Modernization: Why? And When?

The recommended interval for modernization is 20-25 years.

With long-term use, elevators deteriorate and their performance declines. This causes various problems, such as increasing failure or longer time for maintenance. Hitachi recommends appropriate timing of modernization for elevators as well as whole building facilities to ensure safety and comfort for end users.

**Life span of elevator**

<table>
<thead>
<tr>
<th>Performance</th>
<th>Modernization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration through maintenance</td>
<td>Physical deterioration</td>
</tr>
</tbody>
</table>

Necessity of modernization

- Necessity of modernization due to changes in social environment

Elevators and other building equipment should have appropriate maintenance regularly considering the life cycle. But it is not possible to prevent deterioration completely in spite of constant maintenance. Once a certain amount of time has passed, elevators require modernization of dilapidated parts and systems. Hitachi recommends elevator modernization after 20 years past from installation because designed life span of the main systems is approximately 20 years.

Problems caused by dilapidation

<table>
<thead>
<tr>
<th>Problem</th>
<th>Increased</th>
<th>Reduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure</td>
<td>Increased</td>
<td></td>
</tr>
<tr>
<td>Longer time for maintenance</td>
<td>Increased</td>
<td></td>
</tr>
<tr>
<td>Safety and quality</td>
<td>Reduced</td>
<td></td>
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<tr>
<td>Number of components no longer in production</td>
<td>Increased</td>
<td></td>
</tr>
<tr>
<td>Appearance and image</td>
<td>Worsened</td>
<td></td>
</tr>
</tbody>
</table>

**The increasing risks of failure beyond 20 years**

The termination of parts supply and timing of modernization

- In case that elevator is not renewed and discontinued parts exist in society
- Period of parts supply (initial elevator operation)
- Termination of parts supply
- Failure
- Period of parts supply (initial elevator operation)
- Modernization
- Stress-free building replacement
- Period of parts supply (initial elevator operation)

Hitachi has a general rule which is standard period for maintenance parts supply should be 20 years after modal termination. In case that discontinued parts have been failure and no other replacement, it might happen that elevators couldn’t recover.

Benefits of Modernization

GS-1 replaces the key components of elevators, such as the traction machine that is analogous to the “heart” of a human body and the control panel that corresponds to the “brain”, with the latest models. By enabling the latest safety features to be added, GS-1 delivers safety, peace of mind, and comfort that last well into the future.

A gentle, comfortable ride that creates a more pleasant elevator experience

A barrier-free design is made possible by achieving a smooth and comfortable ride and minimizing the height difference between the floor of the elevator and the hall.

An environmentally-conscious elevator with an energy-saving design

Use of the latest control methods and high-efficiency gearless traction machine reduces power consumption.

A more comfortable elevator that’s easy for anyone to use

By incorporating performance and functions with a view to the evolution of technology, we make great improvements to not only safety but convenience and comfort as well.
Machine room

Gearless traction machine with double brake
By replacing a machine with the gearless traction machine that features a double brake, safety can be enhanced. Additionally, the efficiency of the motor and gears has been increased, resulting in improved energy saving. The latest operation control reduces machine room noise and elevator car vibration, improving the ride comfort.

Further enhancement of riding comfort
The latest operation control reduces machine room noise and elevator car vibration, and improve riding comfort.

Reduction of shocks when starting and stopping
Less vibration and noise in motion, and reduced shocks when starting and stopping. The result is a quiet and smooth ride comfort.

Design

Designed with an emphasis on readability and ease of use

Car

Emergency button
Designed for accessibility in an emergency.

Open / Close buttons
These buttons have different sizes so as to recognize different functions.

Entrance

Hall buttons with indicator
High-contrast button with tactile

Comparison of riding comfort

Car position indicator
Dot matrix
New features

Prevent to be caught in a closing doors

**Multi-beam door sensor**

In the event that the beam paths are obstructed, this sensor, installed at the edge of the doors, will keep the doors open.

The door signal flashes to make users realize doors are closing

**Safety shoe with door signal**

The LED installed in door edge notifies the timing of door closing by blinking.

Car call cancellation

This function allows passenger to cancel the selection of a floor which is accidentally pressed by pressing the button again. (This thus eliminates unnecessary stops.)

Nearest landing operation

In case that temporary failure occurs during normal operation, the elevator moves slowly to the next floor in order to prevent trapping failure if safety device is not activating.

Mischievous call cancellation

In case that large number of calls are registered in case of a few passenger, the calls are determined to be mischievous and will be automatically cancelled upon responding to the next call. This function eliminates unnecessary stops.

The destination floor button blinks in case of arriving

When the car approaches a destination floor, the button for that floor blinks to inform advance notice of arrival.

Next drive

When the elevator reaches objective floor but the doors cannot open due to something has caught in the door of the elevator hall or sill, elevator moves to the next floor and opens the door.

Door opening / closing speed variation

The speed at which the door opens and closes can be adjusted for each floor, to enhance safety by adapting settings to the needs of the users on each floor.

Automatic turn-off of elevator light and fan

In case that the elevator is not in use, the light and ventilation fan in the elevator are automatically turned off to conserve energy.

Automatic rescue device for power failure

In the event of building power failure, the elevator automatically switches to battery power to bring itself to the nearest floor. (This function is not applicable to private lobby layout buildings.)

Earthquake emergency operation

In the event that an earthquake is detected, the elevator will stop at the nearest floor. (This function is not applicable to private lobby layout buildings.)