## VENTILATION REDUCES YOUR TROUBLE WITH MOULD

Mould grow within structures and on the surfaces of building materials where there is liquid moisture or water vapour (humidity). Issues with mould are common particularly for residential buildings. If there's no ventilation or the structures aren't getting enough air flow, moisture will condense on surfaces, encouraging mould growth. For the microbes to start growing, either spores, some old growth or microbes themselves must be present in the material. Wood, plywood, the paper facing on drywall, wallpaper and other materials containing cellulose provide food for many microbes, but several are content with common household dust.

Preventing mould growth is best done by keeping the building dry. Mould likes to grow in warmth, but if other requirements for growth are met, microbes can survive even below sub-zero (°C) temperatures.

### MOULD CAUSE RESPIRATORY PROBLEMS

Mould are a health hazard to people because of the mycotoxins some of them produce. The spores travel along the air and enter the body via breathing. Being exposed to mould increases respiratory problems and may cause allergies and asthma. Mucous membranes damaged by mould inflame easily, possibly resulting in sinusitis or bronchitis – even pneumonia.

Recurrent herpes infections on the face or the genital area are also common with mould illness patients. Approximately half of patients develop MCS or odour hypersensitivity as a secondary disease.

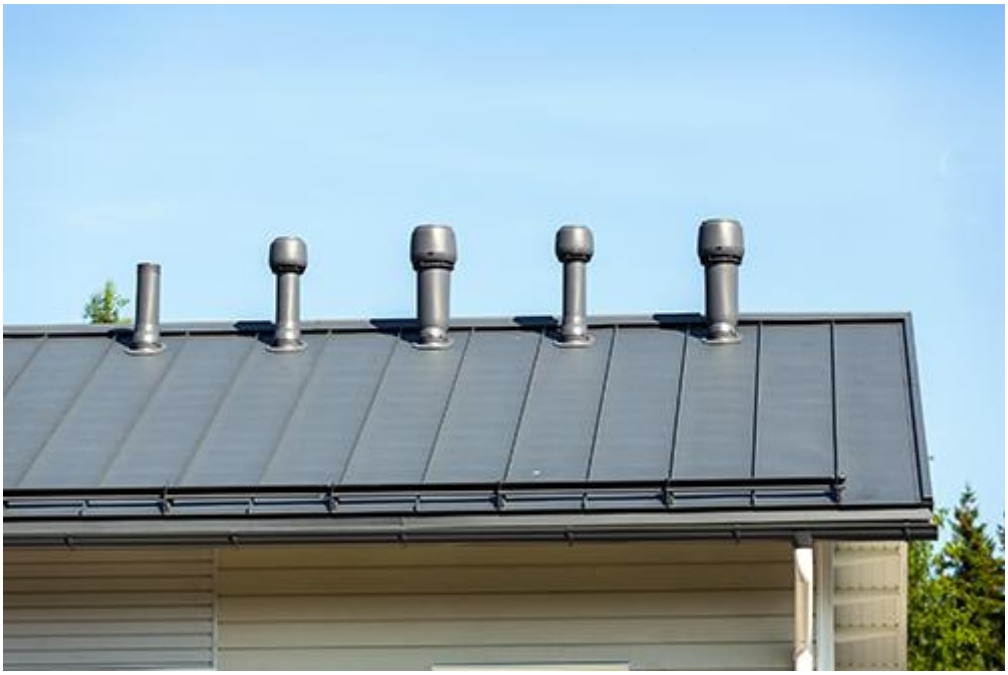
## DETECTING MOISTURE DAMAGE

Musty, basement-like odour is often a sign of moisture problems. Odours enter indoor air mainly through joints in the structures, edges of the floor and window frames. Typical symptoms caused by poor quality indoor air are headache, fatigue and irritation on the skin, the eyes, upper respiratory passages and mucous membranes. Symptoms are indicative of a mould problem, if they ease up when away from the building.

– In case of old buildings, it's well worth studying the history of the house: what renovations and changes have been made and how have people lived in it. Houses are often built in a hurry, and in a hurry, things get easily neglected, says Indoor Air Advisor Aila Laine-Sarkkinen from the Finnish Indoor Air Association.

Finding the cause of indoor air troubles is a job for experts.

– The indoor air readings don't specify the cause of the issues; studying structures and HVAC matters will yield results. Samples should be taken to be analysed. The help of a health inspector is recommended.



TAKE CARE OF VENTILATION

Keeping the structures dry is the best way to prevent bacterial and mould growth.

– A significant portion of all indoor air issues are due to ventilation. Either there is none or it falls short or is turned off. The right amount of air must come and go via the right places continuously, Laine-Sarkkinen says.

According to Laine-Sarkkinen, the solution for ventilation should be chosen individually, depending on the house. Experts should be consulted.

– When an existing system is getting updated, the structural engineering of the house, in practice the decade it was built, plays a significant role. The inhabitants must also consider what kind of a house they want and what kind of a ventilation system they know how to use and maintain.

We at SK Tuote recommend ventilation with our Vilpe ECo roof fans. A ventilation system with an Eco roof fan is easy to use and maintain. All the living areas of the house must have fresh air coming in and air flowing out as well. The roof fan sucks the air through ducts, causing pressure level variation useful for ventilation. Incoming replacement air must be ensured by installing an adequate number of replacement air vents.

Cooking creates water vapour and smell of burning. Indeed, it is worthwhile equipping the kitchen with a replacement air vent providing fresh air. The Eco roof fan sucks the vapours outside via the cooker hood.

Base floor ventilation is also crucial. Ross ventilation poles should be installed on every side of the house, and a ventilation pipe built running from the base floor to the roof. Thanks to the pressure of the wind, the air will flow from the base floor to the ventilation pipe. Ventilation can be increased by replacing the ventilation pipe with an ECo roof fan, which makes the air flow even and adjustable.

Ventilation of the roof should be taken into consideration already during construction. Between the insulation and roofing material is a cold space where moisture might condense. If possible, condensation is not dried, moisture builds up in the structures. During construction, passages are made for replacement air to enter the space. According to the materials used, a suitable roof vent is installed, allowing air to be vented out. The roof vent does not allow rainwater to enter the roof. If the roof has a ridge, a ridge vent can be installed. These measures create air flow within the roof, drying out any moisture.

Drains should also have an exhaust vent for air. Large masses of water move within the bathroom sink and the toilet, which occasionally creates negative pressure. If the air doesn't have a controlled route, it opens the water seal in order to get replacement air. This makes it possible for unwanted odours from the drain to enter the living area. A sewer ventilation pipe evens out the air flow fluctuations and directs the odours outdoors.

In Finland, indoor air has been studied by VTT Technical Research Centre of Finland, the National Institute for Health and Welfare (THL) and the Finnish Institute of Occupational Health (TLL), for example. Globally, research is done, for example, by the World Health Organization (WHO). The website www.microbe.net collects international studies on the matter.

Sources:


https://www.cdc.gov/mold/faqs.htm

http://www.euro.who.int/en/health-topics/environment-and-health/Housing-and-health/risk-management-and-policy-options/protecting-health-from-home-damp-and-mould

www.hengitysliitto.fi (The Organisation for Respiratory Health in Finland)

http://www.poison.org/articles/2011-oct/mold-101-effects-on-human-health

www.sisailmayhdistys.fi (Indoor Air Association)

Interview with Aila Laine-Sarkkinen, Indoor Air Advisor at Sisäilmayhdistys ry (Indoor Air Association)

Interview with Jorma Säteri, Executive Director at Sisäilmayhdistys ry (Indoor Air Association)

Interview with Veli-Pekka Lahti, Research and Development Director at SK Tuote Oy