QUALITY OFFERED TO MANUFACTURERS (*)
By Sefa Targıt

According to the modern quality approach, the quality system must also inquire what are offered to the company partners and employees in the course of the company activities, and at which quality level they are offered.

It is known that the lift passenger is the main concern in formulation of measures against the probable hazards on lifts. However, when we look at the other face of the medallion, we see that assurance of life safety of the lift workers is also as important as protection of passengers.

The risk assumed by passengers traveling on the lifts equipped with many safety equipment is fairly smaller than the risk assumed by lift workers who enter into hoistway for installation or service purposes.

That is why serious measures must be taken and strict rules must be observed in installation or maintenance of lifts.

It will be useful to formulate a policy on the work safety that is proposed to be a part of the quality assurance system. The International Labor Organization (ILO) has carried out some studies and made the following suggestions on this policy:

The employer, in consultation with workers and their representatives, should set out in writing an OSH policy, which should be:
(a) specific to the organization and appropriate to its size and the nature of its activities;
(b) concise, clearly written, dated and made effective by the signature or endorsement of the employer or the most senior accountable person in the organization;
(c) communicated and readily accessible to all persons at their place of work;
(d) reviewed for continuing suitability; and
(e) made available to relevant external interested parties, as appropriate.

The OSH policy should include, as a minimum, the following key principles and objectives to which the organization is committed:
(a) protecting the safety and health of all members of the organization by preventing work-related injuries, ill health, diseases and incidents;
(b) complying with relevant OSH national laws and regulations, voluntary programmes, collective agreements on OSH and other requirements to which the

organization subscribes;
(c) ensuring that workers and their representatives are consulted and encouraged to participate actively in all elements of the OSH management system; and
(d) continually improving the performance of the OSH management system.
The OSH management system should be compatible with or integrated in other management systems in the organization.

Worker participation
1. Worker participation is an essential element of the OSH management system in the organization.
2. The employer should ensure that workers and their safety and health representatives are consulted, informed and trained on all aspects of OSH, including emergency arrangements, associated with their work.
3. The employer should make arrangements for workers and their safety and health representatives to have the time and resources to participate actively in the processes of organizing, planning and implementation, evaluation and action for improvement of the OSH management system.
4. The employer should ensure, as appropriate, the establishment and efficient functioning of a safety and health committee and the recognition of workers' safety and health representatives, in accordance with national laws and practice.

Continuous observation of the safety conditions is a must in the lift sector. Through periodic and preferably daily controls, the unsafe work practices and conditions which may cause injury or (I do not even want to spell, but) death of the lift installation workers and other construction workers must be checked and reviewed.

If you are managing a lift company, you, as a specialist, must be aware of all job site hazards and immediately take the required corrective actions. In order to be aware and to take the required actions, you must have received the following information:

- Are the required information and signs provided by you and posted at the job site? (emergency phone numbers, warning signs, etc.)
- Is the job site equipped with first aid kits approved by you? Are they periodically checked and are any deficient items completed?
- If there is no hospital or clinic in the vicinity, are there personnel trained on first aid at the job site?

- Are the personnel wearing the personal protective equipment (for instance, gloves, work boots/shoes, hard hats, body safety belt (harness), safety shields, protective eye glasses, welding helmets, etc.) as required?
- Is the site clean and free from rubble? Are the materials stored or stacked regularly, tidily and at a safe distance from your working area?
- Are the fire extinguishers at easy-to-access places and are they checked every day?
- Are there earth leakage circuit breakers and are they used as required?
- Are the copies of documents used for recording the Danger Reporting Program and Materials Safety data of the company made available at the job site?
- Are the dangerous materials (welding and cutting equipment, etc.) stored as required?
- Are there locking equipment and labels and are they used as required?
- Are there sufficient and adequate guard rails, open platforms, scaffolds, etc. and do the workers use the fall restraint systems?
- Are all hoistways, entrances, escalator wellways and other open spaces adequately protected by demountable guard rails as specified and required?
- Are all hand tools and electrical devices and equipment safe and grounded or double-insulated?
- Are the defective tools and equipment labeled by labels approved by your company and are they removed out of use and service?
- Are the hoistway and lifeline harnesses in good operating order and are they checked appropriately?
- Are the material transport equipment in good operating order and are they checked appropriately?
- Are all stairs and scaffolds in good situation and are they used as specified and required?
- Are the warning signs approved by your company posted and hung at the specified places on the job site?
- Are the working areas and common function areas adequately illuminated?
- Are there any specific dangers (i.e. chemical plants, oil refineries, etc.) for the job site? If so, have additional measures and actions been taken against such dangers?
- Are the switches labeled as required?
- At the pit, are there sufficient protective equipment (counter-weight shield, etc.) and lids, and is the ground dry and is the entrance/exit safe?

Beside the general and basic measures listed above, now, let us focus on the fall which is a very important risk in the lift operations.

A worker who is at a height of 1.8 m from the ground level and above an open space of which diameter is greater than 254 mm is considered to be under fall risk.

Two types of measures may be taken against fall risk:

1) to take measures for restraining fall (such as guard rail, barrier, etc.) and
2) to use a fall arresting/safety system which is engaged upon fall (such as safety belt/harness, etc.).

(1) Rules on fall restraint systems such as guard rails, barriers, barricades, etc.:

- After completion of construction of the elevator hoistways and escalator wellways and before erection of the permanent doors, the open spaces will be protected by demountable guard rail systems (including toe boards).
- In short-term service works, a temporary hinged-type three-level barrier may be used.
- Demountable guard rail systems (with toe boards) will be installed on the elevator hoistways or escalator wellways by the General Construction Contractor after installation of rough or decorative floors, and warning signs will be placed in order to ensure that these systems are not removed.
- If and when it is required to remove barricades, you must be sure to have reinstalled them before leaving the field.
- Guard rail systems for open elevator hoistways or escalator wellways will be composed of a top rail at 1067 ± 76 mm height, and a midrail at 533 mm height, and a toe board at 102 mm height.
  Distance between uprights will not be larger than 2.4 m, and top rail, midrail and toe board will resist against respectively 890 N, 667 N and 222 N forces.
- Some parts of the barrier will be demountable for access purposes, without fully dismantling the barrier.
- Guard rail systems of wire rope are not recommended for protection of elevator hoistways and escalator wellways. Nevertheless if wire rope is used, the distance between uprights will not be greater than 2.4 m, and when a force of 890 N is applied, the height of guard rail above the walking/working level will not fall below 990 mm.
- Sign flags will be hung and toe boards will be installed at 1.8 m intervals, and they will be easy-to-demount on the last floors for easy access to hoistway.
- In new installation, modernization or major repair works in a building under use, at least 2.4 m high one-piece barricades will be used in order to fully close the working area and the open

elevator hoistways and escalator wellways. They will be protected appropriately in order to prevent access of unauthorized persons.

- If at any time the guard rails or barricades are not kept on site as specified, the lift erectors are required to immediately warn the Site Manager and the officials of the General Construction Contractor. This is due to the site organization, because it is always the responsibility of the General Construction Contractor to manage the job site where a great number of workers from various different subcontractors work at the same time, and only the General Construction Contractor has the powers parallel to such responsibility.

(2) Rules on the fall arresting/safety system to be engaged upon a fall event:

- Only lifelines, shock-absorber lanyards and safety belts/ harnesses approved by the responsible authorities will be used.
- Lifelines will be protected against breakage, cutting or wear and tear. Only synthetic or wire rope will be used for lifelines.
- Lifelines will be installed before start of works in the hoistway, and will be one-piece along the hoistway length, and will be arranged to be connected before entering the hoistway.
- Only one worker will be permitted to be connected to one lifeline, and after connection to the anchorage point, its tearing strength will be above 2268 kg.
- Shock-absorber lanyards will be connected to lifelines, and will be above the shoulder height so that the fall distance does not exceed 1.8 m.
- Lanyards will be connected to lifelines by means of a rope grab. Lanyard will not be connected to lifeline directly (without a rope grab). An appropriate rope grab will be absolutely used.
- Lifelines, body safety belts/harnesses and shock-absorber lanyards which are exposed to shock load will immediately be removed out of service, and will be destroyed for the sake of worker safety. It is prohibited to connect the safety belt/harness on the car hoist line. Due to the risk of entangling with the ropes, personal safety system will not be used on a completed in-service elevator cabin, unless there is a specific fall danger.

Some of the figures (such as 990 mm or 220 N) given in the above paragraphs are not whole numbers because the information is quoted from the “Work Safety in Elevator Erection Works” published by the United States of America, Ministry of Labor, Occupational Safety & Health Administration (OSHA) and is then converted into metric units. I would like to draw your attention particularly to the phrase “published by the Ministry” in the previous sentence. Such regulations are by nature general guidelines, and are prepared and issued by the relevant sector representatives upon demand of the public authorities and are then presented to the public authorities for approval and publication in many countries. For instance, in U.S.A., NEMI (National

Elevator Manufacturing Industry, Inc.), NEII (National Elevator Industry, Inc.), NEIP (National Elevator Industry Educational Program) and ASSE (The American Society of Safety Engineers) are making substantial and great contributions to these regulations.

The Workers' Health and Work Safety in Construction Works Bylaws, which is currently in force in Turkey, has first been enacted and published in the Official Gazette issue 15004 on 12.09.1974. I wish to quote some articles of the bylaws, without any comment, for comparison purposes:

"*Article 7: Scaffolds, platforms, walkways, guard rails, flyers, lifelines and safety nets, chains, cables and other protective and safety tools and equipment used in the construction works and job site, and safety belts/harnesses and other materials and equipment provided to the workers will be fit and convenient for the works and be adequate to protect the workers from all kinds of dangers, and all of such equipment, tools, materials and harnesses will be capable of resisting to the loads thereon, and hard hats will be provided to all workers working at the sites where tools, parts, materials and similar other objects may fall."*

"Article 11: Guard rails will be installed on open spaces and holes at the ceilings and floors, or these holes will be temporarily closed appropriately and as required."

"Article 16: At job sites exposed to strong winds, no worker will be ordered to work unless the required safety measures are full taken."

Life safety in construction works may be assured by bylaws of 29 years old. However, if the bylaws, just like some other regulations, have been prepared by persons who are not entirely knowledgeable on the subject matter thereof, and it does not contain technical details, as underlined above, and it is only limited by some wishes of common sense of an amateur, the works cannot be managed and directed in the right direction.

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