

# MOULDS IN THE WORKPLACE

## ARE YOU EXPOSED TO MOULDS IN YOUR WORKPLACE?

We are all exposed to some mould spores in the air we breathe on a daily basis, however not everyone is affected. Concern about indoor exposure to moulds has increased along with public awareness that human exposure can lead to various health effects and symptoms. Moulds inside buildings are usually considered contaminants.



## WHAT ARE MOULDS?

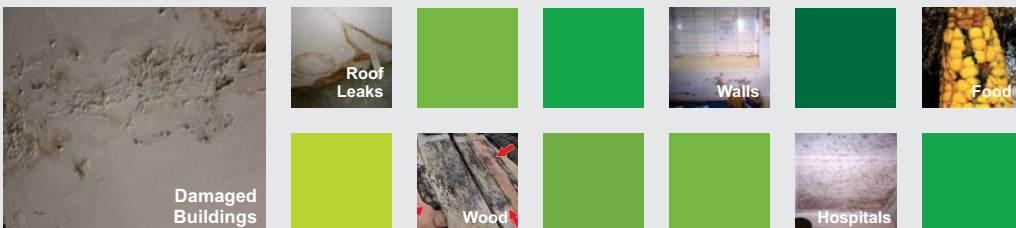
Moulds are small organisms found both indoor and outdoor and can occur in different colours. Some moulds are also capable of producing toxic substances known as mycotoxins which may be harmful. The most common moulds include *Cladosporium*, *Alternaria*, *Aspergillus*, *Fusarium*, *Penicillium*, *epicoccum*, *Rhizopus*, *Mucor*, *Trichoderma*, *Paecilomyces*, *Mucor* and *Aureobasidium*.

## SOURCES OF MOULDS AND RISK OCCUPATIONS

Moulds need sources of food, moisture and a place to grow. These include floors, carpets, ceiling tiles, insulation, paper, walls and wallboards, wood, surfaces behind wallpaper, furniture, cloths, appliances (humidifiers or air conditioning systems), showers and pot plants. Poor ventilation can lead to increased ambient humidity providing ideal conditions for mould growth. Mould growth within buildings may not always be easily recognised, except by the "musty or stuffy" smell. Moulds are commonly found in construction, farming, hospitals, hotels, industries (e.g. tanneries, milling), laboratories, landfills, libraries, manufacturing (e.g. food and alcohol), mines, museums, offices, prisons, salons, schools, waste and sewage treatment facilities.

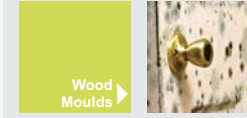
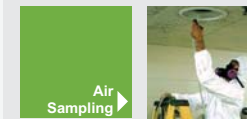
## HOW CAN WORKERS BE EXPOSED TO MOULDS?

Almost every person who works in a building can be exposed to moulds depending on the environmental conditions. Workers are exposed to moulds and its toxic substances mainly by **breathing** in the spores that are released into the air. However transmission can also occur by **contact** with skin and **eating**.



## CAN MOULD EXPOSURE LEAD TO HEALTH PROBLEMS?

Moulds can cause allergic reactions, infections, and other toxic effects. The most common symptoms include sinusitis, sick building syndrome, upper respiratory diseases, sneezing, runny nose, red and watery eyes, sore throat, coughing, wheezing, headaches and flu-like symptoms, nasal congestion, fatigue, dizziness, itching, skin rash, possible skin irritation and asthma or aggravation of asthma in mould-sensitive asthmatics. Some individuals are more sensitive to moulds than others and tend to be more at risk. These include people with weakened immune system (e.g. HIV/AIDS, cancer and liver disease patients, diabetics, chemotherapy patients); individuals with existing allergies and asthma and pregnant women. Unlike a cold or flu, mould allergies may continue throughout the year, with symptoms worsening in spring and autumn.



## HOW TO PREVENT AND CONTROL MOULDS IN THE WORKPLACE

The most important step to PREVENT mould growth in occupied areas is to remove the source of MOISTURE. In addition:

- Perform regular maintenance of buildings and the ventilation system
- Repair plumbing leaks in building structures
- Ensure carpets are dried properly
- Maintain indoor relative humidity to levels below 70 % (preferably 25-60%), use a dehumidifier if necessary
- Ensure adequate ventilation in the buildings and open doors between rooms to increase circulation
- Identify the causes of mould growth (e.g. manufacturing process) and take preventive actions to avoid reoccurrence
- The use of personal protective equipment is recommended as the last prevention measure (e.g. N-95 respirator or half-face respirator with HEPA filter, gloves, eye protection).

## CAN MY WORKPLACE BE TESTED FOR MOULDS?

If mould growth is visible, sampling and testing is not necessary, it needs immediate clean-up. A professional must be consulted for the clean-up process. Testing is usually done to compare the levels and types of moulds found inside and outside the building. Environmental assessment is used to locate and identify the moulds present. Sampling for moulds should be conducted by competent laboratories with specific experience in sampling for microbial contaminants and interpretation of results. There are currently no standard for sampling methods and no threshold limit defining indoor mould contamination.

## SERVICES OFFERED BY THE NIOH BIOAEROSOL LABORATORY

- Risk assessments for problem buildings
- IAQ assessment for reported symptoms
- Air sampling using modern technology
- Culture and identification of pathogenic microorganisms
- Consultations and recommendations to workplaces
- Training and advisory services
- Diagnoses of mould allergy in workers by skin prick testing and/or blood tests.