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Second edition  
2006-05-01

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## **Thermal performance of buildings — Determination of air permeability of buildings — Fan pressurization method**

*Performance thermique des bâtiments — Détermination de la  
perméabilité à l'air des bâtiments — Méthode de pressurisation par  
ventilateur*



Reference number  
ISO 9972:2006(E)

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Published in Switzerland

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9972 was prepared by Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 1, *Test and measurement methods*.

This second edition cancels and replaces the first edition (ISO 9972:1996), which has been technically revised.

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## Introduction

The fan-pressurization method is intended to characterize the air permeability of the building envelope or parts thereof. It can be used

- a) to measure the air permeability of a building or part thereof for compliance with a design air-tightness specification;
- b) to compare the relative air permeability of several similar buildings or parts of buildings;
- c) to identify the leakage sources;
- d) to determine the air-leakage reduction resulting from individual retrofit measures applied incrementally to an existing building or part of building.

The fan-pressurization method is suitable for the respective diagnostic purposes. Although the air infiltration and exfiltration cannot be measured directly, the results of this method can also be used to estimate with adequate precision by means of calculation both the mean infiltration through unintended leakages and the mean air flow through intended air flow devices from outside, in relation to the pressure conditions to be expected within the building.

This method does not measure the air-infiltration rate of a building. The results of the fan-pressurization test can be used to estimate the air infiltration by means of calculation. Other methods are applicable when it is desired to obtain a direct measurement of the air infiltration rate. It is better to use the fan-pressurization method for diagnostic purposes and measure the actual infiltration rate with tracer gas methods. A single tracer gas measurement gives limited information on the performance of ventilation and infiltration of buildings.

This method applies to measurements of air flow through the construction from outside to inside or vice versa. It does not apply to air flow measurements from outside through the construction and from other places within the construction back to outside.

The proper use of this International Standard requires a knowledge of the principles of air flow and pressure measurements. Ideal conditions for the test described in this standard are small temperature differences and low wind speeds. For tests conducted in the field, it needs to be recognized that field conditions can be less than ideal. Nevertheless, strong winds and large indoor-outdoor temperature differences should be avoided.