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With a growing emphasis on cost-effective building maintenance practices, many facility managers, engineers, and architects are looking for ways to increase elevator efficiency and performance, while also reducing costs by employing modernization and repair techniques.

Experienced technicians and engineers can customize modernization packages or upgrade recommendations that are both time- and cost-efficient. Since budget planning is critical for capital expenditures such as these, recommendations can be submitted in a multi-year plan prioritized by the overall savings realized in energy efficiency. Below are options to consider, ranging from simple cosmetic cab refurbishments to complete elevator system overhauls, all of which will provide dual benefits: to the environment, and to the bottom line.

Cab Modernization

Installing light emitting diodes (LEDs) can save up to 80% of the energy costs associated with traditional fluorescent lighting. LED lighting reduces heat loss and increases life span—in some cases up to 10 years per light. LEDs also eliminate the use of ultraviolet light, which can cause damage to elevator cab interiors over time. In addition, they do not contain harmful mercury common in fluorescent lighting.

Enabling the elevator controller to automatically shut off the cab's lights and fans when the elevator meets certain criteria, can increase energy savings.

Another consideration is to replace elevator panels with urea-formaldehyde free panels, which can improve the indoor air quality (IAQ) of the building as well.

Upgrading the Motor

Upgrading from a motor generator (MG) drive to a variable voltage variable frequency (VVVF) could save approximately 40% of energy consumption, depending on the elevator type and size. The move away from the old MG sets also eliminates potential IAQ issues associated with carbon dust created by the use of carbon brushes in the machines themselves.

In addition, the oil that is used in hydraulic elevators can be replaced with biodegradable hydraulic oil, designed to minimize environmental impact.

Recycling Energy



Enabling the elevator controller to shut off the cab's lights and fans automatically when the elevator meets certain criteria can increase energy savings.

Building owners can also implement advances like installing regenerative drives, which put some of the elevator's unused energy back into the building. The power that is transferred back into the building would traditionally be dissipated via heat into the machine room. With the regenerative drive, the excess energy is captured and reused and the system reduces traditional cooling of the elevator machine room.

Remote Monitoring

Remote monitoring is a service feature for control systems that monitors the performance of an elevator. These systems provide real-time progress reports that can be enabled and viewed at any time and from anywhere. The advanced notification also helps reduce unnecessary service calls to the site and can eliminate unneeded paperwork. If something out of the ordinary were to occur, or if the elevator was not performing optimally, the monitoring system would alert the service provider, sometimes before a problem is even exposed to the facility managers, thus ensuring seamless adjustments and repair and minimizing costly elevator down time.

Destination Control Software

Installing destination control software can create more efficient passenger transportation, ultimately improving building efficiency—not to mention the “cool” factor—which can increase a facility's overall property value. Destination control software improves routing by grouping elevators by the floor the passengers intend to travel to.

Because passengers designate which floor they are traveling to using a centralized screen input system in the building's lobby, buttons are not needed inside each car. The touch screen directs passengers to their designated elevator, as determined by a formula that considers requested destinations and estimated time to destination. Riders are evenly dispersed to their appropriate elevators. The destination control software groups all passengers travelling to the same floor in the same cab, reducing the number of stops and improving the elevator's efficiency. This practice can increase handling capacity up to 30%.

Systems equipped with destination control software also allow facility managers to accommodate occupants with high-traffic needs during peak travel times of the day.

With the increased pressure on facility management professionals to reduce energy consumption and increase building efficiencies, modernizing and upgrading elevators prove to be economical solutions. These improvements can also create a more sustainable environment, which can save money and time over the long term.



Destination control software, such as ThyssenKrupp's Destination Dispatch, allows passengers to register which floor they are traveling to from the lobby. Shown here is the touchscreen component.

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