

# INTERIM PROCESS FOR INTRODUCTION OF ALTERNATIVE TECHNOLOGY

## INTRODUCTION

Elevator technology is advancing at a rapid pace. The advent and wide use of the Essential Safety Requirements of the Lift Directive in the European Union (EU) has accelerated the pace of change. As safe elevators based on alternative technology become available, there is an increasing demand for these products in the United States. The Safety Code for Elevators and Escalators, ASME A17.1 is based on prescriptive language and takes time to revise, due to the nature of the consensus process. This has deterred the introduction of alternate technology into the United States as there is no uniform, structured process that is universally acceptable to the enforcing authorities. The ASME A17 Standards Committee has recognized the need for an alternative to ASME A17.1 and is in the process of developing a Performance Based Safety Code for Elevators and Escalators, ASME A17.X/CSA B44.X. However, publication of this document will not occur for a number of years. In the meantime the current version of ASME A17.1 does recognize the need for a method for the introduction of alternative technology. The preface to the ASME A17.1 Code states the following:

### *Application of Requirements to New Technology*

*Where present requirements are not applicable or do not describe new technology, the authority having jurisdiction should recognize the need for exercising latitude and granting exceptions where the product or system is equivalent in quality, strength or stability, fire resistance, effectiveness, durability, and safety to that intended by the present Code requirements.*

This issue is further addressed in Section 1.2 of the ASME A17.1 Codes, which state the following:

*The specific requirements of this Code may be modified by the authority having jurisdiction based upon technical documentation or physical performance verification to allow alternative arrangements that will assure safety equivalent to that which would be provided by conformance to the corresponding requirements of this Code.*

While the purposes of the foregoing provisions in the ASME A17.1 Code are clear, the implementation is difficult in practice, when new or alternate technologies not addressed by the Code are to be accepted by local authorities, as there is no uniform process of establishing equivalent safety that may be readily applied. A uniform process would be of assistance to the Authority Having Jurisdiction (AHJ) in establishing that the alternative technology is being safely applied. At the same time, it would be valuable to the equipment provider who will have a clear method to follow.

In the interim, prior to the publication of the Performance Based Safety Code for Elevators and Escalators, ASME A17.X/CSA B44.X, the following is the recommended practice; that elevator companies should follow when making application for the acceptance of new or alternate technology not addressed by the Code; and that AHJ's should utilize when allowing alternative arrangements under Section 1.2 of ASME A17.1. This uniform process establishes that the design of the equipment has met the level of safety intended by the ASME A17.1 Code. The conformance of the actual equipment installed to the approved design would be verified by acceptance inspection and approved by the AHJ. In a similar way, subsequent periodic inspections would be under the direction of the AHJ. The current authority of the AHJ would not be diminished in any way.

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## **APPLICATION**

Where an application under Section 1.2 of ASME A17.1 is based on "technical documentation" the applicant shall supply the AHJ with the following:

1. Equipment or system description, including drawings or diagrams detailing the components for which the application is being made.
2. Documentation detailing the prescriptive requirements in the ASME A17.1 Code that the alternative technology does not meet.
3. Information to demonstrate that the alternative technology meets the requirements of Section 1.2 of the ASME A17.1 Safety Code for Elevators and Escalators, is safe for the intended use and details how the alternative technology will provide equivalent safety to that which would be provided by conformance to the corresponding prescriptive requirements in ASME A17.1. The documentation shall include the risk assessment and risk reduction methodology used (e.g. Hazard Analysis, ISO/TC 14798, FMEA, fault tree analysis, etc.) describing hazards that have been addressed and any supporting test data.
4. Documentation detailing operational and maintenance instructions for inclusion in the Maintenance Control Program (e.g. ASME A17.1, requirement 8.6.1.2.1).
5. Documentation detailing procedures for inspecting and testing to verify compliance with the above provisions.
6. Certification documentation from independent third party, if available.
7. The name of jurisdictions that have accepted the alternative technology, including conditions of acceptance.
8. A signed application and include a statement "that in the opinion of the applicant the alternative technology meets the requirements of Section 1.2 of the Safety Code for Elevators and Escalators, ASME A17.1 and is safe for the intended use". Where required by the AHJ, the application shall be signed and sealed by a professional engineer.

## **CONCLUSIONS**

This initiative should provide an interim process, which will allow for the introduction of safe alternative technology, until the Performance Based Safety Code for Elevators and Escalators is published. It will remove artificial barriers by providing a structured process to assure equivalent safety is provided when the prescriptive requirements in ASME A17.1 cannot be met.

## **APPROVALS:**

National Elevator Industry, Inc. Central Code Committee – 13-Mar-04.

National Association Elevator Safety Authorities, International Board of Directors – 09-Aug-04.