

DENVER BUSINESS JOURNAL

November 18-24, 2005

Here's the dirt on indoor air pollution and how to clean it up

Dangerous as polluted outdoor air can be to health, polluted indoor air can actually pose a greater health risk.

Environmental Protection Agency (EPA) studies of human



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exposure to air pollutants indicate that indoor air levels of many pollutants may be two to five times higher than outdoor levels.

The levels of indoor air pollutants are of particular concern because it is estimated that most people spend as much as 90 percent of their time indoors.

Indoor Air Quality (IAQ) concerns have increased since energy conservation measures were instituted in office buildings during the 1970's, minimizing the infiltration of outside air, decreasing a building's ability to dry out after water leaks, and contributing to the buildup of indoor air contaminants.

SIGNS OF POOR INDOOR AIR QUALITY

Some of the signs air quality may be tainted in a building include:

- Complaints of headaches; itchy, watery or burning eyes; breathing problems and/or drowsiness;
- Office is dirty or dusty;
- Air supply contains debris;
- Chemical smells;
- Complaints of stuffy or musty smells;
- Humidity levels are above 60 percent or below 30 percent.

Many things contribute to poor indoor air quality – humidity levels, maintenance issues, construction conditions, vent locations, mold, viruses, odors, paint, copy machines and printers to name a few. Whatever the conditions, the goal is to find the appropriate balance between the most ubiquitous outside conditions and the preferred indoor conditions.

For example, a mixed-use office/industrial building may see high levels of carbon dioxide coming into the indoor space because of an improperly located air vent. Having and operating a proper ventilation system with proper intake locations will

generally keep these pollutants at safe levels, promoting the comfort and health of those in the building.

Insufficient make-up air (from the outside) or a dirty, unmaintained ventilation system can lead to unsafe levels of carbon dioxide or insufficient oxygen and thus possible complaints from tenants, loss of a property buyer, or a broken lease.

Another factor that could lead to poor indoor air quality is bad placement of ventilation intakes. If the make-up air is coming from a vent located within a parking garage or near a loading dock, air that tends to be richer in carbon monoxide will be fed into building. If this design element isn't recognized, the system may draw in dangerous levels of carbon monoxide and other pollutants.

Other conditions that could lead to poor indoor air quality may arise during construction or from structural damage. If a construction site is allowed to stay wet for a prolonged period of time, or if there are leaks in a building, mold may grow and be fed into the ventilation system circulating through contaminated areas.

Indoor air pollution continued

EFFECTS OF POOR INDOOR AIR QUALITY

When a tenant, employee or visitor has a complaint such as headaches or malaise that occurs after having been in the office for a number of hours, the first step the owner or property manager should take is to investigate the complaint. Occasionally it is simply an individual problem, not a legitimate building problem. If it seems to be more than just an individual or two with the complaint, and it happens frequently, check if the building is out of code and that all equipment is being run properly and per the proper settings. Typically, indoor air quality issues are an easy, fixable problem due to maintenance issues or operating procedures. Other times, these issues can be very costly.

IAQ issues can have detrimental financial consequences, including:

- Excessive maintenance calls;
- Wear and tear of furnishings and equipment;
- Lower worker productivity or departure of employees;
- Negative relationships with tenants, possibly leading to the loss of a tenant or litigation;

- Bad publicity that could put properties at a competitive disadvantage;
- Law suits.

REMEDIES

What steps can be taken to resolve air quality concerns? One step is open communication. A majority of air quality problems are not difficult to correct and can be solved with in-house maintenance staff. Other steps include the following: a simple walk-through, regular maintenance of equipment, understanding how to properly use the building's equipment and, in some situations, sending out a questionnaire to tenants.

There is a new trend emerging to control air quality concerns. Owners or tenants of properties are testing the air to get baseline data before renting or selling the property. This allows them to take care of any problems that are present and to more accurately assess future complaints of indoor air pollutants. It also helps to determine if complaints are an individual problem or something to look into further.

Recently in Denver, a proactive buyer wanting to make a property transfer of a 150,000-

square-foot office building checked the indoor air quality before committing to the deal. In doing so, the buyer had limited air quality screening conducted to ensure that an appropriate indoor air work environment was maintained and that HVAC equipment was up to code. Tests were done throughout the building. Questionnaires were then given to the previous maintenance staff and current tenants. It is becoming more and more common for evaluations like this to be performed.

If there is a basis to believe that an IAQ problem could have detrimental health or financial issues, a team of industrial hygienists and scientists can assess the problem and recommend a solution for clearing up the air.

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