

## **Asbestos Remediation - Final Report**

**25 Bradfield Street**

**Downer**

**ACT 2602**

**November 2013**



Prepared for: Community Services Directorate (CSD)

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## **B a c k g r o u n d**

Robson Environmental Pty Ltd was engaged by the ACT government to draft a remediation plan to safely remove all asbestos containing materials (ACM) from 25 Bradfield Street, Downer, ACT 2602. The appointment of Robson's was mainly due to their expertise in the asbestos field, their involvement in discovering the loose asbestos insulation in the Downer home and the further investigation and reporting conducted for WorkSafe. The report for ACT WorkSafe is attached at Appendix A. Robson Environmental is also the WorkSafe approved laboratory for asbestos analysis.

## **P r o j e c t O v e r v i e w**

Franco Frino from the Community Services Directorate was the Project Manager who appointed the Principal Contractor (D-Group) via a tendering process to manage the project and ensure it was conducted in accordance with the Robson Environmental Pty Ltd Asbestos Removal Control Plan (ARCP) which is attached at Appendix B. Empire Contracting Pty Ltd a licensed ACT Class A Asbestos Removalist was the asbestos removalist engaged by D Group.

After consultation between the ACT Government representative and Robson's it was decided that a full deconstruction of the house presented the opportunity to fully examine a loose asbestos insulated house and observe where the contamination had spread to. This decision was based on the widespread nature of the asbestos contamination.

The house and 300mm of garden top soil was disposed of as asbestos contaminated waste.

Robson Environmental Pty Ltd conducted background air monitoring daily (results attached at Appendix C) for the whole project while work was being conducted, clearance inspections and produced a progress report midway through the project. The progress report also gave details of where the loose asbestos insulation had spread to and a copy is attached at Appendix D.

The project started on the 18 July 2013, was completed on 13 September 2013, and was extremely well managed by D-Group. Empire Contracting Pty Ltd should also be commended for the professionalism shown during the asbestos removal work. D-Group will be submitting their project paperwork direct to CSD.

## **P r o j e c t   F i n d i n g s**

Gerard Keane conducted a site investigation on the 15 August 2013 to determine how far the loose asbestos insulation had migrated through the house. The investigation was conducted after the ceiling space had been cleaned and the ceiling removed. The plasterboard to the internal walls and ceiling cornices were removed to facilitate the investigation. The findings are noted below and part of the progress report attached at Appendix D:

- The migration, spread and settling of the loose asbestos insulation in this house is extensive. The asbestos has migrated from the ceiling space through the wall cavities to the bottom of the timber stud and into the sub floor. A breakdown of occurrences are noted below:
  - A large amount of loose asbestos insulation was seen when the cornices were removed from the ceiling.
  - Large concentrations of loose asbestos insulation were found on the perimeter noggins of timer stud walls and gable ends.
  - Varying degrees of contamination was found on internal stud walls, with contamination found at all levels.
  - The loose asbestos insulation was observed on cabling that had been installed after the insulation had been put in the house.
- The migration, spread and settling of the loose asbestos insulation will be dependent on a number of factors:
  - When the loose fill insulation was installed. i.e. having increased time for insulation migration and spread through the wall cavities as well as building movement.
  - How well the house was constructed.

- The type of construction, e.g. brick veneer houses have a significant gap between the stud and brick veneer walls (The Bradfield Street house was a brick veneer construction).
  - Any building movement would have exacerbated the migration of the loose asbestos insulation, e.g. drought and high rainfall facilitate this.
  - Whether the house was built on a concrete slab or on piers. (The subfloor space of a pier built house is often used for storage or play areas for children and therefore frequent access may occur).
- Scanning electron microscope (SEM) sampling was conducted, once it had been established by visual inspection that the internal wall studs and brick surfaces of the house had been cleaned. This was conducted to determine if any microscopic (invisible to the naked eye) asbestos fibres remained on the cleaned surfaces. The SEM results confirmed that microscopic asbestos fibres remained. The SEM inspection report is attached at Appendix E.

## **C o n c l u s i o n**

Any gap within the construction framework, no matter how small within the house ceiling space would have had the effect similar to sand migrating through an hourglass.

Robson has confirmed, this to be the case regarding houses, which had loose insulation within the ceiling space, that although on visual inspections of wall cavities no sign of migration was observed, subsequent dust sampling has revealed the presence of asbestos fibres through national association of testing authorities (NATA) accredited analysis. Fibres within loose asbestos insulation may break down to a diameter of less than ½ micron that is at the lower end of bacterial dimensions and invisible to the naked eye.

The ACT Government programme greatly reduced exposure. The residual of loose asbestos insulation within walls cavities does not present a danger to ACT homeowners as long as it is contained within the wall cavities and cornices. There is a risk of exposure in subfloor areas if frequently occupied & migration of loose asbestos insulation has occurred to this area.

## **R e c o m m e n d a t i o n s**

A notice sent to homeowners informing them not to undertake any of the following works without a further assessment under controlled conditions being conducted.

- Any refurbishment work that requires alteration to any walls or ceilings and wall sockets within the property.
- No cabling (unless surface mounted) to be conducted or additional sockets/outlets recessed in walls.
- Cornices must not be removed.
- Avoid accessing subfloor areas until they are checked for contamination.

The ACT Government should give consideration of supplying a copy of this report to the NSW Government as a duty of care, due to an undisclosed number of un-remediated, loose asbestos insulation houses that have the potential to pose a serious health risk of asbestos exposure to the occupants and trades/maintenance personnel.

Consideration should also be given to informing prospective purchasers of remediated loose asbestos insulated houses in the ACT, alerting them to the potential asbestos exposure risks associated with renovating one of these houses.

## **S u m m a r y**

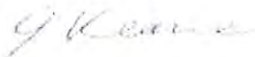
The ACT Government programme conducted in the early 1990's to remediate the ceiling space of houses contaminated with loose asbestos insulation had greatly reduced the potential of a serious asbestos exposure to the homeowners and trades/maintenance personnel.

The residual loose asbestos insulation potentially contained within the wall cavities and ceiling cornices does not present a danger to ACT homeowners, as long as it remains there. There is a risk of exposure in subfloor areas if frequently occupied and migration of the loose asbestos insulation has occurred in this area.

The cautious approach and full deconstruction of the house has been fully justified and has given all stakeholders a great insight, in to what could potentially be in other loose asbestos insulation houses.

The final validation certification for 25 Bradfield Street is attached at Appendix F.

Authorized by:



**Ged Keane**

**Manager Hazardous Materials**

**Class A Asbestos Assessor (ACTPLA)**

**NATA Accredited (Asbestos Fibre Identification & Fibre Counting)**

**Licence No:2010154, Mobile: 0437 008 656**



## Appendix A – Report for WorkSafe

Richard Siddall  
WorkSafe ACT  
GPO Box 158  
Canberra City  
ACT 2601

10<sup>th</sup> November 2011

**Re: Analysis of Samples taken at 25 Bradfield Street, Downer, ACT 2602 – 09 & 10<sup>th</sup> November 2011**

Dear Richard,

Peter Hengst ACT, A Class Asbestos Assessor of Robson Environmental visited the above location and took a sample of suspect material and returned them to the laboratory for analysis. The sample was analysed for its fibrous content and found to be Amosite. The homeowner had informed Peter that he had discovered it on a piece of loft insulation he took from his attic.

Robson Environmental informed Richard Siddall (Work Safe Inspector) that they believed the sample to be asbestos insulation (Mr Fluffy) based on our experience. Gerard Keane ACT, A Class Asbestos Assessor met Richard Siddall on site and conducted background air monitoring and took another sample from just inside the attic adjacent to the entry hatch, which again tested positive for amosite. In consultation with Richard Siddall it was agreed that the occupants would have to leave their home while a thorough investigation under controlled conditions was carried out to determine the full extent of the contamination.

Ozbestos licensed ACT Class A Asbestos Removalist supplied a decontamination unit and a licensed asbestos removalist (Brendan Merry) on Wednesday 09<sup>th</sup> November 2011 to seal up any holes/cavities while a sampling exercise was conducted by Peter Hengst and Gerard Keane. Background air monitoring was also conducted during this time and full analysis results are given below (see Appendix 1 for photographs & Appendix 2&3 for laboratory reports).

Gerard Keane also provided information regarding Material Assessment i.e. risk assessment. The assessment was conducted based on the condition of the materials at the time of inspection.

### Results

Sample Number	Description	Condition	Fibrous Content	Action Rating
P0157	Fibrous insulation Material	Poor	Amosite Asbestos Detected	A1
A0106	Fibrous insulation Material	Poor	Amosite Asbestos Detected	A1
7692-A1	Fibrous insulation Material	Poor	Amosite Asbestos Detected	A1

7692-A2	Fibrous insulation Material	Poor	Amosite Asbestos Detected	A1
7692-A3	Fibrous insulation Material	Poor	Amosite Asbestos Detected	A1
7692-A4	Fibrous insulation Material	Poor	Amosite Asbestos Detected	A1
7692-A5	Fibrous Dust and Debris	Poor	No Asbestos Detected	A1
7692-A6	Fibrous Dust and Debris	Poor	Amosite Asbestos Detected	A1
7692-A7	Fibrous Dust and Debris	Poor	No Asbestos Detected	A1
7692-A8	Fibrous Dust and Debris	Poor	No Asbestos Detected	A1
7692-A9	Fibrous Dust and Debris	Poor	Amosite Asbestos Detected	A1

## Material Assessment

Material Assessment is the assessment of the condition of asbestos containing materials (ACM) and their ability to release fibres. This assessment helps to judge the potential for fibre release of ACM and to prioritise the need for action as part of a plan for managing asbestos in buildings. Material Assessment is based upon a simple additive algorithm. The tool is used to numerically assess the potential for fibre release. The tool is not designed to calculate absolute differences in potency or fibre release/hazard potential between ACM. However, it enables ACM to be ranked in a simple numerical order. That is, it is a qualitative assessment rather than quantitative.

The main factors influencing fibre release are given a score that are added together to obtain a material assessment rating i.e. **Action Rating**. The four main parameters that determine the amount of fibre released from an ACM when subject to disturbance are:

- product type;
- extent of damage or deterioration;
- surface treatment; and
- asbestos type.

Non-asbestos materials are not scored. **Risk Scores** are reinterpreted as **Action Ratings**, which provide succinct guidance to building owners/managers/dutyholders for the proper management of asbestos materials in buildings.

Action Ratings		
A1	Action 1	Restrict access, manage & remove under controlled conditions
A2	Action 2	Restrict access or enclose, encapsulate or seal
A3	Action 3	Programme for planned remediation during normal maintenance or refurbishment. Re-inspect periodically
A4	Action 4	Enclose, encapsulate or seal. Re-inspect periodically
A5	Action 5	No action required unless disturbed. Re-inspect periodically

### Conclusions & Recommendations

- Due to the number of positive asbestos samples and the locations the asbestos was found in, the house is deemed to have major amosite asbestos insulation (Mr Fluffy) and the following actions are required:
- A full asbestos removal control plan written to fully remediate the house to a safe condition.
- Access to the house should be prohibited to all contractors unless escorted by an ACT Class A Asbestos Assessor.
- As asbestos contamination was found in the decommissioned ducted heating system it is recommended that the occupants and previous owners be advised on this report's findings.

Any remediation must be conducted by an ACT licensed Class A Asbestos Removalist as per the Code of Practice for the Safe Removal of Asbestos, 2<sup>nd</sup> Edition [NOHSC: 2002 (2005)].

Air monitoring must be conducted during the remediation work and following the work. An independent Class A Asbestos Assessor should then undertake a Clearance Inspection, which involves a visual inspection of the asbestos work area followed by atmospheric monitoring. Once it has been established that the removal/remediation work has been completed satisfactorily, a Clearance Certificate and copy of the air monitoring certificate should be issued to provide assurance that the area is safe for normal reoccupation.

### Material Assessment Restrictions and Caveats

The samples taken from suspected asbestos containing materials are representative of the materials sampled, individually identified, transported, analysed and reported in accordance with the National Occupational Health and Safety Commission (NOHSC) Guidelines, relevant Statutory Regulations, Codes of Practice and Robson Environmental survey/inspection procedures. The presence of asbestos in a bulk sample is determined by Polarised Light Microscopy (PLM) with dispersion staining techniques.

Robson Environmental has taken care to ensure that this report includes the most accurate information available. This report does not constitute a full register of asbestos containing materials at the above establishment as required by State Legislation and the National Code of Practice. The material assessments, recommendations and/or conclusions contained in this report must not be used to excuse a person of their responsibility to work in accordance with relevant Statutory Requirements, Codes of Practice, Guidelines, Material Safety Data Sheets, Work Instructions or reasonable work practices.

Yours sincerely,



**Gerard Keane**  
**Senior Hazardous Materials Consultant**  
**Class A Asbestos Assessor (ACTPLA)**  
**Mobile: 0437 008 656**



## Appendix 1 – Photographs of ACM



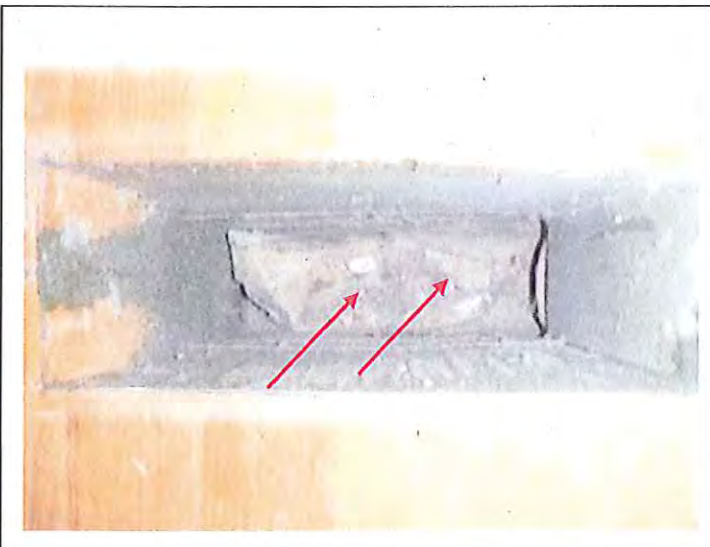
**Photograph 1:**  
Amosite insulation on yellow  
insulation batt from shed (originally  
from attic)  
Sample: P0157



**Photograph 2:**  
Amosite insulation Under yellow  
insulation batts adjacent to attic entry  
hatch  
Sample: A0106



**Photograph 3:**  
**Amosite insulation at front South**  
**West of attic space**  
**Sample: 7696 – A2**



**Photograph 4:**  
**Amosite insulation at end of**  
**corridor by small bedroom in floor**  
**vent duct Sample: 7696 – A6**



**Photograph 5:**  
**Amosite insulation in old vent duct**  
**near laundry room**  
**Sample: 7696 – A9**

## Appendix 2 - Certificate of Analysis



Effective Environmental Solutions

Unit 1,140 Gladstone Street  
Fyshwick ACT 2609  
P: 02 6239 5656 F: 02 6239 5669  
E: fibroid@robsonenviro.com.au  
W: www.robsonenviro.com.au

Fibre Identification Certificate of Analysis					
Report Number:	7692	Date of Report:	10/11/2011	Samples Taken by:	Robson Environmental
Client Details			Laboratory Details		
Client: ACT Government			Address: Unit 1,140 Gladstone Street, Fyshwick, Canberra 2609		
Attention: David Joyce			Manager: Ian Welsh		
Received: 08/09/11/2011			Telephone: 02 6239 5656		
Client Reference: 25 Bradfield Street Downer ACT			Fax: 02 6239 5669		
Email: David.Joyce@act.gov.au			Email: fibroid@robsonenviro.com		
Test Specification(s) Employed: AS4964 (2004) & In-House Procedure No 2					
Methodology Summary					
Samples of material are examined to determine the presence of asbestos fibres using AS4964 (2004) & In-House Procedure No 2 i.e. Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by Polarised Light Microscopy (PLM) in conjunction with Dispersion Staining (DS). Unequivocal identification of asbestos minerals present is made by assessing fibre properties to see whether the values are typical and consistent with published data. This provides a reasonable degree of certainty in determining whether a fibre under investigation is amphibole or not. Careful application of the test procedure provides sufficient diagnostic clues to allow unequivocal identification of asbestos types, and so, to determine whether a sample contains asbestos or not. If sufficient diagnostic clues are absent, then positive identification of fibrous asbestos is not possible.					
Client Supplied Samples					
Robson Environmental is not responsible for the accuracy or competence of sampling carried by third parties. Sample location(s) and/or sample type(s) of third party samples delivered to the laboratory are given by the client at the time of delivery. Under these circumstances, Robson Environmental cannot be held responsible for the interpretation of the results shown. When the test certificate indicates that bulk samples were taken by the client, they are outside the scope of our NATA Accreditation for sampling. Robson Environmental takes responsibility of information reported only when a staff member takes the sample(s).					
Reporting of Results					
<p>'Asbestos Detected': Asbestos detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS)</p> <p>'No Asbestos Detected': No Asbestos detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS)</p> <p>'UMF Detected': Mineral fibres of unknown type detected by Polarised Light Microscopy (PLM), including Dispersion Staining (DS). Confirmation by another independent analytical technique may be necessary.</p> <p>'Hand picked' refers to small discrete amounts of asbestos unevenly distributed in a large body of non asbestos material.</p> <p><b>Limit of Detection &amp; Reporting Limit</b></p> <p>Known limitations of the test procedure using Polarised Light Microscopy (PLM) are:</p> <ul style="list-style-type: none"> <li>PLM is a qualitative technique only.</li> <li>It does not cover identification of airborne or water borne asbestos.</li> <li>The less encountered asbestos mineral fibres actinolite, anthophyllite and tremolite exhibit a wide range of optical properties that preclude unequivocal identification by PLM and Dispersion Staining (DS). Thus, the method is used to positively identify the three major asbestos minerals: amosite ('brown'), chrysotile ('white') and crocidolite ('blue').</li> <li>Valid identification requires that the sample material contains a sufficient quantity of the unknown fibres in excess of the practical detection limit used (in this case: PLM and Dispersion Staining, which has a calculated practical detection limit of 0.01 to 0.1% equivalent to 0.1 to 1g/kg (AS4964 2004 App A4).</li> </ul> <p>Results relate only to the sample(s) submitted for testing.</p> <p>Test report must not be reproduced except in full.</p> <p>Test report issued in accordance with NATA's accreditation requirements and compliance with ISO/IEC 17025.</p>					
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
P0157		On yellow insulation batt from shed (originally from attic)	Fibrous Insulation Material	1 grams	Amosite Asbestos Detected
A0106		Under yellow insulation batts adjacent to attic entry hatch	Fibrous Insulation Material	2 grams	Amosite Asbestos Detected
7692-A1		Front South East of attic space	Fibrous Insulation Material	1 grams	Amosite Asbestos Detected
7692-A2		Front South West of attic space	Fibrous Insulation Material	1 grams	Amosite Asbestos Detected

Simon Saville  
Approved Identifier



Simon Saville  
Approved Signatory

Document issued in accordance with NATA's accreditation requirements and without alterations or erasure and must not be duplicated unless in full

7692\_Fibre ID res\_20111110

Page 1 of 2

Fibre Identification Certificate of Analysis					
Laboratory Report Number: 7692			Identifier: Simon Saville		Page 2 of 2
Sample No.	Client Ref.	Location	Physical Structure	Sample Description	Analysis of Fibrous Content
7692-A1		Rear North East of attic space	Fibrous insulation Material	2 grams	Amosite Asbestos Detected
7692-A4		Rear Centre of attic space	Fibrous insulation Material	2 grams	Amosite Asbestos Detected
7692-A5		Master bedroom with ensuite in floor vent duct	Fibrous Dust and Debris	2grams	No Asbestos Detected
7692-A6		End of corridor by small bedroom in floor vent duct	Fibrous Dust and Debris	2grams	Amosite Asbestos Detected
7692-A7		Large bedroom in floor vent duct	Fibrous Dust and Debris	3grams	No Asbestos Detected
7692-A8		Living room in floor vent duct	Fibrous Dust and Debris	3grams	No Asbestos Detected
7692-A9		Old vent duct near laundry room	Fibrous Dust and Debris	4grams	Amosite Asbestos Detected



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