Healthy Indoor Environment

Carbon dioxide and moist in your workplace

Pollution sources

In workplaces, pollution with carbon dioxide and moisture typically comes from four sources:

1) People (carbon dioxide and moist).
2) Washing floors, wet clothes, etc. (moist).
3) Production processes (carbon dioxide and moist)
4) Penetration of water from outside (humidity/moist).

Carbon dioxide and moist are not in themselves harmful to your health. But a high content of carbon dioxide in the indoor environment is a sign of poor air quality in a room, which increases the risk of headaches, fatigue, and difficulty in concentrating. High humidity increases the risk of mould, which can cause severe allergic reactions in employees. Aeration and sensible habits can often reduce the content of carbon dioxide and humidity levels in the workplace.

It must be emphasized that moist and carbon dioxide are rarely a problem in newer buildings with mechanical ventilation. Here, however, dry air (especially in the winter) can cause mucosal irritations, and it may be necessary to turn down the ventilation to keep up humidity during the winter season.

In energy-renovated buildings, special care must be taken to ensure that moisture problems do not arise, as air exchange is often lower after renovation due to sealing. The risk of moisture problems is also high in buildings where the temperature is not the same in all rooms, where thermal bridges give rise to local condensation on walls, or where production processes release moist without sufficient extraction.

Long-lasting steamy windows and earthy/musty smells in cupboards/closets or rooms are signs of moisture problems. Dark spots on wallpaper (in corners, windowsills and behind furniture on exterior walls) can be mould and must always be removed e.g., with Hysan, Protoxskimmel, Rodalon or chlorine (pay attention to possible discolouration).

Measurements

It is always a good idea to **buy an electronic hygrometer with a thermometer**. It costs 15-30 euros, and then employees can monitor the humidity level in the room. The humidity should be 25-45 percent in the winter and not exceed 65 percent during summer. However, you must be aware that the hygrometer only measures the humidity where it is placed. If you place furniture against exterior walls, there is a risk of increased moisture behind the furniture, which can result in mould that can contaminate the entire room with spores. The hygrometer cannot measure this if it is placed elsewhere.

It is also a good idea to **buy an indoor (carbon dioxide) CO_2 sensor**. Simple ones cost some 30 euros and then you can monitor the CO_2 content in the room yourself.

The good thing about measuring is that you can investigate for yourself what effectively removes CO_2 and moisture in the room, and what fits your everyday life and habits at work: how much does it help if you aerate

with draughts 3-5 times a day - or if you let ventilation dampers in windows stay open? Use the measurement results to improve the indoor air everywhere in the building and engage employees in creating a good indoor environment in all the rooms.

1) People

We all exhale carbon dioxide and water vapour when breathing, just as we release water vapour when sweating. A person typically releases around 2 litres of water per day by exhaling and sweating. Although employees are typically only at work during the day, it adds up to a lot of water. That moist must be removed from the room by aeration to avoid moisture problems.

Aerate with a draught (open all windows) preferably for 5 minutes 3-5 times a day - turn off the radiators in the meantime to minimise heat loss. If there are ventilation dampers and windows, they should be open and regularly cleaned from dust, pollen, etc. Leave the windows ajar in the summer if outside noise is not a problem.

2) Washing floors, wet clothes, etc.

Washing floors, wet clothes, etc. are activities that release moist.

The floor must not be washed with an excess of water, and, after washing the floor, always aerate with a draught for 5 minutes before employees come. If necessary, instruct the cleaning staff to ensure aeration if they work in the early morning hours. Ensure ventilation in rooms where wet work clothes are often hung.

3) Production processes (carbon dioxide and moist)

Production processes can emit both moist and carbon dioxide. Ensure thorough extraction so that the moisture is sucked out and does not contaminate the indoor environment in the company building.

4) Water penetration from the outside

Water in the building's construction, due to water damage, downpour or moist, as well as high levels of ground water around the foundation, can cause mould both on and inside the walls. In these cases, you should always get help from professionals.

Dehumidifiers are often necessary after water damage but are a symptomatic treatment that does not prevent the sources of moist mentioned above from causing problems.

Have measurements made

We can help with measurements and assessments of the indoor environment, and solution options to get a better indoor environment. Contact the Head of secretariat Kaare Press-Kristensen: kaare@godtindeklima.nu / tel. (+45) 22 81 10 27.

More about indoor air pollution and solutions:

www.healthyindoorenvironment.org