

LEAD AND NICKEL DUST IN CEILING CAVITIES

The Department of Health (DOH) has received inquiries from Esperance householders, concerned at the possibility of high lead and nickel dust residues in the ceiling cavities of their homes. Monitoring of a limited number of homes by the DOH and the Chemistry Centre WA, confirms that under some circumstances, contamination of the ceiling cavity of houses may have occurred. This requires precautions by householders to prevent exposure of their family, or tradespersons who may enter ceilings for work purposes. Health studies elsewhere in Australia confirm that ceiling dusts pose a potential health risk if the dust is disturbed and permitted to enter the living areas of the building. Ceiling dust that is not disturbed, and can be isolated from residents, is not considered to pose any significant health risk. There are no health guidelines for levels of contamination. The DOH believes that where residents or tradespersons remain isolated from these residues, there is no need to undertake expensive and intrusive remediation.

This document is intended to provide advice to householders to ensure ongoing protection for themselves, family members and tradespersons. The most sensitive group are young children, because of their extensive hand to mouth activity, whereby contaminated dust is more readily ingested and adsorbed. Environmental and biological monitoring shows that while there is a potential risk for all homes in the Esperance area to have some level of ceiling cavity contamination, buildings within a two (2) kilometre radius of the Esperance Port may be at greater risk.

Studies show that terracotta clay or concrete tiles with their relatively open construction provide a high entry risk, with dust entering and depositing into the ceiling cavity (or 'void'). Similarly, open eaves will allow access to ceiling cavities under windy conditions. Because of lower internal pressure inside the ceiling, wind-borne particles can be drawn through gaps in the roof structure and accumulate in varying amounts on the surfaces of ceilings, rafters, joists and other beams. Householders can inspect their homes and establish relatively easily whether dust entry points are present in their homes, and eliminate these points where appropriate. Any areas facing the Port are especially vulnerable.

The location, age, construction and condition of the building will all play a role in determining the potential for migration of the dust into the habitable areas. Some potential entry points are described:

- **Exhaust fans, roof and ceiling fans:** Where a direct connection exists between the ceiling cavity and the room below, an entry point can be presented.
- **Cornices:** If cornices are not installed, the subsequent gap between wall and ceiling, or development of cracks, may present an entry point.
- **Wall vents:** Some older style buildings may have corner ventilation installed, providing a link between the ceiling void and the room below.
- **Light fittings:** Improper sealing and/or loose fittings around the base of electric light fittings may allow dust to infiltrate living areas.

- **Ceiling roses/Decorative pieces:** Decorative designs may have small gaps and holes present which allow dust migration.

Children's cots or beds should not be placed directly underneath any of the areas listed above. Items of furniture and floors below these areas should be wet-cleaned regularly (at least weekly recommended) with a damp cloth or vacuumed to remove dust residues.

Renovating buildings through the addition of extra rooms, adding second stories, or having to remove or disturb part of any roof can be particularly hazardous, because of the large amount of dust generated. Insulation installers are at particular risk, however other tradespersons such as plumbers, electricians, builders, cable installers and roofing carpenters are also at risk during this procedure and need to apply the following precautions.

- **Personal hygiene:** Before entering roof cavities, tradespersons should carefully wash hands and face, and other exposed areas. After exiting the roof area, it is important to again wash hands, face and other exposed areas to remove any potential residues.
- **Clothing:** It is preferable that clothes be disposable, or garments which can be immediately placed in a plastic bag, taken home and washed. The clothing should be isolated and washed separately to other general clothing and washed last. It is particularly important that unwashed clothing be kept away from children.
- **Dust mask/Rubber gloves:** These are available at all good hardware stores. The correct fitting of a mask is especially important to prevent the inhalation of dust. Once completed, masks and gloves should be disposed of by wrapping in a plastic bag and placed in the household rubbish bin (not for recycling).

Any residents who need to access the ceiling space for any reason should also undertake these precautions.

Residents are reminded that the DVD/Video "*Managing Lead Dust Around Your Home*" freely available in many Esperance outlets, contains further information on cleaning homes. Results of monitoring conducted in homes has concluded that thorough internal cleaning of buildings remains the most beneficial procedure to ensure residents are not exposed to unnecessary dust residues. Some residents may also wish to use the free HEPA vacuum cleaners (Coates Hire - Norseman Road) to clean easily accessible components of the ceiling cavity, or in and around areas adjacent to identified entry points. Providing the precautions outlined earlier are followed, this process should not provide any unacceptable risk.

Reference: Davis, Jeffrey J., and Gulson, Brian L. 2005. Ceiling (attic) dust: A "museum" of contamination and potential hazard", *Environmental Research*, Vol. 99: 177-194.