on three-year periods. At the end of three years, you must submit a recertification application in order to continue to use the CPE designation. Recertification maintains the integrity of the CPE program by requiring that the Certified Plant Engineer maintains on-going employment in the field and participates in continuing education or professional activities. For details on the kinds of courses and professional activities that qualify for recertification credit, contact AFE.

Eligibility

There are two categories of certification. Category A requires you to score a passing grade on an examination. Category B enables you to be certified without taking a module you are licensed in. See chart below for specific information.

Plant Engineering/Facilities Management Experience is defined as: *experience gained by functioning on a day-to-day basis in engineering, maintenance/operations, and management of industrial, commercial, government, or institutional facilities wherein the individual makes decisions related to the technical aspects of his or her discipline.*

Management Level Plant Engineering/Facilities Management Experience is defined as: *experience involving responsibility for supervisory activities, developing and implementing budgets, making personal decisions, approving designs and purchases, and managing the facilities operations*

Categories of Certification

Category A: Applicants must take CPE Exam

Four year degree in engineering, architecture, or engineering technology, with six years plant engineering / facilities management experience or four years management level plant engineering/facilities management experience.

OR

Non-technical or no degree with eight years plant engineering / facilities management experience or six years management level plant engineering / facilities management experience.

Category B: Excluded from Specialized Engineering Profession Module

Registered professional engineers with four years plant engineering / facilities management experience.

Certified Plant Engineer Program

The AFE Certification Program has been created to foster the stated objectives of identifying and recognizing plant engineering as a specific discipline within the engineering field. The following information outlines the program and is intended as a guide to those applying for certification

Objectives

- To provide a standard of professional competence in the plant engineering/facilities management field.
- To identify and recognize those individuals who, by passing an examination and/or fulfilling requirements of experience, responsibility and conduct, meet that standard of professional competence.
- To encourage plant engineers/facility managers in a continuing program of professional development
- To stimulate and provide a standard for the development of educational curricula and degree programs for plant engineers/facility managers.
- To enhance the status of plant engineering/facilities management as a unique discipline and profession by demonstrating that a realistic standard of professional competence can be clearly defined.

Definition

Plant engineering / facilities management embraces the installation, operation, maintenance, modification, modernization and protection of physical facilities and equipment used to produce a product or provide a service. It requires the special competency to assume liaison or control responsibility for coordinating multidisciplinary engineering activities such as contractual engineering services, facility design, equipment selection and procurement and construction.

Functional Description

Plant engineering/facilities management requires such education and experience as is necessary to assume responsible charge of various engineering activities within a manufacturing, commercial, institutional and governmental facility, including, but not limited to the following:

- | | |
|--|---|
| a) Planning, development and execution of maintenance programs and procedures for optimum economic benefit from physical facilities and equipment. | e) Participation in the selection of plant sites and real estate, and the maintenance, modification and modernization of buildings and grounds. |
| b) Selection, installation, operation, maintenance, modification and modernization of all plant utilities including electric power, gas, water, fuel, waste removal systems and communications. | f) Provision of administrative services, program coordination, long-range planning and budgeting and control of operating and capital expenditures in support of plant engineering. |
| c) Planning, selection, installation, operation, maintenance, modification and modernization of environmental protection and resource recovery systems. | g) Selection, installation, maintenance, modification and modernization of machinery and equipment that is an integral part of the physical plant and is necessary to support the production or service process being performed, including material handling equipment, process heating and cooling systems, illumination and compressed air systems |
| d) Selection, installation, maintenance, modification and modernization of equipment and techniques required to provide a comfortable, safe and healthy working environment. | |

Body of Knowledge

The practice of plant engineering/facilities management requires a breadth of specialized knowledge that encompasses several engineering technologies as well as business economics and management. However, the subject matter involved does not vary greatly from one physical facility to another whether the facility is industrial, governmental or institutional. To be specific, plant engineering/facilities management at a professional level requires an understanding of, and proficiency in, the following subject areas (asterisks indicate optional subjects that may not apply in every job situation; all other subjects are considered to be of universal applicability):

Electrical Systems

Circuit Planning
In-plant Power Distribution
Illumination
Protective Devices
Instrumentation & Control
Electrical Machinery
Codes & Standards
Communications & Alarms
Uninterruptible Power Supplies

Civil and Structural

Materials Specification
Structural Design & Analysis
Building & Safety Codes
*Site Selection & Preparation
*Architectural Practices
*Clean Rooms

Mechanical Systems

HVAC
Pumps, Compressors, Prime Movers
Piping & Plumbing
Power Transmission
Power Plants
Material Handling & Storage
Fire Protection
Instrumentation & Controls
Codes & Standards
*Heat Exchangers
*Refrigeration

Economics

Industrial Equipment Selection
Estimating
Budgeting
Energy Management

Administration and Supervision

Organization & Manpower Planning
Personnel Development
Business Law
Labor Relations
Project Administration & Management
*Safety & Security

Environmental Management

Noise Control
Air Quality Control
Water Quality Control Solid
Waste Handling
Hazardous Materials Control
Codes & Standards
*Resource Recovery

Maintenance

Preparation & Interpretation of drawings and Specifications
Lubrication
Maintenance Programs
Maintenance Supplies & Stores
Buildings & grounds
Housekeeping
*Machine Shop Practice
*Tools & Welding

Certified Plant Engineer Module Format

The CPE exam can be broken into a 4 exam process opposed to the entire 100 questions exam. This process can ease the mind of the test taker by studying several sections of the CPE Review Pak instead of trying to cram it all in at one time. When taking the CPE you need to allot 8 hours out of your day to take the exam .With the modules, each exam is only 2 hours, so this saves time out of your busy work schedule. The modules can be taken in any order at any time. If you do not successfully pass a module, you can either retake it right away or you can take another module and revisit the other exam later. There is a fee of \$25 for module retakes. Below is how the CPE is broken into modules and what information is covered on each exam.

1. Mechanical Module

*Mechanical Engineering
HVAC*

2. Electrical Module

*Electrical Engineering
Controls and Instrumentation
Energy*

3. Civil Module

*Civil Engineering
Management
Economy*

4. Environmental Module

*Environmental Engineering
Maintenance
OSHA*

OVERVIEW

Since 1975, thousands of people have earned AFE's prestigious Certified Plant Engineer credential. They have distinguished themselves by pursuing, achieving, and retaining competence in all the disciplines of the plant/facilities engineering field. As a result, according to research, a CPE earns a higher salary than his or her non-certified counterpart. As times change, so does the program. Areas covered in the CPE training and testing include electrical engineering, mechanical engineering, civil engineering, economics, management, federal safety regulations, HVAC operations, maintenance, controls, and instrumentation. Anyone who successfully completes this program is truly well rounded. CPEs are everywhere. They are employed in various public and private establishments. They serve the U.S. Army, Navy, Air Force and Corps of Engineers, U.S. Departments of State, along with Defense and Energy. The businesses they keep running manufacture everything from food to pharmaceuticals, aluminum, and plastics. Some CPEs are self-employed consultants others are executives.

OBJECTIVES OF THE PROGRAM

- To provide a standard of professional competence in the field of plant/facility supervision.
- To identify and recognize those individuals who, by passing an examination and fulfilling requirements of experience, responsibility and conduct, meet that standard.
- To encourage plant/facility supervisory professionals or those aspiring to promote to supervision in a continuing program of professional development.
- To stimulate and provide a standard for the development of educational curricula and degree programs for plant/facility supervisory professionals.
- To enhance the status of plant/facilities supervision as a unique discipline and profession by demonstrating that a realistic standard of professional competence can be clearly defined.

Each application must meet the following requirements before processing. This application must be filled out completely and signed. The employment verification form needs to be completed by your employer(s) based on your employment history and eligibility. Applications will not be processed until all supporting documentation has been received by AFE. All fees are non-refundable. Mail completed application to: AFE, 8200 Greensboro Drive, Suite 400, McLean, Virginia 22102 or email to info@afe.org or fax to 571.766.2142

PERSONAL DATA (please type or print legibly)

Mr. Mrs. Ms. Name:

DOB:

Title:

Employer:

Employer Address:

City:

State:

Zip:

Work Phone:

Fax:

Home Address:

City:

State:

Zip:

Home Phone:

Cell:

Email:

Preferred Mailing Address:

Home

Company

Course Location:

EDUCATION

Highest level Completed: HS College exp- no degree Vocational/Associate Bachelor's Master's Doctorate

FEES

| (pick self-study OR live instruction) | Member | Non-Member |
|---------------------------------------|---|--|
| | <input type="checkbox"/> SELF-STUDY | |
| Application/Exam | \$575 | \$760 |
| Review Material | \$125 | \$150 |
| Total | <input type="checkbox"/> \$700 | <input type="checkbox"/> \$910 |
| <i>*Retake Fee is \$100*</i> | | |
| | <input type="checkbox"/> LIVE INSTRUCTION | |
| Everything Included | <input type="checkbox"/> \$2200 | <input type="checkbox"/> \$2400 |

PAYMENT INFORMATION (please select one payment option)

Credit Card: MasterCard Visa American Express Discover

Account #:

Exp. Date:

CVC:

Name on Card:

Signature:

PO #:

Check

EMPLOYMENT DATA

Please complete the following in reverse chronological order, beginning with your present position. If further space is required to explain job responsibilities or to provide additional work experience, please list this information on a separate sheet of paper and attach it to the application.

From (Mo/Yr): _____ **To (Mo/Yr):** *Current*

Current Employer's Name and Location: _____

Immediate Supervisor's Name and Title: _____

Your title: _____

Number of Years of Plant Engineering/Management Experience: _____

Number of Years of Maintenance Experience: _____

Duties and Responsibilities: _____

From (Mo/Yr): _____ **To (Mo/Yr):** _____

Employer's Name and Location: _____

Immediate Supervisor's Name and Title: _____

Your title: _____

Number of Years of Plant Engineering/Management Experience: _____

Number of Years of Maintenance Experience: _____

Duties and Responsibilities: _____

From (Mo/Yr): _____ **To (Mo/Yr):** _____

Employer's Name and Location: _____

Immediate Supervisor's Name and Title: _____

Your title: _____

Number of Years of Plant Engineering/Management Experience: _____

Number of Years of Maintenance Experience: _____

Duties and Responsibilities: _____

AFE Certified Plant Engineer Certificate Affidavit and Pledge:

The applicant acknowledges that the Certification Board of the Association for Facilities Engineering, by its usual standards and procedures, will investigate and compile a record with respect to all aspects of the applicant's career. The applicant agrees to provide any additional information in connection with the investigation as may be required. In consideration of the services to be rendered by the Certification Board, the applicant hereby releases, discharges and exonerates the Certification Board of the Association for Facilities Engineering, its officers, directors, and agents from any and all liability of every kind and nature arising out of the procedures, information transmitted concerning the application, or action of the Board in approving or disapproving applications.

I hereby attest that the above information and its attachments are true and complete. I understand that the Association for Facilities Engineering certification programs will not discriminate among applicants as to age, sex, race, color, religion, national origin, disability, citizenship status or veteran status. I further pledge to maintain the highest ethical standards of practice in carrying out my assigned duties with regard to this certification.

Signature: _____ **Date:** _____

Request for Verification of Employment

This form needs to be completed by your employer(s) based on your employment history and eligibility (i.e. if you have been with your current employer for 8 or more years, one form is required. If you have been with several companies within an 8-year period, a form from each employer is required).

Applicant's Address:

Dear _____,

I am applying to the Association for Facilities Engineering to become a Certified Plant Engineer (CPE). In this regard, I authorize the release of the requested information enclosed which verifies my employment and duties from the period _____ to _____.

Please furnish the requested information as completely as possible, and return to the AFE Certification Board.

The receipt of replies will be reported by AFE, but under no circumstances will the information be divulged to me, or used for any purpose except to validate my application for Certified Plant Engineer.

Applicant's Signature

Request for Verification of Employment

To Be Completed By Applicant Applicant's Name: _____
Address: _____
City: _____ State: _____ Zip: _____

Letter of Employment Verification

To Be Completed By Employer The following information verifies the employment and duties of the above applicant for AFE's Certified Plant Engineer Program:

Employer

Company Name: _____
Address: _____
City: _____ State: _____ Zip: _____

Employment Period

The above named applicant was (has been) employed by our company from _____ To _____. He/she has held the following positions:

| | |
|--------------|--------------|
| Title: _____ | Dates: _____ |
| Title: _____ | Dates: _____ |
| Title: _____ | Dates: _____ |

Job Function

Please describe in full the responsibilities of the applicant and identify those positions which were (are) classified as: (Attach descriptions if necessary to answer fully.)

Plant Engineering/Facilities Management Experience:

Management Level Plant Engineering/Facilities Management Experience:

To your knowledge, has action ever been taken against the applicant because of violations of the standards of professional practice, or to the rules and regulations of your firm?

Yes No If yes, please explain: _____

Affidavit

To the best of my knowledge and our employment records, I hereby attest that the above information is true and correct.

Name of person supplying information: _____

Official Title of Respondent: _____

Signature: _____ Date: _____

Return to: AFE | 8200 Greensboro Drive, Suite 400, McLean, VA 22102 | Fax (571) 766-2142

Employment Experience

| ELECTRICAL SYSTEMS | YES | NO | N/A | ADMINISTRATIVE SUPERVISION | YES | NO | N/A |
|--|--------------------------|--------------------------|--------------------------|-----------------------------------|--------------------------|--------------------------|--------------------------|
| Circuit Planning | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Organization/Manpower Planning | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In-plant Power Distribution | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Personnel Development | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Illumination | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Business Law | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Protective devices | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Labor Relations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Instrumentation & Control | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Project Administration/Management | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Electrical Machinery | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | *Safety and Security | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Codes and Standards | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| *Communications & Alarms | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ENVIRONMENTAL MANAGEMENT | | | |
| *Uninterruptible Power Supply | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Noise Control | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | Air Quality Control | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| MECHANICAL SYSTEMS | | | | Water Quality Control | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| HVAC | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Solid Waste Handling | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pumps, Compressors, Prime Movers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hazardous Materials Control | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Piping and Plumbing | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Codes and Standards | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Power Transmission | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | *Resource Recovery | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Power Plants | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| Material Handling & Storage | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | CIVIL AND STRUCTURAL | | | |
| Fire Protection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Materials Specification | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Instrumentation & Controls | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Structural Design and Analysis | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Codes & Standards | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Building and Safety Codes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Heat Exchangers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Site Selection and Preparation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Refrigeration | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | *Architectural Practices | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | | *Clean Rooms | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| MAINTENANCE | | | | | | | |
| Preparation, Interpretation of drawings & Specifications | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | ECONOMICS | | | |
| Lubrication | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Industrial Equipment Selection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintenance Programs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Estimating | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Maintenance Supplies & Stores | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Budgeting | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Buildings and grounds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Energy Management | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Housekeeping | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| *Machine Shop Practice | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |
| *Tools and Welding | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | | | |

*(Asterisks indicate optional subjects that may not apply in every job situation)

Affidavit

To the best of my knowledge and our employment records, I hereby attest that the above information is true and correct.

Name of person supplying information: _____

Official Title of Respondent: _____

Signature: _____

Date: _____

Return to: AFE | 8200 Greensboro Drive, Suite 400, McLean, VA 22102 | Fax (571) 766-2142