

# Engineering Salary Survey- Benchmarks

## Proper Use of Engineering Titles

In Ontario it is illegal to use the title “professional engineer” or any variation (e.g. project engineer, junior engineer, software engineer, etc.) as an occupational or business title if you are not licensed with PEO. Professional Engineers Act, Section 12(1) and 40(2), 2(b), (5). The Canadian Council of Professional Engineers, of which this Association is a constituent member, has protected under the Canada Trade Mark Act the terms “Engineer”, “Professional Engineer” and “P.Eng.”.

We encourage employer organizations to be aware of this requirement and that job titles containing the word “Engineer” be given only to those people who are licensed by PEO.

For further information contact

**PEO Legal Affairs**

**Telephone: 416-224-1100, or 1-800-339-3716**

**Fax: 416-224-8168**

# Distribution of 26 Benchmarks by Level and Function

Function	Responsibility Level						Total
	A	B	C	D	E	F	
Entry	X						1
Design		X	X				2
Sales		X	X	X			3
Computer (h/w, s/w, systems)		X	X	X	X		4
Operations/Production			X	X	X		3
Research & Development				X	X	X	3
Supervisory				X	X	X	3
Project				X	X	X	3
Quality			X				1
Construction			X				1
Customer Support				X			1
Environment				X			1
<b>Total</b>	1	3	6	8	5	3	<b>26</b>

**NOTE:**

This table shows how the benchmarks reflect parallel career paths open to engineers as experience develops beyond the introductory A and B levels. The management path is defined at levels D, E and F (Supervisory function) as well as in the Operations/ Production stream, levels C, D and E. The technical path is most clearly defined in the Research and Development stream for levels D, E and F.

# PEO Survey Benchmarks - Engineering Levels A & B

	<b>RECENT GRADUATE-Level A</b>	<b>DESIGN-Level B</b>	<b>SALES-Level B</b>	<b>COMPUTER (SOFTWARE)-Level B</b>
<b>SUMMARY</b>	A training/development position for learning and acquiring experience in a variety of basic engineering work activities in office, sales, plant, field or laboratory settings. Utilizes engineering education to perform various assigned tasks of comparatively modest complexity, normally assisting other engineers.	Assists in the design of new or revised products, equipment, installations or processes using established engineering principles to meet functional requirements or performance specifications. Handles design problems of moderate complexity using a variety of standard engineering methods/techniques. May assist more senior engineers in solving difficult problems.	A developmental position, representing a clearly defined line of products and/or services to assigned customers. Represents the firm in both technical and commercial matters. Work is of moderate complexity and is carried out under frequent review.	Designs and defines system requirements for moderately complex computer software systems. Prepares system specifications. Ensures design of software is coordinated and integrated with total system. Work is carried out under regular review.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>Prepares straightforward plans, designs, calculations, analyses, etc. in accordance with established codes, standards, drawings, or other specifications.</li> <li>Conducts tests, gathers and analyzes information, helps interpret findings. May require application of computer skills and knowledge of relevant software applications.</li> <li>Requires familiarity with technical terms or procedures basic to the function in order to communicate effectively with co-workers.</li> <li>Requires basic oral, written and listening skills to gather, prepare, present and discuss findings and conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>Handles assignments of limited scope or complexity, designing components of a larger design project within a particular branch of engineering (e.g. civil, electrical, mechanical, etc.).</li> <li>May modify systems applications, plant equipment, designs or prototypes to permit economical manufacturing, or meet performance specifications.</li> <li>Requires consultative and communication abilities to confer with others (mainly internally), gather information and present analyses.</li> <li>Typically requires skill in the use of relevant computer applications and CAD software.</li> </ul>	<ul style="list-style-type: none"> <li>Sells apparatus and other delegated standard products or services to assigned customers, explaining technical specifications, quoting prices, terms, delivery, etc. Provides professional advice in selecting appropriate products or services.</li> <li>May provide technical assistance during the application of a process or installation of equipment.</li> <li>Analyzes customer needs and the market to identify and report significant conditions or opportunities affecting sales or marketing of products.</li> <li>Requires effective communication and listening skills in dealing with customer representatives, purchasing agents, plant managers or other senior company officers to identify needs and opportunities, write and prepare proposals, write contract documents, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Defines computer software requirements for computer systems, usually working on components of a larger project or system.</li> <li>Designs, codes and tests software for computer and/or computer controlled systems utilizing standard tools of engineering analysis and design.</li> <li>Utilizes and adapts standard application programs such as spreadsheets, databases and computer graphics to assist in design, analysis, modeling or economic assessments.</li> <li>Requires good analytical abilities to accurately identify system requirements and develop designs and codes that are efficient and cost effective.</li> <li>Requires consultative and communication skills to deal with users or other non-technical staff.</li> </ul>
<b>INDEPENDENCE</b>	Works under direction where the work is reviewed for accuracy, adequacy and conformance with prescribed procedures. Decisions are usually straightforward with ample precedent or in line with clearly defined procedures or guidelines. Involves the supervisor in handling unforeseen situations, e.g. technical, financial, inter-personal, etc.	Tasks and duties are assigned in detail and work is under close review by more senior engineers.	Duties are assigned with detailed oral and sometimes written instructions. Work progress is under frequent review.	Receives instructions on specific assignment objectives, complex features and methods of approach. Receives assistance on unusual problems. Work progress is under regular review.
<b>LEADERSHIP AUTHORITY</b>	May give work assignments and review the work of a small number of technicians or assistants.	May check the work of a few more junior engineers, technicians or draftspersons.	May guide and check the work of a few more junior engineers-in-training, technicians or assistant engineers.	May guide and check the work of a few more junior engineers-in-training, programmers or technicians.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science or its equivalent.  Little relevant practical experience.	Bachelor's degree in Engineering, or Applied Science, or equivalent.  Related working experience from graduation-at least 2 to 3 years.	Bachelor's degree in Engineering, or Applied Science, or its equivalent.  Related working experience from graduation-normally 2 to 3 years.	Bachelor's degree in Engineering, or Applied Science, or its equivalent.  Related working experience from graduation-normally 2 to 3 years.
<b>TYPICAL JOB TITLES</b>  Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Engineer-in-Training, Technician, Analyst, Technologist.	Product Design Engineer, Engineering Design Assistant, Product Development Specialist, Design Engineer, Field Engineer.	Engineering Account Representative, Account Executive, Sales Representative, Customer Account Engineer, Customer Services Engineer.	Software engineer, Analyst, Software Development Specialist, Product Development Specialist, Software Designer.

# PEO Survey Benchmarks - Engineering Level C

	DESIGN-Level C	SALES-Level C	OPERATIONS/PRODUCTION-Level C
<b>SUMMARY</b>	As a fully qualified professional engineer, develops the design of new or revised products or services to meet functional requirements or performance specifications. Generally handles more complicated components of larger design projects on which the basic design has been done at a higher level.	As a fully qualified engineer, sells apparatus or other delegated products or services to prospective and established customers. Investigates product applications, recommends modifications, acts as a technical consultant to customers. Work is not generally supervised in detail.	As a fully qualified professional engineer, performs a variety of engineering tasks such as facilities layouts; work methods and manufacturing processes; tool design; material handling equipment. Works to clearly defined objectives or specifications, although not subject to detailed supervision.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>Conducts independent analyses, interprets requirements, draws conclusions concerning the development of new products, processes or services, or improvement of existing products and services. Often works as a member of a design team.</li> <li>Decides on materials used, components, within confines of stated methods of manufacture; recommends changes in basic design to higher authority.</li> <li>May act as an engineering authority for a portion of an established product line in which engineering problems, though sometimes complex, usually call for the modification or extension of design based on operational experience.</li> <li>Requires consultative, interpersonal and communication skills to deal effectively with other design staff, sales, manufacturing, and purchasing personnel in seeking solutions to customer requirements or production and cost improvement problems.</li> <li>May require advanced expertise in the use of relevant computer applications and CAD software.</li> </ul>	<ul style="list-style-type: none"> <li>Sells a range of products/services, quoting prices, terms and deliveries for standard products as well as adaptations. Establishes contact with prospective customers, maintains effective relations with existing customers.</li> <li>Analyzes customer needs, investigates product applications, recommends modifications, proposing adjustments, as required, to ensure best use of company's products.</li> <li>Communicates pertinent information regarding customer requirements to others to facilitate cost estimates, proper design or modifications, ensure requirements are met.</li> <li>Communication skills needed to understand and effectively discuss products on the basis of experience in similar fields and knowledge of customer's technical needs.</li> <li>Sound interpersonal skills and maturity are significant requirements in selecting incumbents at this level.</li> </ul>	<ul style="list-style-type: none"> <li>Conducts independent studies, analyses, interpretations and conclusions in one or several assignment aspects:               <ol style="list-style-type: none"> <li>Process engineering-determine tools, equipment, etc. required to finish or fabricate a product, plan the sequence of operations.</li> <li>Machine tool design; design and develop required machinery.</li> <li>Industrial engineering.</li> <li>First line supervision for an operations group where engineering knowledge is essential.</li> </ol> </li> <li>Prepares cost estimates, feasibility studies and provides information, advice and engineering assistance within the scope of work.</li> <li>Utilizes advanced design and analysis software tools to conduct analyses and develop recommendations.</li> <li>Requires consultative, interpersonal and communication skills to deal with other design staff, manufacturing, purchasing and other personnel.</li> </ul>
<b>INDEPENDENCE</b>	Works as a professional in a limited field, without detailed supervision. Receives broad project and technical guidelines, working within defined standards, and specifications. Interprets the guidelines. However, difficult, complex, or unusual decisions are usually referred to more senior authority.	Work is not supervised in detail, however most decisions are based on ample precedent. Difficult, complex or unusual situations are usually referred to more senior authority.	Work is not generally supervised in detail. Difficult, complex or unusual matters are usually referred to higher authority.
<b>LEADERSHIP AUTHORITY</b>	May serve as a team leader, guiding the work of more junior engineers or technicians. May select, train and evaluate non-professional staff. May act as a mentor.	May guide the work of several more junior sales engineers or technicians.	May guide the work of several more junior engineers or technicians when they are employed on the same projects. May act as a mentor.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 3 to 5 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 3 to 5 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 3 to 5 years.
<b>TYPICAL JOB TITLES</b> Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Product Design Engineer, Design Engineer, Field Engineer.	Account Executive, Sr. Sales Representative, Engineering Account Executive, Sr. Customer Representative	Industrial Engineer, Plant Engineer, Process Engineer, Production Engineer, Manufacturing Methods Engineer, Field Engineer.

# PEO Survey Benchmarks - Engineering Level C

	CONSTRUCTION DESIGN-Level C	QUALITY-Level C	COMPUTER SYSTEMS-Level C
<b>SUMMARY</b>	Develops the design of complicated components in a specialized field within a branch of engineering (e.g. civil, electrical, mechanical, etc.) for engineering works, structures, installations, processes. Develops plans for the modification or extension of existing facilities. Generally handles more complicated components of larger design projects on which the basic design has been done at a higher level.	Implements quality assurance programs utilizing quality tools necessary to achieve and maintain objective standards. Utilizes a range of quality tools across a diverse work force. Works independently, as a full professional, but within clearly defined standards and limits, receiving direction on unusual problems.	Configures computer systems and networks for users, assessing functional requirements, evaluating equipment and performing acquisition activities for standard products. Carries out project management responsibilities, monitoring progress and costs. Works within clearly defined limits or precedents, seeking advice on unusual problems.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>• Makes independent studies, analyses, interpretations and conclusions in conducting various assigned projects. May work on one or more of the following assignment types:               <ol style="list-style-type: none"> <li>a) Design structural frames in steel, reinforced concrete, or timber; make layouts and designs of municipal services, industrial buildings and mining plants.</li> <li>b) Design mechanical or electrical services of buildings, materials handling installations, power installations, etc.</li> <li>c) Design communications circuitry or power generation and/or transmission grids.</li> <li>d) Design chemical or metallurgical process plant installations.</li> </ol> </li> <li>• Develops designs based on investigation of site conditions, methods and materials available, time factors and costs to achieve the desired end, recommending optimum solutions.</li> <li>• Prepares reports, cost estimates, specifications.</li> <li>• Requires consultative, interpersonal and communication skills to deal effectively with other design staff, manufacturing, or purchasing personnel in seeking solutions to construction requirements.</li> <li>• Typically requires advanced expertise in the use of computer applications and CAD or CAE software.</li> </ul>	<ul style="list-style-type: none"> <li>• Carries out a program of professional quality assurance assignments that allows the organization to continuously improve business and engineering processes.</li> <li>• Conducts investigations and analyses involving the deployment of a variety of quality tools (ex. statistical process control, FMEA, etc.). Analyzes data to determine trends based on engineering process performance.</li> <li>• Produces analyses to support response to customer concerns with quality, facilitating corrective and preventive action.</li> <li>• Conducts quality audits and supports continuing registration with standards setting/certifying bodies.</li> <li>• Requires strong interpersonal and communication skills to deal with managers in a positive and constructive manner and to serve as an in-house trainer.</li> <li>• Requires leadership ability to effectively introduce and implement change in the work place.</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinates with system users to identify information system hardware and software requirements. Determines most appropriate system configurations, evaluating new or modified equipment and software.</li> <li>• Provides technical consulting service to users regarding local information processing systems and equipment. Remains knowledgeable about emerging hardware and software technologies, new products, and industry developments.</li> <li>• Evaluates equipment, prepares reports and recommendations. Coordinates the acquisition and installation of standard equipment. May provide training in the use of systems.</li> <li>• Requires listening and communications skills to identify needs, provide consulting advice to users and prepare written reports.</li> <li>• Required to communicate effectively with non-technical system users.</li> </ul>
<b>INDEPENDENCE</b>	Work is not generally supervised in detail. Recommendations and decisions are usually based on precedent. Difficult, complex, or unusual decisions are usually referred to more senior authority.	Works independently within the quality field, leading own investigations and projects. Receives broad project guidelines and works within quality program standards set at a higher level.	Works as a fully qualified professional without detailed supervision, but within clear guidelines, defined standards and specifications. Unusual problems are referred to more senior authority.
<b>LEADERSHIP AUTHORITY</b>	May guide the work of several more junior engineers or technicians employed on the same projects. May select, train and evaluate non-professional staff.	May serve as a team leader, guiding the work of more junior engineers or technical staff. Trains line managers and staff in quality management and continuous improvement requirements and techniques.	May guide and monitor the work of other more junior engineers or technical staff working within the unit or on the same projects. Serves as a technical consultant on computer systems issues.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 3 to 5 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 3 to 5 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 3 to 5 years.
<b>TYPICAL JOB TITLES</b> Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Product Design Engineer, Design Engineer, Field Engineer.	Quality Assurance Engineer, Quality Team Leader, Sr. Quality Analyst.	Systems Engineer, Systems Analyst, Project Manager, Project Engineer, Field Engineer, Computer Analyst.

# PEO Survey Benchmarks - Engineering Level D

	<b>SUPERVISORY-Level D</b>	<b>SALES-Level D</b>	<b>OPERATIONS/PRODUCTION-Level D</b>	<b>RESEARCH &amp; DEVELOPMENT-Level D</b>
<b>SUMMARY</b>	Supervises a group of engineering professionals and/or professional technical people performing a variety of engineering-related duties. Normally works within a single field of engineering, e.g. structural design, software development, mechanical design, electrical design, etc. or concerned with single product design. Works within general instructions in terms of objectives and priorities.	Calls on major established and prospective customers to promote the sale and use of the company's products and services for known applications as well as new applications and in new industries. Has extensive knowledge of customer's processes and problems. Establishes sales quotas for self and others. Works within general instructions in terms of objectives and priorities.	Manages the operation of two or more production units comprising a distinct area or segment of the total production process. Directs subordinate foremen, one or more of whom may be a professional engineer. Processes, maintenance and control systems are sufficiently complex to require a professional engineer.	Under administrative and technical direction works as an engineer-specialist in a particular field of engineering development or research. Applies mature engineering knowledge in planning and conducting projects that require independent accomplishment and coordination of difficult assignments. Typically guides the work of other professional engineers. Works within general instructions in terms of objectives and priorities.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>Plans detailed methods of solving assigned problems such as: the design of new structures; modification or additions to existing structures; projects concerned with product improvements, equipment or process changes, etc.</li> <li>Delegates work to subordinates and guides work progress through to scheduled completion. Coordinates assignments with other groups.</li> <li>Ensures preparation of adequate documentation, specifications, prototypes, etc. May prepare, or have prepared, cost estimates, engineering studies, reports, etc.</li> <li>requires effective project management, communication and work coordination skills. Ability to motivate staff and team leadership skills are required.</li> </ul>	<ul style="list-style-type: none"> <li>Develops and maintains a working knowledge of the processes and techniques of a broad cross-section of industry and business and/or may be required to be highly qualified as a technical specialist in a narrower technological field.</li> <li>Establishes and maintains contacts within major potential or regular customers to discuss new product applications and sell existing products. Acts as a senior technical consultant to customers to ensure the best use of the company's products.</li> <li>Requires analytical and conceptual skills to identify new applications and therefore new markets. Maintains a thorough knowledge of company products.</li> <li>Requires good communication skills to represent the company at important functions. Requires good presentation and public speaking abilities.</li> </ul>	<ul style="list-style-type: none"> <li>Instructs subordinate supervisors regarding objectives and technical matters.</li> <li>Works with other engineers on matters of technical control, development, design and maintenance in analyzing off-standard conditions and possible new methods or procedures.</li> <li>Remains accountable for quality, quantity, cost, safety and employee relations within the assigned area.</li> <li>Requires effective communication and team leadership skills and an ability to motivate staff. Strong analytical ability needed to identify production problems and potential solutions.</li> </ul>	<ul style="list-style-type: none"> <li>Plans and initiates investigations of complex problems, and/or develops new and basic concepts of design to meet given functional requirements.</li> <li>Formulates and directs control experiments, or prototype or model studies, analyzing and interpreting data obtained.</li> <li>Coordinates difficult and responsible assignments. Acts as a specialist in important technical matters.</li> <li>Required to have sound project management, communication and work coordination skills to integrate work efforts in achieving an overall objective.</li> </ul>
<b>INDEPENDENCE</b>	Works under general direction and guidance following instructions relating to objectives, relative priorities and necessary cooperation with other units.	Works independently on broad assignments, receiving general instructions concerning objectives, priorities, and other operational relationships.	Works under general direction and guidance but usually remains in daily contact with next level of supervision.	Work is assigned in terms of objectives, relative priorities, and other operational relationships. Given latitude to exercise technical ability, and scope for independent accomplishment. Able to represent the organization on industry or standards-setting body.
<b>LEADERSHIP AUTHORITY</b>	Assigns and monitors the work of other professional engineers and/or technical engineering staff. Evaluates and disciplines staff. Makes recommendations regarding staff selection, development or termination. May serve as a mentor.	Plans, directs and coordinates the work of other sales engineers. May manage aspects of sales function e.g. forecasting, pricing, budgets, staffing.	Provides general supervision over the assigned area. May provide consultation to subordinates on 24 hour basis, but usually works days only.	Assigns and monitors the work of other professional engineers and/or technical / engineering staff, and/or  As a recognized technical specialist, serves as a consultant to others, advising on technical problems, reviewing work for accuracy and adequacy. May serve as a mentor.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years, typically with some supervisory experience.	Bachelor's degree in Engineering, or Applied Science, or equivalent.  Related working experience from graduation-at least 5 to 8 years.
<b>TYPICAL JOB TITLES</b>  Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Engineering Manager, Project Manager, Engineering Supervisor, Senior or Principal Engineer, Division Engineer, Product Engineer.	Sr. Account Executive, Executive Sales Representative, Engineering Sales Manager, Customer Services Manager, Engineering Specialist.	Production Manager, Production Engineer, Production Supervisor, Mgr. Shop Operations, Engineering Supervisor, Engineering Manager, Senior or Principal Engineer, Product Engineer.	Research Engineer, Sr. Research Engineer, R&D Engineer, Project Manager, Product Development Engineer.

# PEO Survey Benchmarks - Engineering Level D

	<b>CUSTOMER SUPPORT-Level D</b>	<b>PROJECT-Level D</b>	<b>ENVIRONMENT-Level D</b>	<b>COMPUTER (HARDWARE)-Level D</b>
<b>SUMMARY</b>	Provides technical advice, consultation and support to customers, technical support staff, installers, and others, on complex processes and problems associated with products and facilities. Serves as a recognized expert within the designated product/service field, providing training to customers and ensuring complaints or questions are dealt with appropriately.	Executes, coordinates and expedites a succession of different engineering jobs, as part of capital expenditure projects. Works independently to plan and carry out project steps that require the application of mature engineering knowledge. Technical guidance is available for review and advice.	Leads in the conduct of complex investigations to identify and diagnose health and environmental problems and develop remedial action plans. Works independently and cooperatively to plan and carry out projects that require the application of mature engineering knowledge. Works within general instructions in terms of objectives and priorities.	As an engineering specialist, leads a team of engineers in the design and development of computing devices for introduction into manufacturing. Establishes, guides and monitors a hardware development process. Works within general instructions in terms of objectives and priorities.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>Develops and maintains relationships with customer management and product/ process support personnel to ensure high levels of customer satisfaction.</li> <li>Responsible for the implementation and management of complex technical projects such as product appraisal, problem tracking and reporting.</li> <li>Supports new products-installation, implementation, testing. Ensures appropriate customer training is provided.</li> <li>May provide coaching or training to other more junior field service staff, providing technical support in resolving customer complaints.</li> <li>Requires superior communication and interpersonal skills to effectively identify and resolve problem issues and complaints</li> <li>Requires strong analytical skills to diagnose and identify problems quickly and effectively.</li> </ul>	<ul style="list-style-type: none"> <li>Assembles data, makes preliminary studies of alternative methods of attaining objectives, reports findings, recommends best solutions.</li> <li>May carry out engineering studies to determine how best to solve a problem, using surveys, site visits, tests, cost analyses and other standard procedures, recommending most economical methods of construction or change-over.</li> <li>Prepares project plans, assists in preparation of final design and specifications, in tender call, and in supervision of construction or installation.</li> <li>Represents employer's interests in dealings with customers, clients, sub-contractors or suppliers.</li> <li>Project management skills required. Must communicate clearly and in a timely manner to all parties, both verbally and in writing. Required to make effective presentations.</li> <li>Requires superior interpersonal and negotiating ability in dealings with suppliers, clients, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Plans and manages assignments requiring the detailed analysis of environmental issues and development of recommended remedial policies, strategies and practices to guide others. Conducts studies of recycling and waste reduction.</li> <li>Plans and implements environmental control programs associated with treatment of water, air sewage, industrial and solid wastes, etc.</li> <li>Has knowledge of environmental legislation, working to ensure appropriate bodies are in compliance with relevant laws.</li> <li>May lead a team of specialists involved with designing environmental control facilities. May supervise installation of facilities.</li> <li>Requires knowledge of and facility with computer applications, computer modeling, etc.</li> <li>Requires strong communication skills to deal with the public regarding environmental assessments, reports/plans, and presentation skills to boards, clients, councils, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Plans and initiates the investigation of designs for integrated circuits, silicon chips or other products.</li> <li>Formulates and directs the development of computing devices for manufacture, including product architecture, specifications, technology (component) selection. Directs the application of complex design tools or methods (ex. CAE software).</li> <li>Leads and directs in systems design simulation, tolerance analyses, prototype testing, etc.</li> <li>Requires strong analytical and problem solving abilities. Incumbents must also have effective communication and team leadership skills.</li> </ul>
<b>INDEPENDENCE</b>	Works independently, receiving broad direction from management concerning objectives, priorities, and other operational relationships.	Works within broad guidelines requiring conformity with overall plans, dates and budgets. Technical guidance is available for review and advice.	Works independently on broad assignments, receiving general instructions concerning objectives, priorities, and other operational relationships.	Works independently on broad assignments, receiving general instructions concerning objectives, priorities, and other operational relationships.
<b>LEADERSHIP AUTHORITY</b>	Provides direction and guidelines to other customer support or sales team members in troubleshooting or technical matters. May assign and monitor the work of other professional engineers or technical support staff.	Coordinates the work of, and gives technical guidance to other engineers and technicians assigned to a given project.	Assigns and monitors the work of other more junior professional engineers or a team of technically trained environmental support staff, or - As a recognized technical expert, serves as a consultant to others. May serve as a mentor.	Assigns and monitors the work of other professional engineers and/or technical staff, or - As a recognized technical expert, serves as a consultant to others, advising on technical problems, reviewing work for accuracy and adequacy.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 5 to 8 years.
<b>TYPICAL JOB TITLES</b>  Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Customer Support Manager, Field Service Group Leader, Senior Technical Consultant, Customer Service Manager, Sr. Engineer-Customer Support.	Project Manager, Project Engineer, Sr. Engineer, Project Leader, Project Chief.	Sr. Environmental Engineer, Project Manager, Manager-Environmental Engineering.	Sr. Hardware Engineer, Project Manager, Project Engineer.

# PEO Survey Benchmarks - Engineering Levels E & F

	<b>SUPERVISORY-Level E</b>	<b>OPERATIONS/PRODUCTION-Level E</b>	<b>RESEARCH &amp; DEVELOPMENT-Level E</b>	<b>PROJECT-Level E</b>
<b>SUMMARY</b>	Supervises an engineering department of professional and/or non-professional technical people performing a variety of complex, technical applications. Directs the work of highly qualified professional engineering-specialists, planning and coordinating assigned projects. Works under administrative or high level technical direction.	Directs the operation of large manufacturing or complex continuous processes (e.g. chemical, mining, etc.) producing large quantities of product. Production relies upon sophisticated engineering control and maintenance systems. Works under broad direction or high level technical direction.	Works as a senior engineer-specialist or consultant in a particular field of engineering, development, or research. Participates in planning, organizes work methods and procedures. Makes independent decisions within a sphere, usually exercising technical authority over a small team of engineer-specialists. Works under administrative and/or high level technical direction.	Plans, assigns and coordinates the work of several project engineers and technicians engaged as a team in different portions or phases of an engineering project of moderate proportions, or a portion or phase of a project of major proportions. Works under administrative or high level technical direction.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>Participates in short and long range planning pertaining to budget requirements, staff selection and projects to be undertaken.</li> <li>Gives technical direction to management or operating supervisors, conferring with customers, consultants, contractors or suppliers where coordination is important.</li> <li>Assigns work to staff, monitors and evaluates results. Responsible for investigations and reports such as cost estimates, technical studies, unusual trouble analysis, etc.</li> <li>Ensures proper maintenance of engineering files, equipment and procedures.</li> <li>Requires good business planning and project management skills. Incumbents are required to motivate staff, set priorities and demonstrate sound judgement and people management skills.</li> </ul>	<ul style="list-style-type: none"> <li>Plans production in cooperation with other operations and customer demand. Coordinates, specifies and schedules production and maintenance.</li> <li>Assists technical control personnel in establishing standards and field tests. Analyzes and corrects off-standard conditions with specialized technical assistance.</li> <li>Recommends improvements in plant procedures and policy changes.</li> <li>Accountable for quality, quantity, cost, safety and employee relations.</li> <li>Incumbents should demonstrate strong leadership and people management skills.</li> </ul>	<ul style="list-style-type: none"> <li>Works at an advanced technical level. Participates in planning by providing original ingenious approaches to the practical and economical solution of problems.</li> <li>Within a specialized sphere, directs research into new resources, products, processes, or methods. Interprets and evaluates data obtained from research investigations.</li> <li>Participates in management meetings related to the function and in cross-functional meetings.</li> <li>Keeps well informed of the latest technological developments in the chosen field.</li> <li>Incumbents at this level develop and sustain a reputation for efficient planning and a high level of analytical and creative thinking.</li> </ul>	<ul style="list-style-type: none"> <li>Directs and coordinates work concerned with new construction, alterations or additions to existing structures, conversion of machinery or equipment, or development of new methods or processes.</li> <li>Participates in short and long range planning. Makes independent decisions on work methods and procedures within the confines of the project. Takes necessary steps to successfully complete the assignment on time and within budget, assuming full responsibility for its technical excellence. Reports progress.</li> <li>Directs use of equipment and material. Represents employer's interests in dealings with senior representatives of customers, clients, contractors and suppliers.</li> <li>Requires good business planning and project management skills. Incumbents are required to motivate staff, set priorities and demonstrate sound judgement.</li> <li>Requires strong leadership and people management skills.</li> </ul>
<b>INDEPENDENCE</b>	Work is generally assigned in terms of broad objectives. Work is reviewed for accomplishment, policy, soundness of approach and general effectiveness.	Works under broad direction from a Plant Manager or Production Superintendent-depending on size of operations. Work is reviewed for accomplishment, policy, soundness of approach and general effectiveness.	Work is assigned in terms of broad objectives to be accomplished, leaving wide authority within the sphere. Given virtually no technical guidance, but subject to general administrative control.	Work is assigned in terms of broad objectives to be accomplished. Work is reviewed for policy, soundness of approach and general effectiveness. Work not usually subject to technical review.
<b>LEADERSHIP AUTHORITY</b>	Responsible for selection, training, discipline and termination of staff, which typically includes supervising engineers. Plans work effort, outlining more difficult problems and methods of approach.	Directs the activities of all assigned staff, evaluating performance, establishing developmental plans and approving salary adjustments. Has wide latitude for decisions affecting operations. Participates in the development of strategic plans.	Gives technological advice and direction to a group of professional specialists. Outlines difficult problems and methods of approach. Coordinates work programs and directs use of equipment and material. Participates in the strategic planning process.	Assigns work to staff, outlining problems and advising on difficult problems and methods of approach. Coordinates work programs. Reviews work of subordinates for technical accuracy and adequacy.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 9 to 12 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 9 to 12 years, typically with several years supervisory experience.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 9 to 12 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-at least 9 to 12 years involving project engineering work.
<b>TYPICAL JOB TITLES</b>  Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Director-Engineering, Principal Engineer, Division Engineer, Project Director, Chief Engineer.	Production Manager, Production Engineer, Production Superintendent, Engineering Manager, Principal Engineer, Sr. Product Engineer, Division Engineer.	Research Director, Sr. Research Engineer, R&D Engr'g Director, Principal Engineer, Technical Councillor, Director—Engineering Development, Division Engineer, Chief Engineer, Professor.	Sr. Project Engineer, Project Manager, Project Director, Construction Manager.



# PEO Survey Benchmarks - Engineering Levels E & F

	COMPUTER SYSTEMS-Level E	SUPERVISORY-Level F	PROJECT-Level F	RESEARCH & DEVELOPMENT-Level F
<b>SUMMARY</b>	Directs the work of a group of highly qualified professional engineering specialists involved in the design, programming, testing and related support work for computer and computer controlled systems. Participates in engineering standards and policy development. Works under administrative or high level technical direction.	Manages a large staff, administering and coordinating several engineering professional, sub-professional, technical and/or trades functions. Works under broad administrative direction.	Plans, organizes and directs complex, major projects requiring the coordination of a variety of different portions or phases. Manages a project team including engineering professionals, technical and support staff with overall responsibility for design, construction, procurement, budget and scheduling. Works under broad administrative direction.	Acts as a recognized consultative authority in an important field of engineering, development, or research, formulating broad approaches to the solution of large scale problems. Plans, organizes and develops design and/or applied research activities, giving advisory direction to a small group of highly qualified engineer-specialists. Receives broad administrative direction.
<b>TYPICAL RESPONSIBILITIES AND COMPETENCIES</b>	<ul style="list-style-type: none"> <li>Plans, controls, directs and monitors the work of highly qualified engineering specialists involved in designing, programming and commissioning complex computerized information and/or control systems.</li> <li>Assigns work to staff that requires the development of software and hardware products and systems involving mature engineering analysis and design.</li> <li>Participates in the development of new concepts, philosophy, standards and engineering policy in fields such as instrumentation and control, or control computer applications. Ensures compliance with standards and policies.</li> <li>Ensures appropriate training for staff, recommends hiring, transfers, promotions.</li> <li>Requires strong leadership and people management skills to develop and motivate staff.</li> <li>Project management skills needed to maintain schedules and coordinate effort.</li> </ul>	<ul style="list-style-type: none"> <li>Works independently on broad general assignments with responsibility for planning associated activities, limited only by company policy.</li> <li>Participates in establishing objectives and basic operating policies. Devises ways of reaching program objectives in the most economical and effective manner.</li> <li>Acts as engineering consultant and adviser to the organization.</li> <li>Requires high level leadership abilities to conceive program goals and directions, plan work efforts, establish an effective team and motivate subordinate managers.</li> </ul>	<ul style="list-style-type: none"> <li>Works independently to plan, direct and coordinate major projects involving large capital expenditure for new construction or conversion of existing processes, systems or structures.</li> <li>Schedules and organizes all phases of a major project, reviews engineering and design schedules, staffing budgets and controls. Monitors budget and progress.</li> <li>Provides technical advice and guidance to subordinate engineer-specialists and/or project managers responsible for component phases. Identifies creative, practical solutions to technical problems.</li> <li>Exercises management responsibility with respect to selection, appraisal and training of staff.</li> <li>Requires strong communication and presentation skills to represent the employer to senior customer or client representatives.</li> <li>Demonstrates strong leadership ability to motivate staff and coordinate effort.</li> </ul>	<ul style="list-style-type: none"> <li>As a senior engineering consultant, provides specialized advice of an advanced technological nature.</li> <li>Participates in determining basic policies governing research/development and/or design.</li> <li>Directs research into new resources, products, processes or methods. Acts as a final technical authority in the interpretation and evaluation of data obtained from various engineering research investigations.</li> <li>Contributes significantly to the growth of engineering knowledge. Keeps conversant with advanced technological developments.</li> <li>Capable to effectively direct complex and diversified projects. Able to visualize, develop and coordinate programs of major scope and importance.</li> </ul>
<b>INDEPENDENCE</b>	Works within broadly defined technical standards and objectives. Work is reviewed for accomplishment, policy, soundness of approach and general effectiveness.	Work is reviewed for accomplishment, adherence to company policy, and coordination with other phases of the company's operations.	Exercises broad management authority. Receives administrative direction pertaining to the objectives and policies of the organization.	Receives administrative direction limited to that concerned with the objectives and policies of the organization. Receives direction necessary to ensure coordination of overall effort.
<b>LEADERSHIP AUTHORITY</b>	Responsible for selection, training and development of staff. Plans and allocates work assignments, outlining difficult problems and methods of approach.	Makes decisions regarding the selection, development, evaluation, discipline and termination of staff. Reviews and evaluates technical work. Plans, schedules and coordinates to attain program objectives. May lead in the development of long term strategic plans.	Provides technical and administrative direction to subordinate staff and senior professionals. Reviews and evaluates technical work, delegates authority, interprets directives and issues guidelines. Recommends organizational changes, and makes recommendations on selection, development, evaluation and discipline of staff.	Gives consultative direction to a group of highly qualified specialists. Reviews and evaluates technical work. Selects, schedules and coordinates to obtain program objectives. Provides key input to the development of strategic plans for the organization.
<b>TYPICAL MINIMUM QUALIFICATIONS</b>	Bachelor's degree in Engineering, or Applied Science, or equivalent.  Related working experience from graduation-at least 9 to 12 years.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Broad engineering experience, including administrative responsibilities, usually greater than 13 years from graduation.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-13 years or more.	Bachelor's degree in Engineering, or Applied Science, or equivalent. Related working experience from graduation-13 years or more.
<b>TYPICAL JOB TITLES</b>  Only incumbents licensed with PEO may use the title "professional engineer" or any variation (eg. project engineer) – Ref see pg 3.	Manager-Systems Engineering, Principal Engineer-Control Systems, Sr. Systems Engineer, Mgr.-Instrumentation & Control.	Director-Engineering, Principal Engineer, Chief Engineer, Department Head or Dean.	Principal Engineer, Project Manager, Project Director, Construction Manager, Engineering Director.	Director-Research & Development, Director-Engineering, Vice President-R&D, Chief Engineer, Technical Councilor.