Minimise the cooling of buildings through the lift shaft

During winter, it's always cool in a lift and in the areas in front of the lift doors on upper floors. Employees often complain about draughts near the lift. These are indications of an uncontrolled flow of cold air through the lift shaft.

Action

Set the temperature control for the shaft ventilation correctly. If the openings in the shaft overhead are not yet equipped with ventilation dampers, consider retrofitting them.

Requirement

Your building has a lift shaft (with or without extraction dampers).

An open 12-metre-high lift shaft causes annual heat losses of 15'000 kWh or more

What to do

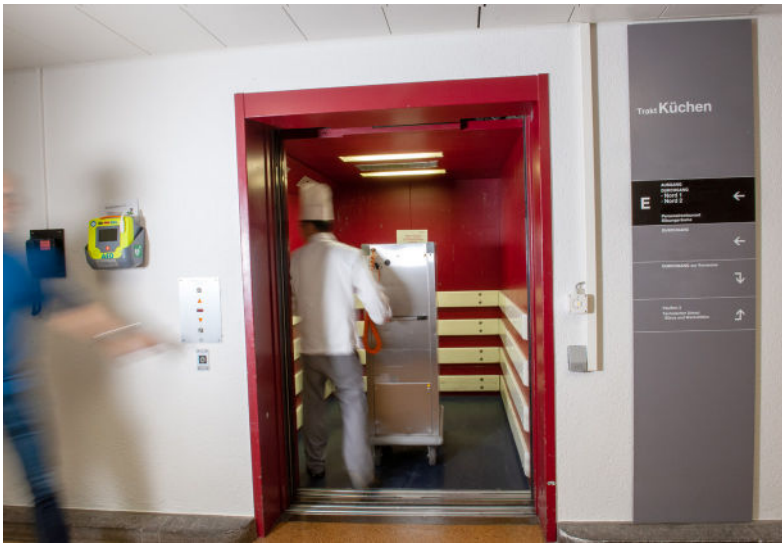
Lift shaft without ventilation dampers

Check out the option of retrofitting ventilation dampers (insulated versions) to ensure tight sealing of the openings in the shaft overhead.

Lift shaft with ventilation dampers

Check the values set on the thermostat control for the ventilation dampers:

- Temperature at which the ventilation dampers open (e.g. 35 °C)
- Temperature at which the ventilation dampers are closed (e.g. below 30 °C)
- The exact temperature values depend on the product and are specified by the manufacturer.



Costs – effort

- Costs of materials for the ventilation dampers are approx. CHF 1500 to CHF 2500
- Installation costs: approx. CHF 3000
- Total costs (materials and installation): about CHF 5000

Please note!

- Where the lift shaft adjoins an unheated room or the outdoor climate, the shaft should be heat insulated.
- Ventilation dampers can only be in the "open" or "closed" positions.
- It is advisable to include maintenance of the dampers in the lift maintenance.

Additional explanations

Shaft supply and exhaust ventilation

Many lift shafts pass from an unheated basement through heated storeys into an unheated attic storey, or into the lift superstructure. Cold outside air flows into the shaft through basement windows that are not airtight or are open, is heated by the shaft walls and rises (chimney effect). This creates a suction effect that also draws in warm air from heated rooms through lift doors that are not airtight, resulting in draughts that present a comfort problem. Finally, the heated air flows to the outside through ventilation openings in the shaft overhead.

Retrofitted exterior lift systems

Lift installations are often built onto the outside of a building at a later stage. In this case, the lift and shaft doors penetrate the existing perimeter insulation.

Conventional lift doors are hardly airtight, and they do not meet the thermal insulation and air-tightness requirements for modern buildings. The problem can be solved by inserting an unheated anteroom between the lift door and the heated rooms. The access door to the anteroom can then ensure that the thermal insulation and air-tightness requirements are met.

Safety is key

It is mandatory to comply with local fire protection regulations when retrofitting ventilation dampers.

Emergency exit hatch

It must be easy for the fire service to gain access to the emergency exit hatch from inside and outside. When the emergency exit hatch is in the open position, it must also be kept open by a retaining device that can easily be released.

Note

Until 2015, every lift shaft had to be equipped with an opening for smoke extraction.

However, buildings are becoming increasingly airtight. For this reason, a smoke extraction outlet on the roof will only function poorly if no fresh air can flow into the basement. When the fire protection regulations (BSV) were revised in 2015, the general requirement for an extraction damper was therefore removed (with the exception of fire service lifts).

SwissEnergy
Federal Office of Energy (SFOE)
Pulverstrasse 13
CH-3063 Ittigen
Postal address: CH-3003 Bern

Infoline 0848 444 444
infoline.energieschweiz.ch
energieschweiz.ch
energieschweiz@bfe.admin.ch
twitter.com/energieschweiz

11.2021