DRYING AND ELIMINATING DRY-ROT an amazing and effective technology

Fungus and moulds

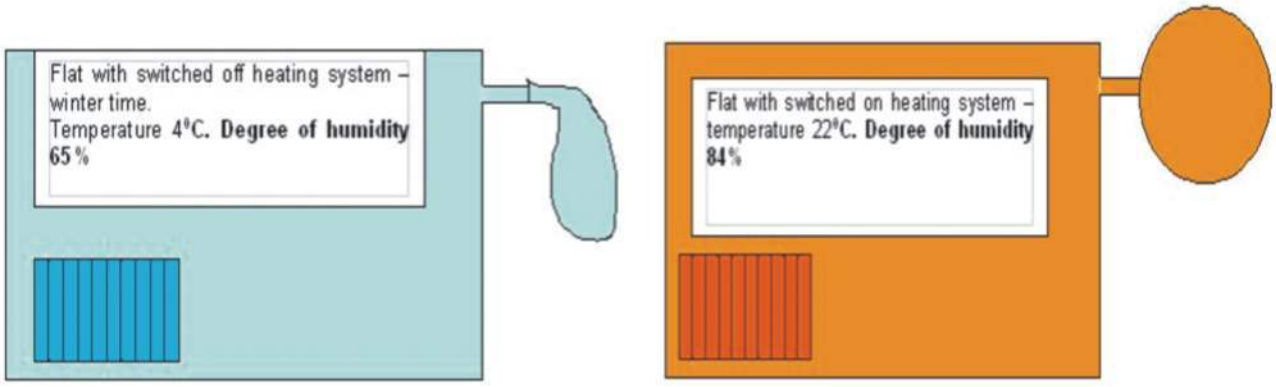
Thousands of square metres of damp, frozen or infected with fungus, are developed in a great number of flats and houses across the London and the whole UK.

This days we`ve received an order to remove typical fungus and mould from walls in the new flat see photo 1.

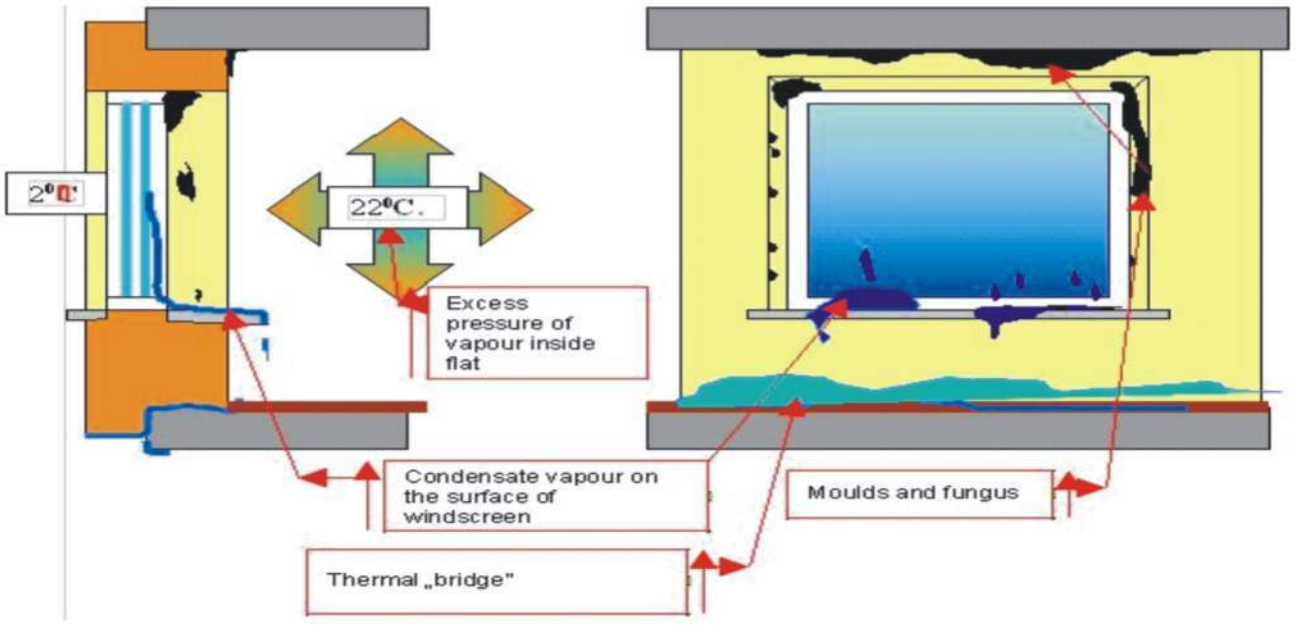
Photo1: Typical moulds (Aspergillus Niger) and fungus in new flat LONDON, February 2008

How it is possible that it arise so quick. Just imagine. In 1m3 concrete is used appr. 240 litres of water. Using concrete for 100sqm house for typical 20cm thick slab it is equel 20 m3 conrete e.g 4800 litres of technological water. It`s good if a part of the water goes into the backgroud; however, if the background is damp and not permeable, the water will stay at the surface, only slightly evaporizing on the open side of the wall. Using DPC and DPM is strongly neccesery but not always enough or made good. If not finaly the water is cumulating in wall structure. It`s only one step for arising moulds and fungus.

When we will start heat the flat water goes to vapourization, pressure increase. See diagrams below.



Additionaly, the development of fungus and mould is strongly influenced by the environment, that is conditions it develops in : wrong ventillation, construction faults of the new buildings, modernizations and the general repairs of the old ones without sufficient resolves.



These forms don't require perfect conditions to the development. A humid room will be enough about the limited flow of air.

How to destroy them?

In the profit pursuit, the fungicide substances are advertised, sometimes those giving adverse effects. For the present moment there is no safe and effective specimen. Producers of chemicals destroying microflora do not guarrantee effectiveness of their products, yet investors believe their dealers.
Practice has shown that those products can only be treated as security means after burning, drying or otherwise destroying fungus.
The negligence that have taken place in the building industry resulted also in lack of publications concerning building technology of drying and defungation of the buildings. The flood which have takenplace in our country in the years 97-98 enforced works on the new solutions and gave rise to the research on effectiveness of the currently used technologies connected with drying, defungation and preservation of the buildings.

Is staying in the objects infected by fungus or moulds safe?

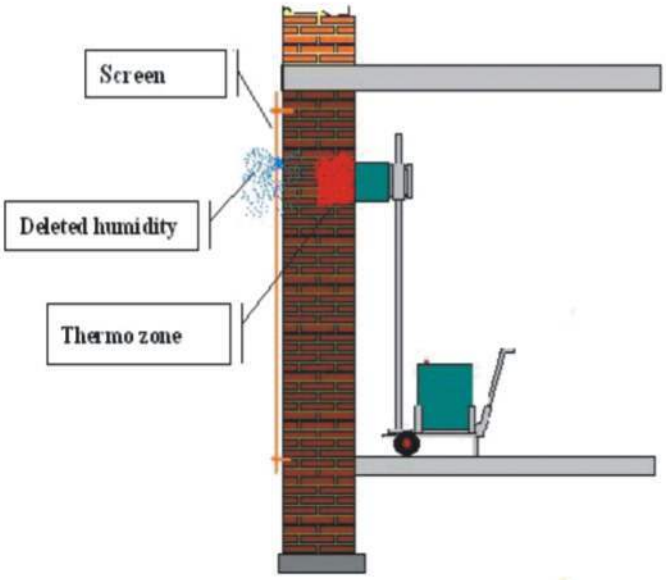
Nobody seems responsible for the loss of health of the people who live, learn and work in the infected apartments. Food is produced from the components infected with microflora. More than 70 % of food producing plants should be closed because of very bad (say: tragic) health conditions. Mills which get moulded grain, warehouses, dairies, meat processing plants, bakeries, bars, swimming pools, cloakrooms, hotels, clinical hospitals and hospitals. Anyone familiar with the problem of destructive effect of the fungus or anyone who has seen the results of mycological analyses knows what is mean by these words.

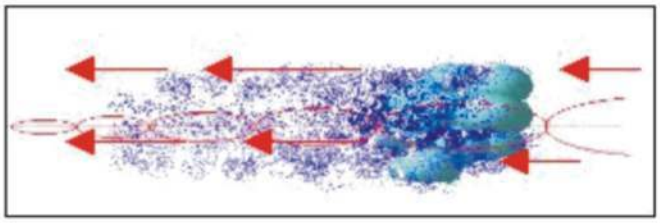
This is answered univocally by mycological building expert in the expertise concerning the subject. The expertises are horrifying; in 80 95 cases the fungi in question emit toxic mytotoxins, which means that mould metabollites are closely related to neoplastic diseases, such as liver cancer, blood cancer, lungs cancer, esophagus cancer, stomach cancer, tumours of the brain; moreover those substances strongly influence central nervous system and foetal organogenesis.

THE RESEARCH; UNESCO; in Poland Prof. Julian Aleksandrowicz, A.M (Medical Academy) in Cracow, and The British Medical news No 1/93 Maxwell Editor London. The research works are in course and the results are terrifying. The lack of knowledge and ignorance are horrifying.

Microwave drying

Microwaves penetrate into non-conductive materials redrying. such as building materials, and during propagation they are slightly attenuated. (This phenomenon is used for defining the walls' humidity). Water absorbs microwave energy very effectively, several thousand times stronger than the dry material. The high frequency field stimulates movement of the water molecules of water contained in the material. The resulting friction gives considerable amount of heat. The temperatures obtained in thermo zone are controlled and range: drying 40 60°C, burning of fungi 80 to 120 °C, destroying the bacterial flora 120 150 °C, which makes water vaporize and diffuse from the material.





The molecules of water and salt move according to direction of the wave in electromagnetic field. This phenomenon was is used in the process of desalination the object in conservating works.

Microwave radiation is a part of the broad spectrum of electromegnetic waves. It is assumed to be situated in the range of 100 0.1 cm concerning wave length and 300 300 000 MHz in the aspect of frequency. Microwave radiation, as any electromagnetic wave, act upon the

matter. The ways it does so may be divided into several types, depending on the radiation frequency and the its power density. Generally, it may be divided into thermic and non- thermic one. In the case of disinsection, disinsectization and defungation the thermic activity has the major role. It implies absorpion of the microwaves by the object exposed to their action, and consequently, heating the object, which means that the absorbed energy depends in a directly proportional way upon radiation frequency, field intensity, material volume and its dielectric constant.

On the basis of the conducted research it may be stated that: Thanks to fast heating the material not only on its surface, but in the whole volume as well microwave drying seems to be more effective in relation to other methods. This virtue, however, turns into the bad side in the case of uncontrolled action, as it causes excessive heating of the water absorbing radiation intensively.

The exposure should be performed at small powers of the device, maximal power of 60%, with short, 5 10 min impulses. Then the object should be left to dry, evaporate, and equalize the dampness. The objects must not be dried totally, but only to the extent of decrease of the water contents


Photo2

Microwave technology can be applied for drying the walls, including those of monuments. The experiments conducted in Laboratory of Conservative Chemistry on the building materials: brick, samdstone and cellular concrete that quick and effective drying of these materials is possible. In this case, as well, periodic drying gives better results. It is also profitable to move the microwave generators (heads) into various positions upon the dried objects so that it should be equally heated in all its volume. As majority of the inorganic materials are more resistant against increased temperature, microwave defungation will be more effective with them than in the case of paper. Where monumental objects are concerned, all drying processes should be performed under the supervision of the monument conserver.

Microvawe technique may also be applied for drying and disinsectization of wood, including the monuments. In this situation, the same rules as for paper should be observed, always bearing in mind the possibility of self ignition of wood exposed for long term radiation in case of the bigger objects. Polichromy on the surface of the wood may be an important restriction, as during the drying process it may be loosened or overdried. Here the supervision of the monument conserver is essential.

The technology is still in the course of intensive development, still undergoing examinations aimed at making it as useful as possible.

FLOODS another great UK problem which can cause humidity troubles

Thousands of families have still not been able to return to homes damaged in last summer's floods in England, the government has confirmed.
Local government minister John Healey said, as of 17 January 2008, it was thought about 8,750 households were totally or partly unable to return home.
About 48,000 homes and 7,000 businesses were flooded in south-west England, the Midlands, Yorkshire and Humberside. Councils in those areas have received £18.4m in "recovery grants" so far.


Photo3: About 48,000 homes in England were affected last summer

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