

# Indoor air pollution — the potential for litigation

Office buildings and other commercial premises could become increasingly subject to claims by workers for health-related injuries. This prediction is based on three factors which indicate Australia may become more litigious in this area:

- An increase in "sick building syndrome" litigation in the United States;
- Changes to Australian law which make it easier for groups of people to mount class actions; and
- Australia's move towards contingency fees — a system whereby lawyers essentially work for free but take a large percentage of any damages awarded to their clients.

When these factors are combined, one might conclude that sick building syndrome and other building-related illnesses will become something that Australian workers will begin taking to court rather than just complaining about. If this happens, employers and building owners will find themselves being regarded as "deep pocket" targets by people who claim that their indoor working environment is making them sick.

Once alerted to an action against them, employers and owners would then look around to see if there were other parties with whom they could share liability. These might include the building architects and engineers — and the manufacturers and distributors of various items of equipment such as air conditioning systems.

The net might be cast even wider to include suppliers of copy paper, soft furnishings, computer systems, wood products and other items which have been linked with human ailments.

To prepare themselves for such claims, employers and building owners can take precautionary steps to endeavour to avoid large damages payouts, including:

- Ensure that their insurance policies provide adequate cover for such claims;
- Keep detailed records so that if they are sued they can share the blame and reduce their liability;
- Ensure that all health-related complaints relating to buildings are adequately investigated.

## Risk assessment management

The risks associated with indoor air pollution can be equated with other low risk exposures — such as cancer from low intensity electromagnetic fields, miscarriage from video display units and environmental pollution and cancer.

These share a common characteristic, in that a cause-and-effect relationship has not been proved, and may arguably be

unprovable. However, for individuals who suffer a major illness the association between the small exposure and the illness may seem very real.

Because of the equivocal nature of the association in these cases, the issues can be very emotive and the conflict revolves around showing causation.

Epidemiological studies designed to examine the incidence of disease in exposed populations have attempted to identify correlations between office-work environment and disease. The results indicate that the risk ratio that compares disease in exposed vs. non-exposed individuals is low.

Interpretation of such studies is difficult because many of the illnesses complained of can be caused by other known factors and these can confound the interpretation of epidemiological studies. In addition, a statistical association between working in an office environment and a particular disease may have no biologically plausible explanation.

## Sources of contamination

A number of problems in the indoor environment have been identified as being risk factors for illness. Air conditioning systems in large buildings are a major energy user. Demands on energy conservation may lead to steps being taken to limit the intake of fresh air and this can have an effect on indoor air quality.

In addition, the introduction of new building materials in construction can result in exposure to solvents and other reactive chemicals. Some of the potential health effects of a poor quality indoor environment include infection from microbial contamination, the development of allergies such as allergic rhinitis or asthma, cancer from asbestos or formaldehyde and a systematic effect known as sick building syndrome.

While it is not possible to comprehensively review all the potential risk factors and their possible causes, the following are given as examples:

### Infective agents

A common source of significant micro-organism contamination are water supplies. If contaminated water becomes aerosolised, the inhalation of the droplets produced can produce significant human sickness.

One of the more important agents disseminated by this means is the *Legionella* species of bacteria. They are a common inhabitant of fresh water, but their numbers may be enhanced by the design of plumbing and hot water heaters as well as by the temperatures at which the hot water is kept.

The greatest association of these microbes is with cooling towers and evaporative condensers, ie. anything that provides plenty of warm, recirculating water. The major clinical problem is pneumonia which can cause significant morbidity, and can even be fatal, in susceptible individuals.

### Cancer

Most studies designed to examine the effect of indoor air quality on cancer risk have investigated the incidence of lung cancer. Risk factors include:

- Radon and its decomposition elements.
- Use of asbestos. Although its use in buildings products has been phased out there is little evidence that asbestos fibres in the indoor environment are high enough to induce cancer. However, it has led to a near hysterical rush to clear asbestos from buildings and this may be the cause of more human exposure than if the asbestos was left in place.
- Formaldehyde is known to cause nasal cancers in rats. Urea-formaldehyde resins are used in the manufacture of plywood and particle board, in wood glues, and as thermal insulation. It is also used in the manufacture of wood products, surface coatings, flame retardants and in the production of laminates and textiles. As a result, formaldehyde is now found ubiquitously in the environment. In the office, copy paper, insulation materials and soft furnishings can contribute to the ambient levels of formaldehyde. Surveys indicate that in US offices the concentration can range from 0.01 to 0.3 ppm. The latter is greater than the maximum peak exposure level of 0.1 ppm set by the National Institute for Occupational Safety and Health in the USA.

### Systemic syndromes

Clinicians have identified a set of symptoms that are associated with working in specific types of buildings. It has been termed "sick building syndrome". Symptoms can include sore eyes, rhinitis, throat dryness, lethargy, headaches, and, occasionally, asthma.

The reason given for it being related to the building is that these symptoms occur in greater frequency in any given individual after the person comes to work and then are alleviated or disappear altogether upon leaving the workplace.

It is a difficult "illness" to study because the symptoms are mostly subjective. At the moment, sick building syndrome remains a clinical diagnosis without any cause, or causes, having been specifically identified.

### **Legal aspects of indoor air quality and pollution**

In the US there have been a significant number of law suits brought by persons alleging indoor air pollution has resulted in personal injury. The defendants named in these law suits include manufacturers, distributors, employers, real estate brokers, contractors, lenders, engineers, architects, and building owners.

There are a number of potential causes of action that a plaintiff could use to bring such an action in Australia.

#### **Negligence**

A claim of negligence is based upon an allegation that a person failed to exercise the care that a reasonable person would have exercised in a similar situation. The plaintiff must establish that:

- the defendant owed the plaintiff a duty of care;
- the defendant breached his duty of care by failing to act within the required standard of conduct;
- the loss of injury resulted from the defendant's breach of that duty; and
- plaintiff suffered loss or injury.

The types of actions that might result in indoor air pollution could include:

- an architect designing a building without adequate ventilation;
- a manufacturer failing to provide adequate instructions regarding the type of ventilation required;
- a pesticide applicator applying pesticide above the manufacturer's recommended level.

There are a number of defences against a claim of negligence. The defendant may be able to demonstrate to the Court that the plaintiff has failed to establish that the defendant's conduct was unreasonable. The defendant may also be able to demonstrate the absence of causation, ie. that the exposure or purported exposure, actually caused the injury.

In addition, the defendant may be able to assert that the plaintiff's injury was caused by his own negligence as opposed to that of the defendant or that the plaintiff assumed the risk of the purported exposure, or the injury was caused by the actions of another party.

#### **Strict liability**

Recent changes to the Trade Practices Act hold manufacturers liable for injury to others caused by a defective product. This can occur even if the manufacturer was not negligent or blameworthy.

Liability can arise even though the manufacturer or designer exercised all possible care in the preparation and sale of a product. Claims could arise in situations such as office building materials that emit hazardous levels of a pollutant, such as formaldehyde. The manufacturer of those materials may be liable for any damage caused by indoor air pollution because he or she had produced and sold a product that was unreasonably dangerous.

Because this legislation focuses on whether a product is defective rather than

whether a person was at fault, it is more difficult to defend because the plaintiff merely has to show that the product was defective.

However, there are a number of defences, one important one being the "state-of-the-art" defence. If the product had been adequately tested and the state of scientific and technical knowledge was not such as to enable a defect to be discovered, the manufacturer can argue that the defect was not capable of being detected.

Precisely what constitutes "state-of-the-art" information has yet to be considered by the courts. It may be the case that manufacturers are obliged to analyse and review new scientific and technical developments, even perhaps by obtaining outside help if necessary.

Another effect of this legislation is to make distributors liable if the manufacturer cannot be identified. In the context of an office building, this would mean that it is important to keep good records of all suppliers of products that have potential to produce an effect on their indoor air quality.

#### **Breach of contract**

It is theoretically possible for a claim relating to indoor air pollution to arise on a contractual basis, either through an express or implied warranty. Implied warranties such as merchantability of goods and goods being for a particular purpose are implied into the Sale of Goods Act. Thus, if an air conditioning system produced poor quality indoor air and a tenant makes a claim associated with health risks resulting from indoor air pollutants, the supplier may be liable to the owner for damages.

#### **Litigation**

In claims of the type considered in this article, a plaintiff will often make a claim against multiple parties — the employer, the lessee and the owner. For example, because the cause of sick building syndrome is so well defined, the claim may be against the lessee or employer for substances such as formaldehyde, and the owner for air conditioning-related factors. It would then be up to those parties to sort out who was responsible for what aspect of the illness suffered and to identify other defendants (manufacturers, suppliers) against whom they could, in turn, direct the liability.

To counter such claims, building owners should be vigilant in two important areas:

- insurance — ensure insurance policies cover such contingencies; and
- document retention — ensure there are adequate records kept of such things as maintenance of the air conditioning system and records of suppliers of goods that may contribute to poor air quality.

The tendency to settle single claims, while seemingly cost effective, may create a precedent for other claimants and has the potential to produce further litigation.

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