

Diagnostic Procedures for Low-Level Asbestos Contamination in Occupied Tertiary Institutional Buildings

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Asbestos containing materials (ACM) in New Zealand (NZ) buildings have created a significant economic and health burden. Exposure has resulted in cancers that affect the health and lives of hundreds of New Zealanders each year. In addition, economic damage through asbestos contamination of buildings, land and waste streams is an ever-increasing burden on NZ's economy.

Asbestos and asbestos-containing materials (ACM) have been extensively used in the past and NZ's asbestos ban was not completely effective until 2016. Nonetheless, banning imports of asbestos has not addressed the safe management of the vast amount that has already been imported. Therefore, assessing the presence and abundance of ACMs in residential and commercial buildings is a significant challenge.

In well maintained buildings, mean fibre concentrations have been found comparable to those in outdoor air. Therefore, living or spending time in or near a building with ACM does not necessarily present a health risk from domestic or daily exposure, however further research is needed on the effects of low or intermediate exposure levels to asbestos. This should include regular surveys and monitoring of fibre release, with an aim to avoid uncontrolled disturbance of ACM.

This research presents a case study of asbestos contamination in five large buildings of a tertiary education institute in NZ. Background sampling of asbestos in a research laboratory detected asbestos concentrations exceeding trace levels (0.01f/ml). As a consequence, extensive internal and external testing was undertaken, to determine risks to building occupants. Testing identified asbestos on landings, windowsills and other external areas and so a six-metre perimeter was immediately established around the affected buildings.

Challenges identified which impacted the ongoing effective management of these buildings included determination of the most reliable/meaningful method for measuring asbestos contamination (e.g. air monitoring versus swabs), results interpretation (how many fibres is too many for safeguarding human health?) and practical contamination management strategies. Overall, this study concluded that NZ requires a comprehensive framework for: determining asbestos exposure risk; highlighting hotspots of exposure in communities; and identifying relevant and efficient methods of measuring asbestos exposure particularly after disturbance events (e.g. flooding, fires, earthquakes).

