



The Benefits of Machine Room-Less Elevators

The machine room-less (MRL) elevator for low- to mid-rise buildings is one of the most significant innovations in the elevator industry. Following success seen in the European market, installation rates across the United States and Canada have been growing rapidly over the last ten years. So, what are the benefits that have helped MRLs become the industry standard in elevator design? Improved safety, energy efficiency, performance and increased leasable space to name a few. But first, a little history.

MRL elevators were introduced to the industry in the late 1990s when the reduction in the size of component parts, such as the permanent magnet motor (PMM), allowed the machine to be located in the elevator hoistway. This breakthrough innovation, combined with reducing the size of motors used for traction equipment, eliminated the need for an elevator machine room. The technology, which was first included in the model safety codes for electric and hydraulic systems in ASME A17.1S-2005 and quickly became an industry standard, is well proven.

Improving Safety

As with any new technology, safety is a primary concern. Before being included in the ASME A17.1S-2005 Safety Code for Elevators and Escalators, MRL technology was reviewed extensively by a wide array of industry stakeholders and underwent a rigorous risk analysis. As a part of the ASME A17.1/CSA B44 Safety Code, MRL designs are more readily accepted by the experts in the field. MRLs, like all other elevator systems, must meet rigorous safety requirements to ensure an equivalent or higher safety standard than traditional elevator designs with machine rooms.

Recently, however, MRLs designs have come under attack with detractors who cite generic safety concerns. Empirical data shows the sales of MRL equipment has increased from 14% of the market in 2005 to over 51% of the market in 2014. During the same period, accident rates for elevator personnel working for *NEII*[®] member companies has significantly declined based on U.S. Occupational Safety and Health (OSHA) Recordable and Lost Time Accident rate data. See Figure 1 (below). Moreover, *NEII* is unaware of any significant injuries in recent years that were the result of MRL equipment configuration.

Driving Energy Efficiency

MRL technology also yields greater energy efficiency. The reduction in the size of equipment and necessary horsepower requires less energy than conventional systems. Building owners can realize further energy savings without a machine room to heat, cool or light. MRLs can also be coupled with destination dispatch

systems or regenerative drives to further enhance energy savings.

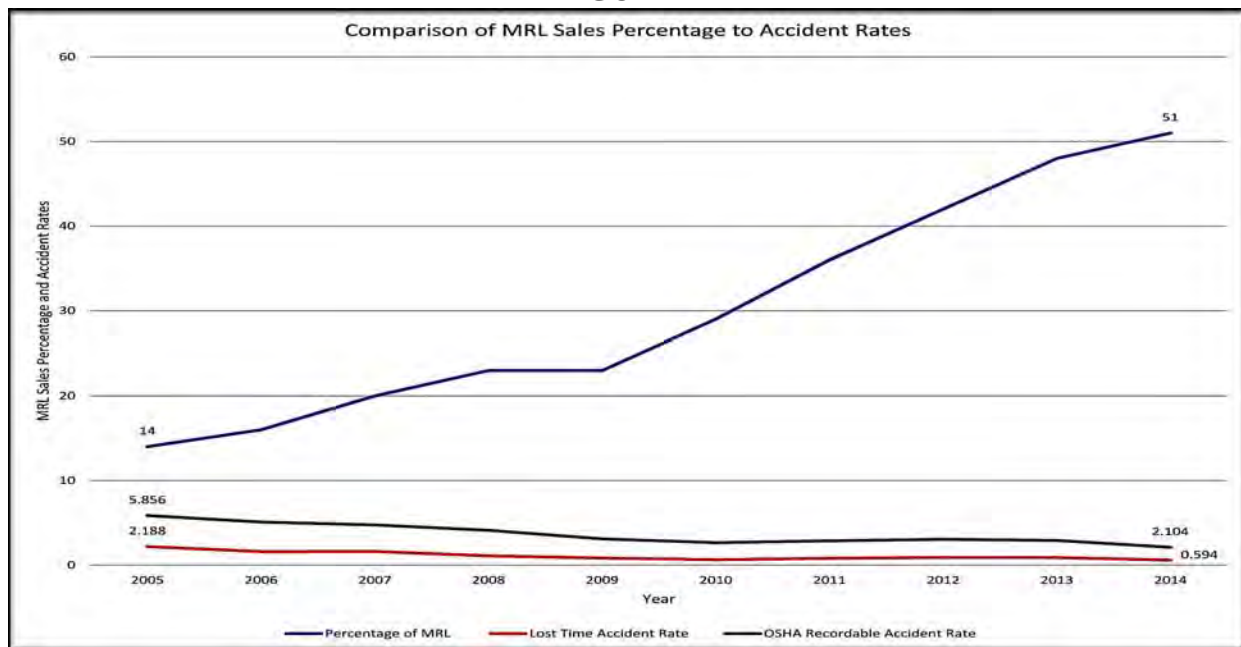
Overall, MRL elevators are capable of generating energy savings of up to 50% when compared to traditional designs.

Saving Space

The functionality of MRLs provides increased flexibility of space to architects who determine placement of each system and building owners who want to maximize revenue. With no need for the machine room, an additional 60+ square feet of previously unusable space can now be utilized for other purposes like living or office space, storage, parking or other revenue-generating purposes.

Over the last decade, MRLs have been the fastest growing product category and the new industry standard for installations in low- to mid-rise buildings around the world. In fact, over 90% of the equipment sold by *NEII*-member companies for low and mid-rise applications are MRL designs. For building owners or developers of low to mid-rise projects, the safety, energy efficiency and space-saving benefits make MRLs a clear choice.

FIGURE 1



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