ELEVATOR ENGINEERING

By Sefa Targıt

How many people did you know, within your immediate vicinity, living or working in a building equipped with an elevator in 60s or even 70s, and how many people remained living in a building not equipped with an elevator today? If you think about this question just for a little while, you can easily see the high rate of growth of the elevator industry and foresee that the same acceleration will continue in the next years. This proves that the elevator industry is a young and dynamic field, and that its concepts and disciplines are in progress for now.

With its evident exclusivity and coverage of multiple branches, and without the limitation of any traditional engineering branches, the elevator industry has created its own engineering discipline in its natural course of development.

What is engineering? Let us look through a few definitions and the etymological origin of this word.

Engineering is a profession that puts the natural substances and forces to effective use by human being by intelligently using the information gained from mathematical and natural sciences through conceptual and experimental works and practice, and by developing economical methods.

Engineering is the art of creating products valuable for humans by utilizing scientific and mathematical principles as well as experiences, decisions and widely accepted opinions.

Engineering is a process of producing technical products and systems necessary for meeting a certain requirement.

The word “mühendis” (engineer) that we use in Turkish is Arabic origin and means the “hendese” (geometry) specialist. Etymologists explain that the words “ingenious” and “engine” came from a Latin origin word “ingenerate” meaning “invent”. Since the word “engine” had been previously used with a meaning of “invent” in English, the persons that invent or design new things had been defined as engineers.

The power outage recently occurred in New York revealed how the elevators are important in our daily life and thus, the elevator engineering keeps its position within the frame of the above-given definitions.

Today, elevator engineering is an area that is accepted by the universities as a field of expertise focusing on a single product as in the fields of Automotive Engineering, Marine Engineering, Aircraft Engineering and Computer Engineering. Elevator engineers have some organizations such as IAEE as in other specific engineering fields.

Now, let us make clear, with the following description of the US Florida State Employee Relations Department, the definition and position of this engineering field in which so many friends of us actively work:

Elevator Engineer

Minimum Qualifications

Graduation from an accredited college or university with a Bachelor's degree in Mechanical Engineering or Electrical Engineering. Must be registered as a professional engineer with the State of

Florida or be able to obtain registration within one year of appointment. Two years of responsible supervisory experience in elevator engineering and operational management are required. Completion of the State of Florida Elevator Inspector's Test is required.

Job Specifications

NATURE OF WORK

This is supervisory professional mechanical and electrical engineering work in the management of county vertical and horizontal transportation equipment.Employees in this class are responsible for reviewing the performance of contractual firms providing maintenance, repair, construction or modification services for vertical and horizontal transportation equipment. Emphasis of the work is on supervising subordinate employees engaged in periodic inspections of systems, monitoring existing contracts, developing contract specifications, responding to requests for services from county departments and serving as a consultant on major repair or construction projects. Responsibilities include developing and reviewing operational costs and reviewing bid requests for compliance with contract specifications. Incumbents exercise considerable independent judgment and make complex technical decisions referring difficult problems and matters of policy to a professional superior. Supervision is exercised over subordinate employees engaged in the periodic inspection of vertical and horizontal transportation equipment. Supervision is received from a professional superior who reviews work for conformity with departmental practices, county ordinances and regulations.

ILLUSTRATIVE TASKS

Supervises, assigns and reviews the work of subordinate employees engaged in periodic field inspections.

Prepares detailed specifications for elevator service, maintenance and bridge crane contracts; develops levels of service, response time to emergencies, frequency of service and related contractual requirements.

Responds to requests for modifications or new construction projects; provides direction on operational feasibility and type of equipment necessary; provides engineering cost estimates and related computations; makes recommendations on difficult and complex engineering problems.

Monitors existing contracts for compliance with contractual, safety and other code requirements; approves invoices and reviews and approves modifications to contractual agreements.

Conducts periodic inspections to insure safe and efficient operation of county elevators, escalators, bridge cranes, stage lifts, conveyor systems, moving sidewalks and related equipment; monitors rated speed of units, adjustments to electric circuits and sequence of operations for compliance with manufacturer specifications and code requirements.

Reviews bid requests and inspects contractor files and other records to determine ability to fulfill contract specifications such as acquisition of parts, critical and noncritical response time; makes recommendations for award of contracts.

Serves as consultant on all major repairs, modifications and upgrade of elevators, escalators, bridge cranes, stage lifts, conveyor systems, moving sidewalks and related equipment.

Serves as consultant on construction projects; organizes maintenance and inspection schedules; provides continual review of construction phases.

Prepares budget projections and provides review of operational costs for maintenance and repair services.

Maintains records and prepares periodic reports of maintenance and repair services; compiles data for use in developing specifications and exploring cost saving alternatives; prepares resolutions for Commission approval.

Develops and schedules preventive maintenance programs.

Makes recommendations regarding hiring, discipline and promotion of subordinates; authorizes leaveand overtime; evaluates and rates employee performance.
Performs related work as required.

KNOWLEDGES, ABILITIES AND SKILLS

Thorough knowledge of the principles and practices of mechanical and electrical engineering.
Thorough knowledge of the operating characteristics, maintenance requirements and specifications of different types and makes of vertical and horizontal transportation equipment.
Thorough knowledge of applicable regulatory codes pertaining to the construction, maintenance and installation of vertical and horizontal transportation equipment.
Considerable knowledge of computerized equipment utilized in vertical and horizontal transportation systems.
Knowledge of the principals and practices of modern office administration.
Knowledge of supervisory principles, practices and procedures.
Ability to perform advanced engineering work in the management of county vertical and horizontal transportation equipment and systems.
Ability to make engineering cost estimates and related computations.
Ability to draft a variety of plans and specifications for vertical and horizontal transportation equipment.
Ability to maintain records and prepare clear and concise reports of operational activities.
Ability to establish relationships with contractors, tradesmen and government officials
Ability to supervise subordinate employees in a manner conducive to full performance and high morale.

The above-mentioned definitions explain the level of knowledge and experience necessary for being an elevator engineer and for working in an elevator company, in an independent auditing organization or in relevant public administrations.

Also, yearly wages of elevator engineers are specified between $ 47,075 and $ 78,742 in the same text.

In Turkey, there will be a need for an elevator engineering training program first at the post graduate level and then at the graduate level. As a first step, we started to install a training-test elevator in Istanbul Technical University under the leadership of and in agreement with Associate Professor Erdem İmrak. Having Asray's provision of the main tower structure, rails and engine, and the contributions of Ersan Barlas reflecting his valuable opinions, this project is open to all kinds of opinions from the industry.

In the development of the elevator industry, the contributions of the elevator engineers knowing professional definitions and establishing platforms for information exchange will be high.

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