In recent years, there has been greater emphasis on using sustainable design practices. Sustainable design is a philosophy that includes earth-friendly techniques, involving sustainable site selection/development, water efficiency, material selection, indoor air quality, waste recovery while improving energy performance and maintainability.

VTX takes pride in incorporating new ideas such as sustainable/“green” design and energy conservation into our projects, where appropriate. We are an active proponent in the principles of sustainable design and have incorporated this philosophy on projects and in our core business practices. We continue to demonstrate commitment to designing high-performance, energy-efficient, and environmentally friendly projects.

Our dedication to implementing sustainable technologies and systems focuses on improving personal performance through an improved working environment using more efficient and cost-effective elevator systems. Informed decision-making and design thinking must continue during all phases of the project to guide the design team or building operators through the sustainable considerations.

One of the bases of sustainable-building practice is equipping a facility with energy-efficient technologies. Not only does this make certain the facility will comply with mandatory building standards that require reduced energy consumption, it also enables building owners and operators to optimize energy performance.

Machine-Room-Less Technology

Machine-room-less (MRL) technology fits the ecologically sustainable design principle and has literally changed the history of elevator technology through innovations that are friendly to the environment. MRL technology incorporates smaller, gearless or highly efficient geared machines, typically using variable-speed and variable-frequency drives with the latest digital technology. These smaller and more efficient machines represent a significant improvement in power consumption by as much as 60 percent over hydraulic elevators.

The MRL elevator manufacturers are promoting easier and quicker installation times while benefiting from a smoother, quieter ride as compared to a hydraulic elevator. With elevators accounting for up to two percent of energy consumption in a building, a customer can gain significant energy savings using MRL vertical transportation solutions.

Hydraulic Elevators

Many say MRL technology is going to eliminate hydraulic elevators from the market. Hydraulic elevators have a shorter life expectancy than traction elevators and are subject to repair and/or improvements that are not applicable to traction elevators.

Hydraulic elevators pump hydraulic fluid to a cylinder/plunger assembly that results in vertically moving the piston that raises the elevator cab up and lowers it back down. The conventional cylinder/plunger assembly resides in a well hole directly beneath the elevator and years ago these assemblies...
LEED certification distinguishes building projects that have demonstrated a commitment to sustainability by meeting the highest performance standards. By design, MRL elevators save space and energy, reduced waste, and is basically oil free. A natural fit for those concerned with sustainable building. Even if facility owners are not interested in developing a LEED-certified project, they are still interested in learning how they can save energy and money. MRL technology allows them the benefits of lower operating costs.

Benefits

MRL technology delivers higher energy efficiency located within the hoistway resulting in a reduction of electrical consumption, lowers lifecycle costs, eliminates the need for overhead penthouse construction, minimizes heating and cooling requirements, improves durability and maintainability while eliminating the need for soil/water contaminating hydraulic fluid that serves to protect our environment. The cost of MRL elevators fall between that of a hydraulic elevator and an overhead traction elevator.

Draw Backs

Unlike the commonly acceptable hydraulic and traction elevator standards, sizing and space requirements differ amongst the various MRL manufacturers. These differences are in hoistway plan and elevation footprints. These various footprints make it difficult to provide a design that enables participation of each MRL elevator manufacturer. While there are constraints with footprints the various manufacturers of MRL elevators have limitations to travel, openings, capacities, and speeds.

At this point in time, MRL technology is highly proprietary. This situation results in a forced long-term relationship for preventive maintenance between the owner and MRL elevator manufacturer. “Customizing” elevator designs is extremely limited to manufacturer’s standard options for car enclosures, entrances, and operating/signal fixtures.