

Dedicated to People Flow™



MODERNIZATION SOLUTIONS FOR RESIDENTIAL BUILDINGS

Elevator Modernization Handbook





Elevator modernization – it’s not hard when you know how it’s done

We have made this handbook to guide you step-by-step through elevator modernization. It includes examples of things for you to consider tells you how KONE can help. You can use this handbook in housing association meetings to help you plan modernization in your building.

Every elevator is different, so precise details about modernization will depend on your requirements and the needs of your building. If you think that your elevator needs improvement, contact us using the phone number on the attached business card. We can come and discuss further or a KONE technician can inspect the elevator in your building and make a recommendation for improving it. This can range from small repairs to full replacement. Together we can evaluate what is the best way to make your home safer and more attractive.

If you decide on a modernization, a dedicated KONE project manager will provide more information, answer your questions, and make sure the project moves forward as smoothly and efficiently as possible.



Elevator modernization is an investment that pays off in a number of ways. It reduces repair and energy costs – the savings can amount to thousands of euros. And a modern, spacious elevator adds to the value of your building.

Is it time to modernize your elevator?

Like any electrical and mechanical equipment, an elevator eventually needs to be replaced or thoroughly repaired. After 25 years, regular maintenance may no longer be enough. As parts wear out, you may be paying more for repairs. It may be more difficult to find spare parts for an old elevator, so it may be out of order for a longer time. The old elevator in your building might not meet the latest safety and accessibility regulations. Using it could be difficult for elderly people or for someone carrying packages. It could be consuming more electricity than a modern solution. And a shabby, cramped and unattractive elevator detracts from the value of your home.

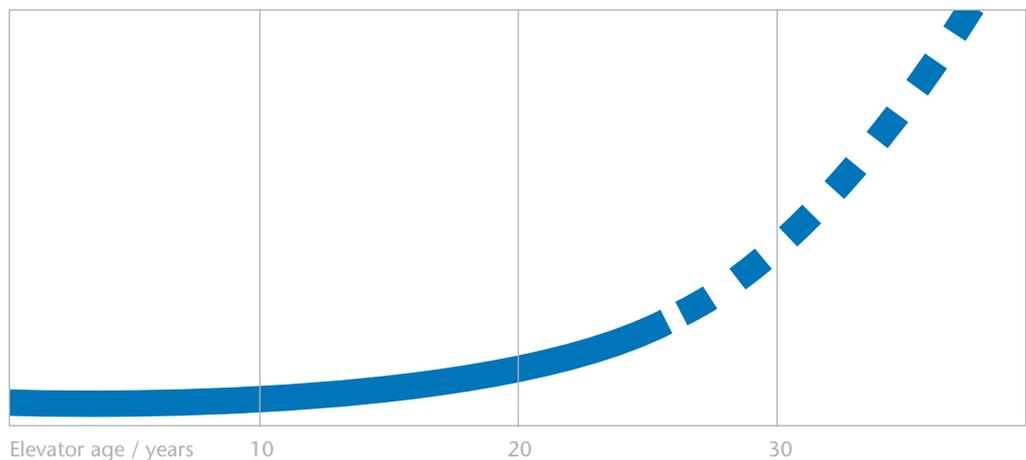


Five things to check

- 1. Is your elevator often out of order?**
A modernized elevator reduces repair costs.
- 2. Does it have heavy manual doors?**
Automatic doors are safer, quieter, and easier to use.
- 3. Does the elevator stop level with the floor?**
Uneven leveling poses a safety risk.
- 4. Is the car small and cramped?**
A new elevator can increase car space by up to 50%.
- 5. Is the interior in poor condition?**
A smart new elevator interior adds value to your building.

Increasing need for maintenance and repairs

After 25 years, elevator components start to wear out and need to be replaced. The elevator could be more expensive to maintain because of higher costs for repairs and parts. Now is the time to think if you want to repair one part at a time or replace the entire elevator.



A thorough assessment

The first step is to take a look at your elevator, using the checklist on the facing page. If there are several problems with your elevator, get in touch with KONE for a thorough assessment of your elevator, with no obligation to you. This assessment can be part of your long-term renovation plans for your building.

KONE technicians will examine your elevator. They focus on the requirements of your elevator and the people who use it, paying particular attention to performance, accessibility, safety, eco-efficiency and aesthetics. They will then make recommendations for improvement, ranging from minor repairs to full replacement.

How can KONE help?

- KONE technicians perform a thorough inspection, free of charge, with no obligation to you.
- KONE makes recommendation for improvement. This can range from minor repairs to full replacement.
- The recommendation also includes a cost estimate with a KONE financing solution.
- KONE provides information about EU regulations, subsidies and permits.



A KONE technician will perform a thorough inspection of your elevator. Based on this assessment, KONE can recommend a range of solutions, from minor repairs to full replacement.



A range of solutions

Based on the KONE Care for Life™ assessment, KONE makes a recommendation for improving your elevator. This can range from replacing individual components to full replacement.



Component upgrades

Component upgrades are a quick and cost-effective way to make small improvements to your elevator. Upgrades can cover things like the door operator, signalization, or lighting system.

We recommend component upgrades if your elevator:

- Has noisy doors
- Is fitted with outdated and impractical signalization
- Is more than 10 years old

Modular modernization

Modular modernization significantly improves the performance of your elevator by updating entire systems. This type of modernization applies to things like the hoisting machinery, electrification system, or doors.

We recommend modular modernization if your elevator:

- Consumes a lot of electricity
- Does not level properly on landing floors
- Has an impractical or outdated interior
- Is between 15 and 20 years old

Full replacement

With full replacement we completely remove your old elevator and install a brand new one in your building's existing elevator shaft.

We recommend full replacement if your elevator:

- Has a small, cramped car
- Takes a long time to travel between floors
- Is often out of order
- Is 25 years old or more

Five ways to reduce energy consumption

1. Signalization dimming saves electricity.
2. Standby lighting and ventilation cuts energy consumption.
3. LED lights use less energy and last much longer than halogen lights.
4. Energy regeneration systems recover energy and produce electricity.
5. A modern hoisting system can significantly reduce energy consumption.

KONE MonoSpace energy efficiency performance according to VDI 4707**

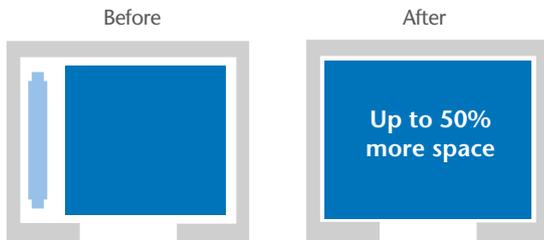


**Guideline issued by the Association of German Engineers

Up to 50% more space

If the elevator in your building is 25 years old or more, full replacement may be the most cost-efficient solution. This will improve reliability and energy-efficiency, which will in turn reduce maintenance and electricity costs.

With the KONE NanoSpace your new elevator car can be as much as 50% bigger. If your current elevator can only carry four passengers, your new one could carry six. Our innovative technology and streamlined replacement process ensure your new elevator is up and running in as little as two weeks*. They also minimize disturbance in the building during installation.



The KONE NanoSpace uses ultra-compact balancing weights, leaving more space for a larger car with no changes to the shaft.

* KONE professionals will perform a site survey to estimate the actual time needed for individual elevator replacements.



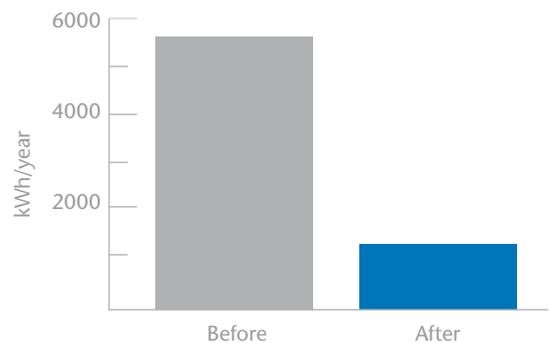
Up to 70% energy savings

Elevator technology has come a long way in the last 30 years. Compared with an elevator built in the 1970s, new technology can reduce electricity usage by as much as 60-70%.

Even small improvements can make a big difference. For example, LED lights use 80% less electricity than halogen lights, and last 10 times longer. A new controller and electrical system can cut energy usage by 40%. Modernization can be combined with a regenerative solution to increase energy savings even further. The recovered energy can be used to power other equipment in the building.

Full replacement can save even more energy. For example*, a hydraulic elevator consumes about 5650 kWh/year. Modernizing it with the KONE MonoSpace® reduces energy consumption to as little as 1170 kWh/year. At 15 cents per kWh, this represents savings of nearly 700 Euros a year, or more than 20,000 Euros over a lifetime of 30 years.

Energy savings with a new elevator



*Elevator speed 1.0 m/s, load 630 kg, 150,000 starts/year, travel height of 12m and 5 floors.

A safe, modern elevator adds to the value of your apartment

By modernizing your elevator, you make it safer and more convenient. For example, when you are carrying groceries or pushing a stroller, it can be difficult to enter an elevator with heavy manual doors. Another safety issue is leveling – how accurately the elevator stops compared with the landing floor. This is where accidents happen – just a few centimeters can make a big difference if you aren’t expecting it.

Another big difference is the overall look and feel. The elevator is the first thing potential buyers see when they come to look at your apartment. Is the elevator modern, efficient and inviting? It pays to make a good first impression.

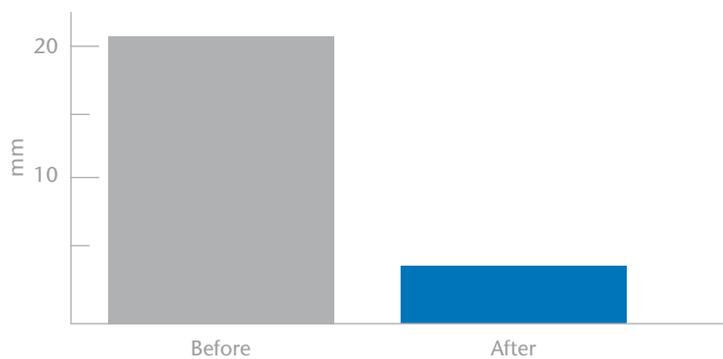
Five ways to improve safety

1. Adequate lighting prevents accidents and makes people feel safer.
2. A two-way voice communication system gives passengers peace of mind.
3. Automatic car and landing doors prevent accidents and improve accessibility.
4. A curtain of light improves safety and comfort in elevators with car doors.
5. Accurate leveling prevents people from stumbling on the door sill.



Leveling accuracy

A few centimeters is a lot when you aren’t expecting it. Many accidents occur when people trip on the elevator sill. A new elevator improves leveling accuracy to within a few millimeters.



Financing solutions

Like any home improvement, such as fixing the roof or painting the walls, elevator modernization is an investment that pays off in the long run.

The cost is less than you might think. Costs will vary, of course, depending on the individual case, but a typical full replacement could cost around 50,000 euros. Divided among 20 apartments, this amounts to 2500 euros each, or about 40 euros a month over five years. The actual amount may be considerably less, since many countries and local governments provide subsidies to make elevators safer, more accessible and more energy efficient.

Financial issues to consider

- Many European countries provide subsidies for modernization. These can cover up to 70% of the total cost.
- These may be supplemented by subsidies from local government and the EU.
- Modernization can be done in two stages to spread the cost.
- KONE can provide financing to spread the cost over several years.
- KONE can provide further information about available subsidies in your area.



Fast and efficient installation – on time and on budget

Before the modernization work begins, the KONE project manager conducts a site survey together with the building manager to determine the best solution and the best way to implement it. We make sure that you will have safe access during installation and that permits, plans and calculations are checked and approved by authorities.

During the project, everything possible is done to minimize disturbance. The KONE installation team protects the floors, walls and walkways to ensure that no damage is done to your building. Everything possible is done to keep the amount of noise and dust to a minimum, so that you can live comfortably in your home. We keep you informed about the progress of the work by posting notices on the bulletin board and by communicating with your building manager.

Installation stages

1. Site inspection to plan project and safe routes for residents.
2. Dismantling of old equipment. Recycling or environmentally friendly disposal of materials.
3. Installation of new equipment.
4. Handover checks and quality inspection.

Important things to know

- Full replacement takes as little as two to six weeks on average, depending in the solution you choose.
- KONE ensures permits are approved by authorities.
- KONE ensures that there is safe access during the project.
- KONE keeps residents informed about progress.



You are kept informed about the progress of the via notices on the bulletin board.

Welcome to your new elevator

When the project is complete, KONE technicians take care of the final safety and performance inspections. This ensures that the modernized elevator meets all EU regulations, and that it conforms with your requirements.

KONE also ensures that all of the old equipment is disposed of properly. Most of the old equipment – some 94% – is metal and glass, which are fully recyclable.

Out with the old, in with the new

- When the project is complete, KONE does the final safety and performance inspections.
- A KONE-modernized elevator meets all EU standards: EN 81-80 Safety standard, EN 81-70 Accessibility standard.
- With regular preventive maintenance it will provide reliable service for decades.



Safe and reliable service for decades

Regular KONE maintenance ensures that your new elevator will provide safe, reliable and energy-efficient service. KONE service is based on preventive maintenance – we detect and repair faults before they can lead to malfunctions. With KONE Modular Based Maintenance™ we create a unique maintenance plan for your elevator, ensuring that the right components are maintained at the right time. On average, elevators maintained by KONE are available for use by residents on average 99% of the time.

For passengers' peace of mind, a modernized KONE elevator includes the KONE Voice Link™, which enables two-way voice communication between a passenger in the elevator and a KONE Customer Care Center.

Why KONE maintenance?

- KONE has a comprehensive maintenance network: service is always nearby.
- KONE preventive maintenance fixes problems before they lead to downtime.
- KONE gives an availability guarantee for elevators it services.
- Technicians have most common spare parts in the van to make repairs faster.
- 150,000 spare parts in stock, can be dispatched within 24 hours.
- If someone is stuck in the elevator, a technician will be on site within 30 minutes.
- Regular maintenance increases the lifetime of the elevator.



Higher building value

Building:

Sammalkalliontie 6, Espoo, Finland



In this apartment building in Espoo, Finland, the elevators were 40 years old and had become unreliable. Repair costs were rising and the safety of passengers was becoming a concern.

KONE installed six new elevators in the building. The larger cars, with automatic doors, make it much easier for people to use the elevators, especially when they are carrying groceries or pushing a stroller. The new elevators are safer for elderly people or children.

“I have received many compliments about the new elevators. Especially visitors have noticed, so I think they have an effect on the value of our building.”

– Ulla-Maija Nikkinen,
Resident and building association board member.

Before and after

Six new KONE elevators were installed, which increased the amount of space in the cars. The heavy manual doors were replaced with automatic doors. These improvements make it easier to use the elevator while pushing a child in a stroller, for example.

The new elevators decrease repair and electricity costs, while more accurate leveling improves safety. For the peace of mind of passengers, there is a 24h voice connection with the KONE Customer Care Center™.



More space for passengers of all ages

Building:

Berliner Allee 16, 30175 Hannover, Germany



This is a multi-purpose building with apartments, offices and a medical practice, so the elevator has to provide access for all kinds of people, from babies in strollers to elderly people in wheelchairs. Unfortunately, the old elevator, installed 1974, was small and cramped, with narrow doors. People in wheelchairs had to be moved to a special, smaller wheelchair. The old elevator was also dark and shabby, which detracted from the image of the building.

The new elevator has wider-opening doors and 60% more space in the car. This provides much easier access for passengers of all ages. Where the old elevator could carry a maximum of five people, the new one can carry eight. The modern KONE elevator also gives an attractive first impression for people visiting the building.



Why KONE maintenance?

- Door width increased from 700 mm to 800 mm.
- Car size increase from 0.99 m² to 1.512 m².
- KONE gives an availability guarantee for elevators it services.
- Capacity increased from 5 to 8 people, more than 60% larger cabin than before.
- Load capacity increased from 375 to 630 kg
- Lower repair costs.
- More attractive for visitors.
- Meets EU and German safety regulations.

Frequently asked questions

1. What are the biggest safety issues in old elevators?

Typically there are three. In old elevators there is usually an open car without a door, so that you can see the wall moving. Second, there isn't a communication system in the elevator, so people can't call for help in an emergency. And third, an old elevator might not stop level with the landing. If they aren't expecting it or if they are carrying something and can't see properly, people can trip over the sill.

2. How can we get the project started?

The first step is to discuss it among members of your building's housing association and the facility manager. If you think modernization may be necessary, get in touch with KONE for an inspection and recommendations about technical and financing solutions. The final decision is made by the housing association and facility manager.

3. What solutions are available?

If you decide to replace the whole elevator, a solution like the KONE NanoSpace™ can increase the size of the elevator car while providing other benefits such as improved energy efficiency and reliability. You can also repair or replace individual components, such as the controller or the hoisting machine. KONE also offers larger KONE RePower™ packages. These include new elevator technology, while retaining the existing shaft and landing doors.

4. How does the project move forward?

The first step is planning. This defines the scope of modernization and the best way to implement it. Then the decision to proceed is made by the apartment owners in the building association. Once the final installation planning is done, the old equipment is removed and the new elevator is installed.

5. How long does it take?

About two to six weeks on average, depending on the solution you choose. Some smaller modernizations can be done in a few days.

6. Can people live in the building during the work?

Installation is always planned so that people can live and move safely in the building during the project. The elevator will be out of service.

7. How much does it cost?

It depends on the height of the building, the condition of the old elevator, and the scope of modernization, but generally speaking about 40,000 to 100,000 euros for complete modernization or full replacement. For a five-story building with 30 apartments, this could be in the range of 100,000 euros. With KONE Financing for seven years, this would amount to an average of 40 euros a month for each apartment.

