Case for an environmental level for the occupants of schools.

Workplace control levels for airborne asbestos fibres are applied to staff and children in schools. They were designed for people working on asbestos and were never meant to be a threshold for a "safe" level of exposure. In addition they were never meant to be the threshold for an acceptable level of exposure for occupants of buildings.

The control levels are not safe levels for adults, but the risk is significantly greater for children. However no allowance is made for this in the asbestos regulations and accompanying guidance, consequently schools are treated as any other workplace. Because of this staff and children have been allowed into rooms where there are airborne asbestos fibres at levels that cumulatively can cause mesothelioma. This paper puts the case for the introduction of an environmental level for schools which would be significantly lower than the present workplace levels as it would recognise the particular vulnerability of children.

Children are significantly more at risk than adults

On 7th June 2013 the Government's advisory Committee on Carcinogenicity (COC) published a report on the relative vulnerability of children to asbestos compared to adults. [1] They concluded that children are more vulnerable, the younger the child the greater the risk. The lifetime risk of developing mesothelioma for a five year old child is about five times greater than an adult aged thirty. The following table puts the increase in risk for younger children into perspective. The COC conclusion is based on the table:

Increased mesothelioma risk to age 80[2] (~lifetime risk)

Start age	0	5	10	15	20	25	30	40	45	50
Factor	7.0	5.3	4.0	3.0	2.1	1.5	1	0.4	0.2	0.1

Insufficient scientific research has been carried out to determine whether or not a child's physical immaturity makes them more vulnerable, so the Committee were unable to come to a conclusion over this aspect. However a leading paediatrician warned that the juvenile lung is particularly susceptible to injury and that serious lung damage below the age of five would remain for life. He also strongly advised the COC that because knowledge is incomplete they must follow the precautionary principle as children are involved. [3]

At the Select Committee hearing in March 2013 Professor Peto, a leading epidemiologist and member of the COC, gave evidence. He was asked whether children are more susceptible to asbestos exposure. He replied:

"They are more susceptible, yes..."[4]

"The risk keeps going up...once you have been exposed to asbestos, the risk goes on increasing for the rest of your life. It increases very steeply after a very long latency..." [5] *There is very good evidence that living 20 years longer after exposure vastly increases your risk. That is the fundamental point"*[6]

[1] Committee on Carcinogenicity Statement on the relative vulnerability of children to asbestos compared with adults. 7 June 2013
[2] Effect of children's age and life expectation on mesothelioma risk. R. Howie 28th June 2012. See also Effect of age on mesothelioma risk. Darnton COC CC20132 annex A 2013. WATCH annex 2 Adjusting the H&D mesothelioma predictions to allow for life expectancy and age of first exposure undated. Age adjustment factors Darnton BOHS 17 Oct 2001.
[3] Committee on Carcinogenicity. Lees contemporaneous notes 12 Jul 2012
[4] Education Select Committee hearing asbestos in schools 13 Mar 2013Q20

There are now 400 deaths a year in women from mesothelioma; most of those are from asbestos in buildings—a good two-thirds of them are caused by asbestos in buildings. It is reasonable to assume that a fair fraction of that is due to asbestos in schools, because what happens to you when you are young is worse than what happens when you are old, in terms of causing cancer. It is reasonable to say that something of the order of 100 or 150 deaths per year from mesothelioma in women could in the future be due to asbestos levels in schools up to the 1960s and 1970s.[7]

Professor Peto also considers that *"It is a reasonable assumption that the same number of males as females are dying of mesothelioma caused by their asbestos exposure at school."*[8] Therefore between 200 and 300 people could die a year of mesothelioma because of their asbestos exposure as children at school. It is also a reasonable assumption that considerably more than 3,000 mesothelioma deaths could occur because of asbestos exposure as a child at school.

The estimates are based on the levels of exposure during the 1960s and 1970s and HSE claim that the present levels of exposure in schools are less now than they were then. However the claim is not based on sound evidence of past and present fibre levels in schools. The lack of sufficient data on airborne fibre levels, and in particular current fibre levels, in schools was highlighted by the COC. Most of the asbestos remains in place and so does the risk. All of it is now old and much is deteriorating as the school stock has been poorly maintained. The evidence is that asbestos incidents continue, consequently staff and pupils are still being exposed to asbestos, in some cases over a prolonged period of time.

Children are considerably more at risk from asbestos exposure than adults, and yet they are treated no differently in the asbestos regulations, and workplace fibre levels that are designed for adults working on asbestos materials, are applied to children. If children are to be afforded the same level of protection then the increased risk because of a child's increased life expectancy should be taken into account, and any control level that is applied to schools should be proportionately less than the equivalent workplace level. However that would not take into account any unknown risk because of their physical immaturity. Therefore the levels should be even lower to take the unknown risk into account.

However none of the control levels are safe levels for adults, let alone children. Therefore a lower airborne fibre level is needed to provide an "acceptable" level of exposure. That level is normally termed an "environmental" level. What is an acceptable environmental level has to be decided, however it should take into consideration HSE's definition of "acceptable" risk which is one per million per annum. [9] It should also be based on the level of asbestos exposure that can cause mesothelioma, and should therefore take into account that there is no known threshold exposure below which there is no risk.

No known threshold of exposure below which there is no risk.

Dianne Willmore was exposed to asbestos while a pupil at school and subsequently died of mesothelioma. In March 2011 the Supreme Court confirmed the judgment that she had been negligently exposed to asbestos while a pupil at school, and that the exposure she had suffered materially increased the risk of her mesothelioma developing. The High Court, Appeal Court and Supreme Court all accepted the expert medical opinion that:

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[5] Education Select Committee hearing asbestos in schools 13 Mar 2013 Q21
[6] Education Select Committee hearing asbestos in schools 13 Mar 2013 Q 22
[7] Education Select Committee hearing asbestos in schools 13 Mar 2013 Q 13
[8] Personal correspondence Professor Peto/Lees 3 May 2013
[9] HSE Reducing Risk, Protecting People. Para 130 p 45 2001

"*Mesothelioma can occur after low level asbestos exposure and there is no threshold dose of asbestos below which there is no risk."* [10]

The World Health Organisation acknowledged the absence of a known threshold and stated "*No threshold has been identified for the carcinogenic risks to chrysotile*."[11] The HSE's Hodgson and Darnton paper on risks from asbestos exposure examined the various studies into the level of exposure that can cause mesothelioma and concluded "*All these observations suggest that relatively brief exposures may carry a low, but non-zero, risk of causing mesothelioma. Taking this evidence together we do not believe there is a good case for assuming any threshold for mesothelioma*."[12] The evidence was re-examined by the government's advisory committee on science, WATCH, who in 2011 confirmed that "*The risk will be lower, the lower the exposure, but "safe" thresholds are not identifiable."*[13]

The Courts accepted the expert medical opinion and the Industrial Injuries Advisory Council (IIAC) definition of a significant exposure as a level above the normal background level. The medical expert stated:"*Significant" is defined in accordance with the definition adopted in relation to mesothelioma causation by the Industrial Injuries Advisory Council in their 1996 report (CM3467) "A level above that commonly found in the air in buildings and the general outdoor environment."*
It would be appropriate for the Court to conclude that each such exposure materially increased the risk that she would develop mesothelioma." [14]

In another case medical experts explained how all exposures to asbestos have a cumulative effect that can lead to the development of mesothelioma:

"*Mesothelioma can in theory be caused by a single fibre acting to create a mutation of a cell from which a malignant tumour may develop. …all exposures up to 10 years before the appearance of symptoms is relevant, for two reasons; first, any inhalation may cause mutation…; secondly, the inhalation of asbestos is now known to have an adverse effect on the body's natural ability…to deal with potentially mutating or mutated cells before a malignant tumour develops….Later exposure adds to earlier exposure. All exposures, other than in the last ten years before the emergence of symptoms, is cumulative and contributes to the risk of and the development of a tumour."*[15]

(Subsequently medical opinion has changed and it is generally accepted that all asbestos exposures are cumulative and contribute to the risk of a tumour developing up to about five years before the onset of symptoms.[16])

[10]High Court QBD Liverpool District. The Hon Mr Justice Nicol . Dianne Willmore and Knowsley Metropolitan Borough Council 24 July 2009 Para 4 .
[11] World Health Organisation Elimination of asbestos related diseases. Sep 2006 . WHO environmental Health criteria 203: Chrysotile Asbestos 1998
[12] Hodgson & Darnton The quantitative risks of mesothelioma and lung cancer in relation to asbestos exposure. Epidemiology and medical statistics unit HSE. Ann Occup Hyg vol 44 p583 Is there a threshold? 2000)
[13] Final WATCH Position on asbestos risk assessment: February 2011
[14] High Court QBD Liverpool District. The Hon Mr Justice Nicol . Dianne Willmore and Knowsley Metropolitan Borough Council 24 July 2009 Para 8, 57b
[15] (Jeffrey Burke QC Edgson v Vickers plc (QBD) Dr Rudd, Dr Hugh Jones, Dr Britton p524 1994)
[16] England and Wales Court of Appeal (Civil Division) Decisions Employers' Liability Insurance "Trigger" Litigation, Re [2010] EWCA Civ 1096 (08 October 2010) para 313 URL: *http://www.bailii.org/ew/cases/EWCA/Civ/2010/1096.html*
Supreme Court Judgment Sienkiewicz (Administratrix of the Estate of Enid Costello Deceased) (Respondent) v Greif (UK) Limited (Appellant) Knowsley Metropolitan Borough Council (Appellant) v Willmore (Respondent) Lord Phillips, President 9 March 2011 para 19v

MRC "*Exposure to asbestos in school may therefore constitute a significant part of total exposure."*

A report commissioned by the Medical Research Council examined the use of asbestos in schools then it assessed lifetime asbestos exposures. It based its estimate on the number of fibres inhaled by a child during their time at school on the asbestos being in good condition with a background asbestos fibre level of 0.0005f/ml. They also concluded that the outside background airborne asbestos fibre level is between 0.000001 f/ml and 0.0001 f/ml.[17] Consequently the background level in schools with asbestos in good condition is already five to five hundred times greater than the background level in outside air. The MRC report stated:

"*Children attending schools built prior to 1975 are likely to inhale around 3,000,000 respirable asbestos fibres. (roughly 10% of the higher estimate of the burden from ambient lifetime exposure or 1000% of the lower estimate). Exposure to asbestos in school may therefore constitute a significant part of total exposure*."[18]

In expert medical and legal opinion and that of IIAC, all exposures above the normal background level will materially increase the risk of mesothelioma developing.

Action Level should never have been applied to the occupants of schools

Despite this until relatively recently the workplace Action level was applied to the occupants of buildings, including schools.[19] It was a very high level designed for asbestos contractors wearing masks and protective overalls. It was 48 f/ml which is 48,000,000 fibres in every cubic metre of air, and is 96,000 times greater than the background level in schools with asbestos in good condition and 4,800 times greater than the Clearance indicator.

HSE guidance advised, incorrectly, that *"Exposure would usually have been insufficient to pose a significant long-term risk to health where Action levels were not exceeded."*[20] This is contrary to the judgments of the courts and contrary to expert medical opinion, despite this it was used by schools, LAs and some asbestos consultants as a threshold for a significant exposure. The legal advice is that if organisations follow HSE advice then they will be doing enough to comply with the law, and therefore it is understandable that organisations followed the advice. However it is not acceptable that HSE knew their advice was dangerously wrong.

The flawed guidance inevitably resulted in people disturbing asbestos materials to the extent that dangerous levels of asbestos fibres were released. HSE advised that asbestos incidents in schools need not be reported, and people need not be informed unless their exposure exceeded the Action Level. It is known that the guidance resulted in schools and LAs not reporting asbestos incidents, staff and pupils were advised not to enter their exposures in their medical record and people were not informed that they had been exposed because it was considered that the Action Level had not been exceeded. It should never have been applied to the occupants of buildings, but it was and it

[17] Fibrous Materials in the Environment Institute for Environment and Health. P71

[18] Fibrous Materials in the Environment Institute for Environment and Health. P72 and p75 . 1997

[19] Hansard written answers Column 1259W WORK AND PENSIONS Asbestos 21 Jul 2009
http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090721/text/90721w0031.htm#09072269000033
Parliamentary Question Annette Brooke MP/ Minister of State for Schools Nick Gibb MP. 26 Apr 2011 51916, 51917
http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm110426/text/110426w0012.htm#11042790001660
[19] Parliamentary Question Annette Brooke MP/ DWP Minister Chris Grayling MP. 26 Apr 2011 51981
http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm110426/text/110426w0010.htm#11042753002007

[20] HSE LAC 5/19. HSE/ HELA OC 265/48 version 3. Information document (part 1) - Exposure to Asbestos from work activities: Advice for employers. OC 265/48 Version 3 Factors that influence level of risk http://www.hse.gov.uk/foi/internalops/fod/oc/200-299/265-48-1.htm

has led to bad practice. AiS therefore argued that the guidance should be withdrawn, and it finally was in February 2012.[21]

However the Action Level is not the only level that is used incorrectly for the occupants of schools, for the Clearance Indicator, or Clearance level, is also commonly and regularly used.

Clearance Indicator is not a safe environmental level.

The Clearance Indicator is workplace level for asbestos contractors, however it is also applied to schools as the threshold for allowing people to occupy buildings following an asbestos incident or following work on asbestos. Again this has given the wrong impression that this is a safe level of exposure and because of that it has resulted in staff and children occupying classrooms when it has not been safe to do so.

The Clearance Indicator was designed to be used after licensed remedial work or removal work has been completed on asbestos materials. The enclosure is thoroughly cleaned to remove residual asbestos debris and fibres, the cleanliness of the area is checked by a visual inspection and then air sampling is carried out to ensure that the airborne fibre levels are beneath the Clearance Indicator of 0.01f/ml. If it is, then legally a certificate of reoccupation can be issued and people can re-enter the room.

The level was chosen not because it was a safe level but instead because of the limitations of optical microscopes,[22] but, by default it has been adopted as a level at which classrooms can be re-occupied following work on asbestos or an asbestos incident in a school. It is not a safe level because at 0.01 f/ml a person inhales 6000-10,000 fibres an hour. HSE make it clear that: *"The threshold of less than 0.01 f/ml should be taken only as a transient indication of site cleanliness... and is not an acceptable permanent level."*[23]

In 2013 HSE were asked what levels of asbestos fibres in air they regarded as safe for occupation of a school. Their answer made it clear that there is no consensus on a safe level and that the clearance indicator is a temporary level specifically for site clearance:

"The current HSE advice is that there is no consensus on what is a safe level and where practicable, the levels of airborne asbestos fibres should be as low as reasonably practicable. The current regulations CAR, 2012 require exposures to airborne concentrations of asbestos to persons carrying out asbestos works should not exceed the control limit (0.1 f/ml over a 4 hour period), The only lower limit in current HSE guidance, is the temporary "clearance indicator" which applies as part of a strict clearance procedure in the specific circumstances where asbestos has been removed by a licensed contractor. The clearance procedure requires that airborne fibre concentrations, when the specified disturbance activity is carried out, should be below 0.01 f/ml."[24]

HSE have quoted workplace levels for asbestos contractors, but have offered no alternative level to the clearance indicator for schools to use as a practical control level. They were answering questions about a school and are fully aware that the clearance indicator is routinely used in schools as a threshold for a "safe" level. However they failed to highlight the increased risks to children, or to put into context the scale of the risk at 0.01 f/ml.

[21] Case for withdrawing HSE Guidance . Informing staff and parents following an asbestos incident in a school . AiS 15 Jul 2011 http://www.asbestosexposureschools.co.uk/pdfnewslinks/INFORMING%20following%20an%20asbestos%20incident%20in%20a%20schoo%2015%20Jul%2011.pdf

[22] Asbestos Risks of environmental and occupational exposure Health Council of the Netherlands 3 June 2010 p15

[23] HSC CAWR 2006 Work with materials containing asbestos ACOP para 17 p68

[24] Letter HSE /Caerphilly Council 27 Feb 2013

The MRC report concluded that 0.0005f/ml is the background asbestos fibre level in schools with asbestos in good condition [25] and the Courts accept that exposures above that level can materially increase the risk of mesothelioma developing. [26] The Clearance Level is twenty times greater than the background level and will therefore significantly increase the risk of mesothelioma developing, and the risk is even greater for children.

To put the mesothelioma risk into context, for an adult a 5-year exposure from age thirty to 0.01 fibres/ml of amosite would cause a lifetime risk of 95 deaths per million. (A cumulative exposure of 0.05 fibres/ml.years) A lifetime risk of 95 per million accumulated over a period of 5 years is an annual risk of 19 per million (95/5 = 19).[27]

However the risk is greater for children. The risk for a ten year old child would be 4 times greater, giving an annual risk of 76 per million.(19 x 4) The risk for a five year old child would be 5.3 times greater, giving an annual risk of 101 per million. (19 x 5.3).

The above calculations are based on the Hodgson and Darnton risk model. At the lower fibre levels the model gives an idea of the scale of the risk, but the estimates should not be taken as definitive figures.[28] They do however graphically demonstrate that there is a considerable risk at the Clearance Indicator of 0.01f/ml. The risk to an adult far exceeds HSE's definition of "acceptable" risk of 1 per million per annum. For a child the risk is considerably greater.

Despite the known risks the level of 0.01f/ml is commonly and regularly used as a benchmark for a "safe" level in classrooms.

Staff and pupils given unjustified assurance that classrooms safe for reoccupation

Following asbestos removal in a school air sampling is carried out and if the level is below 0.01f/ml staff and pupils are allowed to return to the classroom. The same level of 0.01f/ml is also used after an asbestos incident when "Reassurance" air sampling is carried out to provide a reassurance to people that the room is "safe" to reoccupy. However the reassurances given to staff, pupils and parents can often be unjustified, because, unless the level is substantially less than 0.01f/ml, the occupants will inhale cumulatively significant levels of asbestos fibres.

It should be noted that Clearance sampling requires disturbance to be carried out so that fibres resting on surfaces will become airborne, that is because if disturbance is not carried out it is inevitable that the fibre count will be very low and will give an incorrect picture of the number of fibres present in the room. However "Reassurance" sampling does not require disturbance. It is of concern that UKAS and HSE have actually criticised analysts for undertaking disturbance during Reassurance testing following an asbestos incident.[29]

The Reassurance test is designed to check whether fibres are being released when an enclosure is in use or while it is being dismantled. It was not designed to check the level of asbestos fibres in a room after an asbestos incident, and will always give an inaccurate and low fibre level unless vigorous disturbance is carried out. This again underlines that workplace regulations were not designed for typical situations in schools, and that a specific system of air sampling should be evolved that really does show whether rooms are safe for the occupants.

Consequently tests are frequently carried out after an asbestos incident in unoccupied rooms and no

[25] Fibrous Materials in the Environment Institute for Environment and Health. P71
[26] High Court QBD Liverpool District. The Hon Mr Justice Nicol . Dianne Willmore and Knowsley Metropolitan Borough Council 24 July 2009 Para 8, 57b
[27] Quantification of risk for staff and children at Cwmcarn School. Mr R.Howie. Robin Howie Associates. 30 Nov 2012
[28] WATCH final position statement on Asbestos risk assessment February 2011
[29] Lees personal correspondence 14 Jun 2013

disturbance, or unrepresentative disturbance, is carried out to simulate normal activity. Predictably the levels are very low and yet, on the basis of the tests, assurances are given that the levels are beneath 0.01f/ml and staff and pupils are allowed to reoccupy the rooms. This is a dangerous misuse of a workplace level as it gives a false assurance that the room is safe when there is no scientific basis to claim it is. Despite this Reassurance testing is routinely used in schools and unjustified assurances given that there is little or no risk.

For example, in October 2012 a school was closed when damaged AIB panels were identified in the classrooms with widespread AIB debris in the ceiling void. Sampling found raised fibre levels and amosite fibres were identified by swab tests in classrooms and the stair well. The classroom warm air cabinet heaters were also emitting fibres.

Air sampling was carried out by HSL. The tests carried out in four classrooms showed that when disturbance was carried out amosite fibres were released from the heaters. The tests were analysed by an electronic microscope and two of the levels were above the Limit of Quantification at 0.0017f/ml and 0.0043 f/ml. [30] That equates to between 1,700 and 4,300 amosite fibres in every cubic metre of air. A person inhales about twenty cubic metres of air a day and therefore any occupants of the classrooms would inhale up to 7,000 amosite fibres during the two hours of sampling. Previous tests in similar heaters had also shown that amosite fibres can be released from this type of heaters. [31] It is a reasonable assumption that the releases could be frequent and cumulatively significant.

HSE advised the Council that they considered "*The risks to health at CHS to be low as none of the air samples were in excess of the clearance indicator level of 0.01f/ml*."[32] (This is not strictly true as previous air sampling had recorded levels of 0.03- 0.07 f/ml.)[33] Also a lay person might gain the impression from the HSE statement that there is little concern about the risks to the occupants of the rooms if the level is beneath 0.01f/ml – which would be incorrect. In addition there is no indication that in making their statement that HSE had considered the extra risks to children.

This unjustified assurance about the risks was then compounded when a senior HSE director gave evidence to the Education Select Committee that *"We did electron microscopy in that school, and our advice to the local authority there is that it is perfectly safe to reopen that school because the actual levels, by that more sophisticated method, were at the limits of measurable quantification by a more sophisticated technique."*[34] He was factually incorrect as two of the levels were above the limit of quantification. Also his statement again reinforces the impression that because the levels were below the Clearance indicator that it was safe for staff and children to reoccupy the classrooms – which is wrong.

Asbestos exposures have occurred in schools from occasional peak exposures or more often from long term, low level exposures frequently caused by normal every day classroom activities. Following an incident or asbestos removal staff and pupils have been allowed to return to the classrooms when tests have shown the airborne fibre levels have been beneath the Clearance Indicator, even when asbestos fibres have been present. This is permitted by HSE guidance and the practice condoned by some of their statements. Therefore, because the levels have been beneath 0.01f/ml, those in authority have considered it was perfectly safe to reoccupy the rooms.

[30] HSL http://212.48.68.101/~cwmcarnh/index.php/document-downloads?task=document.viewdoc&id=18
[31] HSE Asbestos in warm air heating systems. (Revised) LAAIC/C 3/5 Health and Safety Commission Aug 1982. Letter HM Principal Inspector of Factories to Principal Architect CLASP ADP/SNC/03 23 Oct 1981
[32] Caerphilly Council Interim Report regarding Cwmcarn High School. 20 Nov 2012. Para 4.6 p 5.
[33] Santia Asbestos Investigation Report Cwmcarn High School 26 Oct 2012
[34] Education Select committee hearing. Asbestos in schools 13 Mar 2013 Q56.

There is a significant risk to adults at a cumulative exposure at or below the Clearance indicator, and the risk is far greater to children. An environmental limit should therefore be introduced for schools that is significantly lower than 0.01f/ml.

Proposals for an Environmental Limit and lower Control Limits.

The proposal that an environmental control level is introduced for the occupants of buildings is not new. In 1983 the Institute of Environmental Health Officers (IEHO) and the Association of Metropolitan Authorities (AMA) gave evidence to the Commons Select Committee on Employment that called for an "environmental" limit for those people where exposure to asbestos is incidental to their main occupation. The IEHO submission states that "*Such a limit is necessary to ensure reasonable protection for those people unaware of the presence of the material."* The AMA considered an environmental limit as "*The single most important measure required to provide the foundation on which environmental programmes can be based."* [35]

In 1979 the government's advisory committee on asbestos warned about the increased risk to children *"As children can be expected to live longer than adults they have more chance of being affected by carcinogens with long latent periods."*[36] The Department for Education considered the evidence and the proposals and in 1983 concluded that *"It may therefore be not unreasonable to suggest that in schools the levels should be lower than those for an "average" population and a factor of, say, 1/80th to 1/100th of the occupational limits should be adopted."* [37] The proposals have never been adopted in Britain. However the Netherlands will soon be adopting an Environmental Level.

The Netherlands presently have a Control Limit of 0.01f/ml, at ten times lower than the EU level of 0.1 f/ml at. However a 2010 report published by the Health Council of the Netherlands[38] considers that their present occupational levels are unsafe. They therefore propose an occupational exposure limit for amosite and crocidolite at 0.0003 f/ml, some 30 times less than their present level and 300 times less than the EU level. They also propose an Environmental level of 0.000003f/ml, some 3,000 times less than their present occupational level.[39] The proposals have been accepted by the Netherlands Ministry of Social Affairs and are scheduled to be implemented on 1st January 2014.[40]

In France from 1st July 2015 the Control Limit will also be reduced to 0.01f/ml, a tenth of the EU level.[41] However the environmental level inside buildings in France is already half that level at 0.005f/ml. The French Agency for Food, Environmental and Occupational Health and Safety ((ANSES) states *"Furthermore, regardless of the type of materials in place, the level of dust accumulation measured inside the buildings must not exceed the regulatory threshold of 5 fibres per litre (f/l)."*[42] (0.005f/ml)

The incidence of mesothelioma in Britain is the greatest in the world at 38.6 per million per annum and rising.[43] In the USA it has stabilised since 1999 at about 14 per million per annum,[44] in the Netherlands it is 30 per million per annum, in France 10-13 per million per annum.[45] In 1986 the USA

[35] DfEE AM on asbestos AB 20/17/02 D 2 Jun 1983
[36] Asbestos. Vol 1 Final report of the advisory committee. The risk to children. 1979 Para 112 P60
[37] DfEE AM on asbestos AB 20/17/02 D 2 Jun 1983
[38] Asbestos Risks of environmental and occupational exposure Health Council of the Netherlands 3 June 2010 para 3.4
[39] Asbestos Risks of environmental and occupational exposure Health Council of the Netherlands 3 June 2010 para 8.2 P83
[40] Letter The Minister of Social Affairs and Employment L.F. Asscher Ref 2013Z05228 10 Apr 2013
Professor Burdorf/Lees personal correspondence 10 Jun 2013
[41] Article R.4412-100 of the French Labour Code, Ministerial Order 2012-639 dated 4 May 2012.
[42] ANSES. Asbestos. Presentation, health effects, exposure and regulatory framework. Updated 4 Apr 2013
[43] HSE Mesothelioma Statistics Rates MESO04 2010
[44] Malignant Mesothelioma Mortality --- United States, 1999—2005. KM Bang, PhD, JM Mazurek, MD, E Storey, MD, MD Attfield, PhD, PL Schleiff, MS, JM Wood, MS, Div of Respiratory Disease Studies, JT Wassell, PhD, Div of Safety Research, National Institute for Occupational Safety and Health, CDC.
[45] Malignant Mesothelioma: Global Incidence.and Relationship with Asbestos. Claudio BIANCHI* and Tommaso BIANCHI Industrial Health 2007, 45, 379–387 Nov 24 2006

acknowledged the increased vulnerability of children to asbestos and introduced stringent asbestos regulations for schools, [46] and in the Netherlands and France they either have, or intend, introducing environmental levels for buildings.

Now that the COC has confirmed that children are at a far greater risk from asbestos than adults, it is essential that the Government takes action to ensure the safety of staff and pupils in schools.

Recommendations

- It is recommended that an Environmental asbestos fibre level is introduced for schools.
- The proposal to introduce an environmental level for schools should be part of the Government review of asbestos policy for schools.
- The level must take into account the increased vulnerability of children to asbestos.
- The level should be significantly lower than the present Clearance Indicator.
- What level it should be set at, and the means of measuring it, should be decided by an expert panel.

Asbestos in Schools Group
Joint Union Asbestos Committee
14th June 2013

[46] American Academy of Pediatrics Asbestos Exposure in schools. Peadiatrics Vol 79 no 2 Feb 87 p304. US Asbestos Hazard Emergency Response act (AHERA) 1986. EPA Asbestos in schools Rule (40 CFR Part 763 subpart E)