



Machine-Room-Less (MRL) Elevators

General

The elevator industry offers an elevator product termed Machine Room-Less Elevators (MRL's). Application in new construction or major renovation projects compared to standard elevator equipment is a fairly significant decision as it will affect the design of the elevator hoistways and equipment rooms. This article reviews the product history, benefits and Lerch Bates' position on product applications.

History

The machine-room-less elevator is the result of technological advancements utilizing a significant reduction in the size of the electric motors used with traction equipment. The permanent magnet motors (PMM) allow the manufacturers to locate the machines in the elevator hoistway overhead, eliminating the need for a machine room. This design has been utilized outside the USA for more than 20 years and is now the U.S. standard product for low to low-mid rise buildings. Product acceptance was initially slow in the U.S. market because limited applications, inability to meet U.S. code requirements, and the few manufacturers offering an equivalent product.

Elevator manufacturers have overcome the obstacles to acceptance of the MRL product. All of the other elevator manufacturers are marketing their versions of the MRL. The product offering has been expanded to include most of the standard elevator sizes and speeds. In addition, local code officials have become more receptive to the technology. Most are now allowing the equipment to be installed in their jurisdictional areas, at least on a case by case basis.

Benefits of the MRL Elevator

- The use of the MRL elevator will save a significant amount of energy, estimated at 70-80%, as compared to hydraulic elevators. The power feeders for the MRL are also significantly reduced due to the efficient motor design and the counter-balancing provided with traction equipment.
- The MRL elevator eliminates the cost and environmental concerns associated with a buried hydraulic cylinder filled with hydraulic oil.
- The MRL elevator utilizes a gearless traction type machine, which results in superior performance and ride quality compared with hydraulic elevators.

Recommendation

Based on experience with each product application, its reliability and serviceability, Lerch Bates Inc. supports and approves the use of MRL elevators in appropriate applications.

Prior to accepting any vertical transportation option we recommend the building planner review the building requirements and the options capabilities to determine if the option is the correct solution. We emphasize that building requirements vary significantly to accommodate different manufacturers' MRL elevator product. This is due to different methods of cab suspension, locations of the machine, controls and counterweight.

Lerch Bates continues to urge our clients to secure long term maintenance pricing when soliciting new equipment pricing. This method of procurement will ensure a competitively priced maintenance program as well as allow for a beneficial life cycle cost comparison to traditional traction elevator products.