

Building and ductwork airtightness in Norway: national trends and requirements

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FOREWORD

The AIVC is preparing a series of VIP on national regulations and trends in airtightness for various countries (numbered VIP 45.XX), detailing for both building and ductwork airtightness:

- the national requirements and drivers (regulations, incentives, justifications and sanctions)
- whether it is taken into account in the energy performance calculations and how;
- the test protocol (testers qualifications, national guidelines, requirements on measuring devices);
- the tests already performed and whether there is a results database;
- key documents.

This presentation focuses on the airtightness trends in Norway.

KEYWORDS

Building airtightness, ductwork airtightness, regulation, trends, Norway

1 BUILDING AIRTIGHTNESS

Building airtightness has been important for centuries in Norway, being a cold and windy nation. Quantifying airtightness of building came to our country around 1980, inspired from Sweden. The oil crisis in 1973 played an important role and European energy directives have played a central role, even though Norway only link to EU through the EUS-treatment.

For detached houses, requirements have changed gradually in steps from $n_{50} \leq 4$ /h to the ambitious level of $n_{50} \leq 0.6$ /h about 10 years back in time. Dwellings in general may still be documented according to a simplified «measures method», where $n_{50} \leq 0.6$ /h is the target value, but a maximum value of $n_{50} \leq 1.5$ /h is still allowed, if there is documentation of other extra energy means compensating for this. In general, all buildings must have airtightness $n_{50} \leq 1.5$ /h. For “other buildings” than dwellings this is unchanged since 1980; which is not very ambitious.

The official view in Norway is that all new buildings shall be tested, but in practice the percentage of new buildings being tested is probably much less than 100%. Ambitious n_{50} values are easy to achieve for large buildings, but very tricky for small apartments. A consequence is that contractors avoid measuring single flats in a block, and instead measure the whole building, with all doors to the stairway open.

2 DUCTWORK AIRTIGHTNESS

The energy legislation in Norway requires that balanced mechanical ventilation with heat recovery has to be used for all new buildings.

Airtightness of ventilation ducts is probably not an important topic in Norway, the way we build: We use spiro ducts with gaskets and the duct system is usually within the heat-insulated building construction. Small leakages may more be a topic related to internal vent adjustment and to a very small degree influencing energy or air quality.