

THE SWEDISH CODE OF STATUTES SFS 1991:1273, COMPULSORY VENTILATION CHECKS

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ABSTRACT

In recent years, poor indoor climate has caused health problems for building occupants. Sometimes these problems have been so serious that these buildings have, quite rightly, been labelled "sick buildings".

Today, there is good evidence in some areas as to why such problems arise. Unhealthy substances given off by various building materials, the existence of mould and general air pollution are the main causes. Another important factor is the high level of humidity in buildings and indoor air.

In general, the most important way to remedy the problem is to improve ventilation. Unfortunately, many studies have shown that poor upkeep and maintenance have led to a decline in the performance of existing ventilation systems. If, in the future, we do not look after our ventilation systems properly and adapt operation and maintenance to current user habits, then even more buildings will become problem buildings. More people will suffer health problems unnecessarily.

Briefly this is why the Swedish Parliament and Government decided, in complete political unanimity, to introduce regulations on compulsory inspection of ventilation systems. This is also why the National Board of Housing, Building and Planning has issued general guidelines for performance checks on ventilation systems.

KEYWORDS

Ventilation system, performance check, indoor climate, check inspection, OVK.

WHY CHECK VENTILATION?

For good indoor climate

The actual performance of ventilation systems, their quality and maintenance, adequate demands on air change and the use of recirculated air are central issues with regard to a good indoor climate.

For a good return on investments

Installations in modern buildings cost a lot of money. To ensure these investments are not wasted, adjustments must be carried out properly when the building is brought into use. These adjustments require regular follow-up inspections so that performance does not decline over time.

For lower operation and maintenance costs

Well-managed installations result in lower operation and maintenance costs. The life-span of equipment and components is lengthened, and this also helps to keep total costs down.

In modern buildings with many installations, the electricity used by ventilation systems accounts for a large proportion of the total electricity consumption.

With regular checks of ventilation it is possible not only to achieve a good indoor climate but also to reduce electricity costs.

For property owners interested in good operational economy and satisfied users, the need for proper working ventilation is obvious.

WHAT DOES THE LEGISLATION SAY?

Swedish Planning and Building Act, PBA 1987:10

Buildings are to provide opportunities for good hygiene, a good working environment and a satisfactory indoor climate. From the legislation follows in addition that the ventilation systems must be looked after and maintained.

The demand for maintenance means that the function of a building may not manifestly deteriorate in relation to what was originally intended.

SFS 1991:1273 (Compulsory ventilation checks)

The owner of a building is responsible for ensuring, that all checks are carried out, both before, the system is brought into use for the first time as well as at regular intervals during the lifetime of the building.

Performance checks must be carried out in all buildings with the exception of:

- detached and semi-detached dwellings with natural ventilation or only mechanical exhaust air ventilation,
- buildings for agriculture, forestry or similar activities,
- industrial buildings,

- buildings which are for Total Defence purposes and are secret.

It should be noted that offices and personal areas in industrial buildings are not exempted from checks.

Checks are to be carried out by an inspector who has either received national authorization from certification bodies advised for this purpose, or has been approved by a municipality i.e. local authorization.

TABLE 1
Inspection intervals, category of buildings and inspector qualification class

Type of building	Category	Ventilation system	Inspection interval	Inspector qualification class
Day-care centres, schools, health care centres, etc.	1	All systems	2 years	K
Blocks of flats and office buildings, etc.	2	Balanced	3 years	K
Blocks of flats, office buildings, etc.	3	Mechanical exhaust	6 years	N
Blocks of flats, office buildings, etc.	4	Natural	9 years	N
One and two-dwelling houses.	5	Balanced	Only the first inspection when ventilation is taken into use	N

Comments on the terms

The category day and health centres, schools should include pre-school premises, secondary schools, leisure centres and old people's homes. The category does not include institutions for higher education (e.g. universities). These are included in the category office buildings.

The category blocks of flats and office buildings includes meeting rooms, shops, theatres, cinemas, sport halls, terminals, museums, exhibition halls, hotels and garages.

Balanced ventilation refers to the fan ventilation of supply and exhaust air.

Mechanical ventilation refers only to fan-controlled exhaust air.

Natural ventilation refers to the ventilation created by thermal forces.

Inspector qualifications

Performance checks of ventilation systems are to be carried out by an inspector who is authorized by certification bodies advised for this purpose, or locally by the municipal committee responsible for planning and building matters.

Only those persons having the necessary training and experience and who are suitable for the task can be approved.

Authorization is issued for two different levels: authorization N is for simple installations and authorization K for more complicated installations.

Authorization N entitles the holder to check the ventilation systems in one or two-dwelling houses as well as natural and mechanical ventilation systems in blocks of flats and offices, etc.

Authorization K entitles the holder to check all types of ventilation systems.

Inspection implementation

There are considerable variations in how installations and buildings are designed and constructed. Each ventilation performance check should therefore be adapted as far as possible to the individual building. However, the following points shall always be included in a ventilation performance check:

- operation and maintenance instructions,
- measurement methods,
- air change and humidity,
- fans and air handling units, recirculated air and ventilation noise,
- deposits in ventilation ductwork,
- radon,
- user viewpoints.

A report on the results of checking the performance of a ventilation system should be drawn up and signed by the inspector. The report should include the official designation of the property, the owner of the building, the date of the performance checks, the measurements carried out, comments on what faults are to be rectified before re-inspection, advice to the property owner concerning alternative solutions and a final comment about acceptability or otherwise of the performance of the ventilation system. The report should be sent to the property owner and to the municipality.

A special certificate will be issued after an inspection has been carried out and will include the date of the inspection. The property owner shall place the certificate in a clearly visible position in the building.

Report “Compulsory Ventilation Inspection”

The report was issued 1998 and contains a systematic appraisal of the implementation and shortcomings of compulsory ventilation inspection. Amongst other things, the results are based on a municipal questionnaire and the outcome of the 10 000 inspection reports collected. These results show that 2/3 of ventilation systems do not work satisfactorily. Insufficient maintenance and care are the primary reasons, but poor design solutions are often to blame. On average, the ventilation systems have between five and six defects, two of which are more serious, resulting in inadequate airflow. It can be stated that compulsory ventilation inspection is now being carried out in 80-90 % of cases, but the prescribed inspection times have however not been adhered to.

References

Checking the performance of ventilation systems, General Guidelines 2000:1 issued by the Swedish Board of Housing, Building and Planning, www.boverket.se.

Compulsory Ventilation Inspection, report issued by the Swedish Board of Housing, Building and Planning, 1998.

