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Visual Arts and John Healy Fitness Centre Buildings
MARK STREET, HUNTERS HILL
NSW

BLOOMPARK

HAZARDOUS MATERIAL INSPECTION REPORT

MARCH 2018

Healthy Buildings International Pty Ltd was commissioned by **Bloompark Consulting Pty Ltd (Bloompark)** to carry out a hazardous material inspection including an asbestos management survey of the **Visual Arts and John Healy Fitness Centre buildings** of **St. Joseph's College,** located at **Mark Street, Hunters Hill, NSW.**

The survey was carried out on the 15th of March 2018 by R. Henriques, G Moustouhas and J. Burgin to ascertain its status with respect to any Asbestos Containing Materials (ACMs), Lead containing products, Polychlorinated biphenyls (PCBs) and Synthetic Mineral Fibres (SMFs) that may be present in the building.

Asbestos containing material with a moderate risk rating has been identified in the gaskets located on the ground floor John Healy Fitness Centre hot water laundry pipes on ceiling which are not in use. These are a moderate risk rating due to their friable nature and fair condition.

Damaged ACM should be managed through isolation, removal or encapsulation as soon as possible. Prior to refurbishment of the building, damaged sections of asbestos should be repaired or replaced to prevent disturbance during renovations. Should the building be due for demolition all ACM should be removed prior to the works commencing.

Lead paint coatings were identified throughout the Visual Arts Centre building and to the ground floor Facilities area of the John Healy Fitness Centre building.

The WHS Act and associated regulations 2011 requires all property owners and managers to operate their premises in such a way that there is not an increased risk to the health of occupants or visitors to the premises, so it makes sense to carefully remove or encapsulate paints containing significant levels of lead as soon as they as seen to be deteriorating.

We recommend that the area affected by lead contaminated paint be managed though the incorporation of recommended actions into the routine maintenance program. If deterioration does occur, we recommend the material be encapsulated in such a manner that it does not presents a risk to building users. Painting contractors should be advised that the materials contain lead and they should only be dealt with by an experienced lead paint contractor. *AS4361.2_1998: Guide to lead paint management Part 2 Residential & Commercial Buildings* provides options and procedures for managing lead paint.

Lead paint removal residues and lead containing demolition materials must be disposed of appropriately in accordance with the Waste Classification Guidelines (NSW EPA, 2014)

High risk SMF was located in the insulation of the hot water laundry pipes on the ceiling due to its friable nature, fair condition and moderate potential for exposure

A number of SMF products were identified within the property. Most were identified as having a low risk, due to being enclosed behind a non-friable barrier or being in a stable condition of the John Healy Fitness Centre building.

SMF is an irritant to the respiratory tract. All exposed SMF should be encapsulated, appropriate PPE and RPE to be worn during disturbance of material.

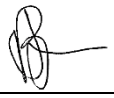
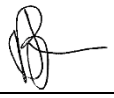
Low risk SMF is in stable condition and unlikely to generate unacceptable respirable fibre concentrations under normal working practices and occasional light disturbance. Should destructive work need to be undertaken upon these products HBI recommend the use of appropriate RPE and PPE to prevent inhalation of the highly respirable fraction of dust and fibres that will become airborne during destructive disturbance.

A number of components likely to contain PCB were identified within electrical equipment / old strip lights in the premises. All were found to present a low risk.

The equipment can remain in service but should be inspected regularly and at the end of its serviceable life be replaced with a modern non-hazardous alternative and should be removed prior to any activities likely to affect their integrity, including demolition works.

List of Tables

DOCUMENT CONTROL

DATE	JOB NUMBER	REVISION HISTORY	AUTHOR & POSITION	SIGNATURE
29/03/18	*180309*	*Data Entry*	*J. Burgin, Environmental Scientist*	
29/03/18		*Draft*	*J. Burgin, Environmental Scientist*	
03/04/18		*Final*	*R. Henriques*	

The work presented in this document was carried out in accordance with the Healthy Buildings International Quality Assurance System which is based on Australian Standard / NZS ISO 9001.

This document is issued subject to review and authorisation by the Team Leader noted by the initials printed in the last column above. If no initials appear, this document shall be considered as preliminary or draft only and no reliance shall be placed upon it other than for information to be verified later.

This document is prepared for our Client's particular requirements which are based on a specific brief with limitations as agreed to with the Client. It is not intended for and should not be relied upon by a third party and no responsibility is undertaken to any third party without prior consent provided by Healthy Buildings International. The information herein should not be reproduced, presented or reviewed except in full. Prior to passing on to a third party, the Client is to fully inform the third party of the specific brief and limitations associated with the commission.

The information contained herein is for the purpose of reviewing an asbestos register for use as part of an Asbestos management plan.

1.0 INTRODUCTION

Healthy Buildings International Pty Ltd was commissioned by **Bloompark Consulting Pty Ltd (Bloompark)** to carry out a hazardous material inspection including an asbestos management survey of the **Visual Arts and John Healy Fitness Centre buildings** of **St. Joseph's College,** located at **Mark Street, Hunters Hills, NSW.** The survey was completed in March 2018**.**

The survey was carried on the 15th of March 2018 by R. Henriques, G Moustouhas and J. Burgin to ascertain its status with respect to any Asbestos Containing Materials (ACMs), Lead containing products, Polychlorinated biphenyls (PCBs) and Synthetic Mineral Fibres (SMFs) that may be present in the building.

1.1 Legislation

Throughout the study HBI have abided by the recommendations, standards, specifications, and regulations of:

- NSW Work Health and Safety Act (2011) and Work Health and Safety Regulation 2017.
- How to Manage and Control Asbestos in the Workplace – Code of Practice [Safe Work Australia (2016)].
- How to Safely Remove Asbestos – Code of Practice [Safe Work Australia (2016)]
- Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition [NOHSC : 3003(2005)]
- Your Guide to Working with Asbestos [WorkCover (2008)].
- Selection, Use and Maintenance of Respiratory Protective Devices [Standard: AS/NZS 1715 (2009)]
- National Code of Practice for the Control and Safe Use of Inorganic Lead at Work [NOHSC:2015(1994)]
- National Standard for the Control of Inorganic Lead [NOHSC:1012(1994)]
- Code of Practice for the Safe use of Synthetic Mineral Fibres [WorkCover (1993)]
- National Standard for Synthetic Mineral Fibres [NOHSC:1005 (1990)]
- National Code of Practice for the Safe use of Synthetic Mineral Fibres [NOHSC (2004[1990])]
- AIOH Positional Paper – Synthetic mineral fibres (SMF) and occupational health issues [AIOH (2011)]
- Identification of PCB containing capacitors [ANZECC (1997)]

The conclusions and recommendations in this report are based on the findings of our experienced consultants and comparison with HBI's extensive database of information.

1.2 Disclaimer

This hazardous materials survey was carried out in a professional manner by qualified and experienced personnel. The procedures used meet all relevant guidelines and regulations.

The extent of the survey was bound by the limits of non-destructive methods which preclude any major physical damage to walls, floors and partitions, etc. During the course of this survey, every attempt was made to inspect plant rooms, ceiling voids, closets, building shafts, sub-ground tunnels and air plenums, etc. The presence of hazardous materials will, therefore, be reported to

the best of our ability within the constraints of these non-destructive methods and information and access made available to HBI.

Thus, while we are confident that all hazardous materials that could be routinely encountered in the normal day-to-day activities of the building have been identified and assessed, no guarantees are made that a specific building or area of a building is absolutely free of hazardous materials since future remodelling or demolition activities may well reveal hazardous materials in areas inaccessible or unknown to the HBI inspection team.

Healthy Buildings International cannot be accountable for any omissions to this report resulting from information, data, systems or plant not made readily and reasonably accessible by Bloompark.

1.3 Product or Service Recommendation

Property Managers frequently approach HBI for guidance regarding which products or services should be used to carry out recommendations contained in reports. HBI endeavours in this regard to remain completely independent and objective. If products or services are identified in this report or at other times they are given only as a guide. No particular endorsement is implied.

When products are purchased, Clients should exercise care to ensure that the product is entirely appropriate for the use intended. Emissions from certain products can be harmful if safety precautions are not taken. Harm will also be minimised if products are used in accordance with their manufacturer's instructions. Any person or persons using such products or procedures should where appropriate electrically isolate equipment and ensure they are observing all the necessary safety protocols and procedures.

2.0 BUILDING INFORMATION

2.1 General Building Description

St. Joseph's College is a is a Catholic, secondary, day and boarding school for boys located on Mark Street, Hunters Hills, comprising of a collection of buildings and sports grounds. Buildings covered during the inspection included:

- a two-storey visual arts centre housing:
    - the uniform shop;
    - various storage areas; and
    - the photography laboratory,
- a two-storey multipurpose building housing:
    - a maintenance workshop and associated amenities;
    - a fitness centre and amenities;
    - a PDHPE classroom and cleaners area; and
    - various storage areas
- outdoor basketball courts
- a storage shed located along Luke Street

The buildings' construction was generally masonry and plasterboard walls on concrete slabs and intermediate floors. Ceilings were generally plasterboard or concrete above and roofs were zincalume on a steel structure. Aluminium windows featured in the John Healy Fitness Centre building and associated buildings, whereas in the visual arts building they were wood framed.

Floor coverings ranged from modern vinyl and carpet to bare concrete.

3.0 HAZARDOUS MATERIALS

3.1 Asbestos: Description, Properties, Uses and Health Effects

Asbestos, a naturally occurring mineral fibre found in various rock formations, is a collective name for a group of natural minerals that separate into strong, very thin fibres. Asbestos minerals consist of various percentages of: oxygen, hydrogen, sodium, iron, magnesium, and calcium. Different ratios account for the various varieties or types. The more common types are amosite, chrysotile, and crocidolite. Less common types are anthophyllite, actinolite and tremolite.

The NOHSC defines an asbestos fibre as one that has a diameter of less than 3 micrometres (μm), is greater than 5 μm in length with a length to diameter ratio of greater than 3:1.

Asbestos is generally divided into two groups, serpentine and amphibole. Serpentine, which contains only chrysotile asbestos, is composed of curled fibres. It has been suggested that nearly 95% of all asbestos used in commercial products is of the chrysotile asbestos type. The second group, known as amphiboles, contains amosite, crocidolite, actinolite, anthophyllite, and tremolite. The amphibole group is considered a more significant hazard than the serpentine group due to the straight, sharp, and resilient fibres. Only amosite asbestos and crocidolite asbestos of the amphibole group have been used in relatively significant quantities.

Asbestos' near unique properties of fire resistance, high abrasion resistance, insulation and superb acoustical characteristics coupled with its relatively low cost, led to its' immense popularity as a building material between 1900 and 1980. Prior to 1973, asbestos was the material of choice for fireproofing insulation, thermal insulation, abrasion resistance, and sound insulation. Asbestos containing insulation was used as a sprayed-on insulation for ceilings and steel supports; as a thermal insulation for boilers, piping, ducting, and air conditioning units. Additionally, asbestos was used as an abrasion resistant filler in floor tiles, vinyl sheet floor coverings, roofing and siding shingles, joint compound, and filler of textured paints and gaskets. Asbestos can be found as a bulking and wear resistant additive to motor vehicle brake shoes and in countless domestic appliances such as toasters, dishwashers, refrigerators, ovens, clothes dryers, electric blankets, hair dryers, etc.

Many asbestos bearing materials or products don't pose a health risk when used in the normal course of events. A health risk exists solely when asbestos fibres are released into the air and when that air is inhaled into the lungs. Even then, it appears that most people exposed to relatively small amounts of asbestos do not develop any health related problems. However, numerous health studies conducted independently in many parts of the world prove conclusively that the chances of developing serious respiratory illnesses, including lung cancer, are greater in those exposed to airborne asbestos fibres.

Scientific evaluation of all the available human data provides no evidence for a "safe" level of asbestos exposure, thus any quantity should be considered potentially dangerous. Those at most risk are those constantly exposed, especially the asbestos workers in industry. The tragedy in dealing with asbestos linked diseases is that they only manifest themselves years or tens of years after the exposure, in essence those exposed to asbestos fibres today are being "poisoned" without being aware of it.

The results of this exposure to asbestos, a known carcinogen, may include any of the following conditions: cancer of the lung; mesothelioma (cancer of the lining of the pleura and peritoneum - almost invariably terminal); oesophageal, stomach, laryngeal or pharyngeal cancers; asbestosis - a progressive and painful loss of lung capability due to the accumulation of asbestos fibres in the small air passages of the lung.

Asbestosis is usually a progressive disease moving from shortness of breath when exerted to loss of breath even at rest. Death results from the body's inability to absorb sufficient oxygen. Since many of these diseases have a latent period stretching beyond 20 years following the initial exposure to asbestos, many cases are not diagnosed and only very few survive. The American Cancer Society in 1983 reported that less than 9% of lung cancer patients survive five or more years after diagnosis.

Since we cannot cure the diseases caused by asbestos and normally cannot even diagnose the disease until many years after exposure, the only correct course of action to take is one of prevention. Any level of asbestos containing materials (ACMs) inside a building constitutes a hazard. It should be noted that *hazard* is a potential for harm, whereas *risk* is the probability that this potential may become actual.

In this report, after we have identified the areas of materials that contain asbestos, we then provide a risk analysis and based on this analysis we define appropriate asbestos response options. However, once ACMs are identified, it is essential that a formal asbestos management plan be implemented.

3.2 Lead: Description, Properties, Uses and Health Effects

Lead was used extensively in paints and petroleum products for many years. Most metal structures such as bridges and steel framed buildings were red-leaded to protect the metal, and most exterior paints contained lead to protect it against the weather.

Lead was and is still also used in batteries and many other industrial processes such as welding and soldering, and so long as it is used with care it does not present any serious concerns. Lead paint however inevitably deteriorates and when it does it becomes flaky and unsightly which prompts its removal or refurbishment and it is here where a serious risk to health arises. The material should not generally be sanded but if that is unavoidable then wet or dry sand paper should be used to minimise dust levels. Nor should the paint be burnt off as the fumes are toxic. Again if this is unavoidable low heat guns should be used with operators in both cases wearing personal protective equipment to avoid exposure to dust or fumes.

Whilst there is no requirement to remove lead paint it is sound occupational hygiene practice to minimise exposure to flaking lead paint or lead dust. Many years of use of petrol containing lead has resulted in crops and other surfaces being coated with lead and it is frequently found in ceiling voids of older buildings.

The NSW Work Health & Safety Act 2011 requires all Property Owners and Managers to operate their premises in such a way that there is not an increased risk to the health of occupants or visitors to the premises, so it makes sense to carefully remove or encapsulate paints containing significant levels of lead as soon as they as seen to be deteriorating.

It is now recognised that lead can harm virtually every organ in the human body, and for some time now its use has been banned or is in the process of being phased out. This particularly applies to both lead in paint and in petrol. Lead can enter the body via respiration or absorption and by consuming food and water containing lead. It is described as a cumulative poison because it cannot be excreted and it can in fact be stored in the bones for twenty-thirty years before being released back into the blood stream.

It is particularly dangerous to children as it may be asymptomatic even when blood levels reach as high as 60-70 micrograms per decilitre (µg/dL). The National Health and Medical Research Council have set a specific goal "to achieve for all Australians a blood level of below ten micrograms per decilitre (µg/dL).

Lead poisoning in children may manifest itself in developmental problems, learning difficulties and behavioural problems whilst in adults severe exposure may lead to abdominal pain, constipation seizures and even death.

With children, a common form of lead ingestion occurs when they run their fingers along the old sash type window ledges which have accumulated dust containing lead from the paints used in bygone years, and then they put their fingers in their mouths.

Many lead materials or products are of no health risk whatsoever when used in the normal course of events. A health risk exists solely when lead dust or fumes are released into the air and when that air is inhaled into the lungs. Even then, it appears that most people exposed to relatively small amounts of lead do not develop any health related problems. However, numerous health studies conducted independently in many parts of the world prove conclusively that the chances of

developing serious illnesses are increased as exposure to lead is increased. Scientific evaluation of all the available human data provides no evidence for a "safe" level of lead exposure, thus any quantity should be considered potentially dangerous. Those at most risk are those constantly exposed, especially the lead workers in industry. The tragedy in dealing with lead linked diseases is that they only manifest themselves years or tens of years after the exposure, in essence those exposed to lead today are being "poisoned" without being aware of it.

Since we cannot cure the diseases caused by lead exposure and normally cannot even diagnose the disease until many years after exposure, the only correct course of action to take is one of prevention. Any level of lead containing materials inside a building constitutes a hazard. It should be noted that *hazard* is a potential for harm, whereas *risk* is the probability that this potential may become actual.

In this report, after we have identified the areas where lead testing occurred we provide a risk analysis and based on this analysis we define appropriate lead response options. Once lead deterioration is observed it is important that a formal lead paint management plan be implemented.

3.3 Synthetic Mineral Fibre: Description, Properties, Uses and Health Effects

Synthetic Mineral Fibre (SMF, or also known as Man Made Mineral Fibres (MMMFs)) is a term used to fibrous materials made from glass (glass fibre), silica, rock (rock wool) or alumina.

Widely used as an alternative to asbestos in insulation and fire-rating products and reinforcement in building materials, SMF products are now commonly used in commercial and residential buildings

Due to similarities in appearance, fibrous composition and uses, there are concerns that SMF may be associated with health effects similar to those found with asbestos.

Short term exposure has been proven to cause skin and eye irritation – this may involve reddening, burning, itching, prickling, scaling, thickening and inflammation around the fingernails. Mechanical irritation is more prevalent with thicker fibre widths.

Exposure to high concentrations of fibres with widths less then 3µm may cause upper respiratory tract irritation, through the release of greater quantities of inhalable and respirable fibres. Long term exposure to SMF has been shown to be associated with a slightly increased risk of lung cancer among those exposed. Animal studies have shown the potential of SMF to cause mesothelioma, but no cases of this lung disease were reported from studies in the fibreglass and rockwool manufacturing industries.

Animal studies and epidemiological results have led the World Health Organisation (WHO) International Agency for Research on Cancer to classify fibres such as refractory ceramic fibres and other specialist fibres as Class 2B carcinogens, that is to say they are possibly carcinogenic to humans. Further more other older types of SMF including Mineral wools (including both glass wool and rock wool) have been classified as class 3 carcinogens, which defines them as not classifiable as to their carcinogenicity to humans, that is to say insufficient evidence exists to classify them. As such Worksafe Australia has also classified the above products category 2 and 3 respectively. Category 2 carcinogens to be regarded as if they are carcinogenic to man, and Category 3 carcinogens to be regarded as materials that cause concern owing to their possible carcinogenic effect, but to which satisfactory information is unavailable to make a satisfactory assessment.

Furthermore, newer SMF fibres are also in circulation that have been exonerated from being classified as a carcinogen due to their low bio persistent nature. Such fibres may still cause mechanical irritation but are not considered carcinogenic.

With other cancer-causing substances (carcinogens), we know that there is no safe level of exposure -that is, there is no low level that can be guaranteed not to cause an increased cancer risk. However, Current scientific opinion is that SMF caused chronic health effects will not occur under typical "modern-day" operations, provided adequate precautions are taken in the workplace. In particular fibrous dust is less easy to limit and control on construction sites and it is very important to ensure that workers in the construction, as well as the manufacturing, industry are

protected from over exposure. As such risk control measures not only include dust suppression techniques, respiratory and eye protection, overalls and gloves, but also control air monitoring as per NOSHC SMF membrane filter method, to ensure fibre levels do not breach the current national exposure standard of 0.5f/ml should be considered to assess the effectiveness of control measures in place.

3.4 Polychlorinated biphenyls (PCBs): Description, Properties, Uses and Health Effects

PCB is the common name for polychlorinated biphenyls. PCBs are a subset of the family of chlorinated hydrocarbons. PCBs range in appearance from colourless, oily liquids to more viscous and increasingly darker liquids, to yellow then black resins, depending on chlorine content of the PCB.

These synthetic compounds are chemically stable, have good insulating properties and do not degrade appreciably over time or with exposure to high temperatures. If these chemicals are released into the environment, they do not readily break down and can accumulate in fatty tissues of animals. The longevity of PCBs and their affinity for fatty tissue can result in PCBs moving up and concentrating through the food chain. Research has found that some animal species, such as young fish, are particularly sensitive to PCBs. PCBs in the Australian environment, and their subsequent presence in food, can also have a serious effects on the export of Australia's agricultural products.

Generally manufactured between the mid 1920's and the late 1970's, PCB's were used for applications requiring stable, fire resistant materials with heat transfer properties.

PCBs were particularly used for applications requiring dielectric fluids, notably light ballasts, capacitors and transformers with the major use of PCBs in the electrical industry has been as insulating fluid inside transformers and capacitors.

These transformers and capacitors have ranged in size from the very large transformers which contain several thousand litres of PCBs and were typically used by electrical supply businesses and heavy industries, to the small capacitors which may only contain several millilitres of PCBs and were used in farming equipment and on commercial premises.

Capacitors containing PCBs were installed in various types of equipment including fluorescent light fittings during the 1950's, 60's and 70's.

3.4.1 *Are PCBs harmful?*

PCBs can enter the body in three ways:

- absorption through the skin;
- inhalation of PCB vapour (at room temperature, the vapour concentrations of PCBs are not significant); and
- ingestion, if there is contamination of food or drink.

The likelihood of becoming sick from PCB exposure increases with the length of time and the amount of material that a person might come in contact with. The most commonly observed symptom in people exposed to high levels of PCBs is a condition known as chloracne. It is a severe, persistent acne-like rash due to repeated and prolonged contact of PCBs with skin. This condition has also occurred in people who have accidentally ingested PCBs orally. Very high exposure to PCBs may also cause liver damage and damage to the nervous system, resulting in numbness, weakness and tingling in the arms and legs. There is the possibility that PCBs may cause cancers.

3.4.2 *What are the Controls?*

In 1997 the Polychlorinated Biphenyl Chemical Control Order 1997 (PCBCCO, 1997) repealed the earlier gazetted 1994 Chemical Control Order for PCB waste. The 1997 CCO sets controls on

activities including the generation, processing, storing, conveying and disposing of PCB material or PCB wastes, depending upon the PCB concentration. It also requires people storing PCBs to:

- develop emergency management arrangements;
- carry out a survey of potential PCB containing equipment; and
- undertake a risk management program to ensure that PCBs are removed from equipment and/or processed to reduce PCB levels, within specified timeframes.

The specific phase-out requirements depend upon the concentration of the PCBs and whether the PCBs are located in a priority area, such as schools, hospitals, aquatic spawning areas and the habitats of endangered species.

4.0 RISK ASSESSMENTS

4.1 General

The information collected by HBI during the site inspections is used to calculate an exposure risk associated with a particular hazardous material. This assessment provides guidelines to help prioritise action levels for identified ACMs, lead products, PCBs or SMF. This is assessed solely by the lead surveyor undertaking the inspection on behalf of Bloompark. Should further clarity be necessary to assess the more specific human exposure potential taking into account occupancy levels and frequency of access a full priority assessment score can be generated with the help of Bloompark.

4.1.1 *Exposure risk analysis*

Before taking into account the condition and type of hazardous material present, the general risk of exposure is assessed. Factors used in the exposure risk analysis included:

- The Accessibility. This is based on the hazardous materials location, accessibility, and amount that contribute to its risk of disturbance.
- The Likelihood of Disturbance takes into account the severity of any potential disturbance based on the main type of activities undertaken in the area and any maintenance carried out in the area that requires direct disturbance of the hazardous material.

The following risk assessment matrix was used to evaluate the overall exposure risk from an identified hazardous material;

		Likelihood of disturbance			
		Very High	**High**	**Medium**	**Low**
Accessibility	**Very High** e.g. confined space	**Very high**	**Very high**	**Very high**	**High**
	High e.g. offices or rooms with high activity	**Very high**	**High**	**High**	**Moderate**
	Medium e.g. offices or rooms with normal activity	**High**	**High**	**Moderate**	**Moderate**
	Low e.g. large, well ventilated indoor areas	**Moderate**	**Moderate**	**Moderate**	**Low**
	Very low e.g. Outside, not normally accessible	**Moderate**	**Low**	**Low**	**Low**

Table 1: Exposure risk matrix[1]

[1] The above examples are subject to the surveyor's judgement when on site. Further details on how accessibility and likelihood of exposure are categorized can be found in Healthy Buildings International Standard Operating Procedures

4.2 Asbestos Containing Materials

4.2.1 *Overall Risk Assessment*

The information collected by HBI during the site inspections is used to calculate an overall risk associated with a particular asbestos containing material. Overall risk ratings range from very high to very low.

Factors used in the risk analysis included:

- The type of asbestos containing material, with regards to Friable and non friable.[2]
- The physical condition of the material, ranging from good to poor. This assessment takes into account any enclosure or encapsulation, or any damage or visible debris.
- Probability of asbestos fibre exposure or lead exposure, ranging from very high to low

The following risk assessment matrix was used to evaluate the overall risk rating where asbestos containing materials were identified;

		Probability of Exposure			
		Very High	**High**	**Medium**	**Low**
Type, Condition	**Friable and Poor** e.g. Flock spray or debris	**Very high**	**Very high**	**Very high**	**High**
	Friable and Fair e.g. Textile rope seal	**Very high**	**High**	**High**	**Moderate**
	Friable and Good e.g. encapsulated or enclosed pipe lagging	**High**	**High**	**Moderate**	**Moderate**
	Non friable and Poor e.g. fibro with visible debris	**Moderate**	**Moderate**	**Moderate**	**Low**
	Non friable and Fair e.g. damaged fibro	**Moderate**	**Low**	**Low**	**Very low**
	Non friable and Good e.g. pained fibro with no damage	**Low**	**Low**	**Very Low**	**Very low**

Table 2: Asbestos Overall Risk Matrix[3]

[2] Friable asbestos is material containing asbestos which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure. Non Friable asbestos is asbestos containing material that is bound in a matrix

[3] The above examples are subject to the surveyor's judgement when on site. Further details on how accessibility and likelihood of exposure are categorized can be found in Healthy Buildings International Standard Operating Procedures

Table 3 defines the general recommended controls and priority levels associated with the risk ratings used in this risk assessment.

Risk	Control	Time
Very High	Isolate the area and implement a permit to work system. Conduct interim air monitoring and re-inspect regularly until material can be remove along with and all associated debris under controlled conditions by a suitably licensed contractor, or encapsulate and enclose the material and environmentally clean	Immediate action
High	Isolate the area and implement a permit to work system. Re-inspect regularly until material can be removed along with and all associated debris under controlled conditions by a suitably licensed contractor or enclosed / encapsulated and managed. Implement correct signage if material is to remain in-situ.	Immediate / near future action
Moderate	Enclose or encapsulate material and Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 6 months
Low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months
Very low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months

Table 3: Asbestos Risk Rating and Controls

4.3 Lead Containing Products

4.3.1 *Overall Risk Assessment*

The information collected by HBI during the site inspections is used to calculate an overall risk associated with a particular lead containing product. Overall risk ratings range from very high to very low.

Factors used in the risk analysis included:

- The physical condition of the material, ranging from good to poor, this also directly is related to the friability of the product. This assessment takes into account any enclosure or encapsulation, or any damage or visible debris.
- Probability of lead exposure, ranging from very high to low generated from the exposure risk assessment.

The following risk assessment matrix was used to evaluate the overall risk rating where asbestos containing materials were identified;

		Probability of Exposure			
		Very High	**High**	**Medium**	**Low**
Type, Condition	**Friable and Poor** e.g. Lead containing dust	**Very high**	**Very high**	**Very high**	**High**
	Friable and Fair e.g. heavily flaking lead paint, lead paint debris in poor condition	**Very high**	**High**	**High**	**Moderate**
	Friable and Good e.g. lightly flaking lead paint	**High**	**Moderate**	**Moderate**	**Low**
	Non friable Fair to Poor e.g. lead paint coating to a poor condition product, or thin warn paint coatings	**Moderate**	**Low**	**Low**	**Very Low**
	Non friable and Good e.g. lead paint in good condition or encapsulated.	**Low**	**Low**	**Very Low**	**Very Low**

Table 4: Lead Overall Risk Matrix[4]

[4] The above examples are subject to the surveyor's judgement when on site. Further details on how accessibility and likelihood of exposure are categorized can be found in Healthy Buildings International Standard Operating Procedures

Table 5 defines the general recommended controls and priority levels associated with the risk ratings used in this risk assessment.

Risk	Control	Time
Very High	Isolate the area and implement a permit to work system. Conduct interim lead in air monitoring and risk assess exposure. Remove along with and all associated debris under controlled conditions by a suitably licensed contractor, or encapsulate and enclose the material and environmentally clean, or enclose permanently with correct signage and manage with administration controls until removed	Immediate action
High	Isolate the area and implement a permit to work system. Re-inspect regularly until material can be encapsulated (repainted) and administrative controls put in place along with the removal and disposal of all associated debris removed by a suitably trained contractor. Implement correct signage if material is to remain in-situ.	Immediate / near future action
Moderate	Enclose or encapsulate material and Implement correct signage. Remove and dispose of all associated debris with a by a suitably trained contractor. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 6 months
Low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months
Very low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months

Table 5: Lead Risk Rating and Controls

4.4 Synthetic Mineral Fibres

4.4.1 *Overall Risk Assessment*

The information collected by HBI during the site inspections is used to calculate an overall risk associated with a particular SMF containing material. Overall risk ratings range from high to very low.

Factors used in the risk analysis included:

- The type of SMF containing material, with regards to Friable and non friable.[5]
- The SMF product fibre type, and the associated potential carcinogen risk associated with those fibres[6].
- The physical condition of the material, ranging from good to poor. This assessment takes into account any enclosure or encapsulation, or any damage or visible debris.
- Probability of SMF exposure ranging from very high to low

The following risk assessment matrix was used to evaluate the overall risk rating where asbestos containing materials were identified;

		Probability of Exposure			
		Very High	**High**	**Medium**	**Low**
Type, Condition	**Friable and poor category 2 SMF product** e.g. spray insulations with Refractory ceramic fibers	**Very high**	**Very high**	**High**	**High**
	Friable moderate to fair category 2 SMF product e.g. pipe laggings	**Very high**	**High**	**High**	**Moderate**
	Friable moderate to poor category 3 SMF product e.g. spray coatings, pipe lagging	**High**	**Moderate**	**Moderate**	**Moderate**
	Friable Good condition category 2 or 3 e.g. good condition lagging, encapsulated spray coating	**Moderate**	**Moderate**	**Low**	**Low**
	Non-Friable category 2 or 3 SMF products e.g. SMF bonded in a matrix	**Moderate**	**Low**	**Very low**	**Very low**
	Friable new generation fibers e.g. new low bio-persistence fibers	**Low**	**Very Low**	**Very Low**	**Very low**

Table 6: SMF Overall Risk Matrix[7]

Table 7 defines the general recommended controls and priority levels associated with the risk ratings used in this risk assessment.

[5] Friable material by definition, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure. Non Friable asbestos is material that is bound in a matrix

[6] Based on the AIOH position of potential carcinogenic risk evidence, older SMF products can be classified as category 2 or 3 carcinogens. Category 2 – Should be for making a satisfactory assessment. considered carcinogenic to man, Category 3 – potentially has carcinogenic effects and is of concern, but available information is not adequate

[7] The above examples are subject to the surveyor's judgement when on site. Further details on how accessibility and likelihood of exposure are categorized can be found in Healthy Buildings International Standard Operating Procedures

Risk	Control	Time
Very High	Isolate the area and implement a permit to work system. Conduct interim SMF air monitoring and re-inspect regularly until material can be repaired or removed along with and all associated debris under controlled conditions by a suitably trained contractor with appropriate SWMS to reduce fibre release, or encapsulate and enclose the material and environmentally clean area	Immediate action
High	Isolate the area and implement a permit to work system. Re-inspect regularly, Remove (in the same manor as above), repair, encapsulated and managed as necessary to reduce risk. Implement correct signage if material is to remain in-situ.	Immediate / near future action
Moderate	Maintain and implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 6 months
Low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months
Very low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months

Table 7: SMF Risk Rating and Controls

4.5 PCB Containing Products

4.5.1 *Overall Risk Assessment*

The information collected by HBI during the site inspections is used to calculate an overall risk associated with a particular lead containing product. Overall risk ratings range from very high to very low.

Factors used in the risk analysis included:

- The physical condition of the container bunding the PCB liquid, ranging from good to poor. This assessment takes into account any further enclosure, or any damage or visible leakage present.
- Probability of PCB exposure, ranging from very high to low generated from the exposure risk assessment.

The following risk assessment matrix was used to evaluate the overall risk rating where asbestos containing materials were identified;

		Probability of Exposure			
		Very High	**High**	**Medium**	**Low**
Type, Condition	**Very Poor, Leaking and uncovered** e.g. exposed leaking strip light capacitor	**Very high**	**Very high**	**Very high**	**High**
	Very Poor, Leaking but enclosed within equipment e.g. leaking capacitor within electrical cabinet	**Very high**	**High**	**Moderate**	**Moderate**
	Poor to fair e.g. Rusting but intact capacitor in operational condition	**Moderate**	**Low**	**Low**	**Low**
	Good e.g. confirmed PCB capacitor in good operational condition	**Low**	**Low**	**Very Low**	**Very Low**

Table 8: PCB Overall Risk Matrix8

[8] The above examples are subject to the surveyor's judgement when on site. Further details on how accessibility and likelihood of exposure are categorized can be found in Healthy Buildings International Standard Operating Procedures

Table 9 defines the general recommended controls and priority levels associated with the risk ratings used in this risk assessment.

Risk	Control	Time
Very High	Isolate the area and implement a permit to work system, including adjacent areas effect by leakage. Re-inspect regularly until the removal of the PCB containing product and associated waste by a suitably trained contractor. Implement correct signage until removal.	Immediate action
High	Isolate the area and implement a permit to work system. Re-inspect regularly until the removal of the PCB containing product and associated waste by a suitably trained contractor. Implement correct signage until removal.	Immediate / near future action
Moderate	Implement correct signage restrict access as much as reasonably possible. Plan to implement removal of capacitor and dispose of all associated PCB waste by a suitably trained contractor. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 6 months
Low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months
Very low	Implement correct signage. Ensure management controls are put in place: admin, monitor, train, implement procedures and apply personal protective equipment	Within 12 months

Table 9: PCB Risk Rating and Controls

5.0 SAMPLE METHODOLOGY

5.1 Bulk Asbestos and SMF

Bulk sampling will normally be carried out simultaneously with the survey or, in exceptional circumstances, will be carried out later, as a separate sampling exercise. After a visual examination to assess any apparent areas of different material, where possible given the building use, samples of about 3-5cm2 in area and through the entire depth of the material will normally be taken, with the aim of collecting one or more samples which are representative of the whole material. Sampling will not be carried out where there is an electrical hazard or if it will damage the critically integrity of any material, especially those such as roofs, gutters, pipes etc. If the sample taken is smaller than suggested in these guidelines, then the surveyors will acknowledge as such on the 'Lab Sample' form for the attention of the analyst.

The sampling strategy will be based on the types of materials present. In general, for homogeneous manufactured products containing asbestos, it can be assumed that the asbestos is uniformly distributed through the material, and one or two samples will suffice. Such product types include; boards, sheets, cement pipes, textiles, ropes, friction products, plastics and vinyls, mastics, sealant, bitumen roofing felt and gaskets. Insulation materials are generally less homogeneous as they were typically applied on site and their composition depended on the availability of supply. Subsequent repairs and patching may add to this variability and increase the number of samples required. In addition, substantial over-spray contamination and debris may have been produced. Often a single sample may be all that is required to confirm the suspicion that a homogeneous material is asbestos and to make a presumption that it applies to other material of the same type. However, for non-homogeneous materials and for some presumed non-asbestos materials, additional sampling may often be needed, to reduce the possibility of false negatives which may lead to uncontrolled exposures.

SMF products will be identified as a side product of negative ACM sampling. Known non asbestos products are known to be SMF products and are classified accordingly as such. The surveyor's experience of different SMF products will be used in classification of the type of SMF products available.

The following sample protocols are suggested, but may be adapted depending on the site and the circumstances prevailing.

5.1.1 *Spray coatings, encapsulated sprays and bulk materials*

These are usually, but not always, homogeneous (under any encapsulate) and usually two samples should be sufficient if taken at either end of the sprayed surface, unless the installation is particularly large or there are areas of repairs or alterations.

5.1.2 *Pipe/thermal insulation*

Pipe insulation is often highly variable in composition, especially where there is a change in colour, size and texture or there is evidence of repairs or modifications. The number of samples collected will be dictated by the planned and subsequent activities. If a plant room is due for complete refurbishment, a few samples of proven asbestos materials may be sufficient to condemn the entire plant room to be stripped as asbestos. If, however, most of the insulation is apparently non-asbestos, it may require more than a few samples to 'prove' that all the insulation is asbestos-free. For individual pipe runs or boilers needing repair or replacement, two samples may be sufficient, provided that there is no sign of earlier repairs or changes to the insulation.

5.1.3 *Insulating board/ceiling tiles*

Insulating board is usually homogeneous, but repairs and replacement boards and tiles may have been fitted. One sample per room or every 25m2 is usually adequate. If there is evidently more than one type of panel, then representative samples of each should be taken. Larger installations completed as the same time may require only a few tile samples to be taken. Some replacement

panels may look the same. Inspection of the hidden side of the board or tile may, where access permits, reveal the trade name of the materials and/or differences in colour, which indicate variations in the material.

5.1.4 *Asbestos cement materials*

These are homogeneous materials which are commonly encountered as corrugated and flat sheets or as various moulded products. In older buildings, most pre-formed exterior cement sheets can be strongly presumed to be asbestos and only limited sampling is needed to confirm the presumption. The risk from falls through asbestos cement roofs usually means that sampling is restricted. If sampling is required, one sample of each type of sheet or product (e.g. gutters, down-pipes etc. should be taken. Repeated sampling is not usually necessary unless areas of replaced sheets are found. Asbestos cement (A/C) sheets are visually very similar to their non-asbestos (fibre-cement) replacement. Fibre-cement replacement sheets are identifiable by a code 'NT' placed near the edge of the sheet, where they overlap. Some newer asbestos sheets have the code 'AT' in a similar position.

5.1.5 *Settled Dust*

The sampling and analysis of settled surface dust is sometimes used to provide an indication of cleanliness following disturbance of ACM. Settled dust sampling does not provide an indication of risk to health. Sampling techniques include the use of adhesive tape, wipe or micro-vacuum (using an air sampling pump and filter). Analysis is generally by separating the dust from the filter to examine the sample by stereomicroscopy and polarized light microscopy (with dispersion staining) in accordance with AS 4964-2004:- 'Method for the qualitative identification of asbestos in bulk samples' to give a positive identification of asbestos fibre type present.

5.1.6 *Other materials*

Where there are distinct types of materials, then one or two samples from each separate source will usually be adequate. Two samples are recommended if there are more than a few square metres of material.

5.1.7 *Safe systems of work*

All work to be carried out will have an adequate risk assessment of the survey site and the work will be carried out according to the procedures defined in the risk assessment. The work should minimise the disruption to the client's operations and must protect the health and safety of all persons who may be at risk. Sampling personnel shall wear adequate personal protective equipment (PPE), as determined by the risk assessment (e.g. disposable overalls, overshoes/wellington boots and a suitable respirator). The type of material sampled and the amount of disturbance of asbestos material will dictate the type of respirator. Airborne emissions should normally be controlled by pre-wetting the material to be sampled, with water and/or a suitable wetting agent. This may involve spraying the surface (e.g. boards and sheets) or injecting (e.g. lagging and sprays). Shadow vacuuming (holding the suction inlet close to the area where dust is being produced) with an appropriate vacuum will be used if wetting is likely to be incomplete (e.g. Asbestos Cement (AC), Asbestos Insulating Boards (AIB), ropes and gaskets) or if it is not safe to do so (e.g. it may drip into electrical installations). Special sampling precautions are used for pipe lagging (see below).

The areas inside buildings will, in so far as is possible, be sampled when they are unoccupied. Sampling will not normally be undertaken in occupied areas, but if areas are in constant use, periods of minimal occupation will be chosen. The nature of the area, the likely release of dust and the proximity and nature of future work will dictate the precautions required to prevent the spread of asbestos. When necessary, entry of other people to the sampling area will be restricted or suitable warnings will be posted (e.g. a notice with wording such as 'Asbestos sampling in progress – keep out'). Care will be taken to minimise the disturbance to the ACMs and any dust or debris that might be present. Surfaces onto which asbestos debris may fall will be protected with a sheet of impervious material such as polythene which can be easily cleaned by wet-wiping or

using a suitable type 'H' vacuum cleaner. All samples will be individually sealed in their own container or a sealable polythene bag which is then sealed in a second container or polythene bag. The sample area will be left clean with no evidence of debris from the sampling operation and any sampling points sealed to prevent the release of fibres. A variety of methods are used to reseal the sampling point (e.g. tapes and fillers).

5.1.8 *Sample and site labelling*

Whenever a sample is collected, it will be labelled with a unique identifier (the job number, refer to section 3.5.1 and the sequential number of the sample e.g. 050712/A 12) that is also recorded in the survey documentation, records and site plans, so that the sample origin can be traced at a later date. The sampling position at the site may also be labelled with the same identifier. Visual records such as marked-up plans and/or photographic records showing the locations and extent of the sample will also be used to record the sampling position and the location of the ACMs wherever possible.

5.1.9 *Photographic records*

Photographs taken will be logged in the site notes and downloaded to a centrally held file upon return to the office. Digital photographs taken will not be altered in any way other than to improve clarity by either adjusting the contrast or brightness.

5.2 Sampling Details

5.2.1 *Spray coatings and bulk materials*

If the coating is encapsulated, it will be pre-injected with liquid around the sampling area then carefully cut with a sharp knife or scalpel in order to lift a small flat area to retrieve a sample. If the spray is uncovered, both wetting (spraying surface and injection) and shadow vacuuming may be necessary to reduce airborne emissions. As sprays are generally homogeneous, a surface sample, which will cause only a small disturbance, should suffice. Additionally, a polythene catch sheet will be placed beneath the sampling area where necessary and it will be wiped clean after sampling is complete.

5.2.2 *Pipe insulation*

The area to be sampled will be fully wetted first; with injection techniques being used as appropriate. Samples are taken with a core sampler in order to penetrate to the full depth of the pipe insulation. The sample point hole will be made safe after sampling (e.g. covered with tape or filled with a suitable inert filler), if the pipe is to remain in place and the surface was originally intact. The borer will have a 'wet-wipe' pushed down to form a plug inside the borer and another wrapped around the outside. The borer is then used to take a full-depth sample of the insulation. The inner wet-wipe is used to seal the surface of the insulation where the borer enters and disturbs the insulation. The outer wet-wipe is used to clean the outside of the borer as it is withdrawn, and the contaminated wet-wipe can be placed in the sample bag. The sample is removed by using a plunger to push the sample out into the polythene bag, complete with the wet-wipe. Further cleaning will be required to completely clean the sampling equipment between sampling.

An alternative approach is to use core-sampling tubes in which the sample is retained. Again the core tube can be withdrawn through a wet-wipe and then capped both ends and placed in a bag until it reaches the laboratory. Chicken wire was often included within pipe insulation. This may hamper sampling, and a thin core sample may need to be taken. Where there is pipe insulation that is obviously new and non-asbestos, the possibility of debris from an earlier asbestos strip beneath the new insulation will be investigated.

5.2.3 *Insulating board*

Materials such as ceiling tiles or wall panels will be inspected for areas of existing damage, where a sample can be collected more easily. Otherwise, a small sample will be taken from a discrete location at the corner or edge of the panel, with a sharp knife or chisel blade to lever off a sample.

5.2.4 *Asbestos cement*

Asbestos cement is usually very hard and it is preferable to seek a damaged portion where it will be easier to remove a small sample. The sample size will be about 5cm2 as it will be necessary to search for traces of amphibole asbestos such as crocidolite. The sample will be obtained using the pliers or a screwdriver blade to remove a small section from an edge or corner. (Samples will not be collected from roofs without special safety precautions to prevent falls through the fragile sheets).

5.2.5 *Gaskets, rope, seals, paper, felts and textiles*

Samples can be taken using a sharp knife to cut a representative portion from the material.

5.2.6 *Floor and wall coverings*

Samples will be cut out with a sharp knife, usually taking one sample from tiles of each type or colour present. The area will be cleaned after sampling but the fibre release is likely to be very low, unless the asbestos is present as a lining or backing material.

5.2.7 *Textured coatings*

Samples will be obtained by carefully scraping the coating with a screwdriver, directing the material into the sample container held below the sampling point.

5.2.8 *Dust*

The use of this dust sampling methodology is dependent on the amount and physical nature of the dust that is sampled. The "Vacuum" method is used when there is little or no dust visible, and when there is no ability to collect the dust using any other bulk sample methods.

A membrane electrostatic filter is used to collect the dust. The filters are either mixed ester cellulose or cellulose nitrate and are supplied in a 25mm diameter open headed cowl pre fitted with filters that have a pore size of 0.8 microns and are marked with a grid. Cowls can be either metal or conductive plastic. The cowl are cleaned, prepared and delivered sealed supplied from NATA certified laboratory prior to use.

An "Aircheck Sampler" air pump is used to "vacuum" the dust onto the filter media. The pump is set at 5L per minute and is run for one minute. (This is an approximation to ensure an adequate sample is gathered). The filter head is then run over a representative horizontal area (usually 1metre square) to collect dust. Once sampling is completed the filter head canister is then sealed and placed in a double plastic bag, labelled, containerised and transported to the laboratory under full chain of custody and quality control conditions. The NATA certified laboratory then under takes the required analytical procedures as per AS 4964-2004:- 'Method for the qualitative identification of asbestos in bulk samples'.

Risk assessments and sample methodologies taken from Healthy Buildings International's In house document – Standard Operating Procedures.

** Identical sampling procedures and methodology are used for synthetic fibre bulk sampling.*

5.3 Lead Paint Sampling Procedure

Lead Paint Test Kits from the Master Painters Association NSW will be used to undertake lead paint sampling.

Sodium sulphide solution is prepared and tested on panels provided in the kit. The solution is applied by clean cotton tip to the leaded and unleaded panels, verifying solution efficacy through a reaction with the leaded panel.

The unknown painted surface is then tested with the solution in a small unnoticeable area. The sodium sulphide solution is applied using a clean cotton tip. Testing more that one layer of paint is achieved by using the sandpaper or blade provided in the kit to remove one paint layer at a time, testing each paint layer until the substrate can be seen.

A black or dark brown change of colour will occur when the solution reacts with lead in the paint.

At times bulk sampling is necessary of lead paints or dust suspected of containing lead to ascertain the exact percentage of lead in the material.

Bulk sampling of lead paint is undertaken by the careful removal of all layers of paint to the base material with a sharp Stanley knife. Lead dust will be collected carefully with the use of a filler knife or sheet of paper to collect the dust to transfer the material to a bag. The suspect material will then be single bagged for transport to the laboratory for analysis.

Respiratory protection (in accordance with AS/NZS 1716), gloves and goggles should be worn whilst undertaking sampling and sampling tools should be sanitized after sampling to prevent cross contamination. All contaminated waste will be removed from site and disposed of as hazardous material.

5.4 Lead Dust Sampling Procedure

Lead surface dust samples will be performed as per AS 4361.2, Guide to lead paint management, which also provides guidelines for the loading of lead in dust within occupied residential areas.

Within the premises where surface dust is suspected to contain lead the number and locations of samples will be dictated by the nature and extent of the lead management works to be undertaken. Major factors in identifying suspect settled dust will include; age, former use of the building or surrounding areas and recent lead removal/disturbance incidents.

The samples will be taken from a marked area, that is preferably 0.09m^2, and in any event is not less then 0.01m^2. This sample area is then marked off using tape, or a template, and the surface area of the sample location recorded.

Sampling is undertaken with a commercially available non-alcoholic wet wipe (that does not contain aloe). The wipe is folded to form a firm swab. The swab is placed in one corner of the area to be sampled and rubbed across the entire sample area in an 'S' pattern to the opposite corner. The wipe is then folded dirty side inwards and the process repeated in the orientation perpendicular to the first 'S' wipe pattern. The wipe is finally folded once more with the dust inside and placed in a sterile container for transport to the laboratory.

The sample container is labelled with HBI's unique sampling reference, and the location, time and date of sampling recorded along with other visual observations from the sampling location. A photographic reference of the sample area will also be taken where possible.

On receipt of the completed sample analysis the result shall be converted to milligrams (mg) and divided by the area sampled, expressed in m^2, to give a lead loading of expressed in mg/m^2.

5.5 Polychlorinated Biphenyls

HBI will review the light fittings in situ to assess the condition of the fittings and update the negligible risk rating assigned in the prior risk assessment.

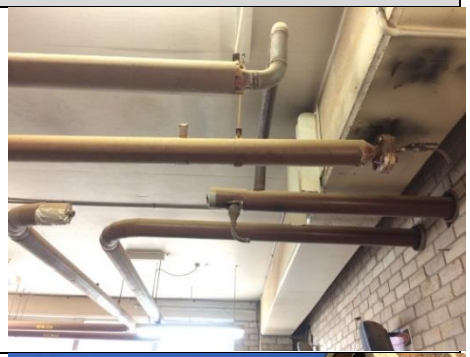
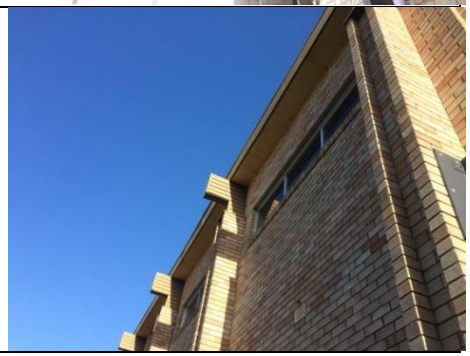
5.6 Sample Analysis

Section 6 contains laboratory analysis results of bulk samples collected during this survey. The quantity of samples selected for analysis from each sample group is determined by HBI's field technicians. The numbers of samples selected for analysis follows federal, state or applicable local regulations and/or guidelines where they exist. Where regulations and/or guidelines do not exist, a random sample selection scheme is developed for each sample group.

All samples are analysed in a NATA certified laboratory, by trained and experienced personnel. Sample laboratory reports can be found at the end of this report.

6.0 HAZARDOUS MATERIALS REGISTER

6.1 Asbestos Containing Materials

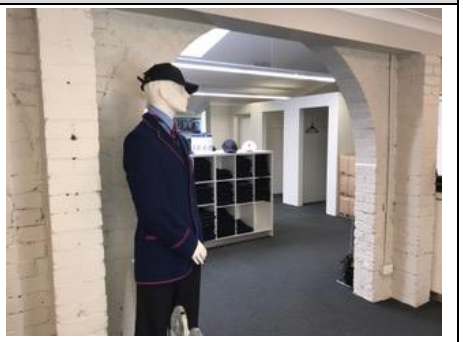
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
10722 A1	15/01/2018	Ground Floor John Healy Fitness Centre hot water laundry pipes on ceiling (not in use)	Gaskets	All gaskets	Friable	Fair	Low	-	Chrysotile Asbestos Detected	Moderate	Moderate corrosion helping to deteriorate gasket condition. Encapsulate the gasket and inspect the condition annually		
10722 A2.1	15/01/2018	First Floor John Healy Fitness Centre exterior	External soffits	All external soffits	Non-friable	Good	Low	-	Presumed to contain Chrysotile Asbestos As detected in sample 10722 A2, analysed in original survey	Very low	Label and inspect the condition annually		

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
10722 A2.3	15/01/2018	First Floor John Healey Fitness centre rear workshop fascia below window, behind metal cladding	Fibro sheet	4	Non-friable	Fair	Low	-	Presumed to contain Chrysotile Asbestos As detected in sample 10722 A2, analysed in original survey	Very low	Encapsulate broken edges, label and reinspect annually	15/01/2019	

6.2 Lead Containing Products

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
-	15/03/2018	Visual Arts Building - Level 1 Eastern craft room - All window frames and boards below	White paint and undercoats	10	Non-Friable	Good	Low	The arts building - level 1 eastern Hallway and western room - window frames and surrounds	Positive for Lead Paint	Very Low	Implement appropriate controls, wear appropriate personal protective equipment (PPE), including respiratory protective equipment (RPE), and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Maintain condition, reinspect annually	15/03/2019	
180309-P2	15/03/2018	Visual Arts Building - Level 1 Eastern craft room - ceiling and cornice	White paint and undercoats						Negative for lead paint				

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
-	15/03/2018	Visual Arts Building - Level 1 Eastern craft room - Roof steel beams	White paint and undercoats	5	Non-Friable	Good	Low	The arts building - level 1 eastern Hallway and western room- steal beams	Positive for Lead Paint	Very Low	Implement appropriate controls, wear appropriate PPE, including RPE, and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Maintain condition, reinspect annually	15/03/2019	
180309- P1	15/03/2018	Visual Arts Building - level 1 eastern craft room - walls	Cream paint and undercoats	Negative for lead paint									

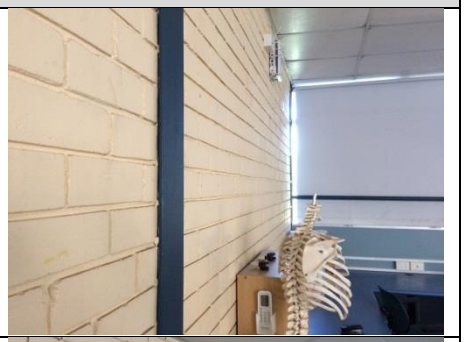
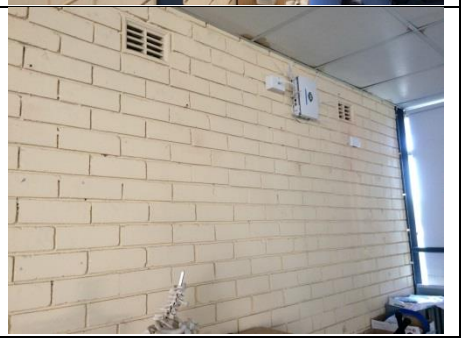
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
-	15/03/2018	Visual Arts Building - ground floor - all masonry walls	Paint underlayers – various layers	All masonry walls	Non-Friable	Good	Low	-	Positive for Lead Paint	Very Low	Implement appropriate controls, wear appropriate PPE, including RPE, and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Maintain condition, reinspect annually	15/03/2019	
-	15/03/2018	Visual Arts Building - External masonry wall	Paint underlayers – various layers	All masonry walls	Non-Friable	Good	Low	-	Positive for Lead Paint	Very Low	Implement appropriate controls, wear appropriate PPE, including RPE, and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Maintain condition, reinspect annually	15/03/2019	

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
-	15/03/2018	Visual Arts Building - roof	Residual paint – various layers	All roof	Non-Friable	Poor	Low	-	Positive for Lead Paint	Very Low	Implement appropriate controls, wear appropriate PPE, including RPE, and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Maintain condition, reinspect annually	15/03/2019	
180309-P3	15/03/2018	John Healy Fitness Centre - Ground floor Facilities amenities, ladies' toilet and first aid room	White paint underlayers	All walls	Non-Friable	Good	Low	-	Not lead paint but 0.46% lead detected in sample	Very Low	Wear appropriate PPE, including RPE if works involving abrasion or the potential to generate dust are required. Maintain condition, reinspect annually	15/03/2019	

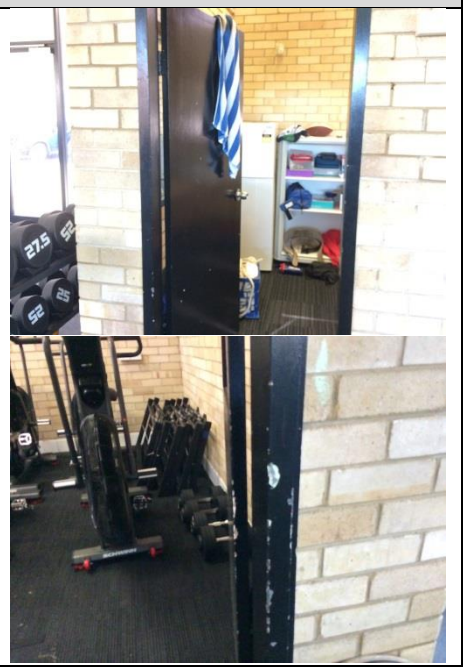
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
-	15/03/2018	John Healy Fitness Centre – Ground floor Facilities amenities, ladies toilet, first aid room and workshop ceiling	Cream paint and undercoats	All ceilings	Non-Friable	Good	Low	-	Positive for Lead Paint	Very Low	Implement appropriate controls, wear appropriate PPE, including RPE, and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Re-paint damaged areas maintain good condition, reinspect annually	15/03/2019	

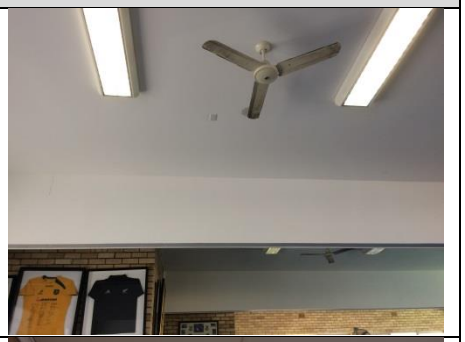
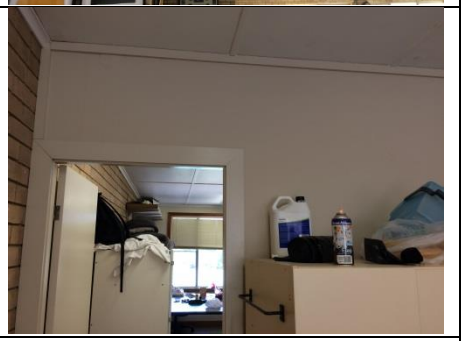
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P4	15/03/2018	John Healy Fitness Centre – Ground floor Facilities main entrance door.	Green paint and undercoats	'				John Healy Fitness Centre Subfloor, access panel near amenities entrance and entrance to old workshop under PDHPE classroom	Negative for lead paint				 

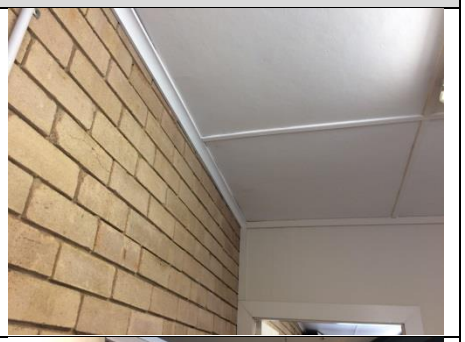
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P5	15/03/2018	John Healy Fitness Centre - disused laundry hot water pipes	Red/brown paint and underlayers	All pipes	Non-Friable	Good	Low	-	Positive for lead paint (1.6% lead in sample)	Very Low	Implement appropriate controls, wear appropriate PPE, including RPE, and dispose of any waste residues appropriately if disturbed as part of refurbishment works. Re-paint damaged areas maintain good condition, reinspect annually	15/03/2019	
180309–P6	15/03/2018	Old workshop under PDHPE classroom - steel structural members	Orange paint and underlayers	Negative for lead paint									

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P7	15/03/2018	PDHPE classroom – structural steel and railings	Blue paint and undercoats						Negative for lead paint				
180309-P12	15/03/2018	PDHPE classroom walls	Cream paint						Negative for lead paint				

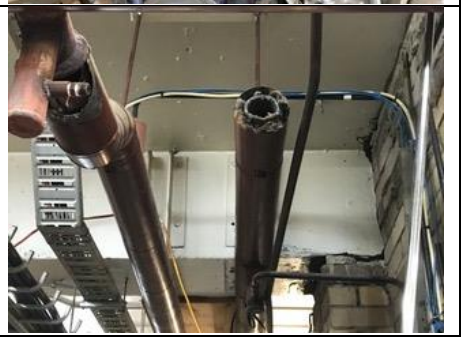
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P11	15/03/2018	PDHPE classroom walls- wood panels below windows	Light blue paint						Negative for lead paint				
180309-P8	15/03/2018	John Healy Fitness Centre - lower walls	Dark grey paint and underlayers						Negative for lead paint				

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P9	15/03/2018	John Healy Fitness Centre - wooden doors and other woodwork	Black paint and underlayers						Negative for lead paint				

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P10	15/03/2018	John Healy ceiling	White paint and undercoats						Negative for lead paint				
180309-P13	15/03/2018	Cleaners room between John Healy Fitness Centre and PDPHE classroom - woodwork	Cream paint and undercoats						Negative for lead paint				
180309-P14	15/03/2018	Cleaners room between John Healy Fitness Centre and PDPHE classroom - walls	Cream paint and undercoats						Negative for lead paint				See photo above

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
180309-P15	15/03/2018	Cleaners room between John Healy Fitness Centre and PDPHE classroom - ceiling	White paint and undercoats						Negative for lead paint				
180309-P16	15/03/2018	Old workshop below PDPHE classroom - walls and concrete columns	Cream paint and undercoats						Negative for lead paint				

6.3 SMF Containing Materials

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
	15/03/2018	John Healy Fitness Centre building subfloor undercroft in south western corner - Materials within disused boiler	Thermal insulation	Materials within	Friable	Good	Low	-	Presumed SMF	Low	Irritant to respiratory tract, eyes and skin. Appropriate PPE and RPE to be worn during disturbance of material	15/03/2019	
	15/03/2018	John Healy Fitness Centre building hot water laundry pipes on ceiling (not in use)	Thermal insulation	All pipe insulation	Friable	Fair	Moderate	-	Presumed mineral wool SMF	High	Irritant to respiratory tract, eyes and skin. All exposed SMF should be encapsulated, appropriate PPE and RPE to be worn during disturbance of material	15/03/2019	

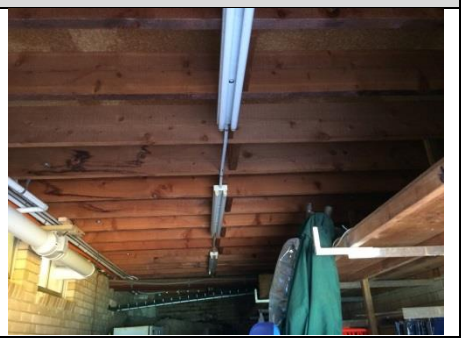
Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
	15/03/2018	PDHPE classroom - ceiling cavity	Thermal insulation	Unknown	Friable	Good	Low	-	Presumed modern SMF	Very Low	Maintain condition, reinspect annually	15/03/2019	

6.4 PCB Containing Products

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
	15/03/2018	Visual Arts Building - Level 1 Eastern craft room high level light fittings	Electrical components	All light fittings	Non-Friable	Good	Low	Hallway lights and ground floor uniform shop storeroom lights	Presumed PCB electrics	Very low	Based on appearance and assumed age of fittings. Maintain condition, reinspect annually	15/03/2019	

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
	15/03/2018	John Healy Fitness Centre - ground floor light fittings except in Facilities office	Electrical components	Unknown	Non-Friable	Good	Low	-	Presumed PCB electrics	Very low	Based on appearance and assumed age of fittings. Maintain condition, reinspect annually	15/03/2019	 

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
	15/03/2018	Shed on Luke St, east of PDHPE classroom building – High level light fittings	Electrical components	Unknown	Non-Friable	Good	Low	-	Presumed PCB electrics	Very low	Based on appearance and assumed age of fittings. Maintain condition, reinspect annually	15/03/2019	
	15/03/2018	Old workshop below PDHPE classroom - High level light fittings	Electrical components	Unknown	Non-Friable	Good	Low	-	Presumed PCB electrics	Very low	Based on appearance and assumed age of fittings. Maintain condition, reinspect annually	15/03/2019	

Sample #	Sample Date	Specific location	Material	Extent (m^2)	Type	Condition	Exposure Risk	Refer Identical material	Result	Overall risk rating	Comments	Reinspection Due	Photo
	15/03/2018	Basketball court storage garage under cleaners' room.	Electrical components	Unknown	Non-Friable	Good	Low	-	Presumed PCB electrics	Very low	Based on appearance and assumed age of fittings. Maintain condition, reinspect annually	15/03/2019	

7.0 CONCLUSIONS

7.1 Asbestos

Asbestos containing materials with a moderate risk rating have been identified in the gaskets located on the ground floor John Healy Fitness Centre hot water laundry pipes on ceiling which are not in use. These are a moderate risk rating due to their friable nature and fair condition.

Under normal circumstances the asbestos containing materials are not friable and are unlikely to release fibres provided that they are not disturbed in any way.

However, in some areas, damage has occurred over the years which constitutes a risk. As time passes more damage is likely to occur unless there are changes in workplace practices. Each time the material is damaged the possibility arises that fibres may be released.

7.2 Lead Paints

Lead paint coatings with a low risk rating were identified throughout the Visual Arts Centre building and to the ground floor Facilities area of the John Healy Fitness Centre building.

Appropriate work healthy and safety precautions are required if any works proposed in those areas are proposed that affect the lead paints identified.

7.3 Synthetic Mineral Fibre

A number of SMF products were identified within the property. Most were identified as having a low risk, due to being enclosed behind a non-friable barrier or being in a stable condition of the John Healy Fitness Centre building.

High risk SMF was located in the insulation of the hot water laundry pipes on the ceiling due to its friable nature, fair condition and moderate potential for exposure.

Any disturbance of the above materials will require appropriate work healthy and safety precautions to be employed

7.4 PCBs

A number of components likely to contain PCB were identified within electrical equipment / old strip lights in the premises. All were found to present a low risk if left undisturbed.

8.0 RECOMMENDATIONS

8.1 Asbestos

Until such time this material is removed we recommend that more widespread warnings that asbestos containing materials are present be placed in areas, particularly where the material is likely to be damaged.

Where the risk rating is high HBI strongly recommend that damage in the area be rectified through isolation, removal or encapsulation as soon as possible. In particular, in order to minimise the risk associated with sample 10722 A1 taken from Ground Floor John Healy Fitness Centre hot water laundry pipes on ceiling (not in use). HBI recommend that the room gaskets be encapsulated.

Prior to refurbishment of the building, damaged sections of asbestos should be repaired or replaced to prevent disturbance during renovations. Should the building be due for demolition all ACM should be removed prior to the works commencing. A refurbishment and demolition asbestos survey should be completed in the building prior to any such works to explore within areas inaccessible at the time of this survey.

We also recommend that staff be made aware of the presence of asbestos and what action to take should the material become damaged. The warning signs should be clear and unambiguous that no work of any type is to be carried out on the material. This includes sanding, sawing, drilling or abrading of the material in any way.

Regular inspection of these materials to ensure that no deterioration has been experienced should be undertaken annually. Authorised personnel can work within these areas to undertake scheduled works provided that due caution and care is taken and that works are conducted in accordance with the appropriate Safe Work Method Statement.

Works undertaken should be limited to those activities that do not disturb these materials unless additional precautionary measures, such as the application of a higher level of personal protective equipment, and use of appropriately trained personnel, are introduced to work practices.

Always apply the following Codes for best practice when working with asbestos containing materials.

- How to Manage and Control Asbestos in the Workplace – Code of Practice (Safe Work Australia: December 2011).
- How to Safely Remove Asbestos – Code of Practice (Safe Work Australia: December 2011)

In the event of material disturbance in an occupied area, monitoring for airborne asbestos fibres should be undertaken to ensure that the current national exposure standard set by National Occupational Health and Safety Committee (2005) of 0.01 fibres per millilitre of air for airborne fibres is being met.

8.2 Lead

The WHS Act and associated regulations 2011 requires all property owners and managers to operate their premises in such a way that there is not an increased risk to the health of occupants or visitors to the premises, so it makes sense to carefully remove or encapsulate paints containing significant levels of lead as soon as they as seen to be deteriorating.

We recommend that the area affected by lead contaminated paint be managed though the incorporation of recommended actions into the routine maintenance program. If deterioration does occur, we recommend the material be encapsulated in such as manner that it does not presents a risk to building users. Painting contractors should be advised that the materials contain lead and they should only be dealt with by an experienced lead paint contractor. *AS4361.2_1998: Guide to lead paint management Part 2 Residential & Commercial Buildings* provides options and procedures for managing lead paint.

The NSW Environmental Protection Agency recommends the use of lead dust standards to determine the safety of premises for re-occupancy after renovation and clean up is completed. The lead dust loadings for various surfaces are from *AS4361.2_1998: Guide to lead paint management Part 2 Residential & Commercial Buildings*.

These standards were originally based on the 1995 US guidance for investigation of lead poisoning. In the US the "clearance" level for bare and carpeted floors was lowered in the year 2000 to 0.4 mg/m^2 or in other words 400 µg per m^2. The Australian Standard is yet to change to this more rigorous level.

Lead paint removal residues and lead containing demolition materials must be disposed of appropriately in accordance with the Waste Classification Guidelines (NSW EPA, 2014)

8.3 Synthetic Mineral Fibre

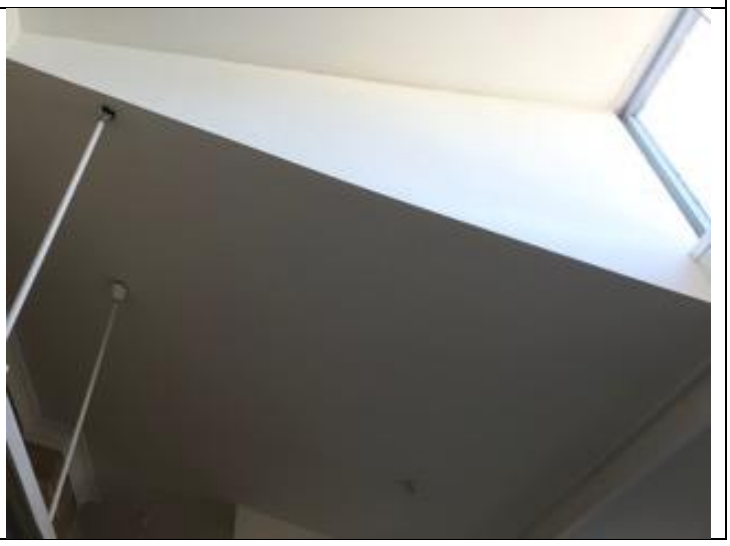
The high risk SMF containing thermal insulation located on the ceiling hot water laundry pipes in the John Healy Fitness Centre building is an irritant to the respiratory tract. All exposed SMF should be encapsulated, appropriate PPE and RPE to be worn during disturbance of material

The remainder of the SMF containing products were found to be in stable conditions and unlikely to generate unacceptable respirable fibre concentrations under normal working practices and occasional light disturbance. Should destructive work need to be undertaken upon these products HBI recommend the use of appropriate RPE and PPE to prevent inhalation of the highly respirable fraction of dust and fibres that will become airborne during destructive disturbance.

8.4 PCBs

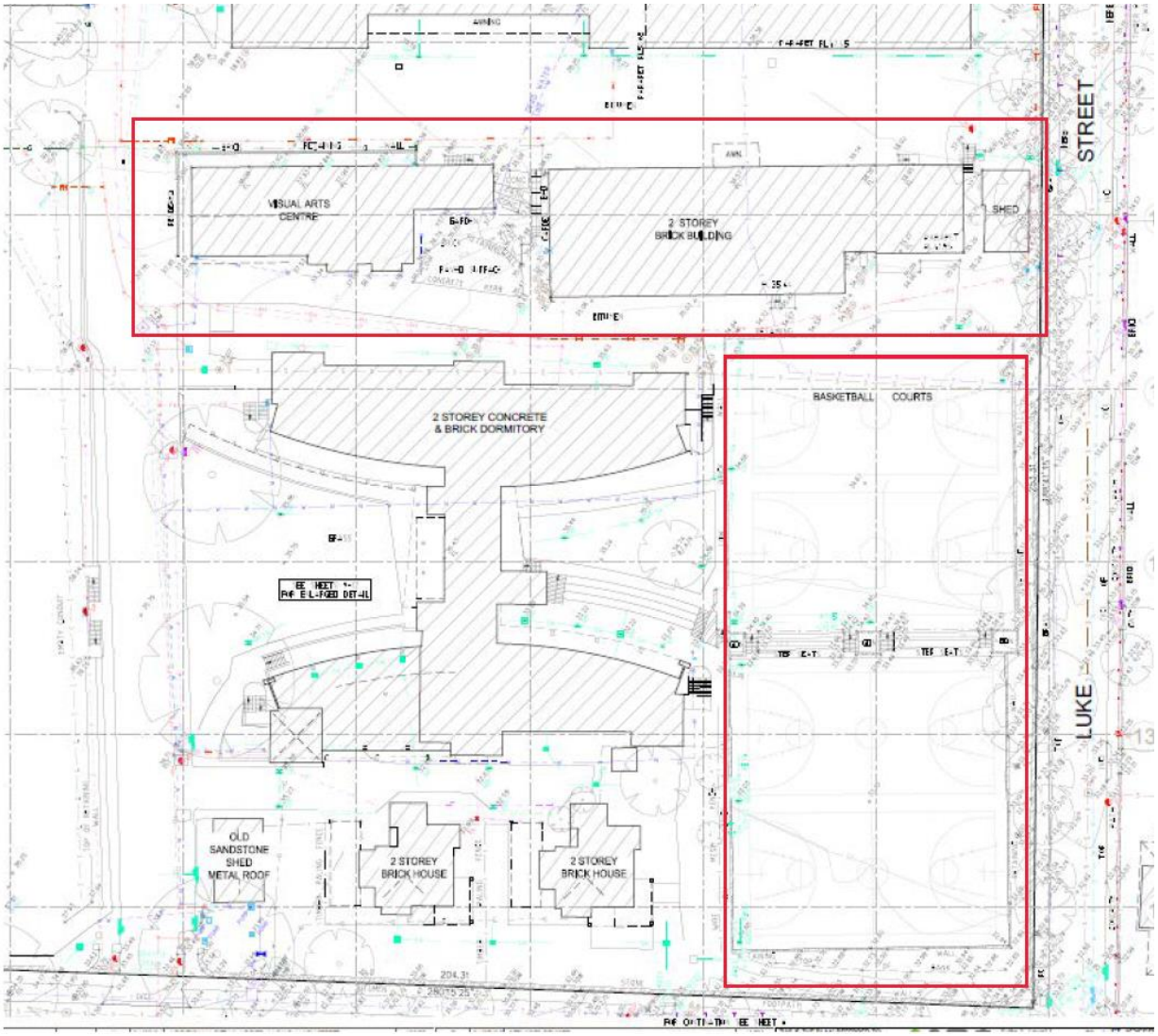
The likely PCB containing electrics identified on site were in good / fair condition and showed no evidence of leaks. The equipment can remain in service but should be inspected regularly and at the end of its serviceable life be replaced with a modern non-hazardous alternative and/or removed if likely to be disturbed as part of any future works.

9.0 EXCLUSIONS

LOCATION	REASON	PHOTO
Interior arts building under stairs	Padlocked with no available key	
John Healy Fitness Centre subfloor access left of amenities entrance	Padlocked with no available key	
The Arts Building - level 1 hall way ceiling cavity	No manhole or roof access	

John Healy Ceiling Void	Height	

10.0 SITE PLANS- BUILDINGS INSPECTED



11.0 LABORATORY CERTIFICATES

SYDNEY ANALYTICAL LABORATORIES

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ERMINGTON NSW 2115

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Telephone: (02) 9838 8903
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A.B.N. 81 829 182 852
NATA No: 1884

ANALYTICAL REPORT for:

HEALTHY BUILDINGS INTERNATIONAL

SB 2.06, 29-31 SOLENT CCT
BAULKHAM HILLS, NSW, 2153

ATTN: R.HENRIQUES

JOB NO:	SAL26692D
CLIENT ORDER:	180309
DATE RECEIVED:	15/03/18
DATE COMPLETED:	19/03/18
TYPE OF SAMPLES:	PAINTS
NO OF SAMPLES:	16

NATA Accredited for compliance with ISO/IEC 17025 Testing

.....
Issued on 20/03/18
Lance Smith
(Chief Chemist)

SYDNEY ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB NO: SAL26692D
CLIENT ORDER: 180309

	SAMPLES	Pb %
1	180309-P1	<0.01
2	180309-P2	<0.01
3	180309-P3	0.46
4	180309-P4	0.19
5	180309-P5	1.6
6	180309-P6	0.11
7	180309-P7	0.09
8	180309-P8	<0.01
9	180309-P9	0.16
10	180309-P10	0.02
11	180309-P11	<0.01
12	180309-P12	<0.01
13	180309-P13	<0.01
14	180309-P14	<0.01
15	180309-P15	<0.01
16	180309-P16	<0.01

MDL	0.01
Method Code	A8
Preparation	P1

SYDNEY ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB NO: SAL26692D
CLIENT ORDER: 180309

METHODS OF PREPARATION AND ANALYSIS

The tests contained in this report have been carried out on the samples as received by the laboratory.

P1 Analysis performed on sample as received

A8 Lead - Total in Paint/Dust (HNO3 Digest)
Determined by APHA 3111B (Flame AAS)