

Hämeenlinna Housing Fair, starting July 13

Honka Rock, site 30  
Exhibitor: Honkarakenne Oyj

## Research: solid wood best at maintaining steady indoor humidity level

Experience has taught us that living in a house largely made of wood, such as a log house, is healthy for people. In recent years, research has provided also scientific proof. Wood turns out to have a beneficial effect on a house's indoor atmosphere, particularly its humidity.

In 2000-2004 **Honkarakenne**, the world's largest manufacturer of genuine wood houses took part in a research project coordinated by Wood Focus to study the effects of wood materials on inside air. The study, executed by researchers from the Technical Research Centre of Finland (VTT), the Helsinki University of Technology and the Fraunhofer Institut, involved both computational modelling as well as taking measurements in the laboratory and in the field.

"The study confirmed our empirical observations about the healthy qualities of solid wood," says Honka's Director of R&D **Eino Hekali**, M.Sc. Techn. "The present study shows that the more solid wood is used in the construction of a house, the better it maintains an even indoor humidity that is optimal for good health.

### Indoor air must not be too dry or too humid

The research study by the Fraunhofer Institut<sup>1)</sup> measured and compared the changes in indoor air humidity in two adjacent rooms. One of the rooms was made of stone and surfaced with stucco painted with a moisture permeable paint. In the other room, the walls were paneled with different wood materials, one material at a time.

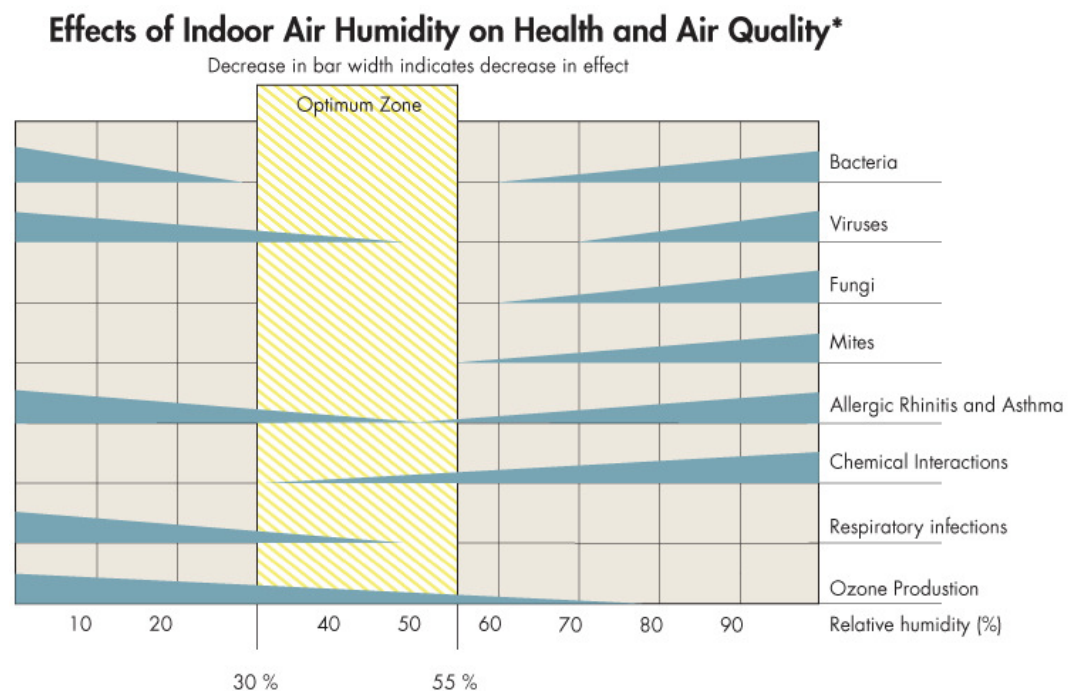
All wood materials were able to balance air humidity better than the stuccoed stone of the control room. Log walls in the research room balanced indoor air humidity up to 65-80% better than the stuccoed stone control room. Of all the materials included in the study, log proved to be the best in balancing humidity levels in the long term.



Dry indoor air in a building increases the incidence of respiratory infections and hay fever. Humid indoor air, on the other hand, promotes the growth of dust mites, bacteria, mould and mould spores, all of which have a negative impact on health.

Between too dry and too humid lies the range of optimum indoor air humidity: relative humidity of 30 to 55%. The less variation in air humidity there is outside or within this range, the better it is for human health.

The illustration below presents the effects of indoor air humidity and how it relates to factors affecting indoor air quality and certain health issues.



\* Simonson, C., Salonvaara, M. and Ojanen, T.: Improving Indoor Climate and Comfort with Wooden Structures; Espoo 2001; Technical Research Centre of Finland; VTT Publications 431; ISBN 951-38-5846-4; <http://www.inf.vtt.fi./pdf/>

## Genuine wood house in Hämeenlinna

Honka's main quality criterion for a genuine wood house is how well the house "breathes". This refers to its ability to absorb and release air humidity indoors. For this to happen, the house must have enough wall surfaces that are either made of solid untreated wood or treated in a way that preserves their moisture absorption characteristics. This is essential for healthy indoor air.

Honka Rock, Honka's modern urban villa show house at the Hämeenlinna Housing Fair (site 30) is mainly constructed with breathing solid wood.

The structure of the house utilizes Honka's new log product: non-settling laminated log, which for the first time enables combining solid wood with stone, glass and steel. The result is a modern, dramatic look and an environment that promotes good health.

The bedrooms are located in the two-story wing made of breathing solid wood, while the bathing facilities are situated in the sauna wing made of stone. The family of four who will be the house's future residents are pleased with the genuine natural materials used in the construction of Honka Rock which increase the quality and comfort of living.

Other specifications: Eino Hekali, Honkarakenne Oyj, Director of R&D  
Tel. 020 5757 779 or 040 570 7765, e-mail: [eino.hekali@honka.com](mailto:eino.hekali@honka.com)

**Product Director for Honka West & South Europe, Mr Vincent Marlin.**  
Tel. +33 6 33 16 20 47 or email [vincent.marlin@honka.com](mailto:vincent.marlin@honka.com)

[www.honka.com](http://www.honka.com)

#### References:

1. Moisture buffering effects of interior linings made from wood or wood based products; Künzel, H.M., Holm, A., Sedlbauer, K., Antretter, F. and Ellinger, M.; 2004; Fraunhofer-Institut für Bauphysik IBP Report HTB-04/2004/e; Investigations commissioned by Wood Focus Oy, Finland and German Federal Ministry of Economics and Labour; download the report for free at: <http://publica.fhg.de/cgi/get.pl?N-26793.pdf>
2. Improving indoor climate and comfort with wooden structures; Simonson, Carey, Salonvaara, Mikael and Ojanen, Tuomo; 2001; VTT Publications 431; VTT Building and Transport, Technical Research Centre of Finland; ISBN 951-38-5846-4, 951-38-5847-2; download the report for free at: <http://www.inf.vtt.fi/pdf/publications/2001/P431.pdf>

