

Finally fresh air.



refresh





Energetic refurbishment
without appropriate ventilation concept
is only half the battle.



The **Pluggit refresh fresh air system** is the solution for an appropriate ventilation concept for the energetic refurbishment of existing buildings.

Pluggit refresh:

- helps **saving heating energy of up to 70 %** and reduces the incidental costs, 40% of the refurbishment costs are amortised by the energy saved Facilitates reletting
- **increases the value of the flat** and meets the energy performance certificate requirements
- **prevents mould formation** and hence follow-up costs; ensures the **required air exchange** rate
- can be **installed anywhere without difficulty** and is **virtually invisible** due to the elegant design

Well insulated is only half the battle

Millions of flats in Europe are on the verge of being subjected to energetic refurbishment. Investments in the insulation of the building shell and windows are intended to reduce heating costs and, in this way, keep the rent including ancillary costs at an affordable level. With energetic building refurbishment, the insulation of the building shell contributes to saving a great deal of energy. However, at the same time it places new demands on ventilation. The prescribed and necessary ventilation of the living areas often becomes a problem!

The insulation places new demands on the ventilation. Controlled living area ventilation, ideally with heat recovery, is indispensable in particular to tightly insulated buildings. It helps to save up to 70% of the heating energy and prevents mould formation.



Good airing is a skill

The required minimum air exchange rate for air-tight building shells, in particular, can no longer be ensured by window ventilation, the original form of airing. Furthermore, window ventilation wastes a vast amount of valuable energy.

It is asking too much for tenants of flats to “manually” ensure the minimum air exchange rate. They air their flats either insufficiently or excessively.

Furthermore, various court decisions have established that it is unreasonable to expect tenants to perform intensive airing at regular intervals.

(Bochum Local Court, Higher Regional Court of Frankfurt on the Main)

DIN 1946-6: Airing flats (draft from December 2006)

“The minimum air exchange rate required for moisture protection must be ensured **without intervention** by the user.”

“The **ambient air pollution level cannot be influenced specifically** by free airing alone (e.g. by opening windows).”

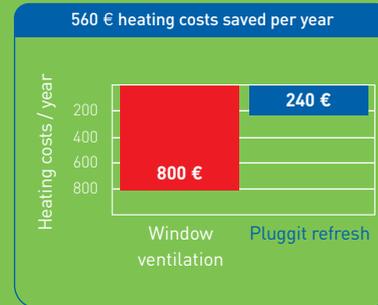


Pluggit refresh helps you to save up to 70 % of heating energy

More than 70% of the total energy requirements for households is used for room heating. Transmission heat losses due to components are reduced largely in energetically refurbished old buildings. **The greatest saving potential can therefore be found in the area of what is referred to as infiltration heat losses**, which is the energy which escapes outside through open windows in an uncontrolled manner.

The heating costs have already been able to be reduced to a great extent by excellent insulation of the outer shell, appropriate windows and efficient heating systems. However, all optimisation measures are of no avail as long as windows are still opened for airing – preferably every two hours. **The energy saved at one place disappears through open windows elsewhere.**

Pluggit refresh helps to save up to 70 % of the heating costs, depending on the conditions and circumstances.



- CO₂NTRÖL IT with refresh
- Saves energy
 - Reduces heating costs
 - Reduces CO₂-emissions

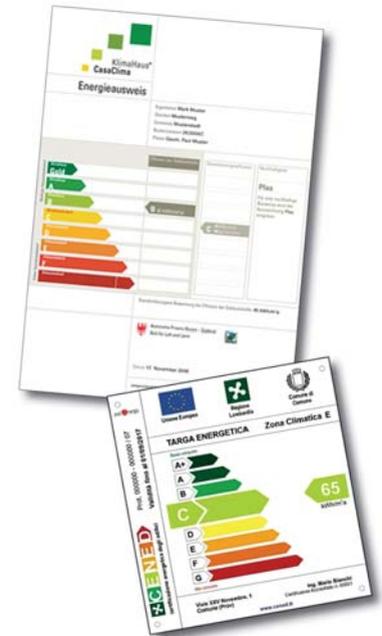
Pluggit refresh for a more positive assessment of your property in the energy performance certificate

On 1st October 2007 the **energy saving ordinance** came into force and for the first time in Germany the assessment of the energy efficiency of property became a legal obligation.

With its colour coding, the energy performance certificate also helps consumers **without a great deal of technical expertise when making decisions on purchasing or renting property.**

Retrofitting a convenience ventilation system not only increases the energetic efficiency, it also increases the market value of each item of property!

This allows owners and landlords investing in the energetic refurbishment of their buildings in this way to compete in the market and use the energy efficiency of their buildings as a means of advertising.



Pluggit refresh prevents mould formation and hence follow-up costs



Flats quickly lose their value once mould has settled. The building fabric is permanently damaged and can be remediated only at great difficulty or not at all.

Saving energy is at the centre of attention for the construction of buildings and the refurbishment of existing buildings. However, the attempt to keep thermal energy requirements at a minimum by means of insulation has increased the significance of convenience ventilation. Since the energy saving ordinance (EnEV) stipulates that the outer shell is to be sealed air-tight.

However, the water condensing in the living area must be able to escape outside in some sort of way. Up to 15 litres of water are absorbed by the air as steam in a four-person household per day – due to cooking, taking a bath, plants or simply breathing. A single person exhales up to 1 litre of water every night, which is enough to increase the relative humidity from 60 % to 100 % at a temperature of 20 degrees. **And there is a risk of spore growth and mould at excess air humidity.**

With a **Pluggit refresh fresh air system** you maintain the degree of humidity within a constant range of between 40 % and 50 %, which is ideal for the room atmosphere, health and building fabric.



Every fourth flat is affected by mould (source: TU study)

Pluggit refresh makes it easier to relet flats and increases their value

The attractiveness of residential units is increased considerably by energetic refurbishment. **An energy performance certificate with positive assessment will play a major role in future in the reletability of flats.** Not only the insulation is taken into account, but also the ventilation. Saving heating costs is a decisive aspect when making a decision on a flat, but also the air quality is becoming increasingly important.

Regular, reliable air exchange not only supplies **the room with fresh air**, it also, in particular, transports **used up air and humidity out of the room**. This prevents mould formation and creates a healthy living atmosphere.



By installing a Pluggit refresh fresh air system, flats become more valuable and easier to let than similar houses without this technology. And a risk of devaluation due to moisture damage is prevented reliably also for coming years.





Pluggit refresh increases the domestic convenience in existing flats

Healthy living begins with fresh air. Since it is impossible, however, for tenants to open all windows for 10 minutes every two hours, a mechanical living area ventilation system helps to determine the right dosage of fresh air.

In addition, almost **every third person in Germany is affected by allergies.** Most of them react to certain substances in the air: house dust, mites, pollen etc. 13 million people suffer from hay fever in Germany alone.

Sometimes the cause is external, sometimes it is internal, which is an intricate problem for many allergy sufferers. Regular airing is good against dust mites, but open windows also allow allergenic particles or fine dust to enter the room.

With a Pluggit refresh fresh air system, the used up air, loaded with house dust and odours, is discharged and filtered fresh air supplied. This not only increases the sense of well-being in the flat, it is also good for the health.

Pluggit refresh is easy to install and has an excellent design

The **refresh fresh air unit** is designed that it can be installed, for example, above a wall cupboard in the kitchen. It disappears completely behind a faceplate and, in this way, can be fully integrated in the flat design.

All ventilation ducts are installed along the ceiling. Special strips of individual design, which can be simply clicked onto the ducts, allow them to be integrated that they too are completely invisible in the flat. The air outlets above the doors in the supply air rooms are barely noticeable due to their space-saving, inconspicuous design.

Pluggit refresh utilises the Coanda effect to bring fresh air into the room along the ceiling.



The technology makes the difference

With **Pluggit refresh**, existing buildings now also benefit from the years of experience and expertise of the market leader gained in the area of convenience ventilation for new buildings.



Energy efficiency – ideal ratio between energy raised and heat recovery level achieved.



CleanSafe – almost impossible pollution potential due to technically smooth surfaces combined with a coordinated cleaning concept.



Coanda-effect – the fresh air is directed along the ceiling almost silently without any draught and spreads evenly in the room.

Finally fresh air. [More on this topic at pluggit.com](http://www.pluggit.com)

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