



Elevator/Escalator Maintenance Tasks and Procedures

Maintenance providers of elevators and escalators are responsible for providing a level of service that ensures the equipment is reliable and performs as designed. Our industry is well aware that many maintenance providers are providing less than adequate maintenance service and this trend needs to be reversed.

Currently, American Society of Mechanical Engineers (ASME) A17.1/8.6.1 provides specific requirements for elevator and escalator maintenance. At a minimum the maintenance provider is required to have a written "Maintenance Control Program" that addresses required maintenance procedures and intervals. While many maintenance providers may have developed a written program, there is still an issue with required implementation.

Continuous Maintenance

We all recognized the need for continuous maintenance optimization and for the improvement for inspection, maintenance, repair, testing, and condition-monitoring practices and procedures. Paramount to the safety and effectiveness of any maintenance operation is the development of enhanced maintenance tasks and procedures with innovations that:

- Improve the quality and accessibility of information provided to maintenance personnel
- Clarify the roles and responsibilities of the maintenance team members
- Reduce the risks associated with human error

Effective/Optimum Maintenance Programs

Effective maintenance programs need to be continuously adjusted to respond to changes in the operating conditions and age of the equipment. The maintenance tasks and procedures should be used in conjunction with other continuous improvement plans. Optimum maintenance programs have to take into account that the "real" age of equipment depends on historical operating conditions and maintenance. Since operating conditions, age, and failed components change with time, the maintenance provider's program needs to be periodically adjusted. As a result, over the years, an effective maintenance operation will continuously keep maintaining and updating their tasks and procedures to reflect changes in equipment, age, and operating conditions.

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Implementing a Maintenance Program

The implementation of effective maintenance tasks and procedures can eliminate problems from resurfacing on a continual basis and eliminate maintenance redundancy while improving reliability. Minimizing equipment breakdowns and emergency repairs results in increased customer satisfaction, reduced failure rates, and maintained level of service while optimizing cost exposure.

With the knowledge of equipment type and the current condition, maintenance tasks and procedures should be tailored using this information to make performance-focused



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Complex machinery requires periodic maintenance and repairs to keep its parts moving. Thousands of maintenance providers are on the road each day to maintain, repair, and assist in emergencies situations. Service technicians who maintain and repair customers' elevator and escalator equipment perform both preventive maintenance and services for customer trouble calls (callbacks). Maintenance tasks include periodically adjusting equipment, examining and repairing or replacing worn components, and lubricating parts.

Depending on the equipment characteristics, environment, and usage, technicians perform various maintenance tasks on individual elevators or escalators at intervals ranging from weekly to yearly. For any building, depending on the number of units, usage patterns, and contractual requirements, preventive maintenance or inspection activity will vary accordingly.

We sincerely hope that you find this information helpful in your day-to-day activities. Feel free to e-mail me directly at dhansen@vtexcellence.com. 

At VTX, our momentum is taking us to new heights. Our group of industry professionals specialize in the design, modernization, maintenance, and inspection of elevators, escalators, moving walks, and technology consulting. We serve the educational, healthcare, commercial, and transportation markets including aviation, nationwide. We recognize that each project requires a detailed, integrated process that is customized to meet the owner's needs. Our designers, industry experts, and analysts have one focus: to help our clients achieve their goals through practical design and program management.

maintenance decisions that save costs, allow adequate amount of maintenance, and help achieve or significantly exceed strategic goals and objectives.

The safety of performing maintenance tasks can be increased by having lockout lists and safety warnings for each task. When the pressure is on to get equipment up and running, mistakes are more likely to happen. The possible reduction of safety hazards alone can be a large cost savings.

Requirement for Maintaining Maintenance Records

ASME A17.1/8.6.1.4 outlines the requirements for maintaining maintenance records reflecting the maintenance tasks including adjustments, callbacks, examinations, repairs, replacements, and tests. Documentation must include tasks descriptions, corrective action, date of service, and must be available for viewing. From our experience the majority of the elevator and escalator maintenance contractors are currently not setup to comply with these requirements.

Adhering to these requirements is achievable through the implementation of a computerized maintenance management system (CMMS). Maintenance tasks and procedures can easily be entered into a CMMS along with other pertinent information of the elevator and escalator equipment. Whenever a scheduled or corrective maintenance task needs to be performed, the technician can be notified electronically or provided with a hardcopy of a work order. The work order would provide detailed procedures for locking out equipment, parts needed, along with instructions on how to perform the task. Completion of the work order can be achieved in the same format as the notification. The accuracy of the documentation is paramount, and it is not easily passed from person to person by word of mouth.

Some CMMS systems are expandable to levels where additional support documents are made available to the maintenance technicians. Examples would be the ability to view electronic copies of wiring diagrams, sequence operations, operation and maintenance manuals, parts inven-

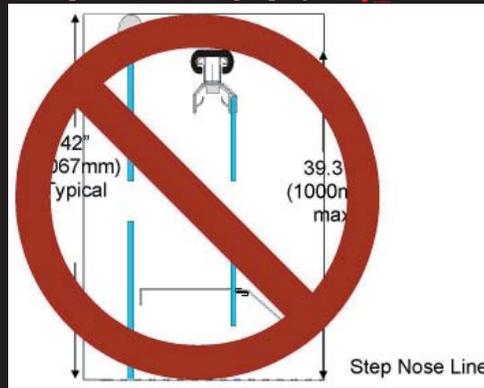
tory, and historical events. When a maintenance technician has a workload that requires nothing but response to relentless service calls, their work performance will drop. Yet when the frequency of service calls is lessened and more of their work is properly planned, their interest will grow. Integral to the success of any CMMS is the commitment of the maintenance provider at the levels of services and the implementation of such a program will result in:

- Development of specific tasks and procedures customized to the elevator and escalator equipment
- Scheduled preventive maintenance tasks and procedures
- Maximized equipment reliability
- Minimized equipment and repair costs
- Increased labor productivity
- Reduced equipment downtime
- Increased equipment efficiency and life expectancy
- Optimized overall maintenance program efficiency
- Tracked and analyzed equipment information and history
- Analyzed historical maintenance issues and help predict future events

In a world where sustainable, cost-effectiveness, and productivity is vital, the focus on increasing the maintenance provider's profit is achievable by enhancing the performance of their maintenance operation. 

Code Corner (cont.)

One last potential for confusion is if a local jurisdiction still operates under the older version of the Code. Careful clarification of this issue in both design and construction is advised so no further confusion delays or other problems during a project. 



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Requirement 6.1.3.6.6 Floor Opening Protection Adjacent to Escalator Wellway **will be deleted in the next edition of ASME A17.1.**

Faithful readers of Momentum may recall our discussion of this requirement and interpretation regarding the protection of the escalator wellway (issue 2005.1). ASME A17.1 clearly stated and approved an interpretation indicating that the protection was to be provided along the incline of the escalator, not just at either end.

Following the Law of Unintended Consequences, a number of local jurisdictions and clients have had issues turning projects over without wellway protection along the length of the escalator. We have heard several circumstances where building owners felt that the escalator manufacturer should supply this protection, since it is a requirement of the Escalator Code.

Enough of these situations came to a head and another request for interpretation was submitted to ASME A17.1 to revisit this issue. At the last ASME A17.1 Standards Committee meeting, the following changes were approved:

6.1.1.1 Protection Required: Floor openings for escalators shall be protected against falls, the passage of flame, heat, and/or smoke in accordance with the provisions of the applicable building code (see Part 9).

6.1.3.6.6: Delete

~~6.1.3.6.6 Floor opening protection adjacent to escalator wellway:~~ Floor openings adjacent to the entire length of the escalator wellway shall be provided with protection in accordance with the applicable building code (see Part 9).

Rationale: To clarify that floor opening protection is addressed in the applicable building code.

What this means is that the Floor Opening Protection rule that caused confusion for so many people has been deleted from the new edition of the Code. The need to protect against falls is clearly placed into the applicable building code.

While this may appear to be a simple solution, it should be noted that falls over the sides of escalators has happened with terrible results. This protection is important, but should be addressed by the proper design professional responsible, not the Escalator Manufacturer.