



Fact sheet

Using technology for real-time and accurate asbestos testing

Challenge summary

The Asbestos Safety and Eradication Agency (ASEA) is seeking new and innovative technology solutions that can be used to accurately test building materials that contain asbestos on site. The challenge is to overcome existing technical limitations and deliver a solution that is non-destructive (i.e. not removing, drilling or disturbing materials to test) and meets regulatory requirements.

Finding a solution to this challenge has the potential for a large market uptake. Current potential end-users range from professionals working directly in asbestos management and tradespeople encountering asbestos as part of their work, to the general public working on home renovations. The solution would also be used by governments and businesses managing asbestos in buildings or infrastructure.

The scope for innovation for this BRII challenge is wide. Innovative solutions could range across areas of detection, data analytics or E-Systems. The aim in each of these areas would be to make the testing job easier and faster, and remove as many manual steps as possible.



Potential themes

Advanced detection technology, digital imaging, advanced hardware and software, data automation, data analytics, E-Systems.

Overview of challenge

Asbestos is a hazardous material that presents a range of management challenges. Until the 1980's, Australia was one of the highest per capita users of asbestos in the world. Asbestos is still present in-situ in millions of Australian homes, public and commercial buildings, and infrastructure (e.g. schools, hospitals and public buildings). Asbestos remains a public health issue and a regulatory challenge for governments. More than 4,000 Australians die annually from asbestos-related diseases caused by asbestos exposure.

ASEA is working to prevent asbestos exposure. To do this, faster and more effective asbestos testing solutions are needed. Current testing can be cumbersome and time consuming and involves disturbing and sampling the potentially hazardous material.

Asbestos in building materials cannot be identified by eyesight, and it is part of the composition of materials such as walls, floors and ceilings. Testing in a laboratory is required under the law to determine if asbestos is present in materials. If suspected asbestos-containing material is not tested, then it must be assumed to be present under the law and handled as if it is asbestos. All known and assumed asbestos needs to be managed under strict regulatory requirements. These requirements are predominantly contained within work health and safety, public health, and environment protection laws.

Currently, there is no reliable real-time asbestos material testing or in-situ testing method available.

Solutions to this BRIL challenge would also greatly benefit efforts to manage and clean-up after disaster events, including bushfire, flooding and cyclones.

Even small changes and improvements in testing have the potential to make a big difference. New innovations or improvements in this space could provide immediate short-term and long-term benefits to:

- health - preventing drilling and potential exposure to released asbestos fibres
- regulation - streamlining practices and improving compliance
- business - improved certainty.

This type of innovation would also improve Australia's efficiency in dealing with the large volumes of hazardous legacy asbestos. This would support Australia as a market leader in asbestos management.

Solution requirements

ASEA is open to a range of solutions to help address this challenge. Solutions may be brand new, or they can build on existing technology and practices, or they may be a combination of both. The main goal is to deliver a new overall system for safety and best practice in asbestos testing and management. For example, a new overall system might include a range of solutions and methods to improve the effectiveness of existing asbestos detection and control measures (e.g. asbestos in building materials, or asbestos in the air), and to remove time-consuming steps, such as sending material to a lab for testing.

Any solution must improve the efficiency and effectiveness of asbestos testing in-situ and in real-time. Materials testing must deliver a solution that is non-destructive (i.e. not removing or disturbing the materials to test) and it must meet regulatory requirements of the duty holder under health and safety regulations. Existing real-time detection technologies have limitations and do not deliver sufficiently accurate solutions, and they do not meet work health and safety regulation requirements.

In addition, current air monitoring practices are highly technical and labour intensive. These practices can often take up to eight hours to produce an adequate sample to test for a result.

The scope for innovation is wide as there are many gaps in technology and the market. Solutions could leverage advances in other sectors that also require accurate detection technologies or systems.

Outcomes might include:

- digital technologies such as hyperspectral imaging techniques or augmented reality technology
- new equipment and accurate technologies to detect the absence or presence of asbestos
- new software and advanced systems including hardware with advanced data/spectral menu or AI machine learning
- improved E-Systems such as for risk registers to allow mapping, data storage and sharing capability.

Benefits of the solution

Any solution that aids or speeds up the detection of asbestos will lead to streamlined management and better health outcomes.

The demand for solutions in this space are expected to increase. Australia's legacy asbestos in the built environment is reaching the end of its life, and removal and replacement is increasing in both private homes and government buildings. A solution should also have scope for commercialisation on a national or global scale.

The scope for innovation is wide, and even small changes can make a big difference to:

- health - preventing exposure to asbestos
- regulation – streamlined practices, improved safety and compliance
- innovation – Australia as a leader, and managing Australia's asbestos legacy more efficiently.

How to apply

For information on how to apply, visit business.gov.au/BRIL