

HSL tests confirm amosite fibres released from classroom heaters

An HSL series of tests at Cwmcarn School in Caerphilly has confirmed that amosite fibres are released from classroom heaters. Levels up to 4,300 amosite fibres per cubic metre of air ((0.0043f/ml) were released when the heaters were running and representative disturbance was carried out. Each occupant of the room would inhale around 7,000 fibres during a two hour sampling time. The average of all the samples was 1,900 fibres per cubic metre of air (0.0019 f/ml).

The potential for asbestos fibre release was identified by an astute asbestos consultant last October who identified damaged asbestos insulating board (AIB) panels in the classrooms walls and heaters. Air sampling showed that asbestos fibres were being emitted from the heaters. There was extensive asbestos debris in the ceiling void and amosite asbestos fibres in the heaters, classrooms and stairwells. It is thought that the bulk of asbestos debris contamination might have been present for at least four years, and possibly considerably longer, since the botched removal of a number of AIB ceiling tiles.¹ On receipt of their report Caerphilly council closed the school.

Caerphilly Council have published a statement from the school on their web-site. It is not only misleading it is also incorrect. They fail to acknowledge that the fibre levels would have been considerably higher over a number of years after the removal of ceiling tiles had contaminated the school. They fail to acknowledge that the fibre levels would have been significantly higher with the school occupied by 900 pupils. They also ignore the fact that the HSL report had confirmed a significant asbestos fibre release from the heaters. They incorrectly state:

*"All of the samples taken by HSL were below the "limit of quantification", in other words they were so small that they would be below the target sensitivity of 0.0001 fibres/ml. To place this in context such levels would be similar to that found in background levels in the atmosphere. Even with attempts to disturb the fibres through opening all the doors and windows, levels of fibres in the classrooms remained below the levels of quantification."*²

The airborne fibre levels from the heaters were significantly greater than 0.0001f/ml and the normal background levels in the atmosphere. They were up to 43 times greater than the "target sensitivity" which is also the background level in busy towns - which Cwmcarn is not. The asbestos fibre level in air in the countryside is lower at 0.000001 f/ml,³ which means that the levels found at Cwmcarn are 4,300 times greater than that.

The asbestos consultant's report stated: *"Testing has confirmed that there is free asbestos fibre within the heater cabinets. It is also the fact that unsealed asbestos insulating board, which contains amphibole amosite asbestos fibres is present in other heaters and that in one heater cabinet*

¹ Asbestos Investigation Report Cwmcarn High School, Santia 26 Oct 2012 p6 para d

² Caerphilly Council Web site Statement from Cwmcarn High School. Not dated downloaded 4 Feb 13

³ Medical Research Council Fibrous materials in the environment p4.

examined there is damaged asbestos insulating board and in another asbestos insulating board debris to the floor of the heater cabinet.”⁴



Warm Air Cabinet Heating. Classroom Cwmcarn School.2009

Fans suck in air, pass it over heating elements and emit the hot air through grilles into the room.⁵ The fans and heating elements are contained within a box which is either free standing or built into the wall.

This form of heating was developed in the 1950s and became one of the most popular means of heating schools.⁶ The cabinets were typically lined with unsealed AIB and the baffles to deflect the air were also typically AIB. A book on post war schools states: *“The cabinets were bulky, the fan motors noisy, and the apparatus needed regular cleaning if it was to function properly; later on naughty children bent the bars on the fronts of the grilles.”*⁷ There are doors to gain access for cleaning and servicing and it is known that in some schools children also gained access to the cabinets.⁸ The CLASP asbestos handbook gives details of the heater baffles and casing, and states: *“if damaged, fibres can be readily circulated...”*⁹

The problem of asbestos fibre release from this form of heating is not new as it has been known about since 1981. Air sampling by a local authority in a number of CLASP schools in *“rooms served with by warm-air heaters whose ducts were lined with Asbestolux”* identified that amosite fibres were being released at levels up to 0.06 f/ml. Later HSE tests sampled levels up to 0.025f/ml.

The HM Principal Inspector of Factories gave advice how to reduce the exposures: *“Cleaning out of heaters to remove accumulated dust, replacement of boards (where possible) with asbestos free substitutes, and sealing of boards where replacement is not possible. Persons carrying out such work*

⁵ Asbestos Investigation Report Cwmcarn High School, Santia 26 Oct 2012 p6 para d

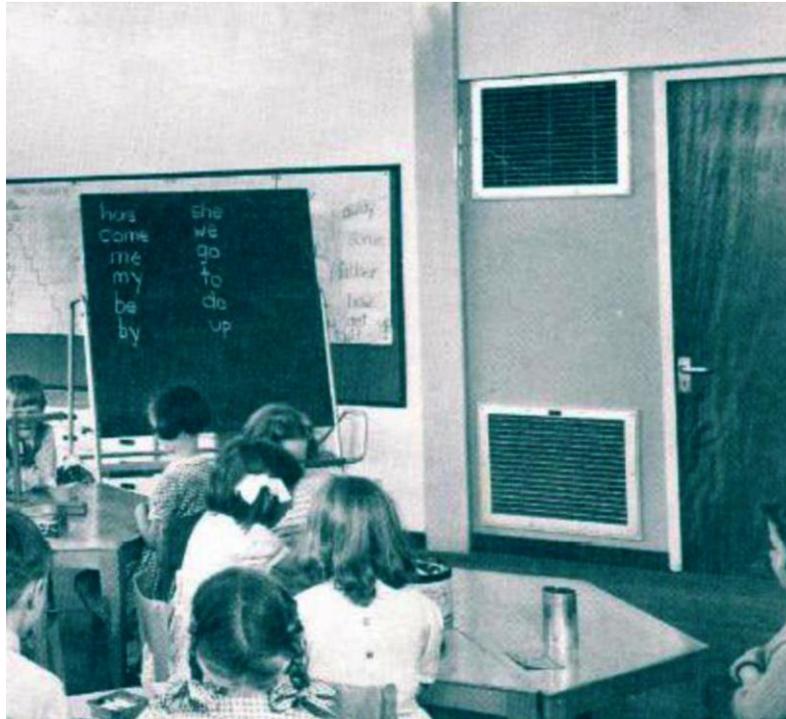
⁶ Towards a Social Architecture. The Role of School Building in Post War England. Andrew Saint 1987 p86

⁷ Towards a Social architecture. The role of school Building in Post War England. Andrew Saint 1987 p 86

⁸ Lees personal communication Feb 2011

⁹ Scape CLASP asbestos handbook Asbestos in CLASP standard details. P11 para 1.02

*need to be protected by suitable clothing, including respiratory protective equipment, and should use vacuum cleaners suitable for asbestos work.”*¹⁰ In 1982 HSE issued a warning and the same advice to all local authorities.¹¹ Despite the warnings, thirty years later heaters at Cwmcarn contain unsealed AIB panels, AIB debris and asbestos fibres. Two series of air tests have proved once again that heaters in this poor condition will emit asbestos fibres into the classrooms.



Warm Air Cabinet Heating. Classroom East Barnet. 1950's

On 3rd December 2012 AiS proposed that DfE urgently warn schools of the dangers inherent in these heaters so that measures can be taken to prevent the release of asbestos fibres.¹² That warning has not so far been issued. Both the independent and HSL series of tests have confirmed the potential for significant fibre release and therefore DfE should delay no longer in issuing a warning to all schools.

*Michael Lees
4th February 2013*

¹⁰ Letter HM Principal Inspector of Factories to Principal architect CLASP ADP/SNC/03 23 Oct 1981

¹¹ HSE Asbestos in warm air heating systems. (Revised) LAAIC/C 3/5 Health and Safety Commission Aug 1982.

¹² E-mail Lees/DfE Urgent warning about the dangers of warm air cabinet heating. 3 Dec 2012