

Written evidence from the Health and Safety Executive (HSE) (ASB00260)

1. What are the current risks posed by asbestos in the workplace? Which groups of workers are most at risk?

Workers most at risk of asbestos exposure are those working directly with asbestos-containing materials (ACMs). When asbestos fibres are inhaled, they can cause serious diseases, including mesothelioma, an aggressive cancer principally of the external pleural lining, and the lining of the lower digestive tract, other lung cancers, and asbestosis. There is a latency period typically of at least 20 years between exposure to asbestos fibres and asbestos related disease appearing, in many cases more than 35 years. The health risks are also dose related – work that disturbs or damages ACMs, such as drilling into asbestos insulation board can generate short term high concentrations of asbestos fibres in the air. This can potentially be orders of magnitude above environmental levels. These fibres are then in the breathing zone of the workers involved in that work, leading to an increased likelihood of inhalation and subsequent disease. Those most at risk from asbestos fibres today are trades people who may unknowingly and repeatedly disturb ACMs and inhale fibres in this way.

The extent of the current risks posed by asbestos in the workplace (i.e. the future likelihood of asbestos-related disease because of current working conditions) must be assessed in the context of the available evidence about the risks arising from past industrial conditions. Specifically, the impact that the ban on asbestos in the 1980s and the progressive strengthening of controls on working with or managing existing ACMs, have had on these conditions over time.

The mesothelioma case-control study [1], confirmed that ‘end-users’ of asbestos products in the construction industry (e.g. building trades, such as carpenters, electricians, and plumbers) prior to 1980 now have particularly high risks of mesothelioma [2]. The building material, Asbestos Insulating Board (AIB), containing amosite (brown) asbestos were widely installed during this period. Exposure to amosite and crocidolite (blue) asbestos have a recognised higher risk of causing asbestos related diseases than other ACMs. The UK is known to have imported significantly more amosite than other countries until importation of amosite into the UK was banned in 1980. **See Annex 1 & 2.**

Occupational and domestic exposures in the 1970s and 1980s through building and trades work, does not fully explain the extent of current cases of mesotheliomas, particularly among women. However, it is likely that many of these cases are as a result of an increase in ambient exposures to the general population that coincided with these widespread occupational exposures. Those past occupational exposures have since reduced.

This is consistent with the reporting patterns on death certificates from the national mesothelioma mortality data [3]. The last occupation of the deceased, recorded for men, who had died of mesothelioma was at a much higher frequency for jobs associated with past exposure in building work. There was no clear pattern for the last occupation of women recorded, who had died of mesothelioma, and these deaths are less likely to reflect the direct handling of asbestos products at work but are more likely the result of past ambient exposures.

The risk of exposure to asbestos in the workplace has changed over time leading to different exposure profiles for different age groups. The peak use of asbestos in the UK was in the 1960s reducing until the final complete asbestos ban in 1999. The trend in national mesothelioma rates for specific age groups and periods of birth correlate with the pattern of asbestos use. While the overall mesothelioma death rate has been broadly constant during the last 10 years at a peak of around 68 per million per year in men, rates in those aged below 70 has been falling since before 2010. Death rates (up to any given age) were highest for those born in the early 1940s (this cohort would have started work during the period of peak use in the 1960s) but have reduced substantially in those born more recently. For example, the male death rate at age 55-59 years

was 90 per million per year in those born in 1940-44 compared with 18 per million per year in those born in 1960-64. Few mesothelioma related deaths occur below age 40, so we will not be able to determine the rates for those born after 1980 until further time has elapsed. At this point we would anticipate a complete reflection of the impact of the current control regime on exposure.

The key research document covering more recent exposure to asbestos is the Inhaled Particles Study (aka Lung Burden study [4]) published in 2018. This study examined the lung content of individuals without asbestos-related disease. Its findings corroborated the downward trend seen in the national mesothelioma deaths data. The study found a significant reduction in asbestos exposure risks for men and women who have been working after the period of peak asbestos (**See Annex 3** for details). These substantial reductions in lung burdens were observed in both the known high-risk occupations and among those who were less likely to have been exposed through the direct handling of asbestos at work. For example, for men born in the period 1940-54, the asbestos lung content ('the lung burden') was very high for men who had worked as carpenters (154 fibres/mg) and as plumbers, electricians or painters (88 fibres/mg) during the period of peak asbestos use (those born 1940-54). In contrast men born later (1975-84) had substantially lower asbestos lung content (1.7 fibres/mg for carpenters and 9.1 fibres/mg for plumbers, electricians and painters). However asbestos exposures in jobs that can disturb asbestos materials (e.g. maintenance trades that disrupt the fabric of buildings and refurbishment work), were still about 10 times higher than the average risk across all other low risk jobs.

These results constitute the best available estimates of recent asbestos exposures (those accrued by about 2005, the average date when lung samples were taken) that are representative of the GB population. We do not have more recent evidence of exposure levels because of the challenges of obtaining lung material from the youngest individuals. The duty to manage asbestos was introduced in 2002 which we anticipate will have controlled exposure risks further as it directly tackles the issue of ACM disturbance by those most likely to come across them (Q2 refers).

HSE has also recently examined the exposure risks of licensed asbestos contractors - the group of workers responsible for asbestos removal. This research conducted between 2016 – 2019 (due to be published shortly) found that, even with good control techniques, airborne asbestos fibre is still generated during removal. The worker exposure can be reduced below the control limit in CAR, with suitable respiratory protective equipment (RPE), but the study suggests further research is needed to understand asbestos worker exposure.

References:

1. Peto J, Hodgson JT, Matthews FE et al. Continuing increase in mesothelioma mortality in Britain. *Lancet*. 1995 Mar 4;345(8949):535-9.
2. Rake C, Gilham C, Hatch J et al. Occupational, domestic and environmental mesothelioma risks in the British population: a case-control study. *Br J Cancer*. 2009 Apr 7;100(7):1175-83.
3. Health and Safety Executive. Mesothelioma mortality by occupation statistics in Great Britain, 2021 <https://www.hse.gov.uk/statistics/causdis/mesothelioma/mesothelioma-mortality-by-occupation.pdf>
4. Gilham C, Rake C, Hodgson J et al. Past and current asbestos exposure and future mesothelioma risks in Britain: The Inhaled Particles Study (TIPS). *International Journal of Epidemiology* 2018;47(6):1745-1756.
5. Personal Monitoring Benchmark Data; Asbestos Control and Abatement Division, July 2018; [ACAD-PM-Reference-values-July-2018.pdf](https://www.tica-acad.co.uk/ACAD-PM-Reference-values-July-2018.pdf) ([tica-acad.co.uk](https://www.tica-acad.co.uk))

Q2. How effective is the current legislative and regulatory framework for the management of asbestos?

Regulatory framework

The risks of asbestos exposure through work-related activities in non-domestic premises in Great Britain is regulated effectively through a comprehensive legislative framework. This legislation is owned by the Health and Safety Executive and enforced by HSE and local authority environmental health according to which regulator has the vires for the premises. Disposal of asbestos waste and other non-domestic circumstances, such as social housing, are handled by the Environment Agency and the Ministry of Housing, Communities and Local Government (MHCLG) respectively.

The overarching legislative workplace health and safety framework is provided by the Health and Safety at Work etc Act (HSWA) 1974.

All work-related activity with asbestos is covered, more specifically, by provisions within the Control of Asbestos Regulations 2012 (CAR first introduced into law in 2002). This is the principal piece of legislation that ensures that all asbestos within a non-domestic premise is identified and safely managed by dutyholders.

Specifically, Regulation 4 of CAR is central to GB's regulatory approach¹. This regulation sets out the 'duty to manage'. This duty requires everyone who is in control of non-domestic premises to identify, assess and manage any asbestos on site. This duty helps tackle both the cause of most of the asbestos exposure in the workplace – disturbance of ACM during repair, maintenance and refurbishment - and the need to progressively deal with legacy asbestos in non-domestic premises. The purpose of the duty is to actively manage asbestos ahead of work activities in non-domestic premises that might give rise to exposure. HSE's publication L143 '*Managing and working with asbestos*' supported by guidance on HSE's website provides all dutyholders with information on how to comply with this duty.

The duty to manage requires that a dutyholder assesses whether asbestos is present, what condition it's in and whether it gives rise to a risk of exposure. The dutyholder must then draw up a plan to manage the risk associated with asbestos which must include removal of the asbestos if it cannot be safely managed in situ. Each dutyholder must take effective steps to inform any building maintenance workers where asbestos is and ensure they do not accidentally disturb it. The steps taken to safely manage asbestos across GB non-domestic premises are in proportion to the risk associated with the condition of the ACM. Removal of ACM is to be actively considered if the risks associated with removal are outweighed by the risks associated with the ACM remaining in place, or if the lifecycle of the building gives rise to an opportunity to deal with the asbestos risk - e.g. during refurbishment/demolition. In this way, ACMs are removed in a phased way across non-domestic premises.

CAR also contains a rigorous approach to exposure control limits for those involved in asbestos work-related activity, which is intended to drive dutyholders to continuously improve standards and controls. While the regulations set a maximum exposure limit of 0.1 fibres/ml, this is not regarded as being a 'safe' level which if reached is satisfactory; dutyholders must continue to ensure that exposure is below the limit and then as low as reasonably practicable (ALARP). The employer must do sufficient air testing during work to satisfy themselves that exposures are being minimised.

HSE licenses high-risk categories of asbestos work to ensure that more stringent safety requirements are placed on dutyholders most likely to expose their workers to risk.

¹ Northern Ireland has its own set of identical Regulations - [The Control of Asbestos Regulations \(Northern Ireland\) 2012 \(legislation.gov.uk\)](https://www.legislation.gov.uk)

The framework for controlling asbestos has evolved over time; the more recent regulatory changes were made in 1987, 1999, 2002, 2006 and 2012. Over successive iterations of CAR new duties have been added. These duties have been added after public consultation and consideration of any research or evidence to ensure that the framework remains grounded in the best available science.

Details on HSE's enforcing responsibilities for asbestos related work and the roles of other regulators, such as Local Authorities, are found on [the HSE website](#).

Stakeholder views

Dutyholder views of the effectiveness of the asbestos regulatory framework gathered through the 2017 post implementation review (PIR) of CAR were positive. The PIR was the most recent large-scale assessment of whether the regulations had achieved their purpose. The responses recognised the effectiveness of the Regulations in keeping workers and others safe from the risks of exposure to asbestos. Dutyholders stated that the regulations minimised the risks to workers, set clear standards and requirements for the controls that needed to be in place, raised awareness of the risks and provided an assurance to those working with asbestos that they are controlling the risks effectively. There were some requests for more to be done to explain some elements of Regulation 4 (Duty to Manage) to the wider small business audience and clearer guidance on plans for licensed work.

HSE is carrying out a second PIR of CAR at present. We have already collected the views from over 1,800 respondents, including from worker representative groups. These views are currently being analysed and the final report will be published in 2022.

Regulatory activity

HSE and local authorities undertake a range of regulatory activities to promote compliance with the regulatory framework. All regulatory activity is underpinned by the principles found in HSE's Enforcement Policy Statement (EPS). The EPS aligns with the better regulation framework of being transparent, accountable, proportionate, consistent and targeted. HSE explains how we plan and carry out our regulatory functions on our [website](#), including what regulatory resource we will allocate to achieve our objectives.

Our annual regulatory objectives are derived from HSE's commitment to tackle causes of serious ill health as part of securing effective management of risk. HSE's objectives for asbestos regulatory activity cover inspection, investigation, enforcement and licence assessment. The licensing process set out in CAR 2012 allows HSE to regularly confirm that licensed dutyholders are fit to continue operation. HSE have made the strategic decision to target our operational resources at highest risk work activities through license reviews and inspections of licensed contractors

In our [2021/22 workplan](#) we state that we will '*... evaluate all licence applications and carry out a proportionate inspection programme of notified licensed asbestos removal work to ensure compliance.*' Our 2021/22 licensing objectives are a continuation of HSE's ongoing activity in this area in recent years i.e. the numbers of inspections of licensed asbestos companies and the time taken to assess asbestos licenses. The 2019/20 report on [HSE's activities](#) indicated that a programme of 900 inspections of licensed contractors had been completed and that HSE had hit its target of assessing 90% of licence applications within the time limit. More information on HSE's licensing work can be found in the response to Question 7.

Annually, HSE Inspectors will also deal with asbestos where it arises as a matter of evident concern – often related to the duty to manage - during any site intervention. Our operational procedures require inspectors to take regulatory action if they observe

conditions on site that they believe give rise to risk to health or if they feel that a dutyholder's safety management is inadequate. HSE's Enforcement Management Model (EMM) gives a framework to inspectors taking enforcement action. Under the EMM, asbestos is defined as a 'Serious' health risk (the highest level possible) which means that HSE inspectors are more likely to take enforcement action if shortcomings are identified. Full details of HSE's enforcement approach on asbestos are published on the HSE website. HSE tracks the numbers of enforcement notices served and prosecutions taken in relation to asbestos. These are not used to monitor the effectiveness of the regulatory framework as enforcement action is reactive in nature, however we are in the process of analysing enforcement notices to help identify trends and possible future intervention strategies. Details of recent enforcement activity is found in **Annex 4**

HSE has over the years targeted interventions on asbestos at particular industry sectors and we intend to do so in the future. For example, during 2021/22, HSE will be raising duty to manage during farm inspection work where there is evidence that asbestos may not be being managed appropriately. HSE also wants to do more to tackle the known issue of poor communication of survey information to contractors. We are exploring with the industry how Building Information Standards (BIM – see details in Q10) could be one of the pathways to improved asbestos risk communication.

There is scope for HSE to develop our approach to asbestos regulation in the future as we consider the impact of the new Building Safety Regulatory regime. This will require HSE to adjust our operational priorities to include assessing dutyholders' ability to hold and monitor asbestos risk information. The net zero agenda has also been identified as an area which could potentially give rise to increased exposure risk through the extensive refurbishment of buildings. HSE engages with other government departments such as the Department for Education to provide support as they enable effective management of asbestos in public buildings. HSE's regulatory approach will continue to evolve so that it supports the UK economy move to net zero over the next decade and the introduction of the new building safety duties.

Q3. How does HSE's approach to managing asbestos compare to the approach taken in other countries? Are there lessons that the UK could learn from best practice elsewhere?

The UK has its own asbestos exposure risk profile arising from historic patterns of importing, manufacture and usage – for example UK imports of amosite (brown) asbestos during the 1960s and 70 exceeded all other EU countries primarily to manufacture fire resistant asbestos insulating board (AIB) - see **Annexes 1 & 2**. Our national asbestos risk profile directed how our regulatory regime evolved and should be considered when making comparisons to other countries.

There are a number of common challenges that regulatory regimes in all countries need to address in order to have an effective framework to manage asbestos risk. Broadly, these cover understanding where asbestos is present in buildings, what condition it is in and how vulnerable to damage it is, coupled with ensuring dutyholders' understanding and awareness of exposure prevention and asbestos removal.

The approach taken by different countries in addressing these challenges varies. EU member states implemented the same framework asbestos directive, which focused on the risk to building maintenance workers rather than routine occupancy. Consequently, how the legal framework then developed within EU member states (which at the time included the UK) depended on country specific factors, such as the pre-existing domestic framework for occupational health and safety regulation within the country.

The requirements set out in the regulatory framework in GB are similar to a number of other countries in relation to inspection, record keeping, testing and disposal. For example, Belgium, the US and Germany all require proactive management, inspection and air monitoring to provide assurance during and after asbestos removal.

France also has similar requirements for inspection, record keeping and disposal. However, since 2011, France has an additional requirement to carry out air sampling at least every 3 years, in all buildings, except domestic premises, containing higher risk materials such as sprayed asbestos and insulation. France also has a national environmental limit for asbestos (in buildings in the absence of work) set out in the public health code from the Ministry of Health. The results of the 3 yearly air sampling are compared against this limit. Our understanding is that this approach is used to act as an early warning that higher risk ACMs may be deteriorating and to provide reassurance that no one using a building has been exposed to asbestos.

HSE recognises that air sampling can play an important role in safe management of asbestos – for example static sampling is a fundamental component of clearance procedures after licensed removal work to ensure that any remaining non-visible residual surface dust will not give rise to elevated fibre concentrations during future activities such as cleaning and maintenance work when the area is re-occupied (see para 416 of L143 '*Managing and working with asbestos*').

HSE is concerned that there may be several drawbacks to the French approach to air sampling. The monitoring equipment used by France does not provide a real-time continuous record of peaks and troughs. The results obtained only relate to the concentration of fibres found during a specific time window – it does not give ongoing assurance that asbestos risks are being managed. Monitoring for fibres in an air sample is also a lagging indicator – something has failed leading to exposure before action is taken. With an issue such as asbestos management, HSE's preference is for proactive management of the situation.

It is also known that airborne asbestos fibres resulting from physical damage decrease and settle by 50% after 10 minutes and by 90% after 60 minutes. Consequently, there is little value in undertaking ambient air monitoring in buildings, unless it is combined with appropriate simulated dust disturbance activities. Where damage to ACMs is suspected simulated disturbance is not recommended as it could potentially lead to inadvertent spread of asbestos. Finally, HSE notes that a triennial asbestos sampling exercise could give rise to complacency about onsite risk due to an over-reliance on receiving a clear report.

Currently HSE's view is that we have no evidence that the approach taken in France offers additional benefits to the approach in GB where we require regular visual inspection of the condition of asbestos in buildings by a competent person based upon a management plan. The key determinate of whether fibres are released is the physical condition of ACMs which can be assessed through visual examination as part of a management plan. Sampling of the air beneath an otherwise intact, sealed ACM is of very limited value and does not inform risk-based decision making.

In addition to the requirement for triennial air monitoring, France now uses Transmission Electron Microscopy (TEM) routinely for asbestos work. In GB, HSE requires the World Health Organisation (WHO) Phase Contrast Microscopy (PCM) method for asbestos fibre measurement. This is also the method specified in the EU Directive. There is a difference in what the two methods (TEM and PCM) can measure, this is due to (a) the higher magnification achieved by TEM (x5000 to x20000 compared to x500 for PCM) and (b) the fact that TEM incorporates further analysis to determine the composition and therefore type of fibre. PCM measures fibres greater than 0.2 microns in diameter and counts all fibres – including any asbestos fibres – present within the sample. TEM methods can

measure fibres as thin as 0.03 microns in diameter providing a method to measure asbestos fibre numbers. However, the data provided by PCM analysis allows dutyholders to make positive decisions about risk prevention (eg as part of clearance testing after asbestos removal) and enables them to take any appropriate action. A more detailed discussion about the merits of analytical techniques can be found in the response to Question 6.

France has also adopted an environmental limit several orders of magnitude lower than the EU directive occupational exposure limit. Assessing compliance with the limit requires careful interpretation and may again lead to complacency if relied on at the expense of visual inspection.

HSE's view is that while there is an occupational exposure limit for those working with asbestos, this does not represent a safe threshold. GB law requires exposure to be reduced to a level as low as reasonably practicable (ALARP). This coupled with the duty to manage remains the most effective approach for proactively addressing asbestos related risk.

Countries, such as Poland, have programmes to remove asbestos from buildings. These programmes largely cover removal of asbestos cement roofs which are easy to remove and replace as they are external to the building and low risk. The risk profile of this type of asbestos is significantly different to what is found in many GB buildings. Where the amount and type of asbestos presents a lower risk, such as in Poland, removal on a national scale is feasible. However, HSE does not mandate removal of all ACMs in GB as the act of removal is a dangerous task and would expose those workers to this significantly increased risk. If GB were to embark on a similar large-scale removal programme, careful consideration needs to be given to the balance between the risks of exposure that arise from removal against the risk associated with leaving in situ. More information is needed about the quantity, distribution and type of asbestos present in GB buildings, the availability of skilled asbestos removers, and the impact on the asbestos waste handling chain.

HSE remains of the view that if asbestos can be safely and actively managed in situ, it is preferable to leave it in place. Where it cannot be safely managed then it must be removed. In GB, many businesses choose to, and are required to do, as part of planned refurbishment work. In this way, it is removed in a phased way across non-domestic premises in GB. This is why there is a very active asbestos removal industry in GB, driven in part by the duty to manage legislation which is risk based.

HSE is aware that technology in this area continues to develop and we remain committed to maintaining links with other countries so that we can keep abreast of latest developments and, where appropriate, research how they could be of benefit to GB circumstances

4. How does HSE measure and report its progress in mitigating the risks of asbestos?

Under HSWA and CAR, the responsibility to mitigate risks from asbestos lies with the dutyholders who own or manage asbestos or who work with asbestos. HSE's role is to act as an independent regulator of dutyholders managing those risks. We also work with other regulators who have related responsibilities such as those regulators who deal with nuclear, transport and local authority enforced sites and the control of waste with the

Environment Agency and equivalent devolved administration functions.

As the regulator, HSE measures and reports on the progress of enforcement and regulatory activities (see Q7). HSE also monitors data and international research, and commissions its own research, to review and track the impact of asbestos on workplaces and to identify any new approaches which might benefit dutyholders in managing the risks. Examples of these include:

- **HSE's National Statistics on the burden of asbestos-related disease (Annual – 2 years in arrears)** - These are a long running series of detailed statistics in relation to national mesothelioma deaths (beginning in the late 1960s) and projections of future annual deaths. They also contain statistics or estimates relating to other asbestos-related diseases including asbestosis and lung cancer. These are published annually as National Statistics on the HSE website. This information generally relates to historic exposures and does not inform current risk estimates.
- **Epidemiological research** about the exposure risk of past sources of asbestos and how these have changed over time. This research has been published in international journals (Q1 refers).
- **HSE monitors the health of licensed asbestos removal workers** - Since the early 1970s HSE has assessed and published the long-term mortality and cancer outcomes of asbestos removal workers in GB doing licensed work. This research is a long-term study (most recent report in 2010) which informs about past risk and the impact on these workers – it confirmed that asbestos workers have a considerably higher mortality rate than the GB population. HSE uses the insights from this research to inform understanding about present risks in terms of the relationship between asbestos exposure and disease [[RR805](#)].
- **HSE conducts research activities on the control of asbestos exposure levels** - HSE has conducted extensive, research on the exposure risk of asbestos and effective mitigation measures. This is wide and varied but examples include: research from 2012 into the risks of airborne exposures of fibres to workers; the effectiveness of personal protective equipment in preventing exposure; the impact of improved asbestos removal techniques in reducing asbestos fibre generation; the design and ventilation of asbestos enclosures; 2014 review of analysts' work in monitoring for asbestos. HSE uses the evidence from this research to refine and improve our work as a regulator and in maintaining our understanding of the risks.
- **HSE commissions independent research to inform its understanding of dutyholder compliance** - HSE commissioned independent research by the Institute of Employment Studies and Loughborough University. This was published in 2011. It aimed to establish levels of compliance amongst dutyholders with the duty manage requirement under CAR. This work also assessed the extent to which compliance brought about improved work practices among maintenance workers including barriers to compliance. The maintenance workers reported that duty to manage had improved communications to them, about asbestos matters, particularly in non-domestic premises. There were some negative findings from some respondents relating to difficulties in recording actions and ensuring ACMs were being monitored effectively. Sometimes practical arrangements made compliance difficult – eg access to tenanted properties. Overall the research indicated that understanding had, and was, continuing to improve [[RR783](#)].
- **Post Implementation Reviews (PIRs)** – HSE conducts Post Implementation Reviews (PIR's) of its regulations. See Q2 for information about the CAR 2012 PIR which was completed and published in 2017.

5. Does HSE keep adequate records of asbestos in public buildings?

The legal duty set out in CAR 2012, to identify asbestos and record the location of asbestos in buildings lies with those in ultimate control of maintenance of each building. This duty does not rest with HSE.

The best determinant as to whether any building is liable to contain asbestos is the date of construction. All HSE's guidance stresses that any building constructed prior to 2000 is highly likely to have asbestos within it. This means the relevant legal requirements set out in CAR 2012 must be met by each individual duty holder in control of any non-domestic building. The duty to manage in CAR 2012 requires that the person in control of a non-domestic premises (whether public or not) identifies and records the type, location and condition of ACMs present and takes action to manage the resulting risks and keeps the record up to date.

Dutyholders are also required to have a system to *proactively ensure* this information is made available to, for example, contractors who may disturb ACMs during work. This ensures that records of asbestos in non-domestic buildings (public or otherwise) are current, dynamic and shared in a timely way with people who need them most in the course of their work.

HSE operational staff may request to see records of asbestos inspections and action plans as part of their regulatory activities such as investigating a concern or because they have identified a matter of evident concern relating to asbestos. Any records that HSE staff acquired would be kept in line with HSE's policies on information retention.

6. Is HSE making best use of available technology and systems to monitor the safety of asbestos which remains in buildings?

HSE monitors and is actively involved with research and development on asbestos both domestically and internationally. HSE will assess new innovations on managing risks associated with asbestos and where appropriate support, promote and occasionally mandate their implementation. The detail below is a sample of HSE's work and, where relevant, findings relating to the management and monitoring of asbestos in buildings.

International Standards Organisation (ISO) Technical Committees

These committees develop new International Standards for measurement of asbestos. HSE represents GB on Technical Committee 146 (air quality), a standing committee which has developed standards for measurement of airborne asbestos fibres (PCM, SEM (Scanning Electron Microscopy) and TEM) and in the identification and quantification of asbestos in bulk materials by optical microscopy and electron microscopy. HSE contributes to the work of two sub-committees:

- Standards for workplace atmospheres – these become the occupational hygiene standards used in workplace compliance and monitoring,
- Standards for ambient atmospheres – these become the limit values for 'background' levels of asbestos.

Monitoring of New Technology

HSE are regularly approached by developers of new technology and novel techniques for the measurement of asbestos fibres. For example, over the last 10 years:

- HSE investigated the efficacy of the Japanese method for asbestos fibre counting using fluorescent markers and ultra-violet light microscopy. This would allow rapid, relatively inexpensive discrimination of airborne asbestos and non-asbestos fibres, without the need for expensive electron microscopy.
- HSE facilitated trials of the on-going development of direct reading instruments to measure airborne asbestos concentrations. These devices aim to be able to detect respirable fibres and discriminate between asbestos and non-asbestos fibres in air instantly without the need for a trained analyst using a microscope potentially increasing the speed and ease of atmospheric analysis.
- HSE engaged with the developer of a hand-held direct reading instrument for the instant identification of asbestos-containing materials (ACMs) in situ without having to take a physical sample.

To date, HSE has not found sufficient evidence to recommend using these techniques instead of current measurement methods such as PCM.

Monitoring of asbestos that remains in buildings via the duty to manage

The 'duty to manage' asbestos in CAR requires the active management of asbestos in buildings/premises (survey, development of management plan and proactive management of asbestos). Inaccessible asbestos in good condition e.g. sealed off, is managed in-situ and accessible asbestos in poor condition, must be remediated or removed. Regular 'condition' inspections ensure any change in asbestos condition is picked up and managed (refer to Q2).

Measurement of airborne asbestos fibres.

Refer to response to Question 3 for more information on measuring airborne asbestos fibres.

Asbestos measurement using Microscopy

Analysis of air and bulk samples of asbestos is carried out using microscopes. There are different types which offer different benefits. Phase Contrast Microscopy (PCM), uses light rather than electron beam and has practical advantages in the asbestos work environment. It is simpler, faster and inexpensive to buy, maintain and operate. It is also portable meaning it can be brought to site and speed analysis turnaround. Training and maintaining on-going operator competence are also significantly easier for PCM, compared with equivalent electron microscopy (EM) techniques. PCM is effective where a relatively simple analytical test is required and, as during asbestos work, predominantly asbestos fibres will likely be present. PCM is used for most asbestos analysis and is the WHO and EU recommended method. EM offers analytical advantages over PCM, with better resolution and the ability to determine fibre composition giving a much more complete picture of the fibres present. HSE guidance to analysts includes advice on the use of EM, identifies when EM is appropriate and refers to methods for electron microscopy.

Transmission electron microscopy (TEM), a type of EM, is used by HSE for research analysis alongside PCM. HSE are one of only two UK labs which have accreditation from the United Kingdom Accreditation Service (UKAS) for TEM use for asbestos. This type of equipment is rare in GB asbestos analytical laboratories. HSE is aware that France uses TEM as part of its arrangements for surveyors identifying remedial work on ACMs in premises (refer to response to Question 3). However, the process in France is based upon visual assessments of ACM condition which are performed every 3 years. Airborne fibre monitoring followed by TEM analysis is only required where visual damage/deterioration is identified and only on high-risk materials. In practice, airborne monitoring with TEM analysis is not carried out as a matter of routine in France.

Whilst TEM is a more sensitive technique and can identify a greater range of fibres, it is a much more expensive and a less practical technique with severely limited laboratories in GB able to offer this analysis. As referred to above, in relation to its use in measuring ambient airborne fibres, PCM provides a more cautious result by measuring all fibres present. PCM is an affordable, quick, practical method suitable for most work activities related to asbestos, there is a trained and competent workforce, a rigorous system of accreditation by UKAS and a system of consistency checking by a proficiency testing body.

HSE is also aware of the use of Scanning Electron Microscopy (SEM - another form of electron microscopy) in other European countries, namely The Netherlands, Germany, Switzerland and Austria. While SEM has greater sensitivity than PCM (i.e. can detect thinner fibres), and the ability to determine fibre composition, the ISO method used for SEM analysis stipulates that only fibres of diameter greater than 0.2 microns are counted, thus offering no benefit over PCM in this respect.

All the epidemiological research on risk of asbestos exposure relies on past PCM measurements. There is no clear relationship that allows conversion between PCM and Transmission Electron Microscopy (TEM) measurements. Any change in method would mean a discontinuity in the research. Recent HSE research (6), concluded that the relationship between results from PCM and EM techniques is complex, particularly at low asbestos concentrations.

Developing technologies

HSE is also aware of other innovations and novel uses for technologies relevant to this area and is monitoring their development: Examples include:

- Building Information Management (BIM) - part of the developing digital information standards for storing and sharing information about buildings, in this case asbestos (refer to our response to question 10).
- Development of Artificial Intelligence (AI) based devices for the counting of airborne asbestos fibres. We are aware of work already developed on assessing AI applications for microscopy in health service applications. HSE is considering its approach to this new technology, including the role of machine learning and the issues that level of constant adaption might present for validation and approval.
- Potential for use of QR codes for smartphones to read inside buildings and indicate where asbestos is, which may supplement the existing duty.

Environmental Monitoring

HSE does not regulate levels of indoor air contaminants in the absence of work processes or activities which generate hazardous substances. The Environment Agency (and devolved equivalents) regulate emissions from industrial processes with ambient air levels being the responsibility of the Department for Environment and Rural Affairs (DEFRA). Please also refer to Q3.

7. Does HSE commit adequate resources to asbestos management in line with the level of risk?

HSE targets its regulatory resources in line with risk and evidence, this ensures we are a proportionate regulator. In relation to asbestos, and on the basis of evidence, the workforce at greatest risk of asbestos exposure is involved in construction and related activities. However, we also recognise the asbestos legacy in many workplaces in GB and this is why we continue to promote the importance of the duty to manage (please see

Q10), both through our own communication channels and also through other relevant stakeholders, such as the Department for Education and the Government Construction Board (GCB).

The highest risk of asbestos exposure is associated with construction refurbishment and demolition and with the planned removal or remediation of asbestos (refer to Q1). HSE targets its activity both at the construction activity but also engages with stakeholders that have buildings where asbestos needs to be managed to ensure it is considered as part of any estates strategy or refurbishment plans. HSE regulatory interventions are therefore delivered through a variety of ways:

Asbestos Licensing

Every applicant for a licence goes through a rigorous assessment interview and review of the evidence of their ability to do the work safely prior to licensing. In the past five years, HSE has granted or renewed 1,086 licences but has also refused to grant a licence 149 times where there was not sufficient evidence to allow a business to work in this high-risk area. Once granted, HSE monitors the activities of these licensees. Every licensee is required to notify HSE and local authorities of their work activities and in the past five years there were 168,540 notifications of licensed work. In the same period, HSE visited and inspected 4,881 sites where work was notified to monitor that work is being carried out to the standards required.

Construction activity

Where property owners decide on refurbishment or demolition of their properties as part of their on-going management of buildings HSE will expect to see the risk of disturbing asbestos and removal included as part of the planning for that work. Construction workers who carry out refurbishment work (plumbers, electricians etc) have a recognised greater risk of exposure to asbestos. A significant proportion of HSE's reactive workload (complaints and incident investigation) concerns refurbishment and demolition where asbestos exposure is likely. Whenever structures which potentially contain asbestos are involved in our reactive regulatory work the management of asbestos risks is included in the inspection.

Where the risk from asbestos is not being correctly managed, at a construction site or elsewhere, HSE will take appropriate enforcement action in line with our Enforcement Management Model (EMM). In the past five years HSE has served 1,303 enforcement notices under the Control of Asbestos Regulations, 225 of those notices relate to the "duty to manage" asbestos – see Annex 4 for details.

Influencing Industry

HSE informs and influences relevant industries and sector approaches to asbestos management in a variety of ways.

The wider construction industry and client groups through trade and professional bodies, such as CONIAC, and the Asbestos Network are engaged with as it is those bodies that will be involved in the procurement and specification of building refurbishment and demolition, either directly or on behalf of property owners. More detail is given in the response to question 10.

In agriculture, asbestos usually involves the use of cladding and roofing materials for buildings. In this industry HSE continue to tackle compliance using a blend of education and then follow up inspection work. For example, HSE carried out a building maintenance campaign for farms in 2017/18 and the 'Duty to Manage' asbestos was a key part of this work. This ran alongside a coordinated media campaign involving press and social media, and direct engagement with the farm safety partnerships, using HSE guidance specifically aimed at farming.

In the education sector, HSE's works with interested and influential stakeholder groups (see Q10), as well as the Department for Education and the devolved nations, to raise awareness and improve both safety and health. Guidance for schools on asbestos management has been improved and inspections by HSE are undertaken to establish that schools are aware of their duties and taking appropriate action. As the evidence illustrates (refer to Q1), those working in the education sector are at a lower risk compared to those working in sectors such as construction. HSE continues to raise awareness of the importance of the 'duty to manage' through its strategic stakeholder engagement.

Safety case regime in major hazards

ACMs are likely to be present in the many offshore production installations that were commissioned in the 1970s and 1980s. Installation dismantling (onshore) requires a specific revision to the installation's safety case (SC) assessed by HSE. Dismantling cannot proceed until HSE accept the case and ACM management would be considered as part of HSE's assessment. For example, HSE's assessment of the dismantling SC for the NW Hutton installation began a year ahead of activity.

HSE recognises that several legacy or older offshore installations will also have ACMs within their structures with types ranging from the 'higher' risk materials such as insulation/coatings and AIB through to 'lower' risk materials such as gaskets. Some ACM's may have been exposed to the external environment and are subject to some deterioration or damage. Those carrying out licensed work, and individuals who are currently working on assets now entering decommissioning phases, are likely to be at a higher risk from asbestos. HSE's Energy Division (ED) are supplied with a licensed report which highlights the current licensed work ongoing within the offshore sector. ED then work with HSE's Asbestos Licensing Unit to carry out targeted inspection of licensed asbestos work. For decommissioning work, ED have engaged with the offshore sector to help develop and promote industry guidance such as the Energy Institute "Decommissioning Within The offshore UK Oil and Gas Industry: A Practical Guide to Worker Health Protection" and have recently played a part in the development of the ED Decommissioning community site which provides training and guidance on the risks of asbestos during decommissioning within industry.

ED routinely engages with stakeholders such as the Energy Institute and are also involved in the OGUK Health/Hygiene working group.

8. How robust is the available data about the risks and impact of asbestos in the workplace? What gaps in evidence need to be filled?

HSE's research is planned and prioritised in line with risk profiles for the work. This work is overseen by HSE's Chief Scientific Advisor. The evidence base for asbestos covers a range of key areas, as below.

Historic asbestos exposure

The research of the large-scale exposures of the past and the scale and extent of asbestos use, in the UK and internationally, provide a robust evidence base of the risk and impact of industrial activity, occupations, age groups and secondary exposures of that historic activity (Q1 refers). While current exposures and industrial activities have changed, that evidence provides a basis of the risk and controls today. Examples of that evidence are:

- That the uncontrolled breakage of asbestos insulation board (AIB, a common building material) generate a much greater number of fibres over keeping it intact.
- The particularly high risk now apparent in those who worked in certain jobs prior to 1980 – such as carpenters, electricians and plumbers – together with knowledge about the kinds of asbestos products they regularly worked with, provides a clear basis for prioritising regulatory activity, and requiring the strictest controls for those materials such as AIB (which typically containing amosite) over chrysotile asbestos (commonly used in asbestos cement roofs).

This past research informs current decision making about guidance, training and the risk-based approach to regulating current work.

Current asbestos exposures

The Inhaled Particles Study (known as the Lung Burden study [4] (Q1 refers) provides clear evidence that the levels of asbestos exposures have fallen since the peaks of asbestos usage. National mortality data shows that mesothelioma rates are much lower in population subgroups that started work after this period. The study was able to detect much lower concentrations in lung tissue than earlier work, but the analytical method was only just sensitive enough to provide estimates for those born in more recent periods who have the lowest lung burdens.

To compare past and current conditions HSE has also recently conducted research on the levels of asbestos fibre generated and exposure of the removal workforce during asbestos work using best practice removal techniques (refer to response to Q1 for details).

Asbestos legacy in buildings

Prior to 2004, the location of asbestos was not normally recorded during the construction and refurbishment of buildings. Given the extent to which asbestos was used in the UK during the 1960s and 1970s, it can be assumed that any building constructed before the year 2000, when asbestos use was banned altogether, will contain some asbestos.

Data on building age and numbers is relevant to establishing GB's asbestos risk profile. This can then be used to develop policy on waste disposal and the workforce and skills needed to address the asbestos risk. Estimates made in the late 1990s concluded that approximately 500,000 non-domestic buildings contained asbestos in GB. HSE is planning to use the forthcoming Ordnance Survey data on building age, when it becomes available in 2023, to refresh these estimates.

In response to the asbestos legacy issue in GB, HSE and the Government Office for Science held a stakeholder workshop in 2015 with a diverse range of stakeholders to consider the evidence on the management of asbestos in public buildings. Participants considered the current evidence and suggested gap areas for research. The top three areas for further research highlighted by the group were:

- Reviewing the evidence of the comparative risk of managing asbestos in situ versus removal.
- Assessing measurement techniques at lower fibre concentrations.
- Building the evidence base on the effectiveness of asbestos management and safe removal.

HSE's research capability has been restricted in the past year due to COVID meaning that progress has been limited. As indicated in the response to question 6, HSE is now progressing research in this area.

Alternative waste disposal

Asbestos removed from buildings needs to be safely disposed of as asbestos fibres do not degrade with time. The high cost of disposal into licensed waste sites and the finite

capacity for waste disposal, especially nuclear waste, has raised interest in the UK and internationally about the different treatments available to make asbestos inert once it is a waste product. This includes very high temperature treatment of asbestos waste to allow its safe reuse in road base or foundations. The large-scale effectiveness of these treatments is not yet established and work on its development continues.

9. Is HSE drawing on a wide body of international and national regulatory and industry expertise to inform its approach to the management of asbestos safety in buildings?

HSE continues to monitor international and national developments to ensure, where applicable, our regulatory approach remains fit for purpose. As set out in our response to Question 3, there are a number of common challenges that all regulatory regimes need to address in order to have an effective framework to manage asbestos risk.

Below are some specific examples of where HSE has used international and national work and research to inform its regulatory approach:

- **HSE worked with the DHSC's Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment** (2012). (<https://www.gov.uk/government/publications/relative-vulnerability-of-children-to-asbestos-compared-to-adults>) - HSE along with others contributed evidence to this work as part of considering what was known about risk to children at school. Since every child goes to school but it takes decades for disease to show it is virtually impossible to attribute the disease to either school or home or some other later source encountered at work as an adult. This Committee found that there is no greater physiological risk of a child developing mesothelioma compared to an adult. The suggestion that exposure to asbestos is likely to render children more vulnerable to developing mesothelioma than adults is purely based on the difference in life expectancy between children and adults and the time it can take for the disease to develop. The Office of the Government Chief Scientist has also considered asbestos issues on a number of occasions and scrutinised HSE's approach.
- **Measurement and identification of asbestos fibres**– Asbestos fibres must be measured and identified by UKAS accredited analytical organisations. HSE has recently revised its technical guidance ([HSG248 The Analysts Guide - 2021](#)) for these analytical laboratories and has worked closely with the industry and with UKAS (the UK's national accreditation body) to achieve this and ensure high standards are maintained by asbestos surveyors. HSE, UKAS and stakeholders work and consult together within the accreditation system.
- **International work to identify gaps in the asbestos evidence base (2015)**– As referred to in our response to Question 8, a workshop was held by HSE and the Government Office for Science which included international contributions from countries such as The Netherlands and Australia. The purpose of the workshop was to identify any gaps in the asbestos evidence base and work which could be undertaken to address this.

- **Involvement in international standards (Ongoing) – As referred to in our response to Question 6**, HSE is actively engaged in international work, including the development of International Standards for measurement of asbestos, and represents GB on ISO Technical Committee 146 (air quality). ISO standards are used by a range of practitioners and suppliers and HSE continues to monitor develops in this area to ensure any international changes are considered in any review of our own framework.

10. How effectively does HSE engage with external stakeholders and experts about its approach to the regulation of asbestos?

HSE engages with a variety of external stakeholders and experts in relation to its regulatory approach to asbestos.

HSE also has a wide and varied network of stakeholder groups from across those non-domestic premises most impacted by asbestos:

The Asbestos Network

The Asbestos Network, chaired by HSE, provides an asbestos specific forum through which HSE works with industry and professional bodies to ensure that work-related exposure to asbestos is prevented or minimised. The groups represented in the Network include: Trade Unions, professional accreditation bodies, trade associations (surveying, analysts, training, licensed asbestos removal) and other enforcement agencies (waste and local authority) and property management. The Network exchanges information and concerns on asbestos related topics and has working groups tackling specific topics eg -technical standards, the practical management of asbestos in buildings, asbestos analysts and surveying, and asbestos licensing.

The network allows HSE to communicate and consult with a wide range of industry groups. For example, in 2021 we used the network to promote the online survey for the PIR of CAR 2012.

CONIAC and CLC

As set out in our response to Question 1, evidence shows that those working in construction or related activities are at the greatest risk of exposure to asbestos. HSE chairs the construction industry advisory committee (CONIAC), which is made up of representation from Trade Unions, trade associations and professional bodies from across the construction industry. CONIAC's core aim is to stimulate action aimed at securing better health and safety outcomes in the construction industry. Asbestos is discussed at the Tackling Ill Health CONIAC working group. This group develops guidance and information intended to promote good practice in the industry.

In 2020 CONIAC agreed to become the lead occupational health and safety advisor to the Construction Leadership Council (CLC - the government backed body tasked with providing sector leadership for the industry). This has ensured that health and safety is considered at the heart of construction industrial policy. As a result of this involvement CONIAC members have already highlighted two aspects of CLC's proposals for the industry that have direct relevance to asbestos management- repair, Maintenance and Improvement (RMI) and Net Zero Carbon. The retrofitting work that these workstreams will entail potentially gives rise to considerable non-licensed work with asbestos. This is of concern to HSE and CONIAC due to the potential for increased accidental exposures.

As a result, CONIAC and the CLC are identifying strategies to deal with this possibility – Greening Our Existing Homes National retrofit strategy, A consultative document (v.2); Construction Leadership Council, May 2021. <https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/05/Construction-Leadership-Council-National-Retrofit-Strategy-Version-2.pdf>

Technical and Scientific Working Groups

HSE works with many domestic and international groups in relation to asbestos. In addition to those referred to in our responses to Question 6 and 8, HSE also works with:

- British Occupational Hygiene Society (BOHS) Faculty of Asbestos Assessment and Management (FAAM) is the professional home for practitioners who manage and assess asbestos, including surveyors, analysts as well as property and facilities managers, maintenance managers, health and safety consultants. Their 2020 conference included speakers from HSE, international experts and UK companies and included focus sessions on building surveys and new technologies.
- Federation of Decontamination Equipment Manufacturers (F-DEM), which provides a forum to advance standards and procedures in the supply, servicing and maintenance of equipment used to facilitate controlled asbestos removal.
- Partnership for European Research in Occupational Safety and Health (PEROSH). PEROSH is a federation of fourteen European occupational safety and health institutes. Recent initiatives include a new project for the harmonisation of exposure assessment for asbestos in the workplace.

Building Information Management (BIM)

Building Information Modelling (BIM) is the “use of a shared digital representation of a built asset to facilitate design, construction and operation processes to form a reliable basis for decisions”. HSE chairs the BIM4 Health and Safety working group made up of industry representation. It considers how health and safety information can be incorporated within the BIM framework. The group has been working to understand how asbestos information needs can be met using the new ISO 19650 Standard for managing information over the whole life cycle of a building. This HSE-led group has developed examples to demonstrate how digital Information Requirements can be cascaded from a Client and translate into both:

- Asset Information Requirements for any buildings which may contain asbestos,
- Project Information Requirements (PIRs) where a Construction Project may be affected by the presence of asbestos.

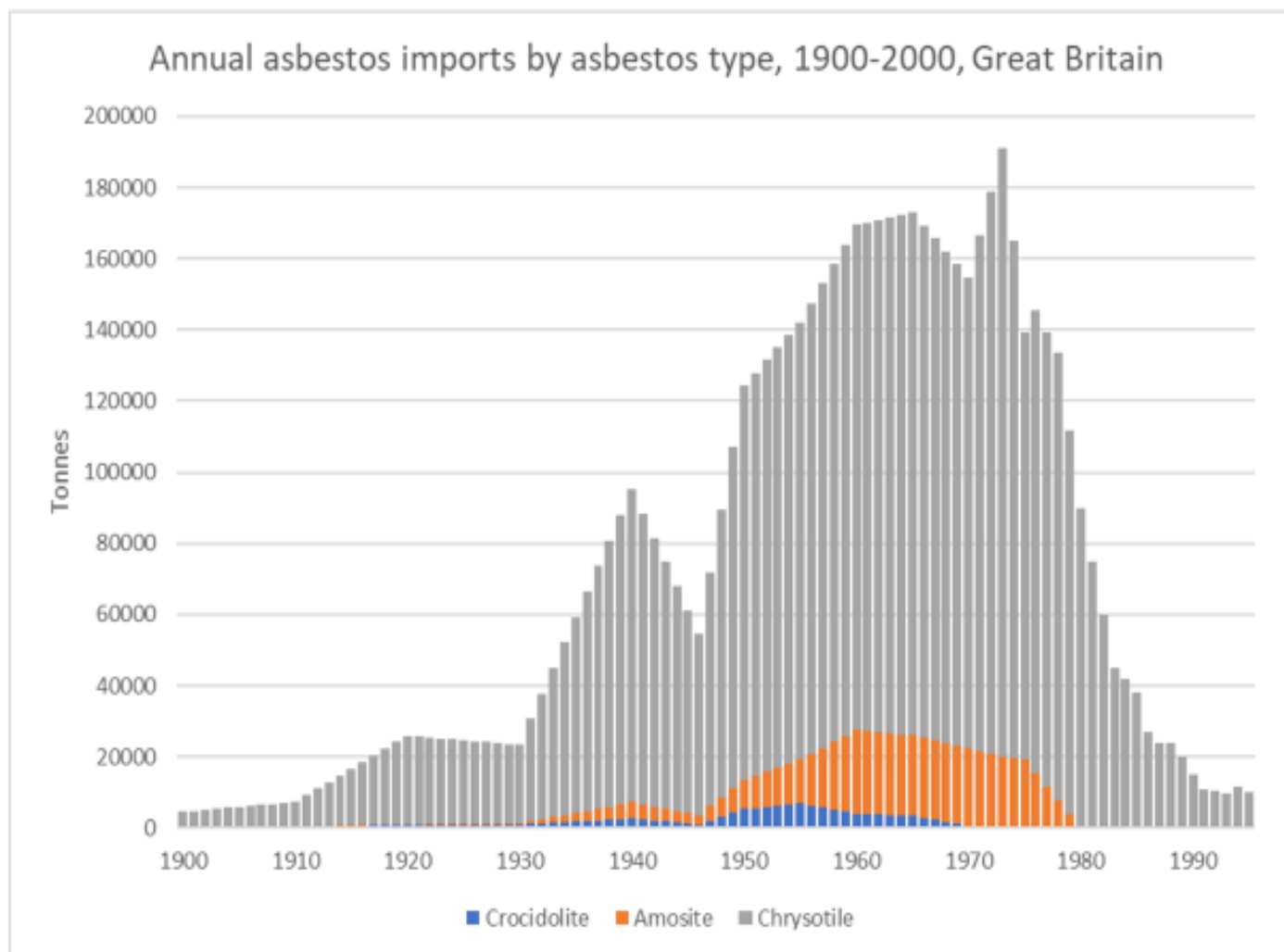
It is possible to define in detail the asbestos risk information needed and who should provide it. This will help to show how dutyholders can comply with health and safety legislation by understanding the presence, location and condition of asbestos, that may exist, in buildings and sites they own or control.

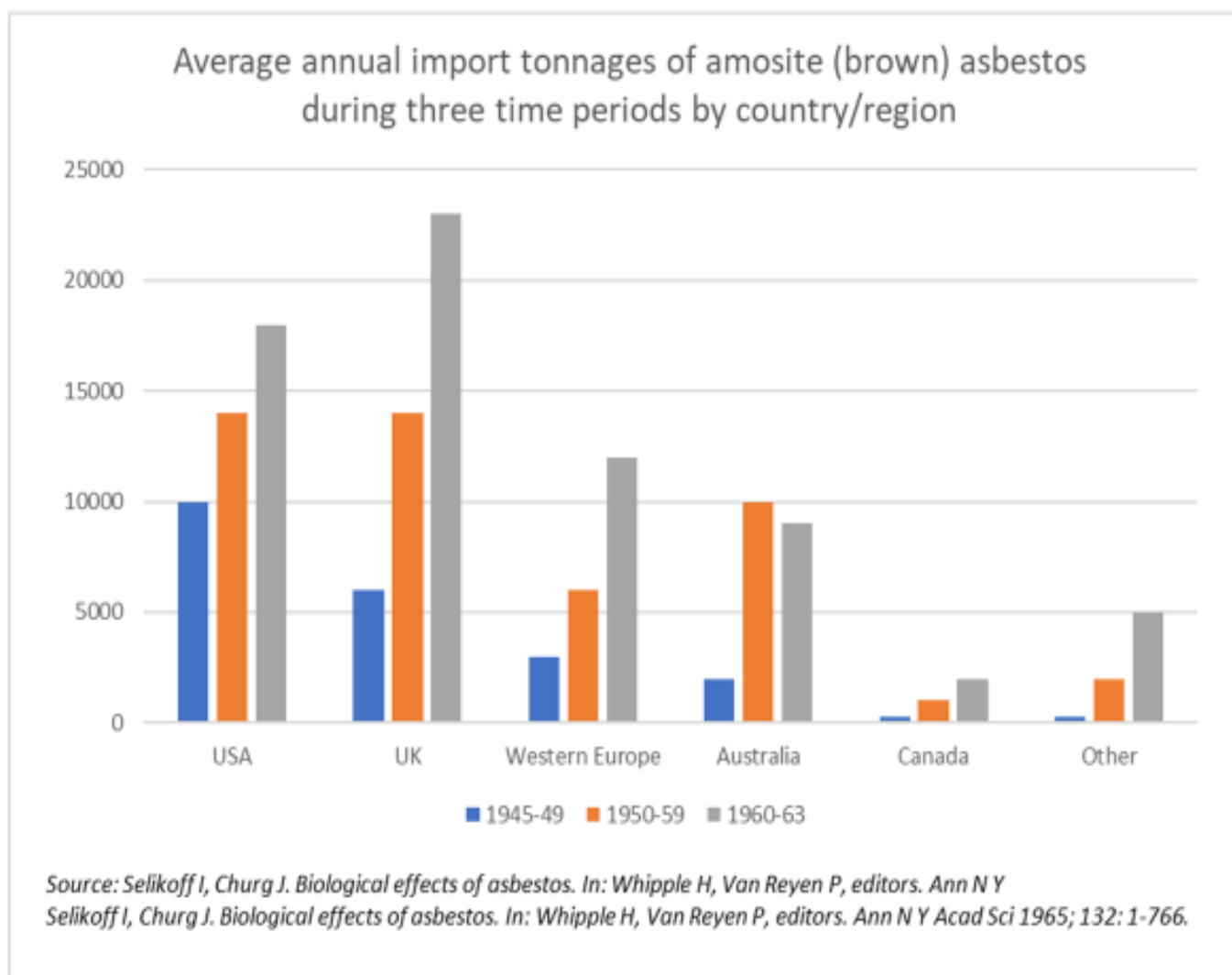
Other Government Departments

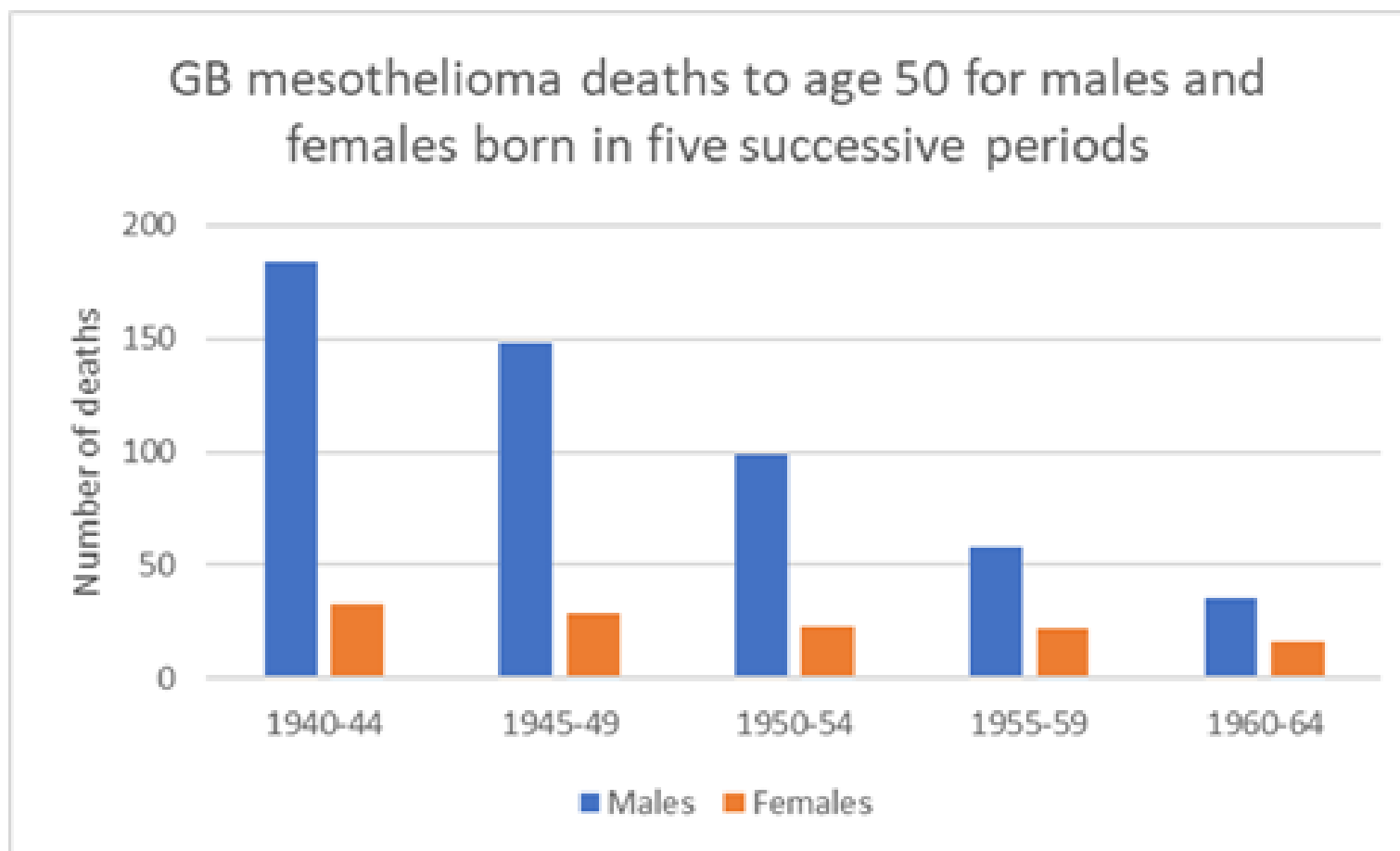
HSE meets the Department of Education (DfE) regularly about health and safety of schools, including the management of asbestos in the schools’ estate, to ensure that we maintain a joined-up approach to the regulation of asbestos and associated sector communications. HSE also works with education stakeholders to support the development of school -specific guidance on managing asbestos in schools, including that published by DfE. This guidance supports those who manage schools or oversee the maintenance and repair of school buildings. Although the guidance has been produced for schools in England, it includes information and links to useful resources for schools and colleges across GB.

HSE are represented on the Asbestos in Schools Steering Group, chaired by DfE, which also includes members from unions represented by the Joint Union Asbestos

Committee. HSE also regularly meet with representatives of the teaching unions to discuss current and on-going issues, including asbestos in schools.







Details of enforcement action taken by HSE

Asbestos licenses and inspections of work undertaken by licensed asbestos removal contractors.

Year	New Licenses assessed	Licenses Renewed	Total	Partially Rejected	Rejected	Total Rejected	Inspections completed
2016/17	39	188	227	15	11	26	1028
2017/18	49	198	247	20	12	32	1052
2018/19	27	199	226	12	9	21	1001
2019/20	34	179	213	24	9	33	907
2020/21	34	139	173	21	16	37	893

□

Prosecution is an essential part of enforcement and effectiveness of regulation, ensuring that where there has been a serious breach of the law, duty holders are held to account. This includes bringing alleged offenders before the courts in England and Wales or recommending prosecution to the Crown Office and Procurator Fiscal Service (COPFS) in Scotland.

The number of prosecutions HSE has taken has reduced each year since 2016. There have been no changes to HSE policy for decision-making but changes to sentencing guidelines for health and safety prosecutions that came into force in February 2016 have led to prosecutions taking longer. Offences prosecuted count individual offences of separate health and safety legislation.

Data for the most recent year available (2019/20) show HSE prosecuted 355 cases, with at least one conviction achieved in 336 cases, a conviction rate of 95%.

HSE prosecuted 512 offences, resulting in 467 convictions, a conviction rate of 91%, and prosecutions led to fines totalling just under £35.8 million, an average penalty of £76,600 per offence.

In 2019/20 HSE prosecuted 11 cases under The Control of Asbestos Regulations 2012 (CAR),(3% of all HSE cases), with at least one conviction achieved in 9 cases, a conviction rate of 82%. HSE prosecuted 23 offences (4% of all HSE offences), resulting in 19

convictions, a conviction rate of 83%. Prosecutions led to fines totalling £58,200 (0.2% of all HSE fines), an average penalty of £3,063 per offence.

For Regulation 4 of CAR (the duty to manage), in 2019/20 HSE prosecuted 3 cases (27% of all HSE CAR cases), with at least one conviction achieved in 2 cases, a conviction rate of 67%.

HSE prosecuted 3 offences (13% of all HSE CAR offences), resulting in 2 convictions, a conviction rate of 67%. Prosecutions led to fines totalling £13,000 (22% of all HSE CAR fines), an average penalty of £6,500 per offence*

In the previous year (2018/19), HSE prosecuted 394 cases, with at least one conviction achieved in 364 cases, a conviction rate of 92%. HSE prosecuted 550 offences, resulting in 476 convictions, a conviction rate of 87%. HSE prosecutions led to fines totalling just under £54.5 million, an average penalty of £114,446 per offence.

In 2018/19 HSE prosecuted 23 cases (6% of all HSE cases) under CAR, with at least one conviction achieved in 20 cases, a conviction rate of 87%. HSE prosecuted 39 offences (7% of all HSE offences), resulting in 32 convictions, a conviction rate of 82%. HSE prosecutions led to fines totalling £776,435 (1.4% of all HSE fines), an average penalty of £24,264 per offence.

For Regulation 4 of CAR, in 2018/19 HSE prosecuted 2 cases (9% of all HSE CAR cases), with at least one conviction achieved in 2 cases, a conviction rate of 100%. HSE prosecuted 2 offences (5% of all HSE CAR offences), resulting in 2 convictions, a conviction rate of 100%;

HSE prosecutions led to fines totalling £408,000* (53% of all HSE CAR fines), an average penalty of £204,000 per offence*

*This includes one fine of £400k.

Prohibition notices (PNs)

The table below shows the number of PNs issued by HSE for breaches of CAR by regulation and reporting year. For details of topics covered by individual regulations, see the key below.

Reg	4	5	6	7	8	9	10	11	12	13	14
2007-08	1	27	8	11	6	0	5	34	11	5	3
2008-09	7	11	16	24	5	0	7	58	16	6	1
2009-10	12	23	27	23	6	2	2	65	14	5	0
2010-11	14	57	19	26	7	0	14	78	10	8	0
2011-12	4	59	17	10	5	1	2	55	8	5	3
2012-13	7	36	22	14	3	0	7	38	8	0	1

2013-14	5	68	27	13	1	0	9	47	5	2	1
2014-15	4	66	29	11	3	0	8	54	3	1	3
2015-16	9	60	27	9	5	0	6	35	2	0	0
2016-17	12	67	22	4	9	1	6	32	3	0	0
2017-18	6	79	21	7	3	1	6	33	2	0	1
2018-19	9	70	18	6	0	0	4	29	3	1	0
2019-20	10	73	8	5	0	0	6	23	2	0	0
2020-21	1	50	14	4	5	1	2	16	2	0	1
Total	101	746	275	167	58	6	84	597	89	33	14

Reg	15	16	17	18	19	20	21	22	23	24	N/A	Total
2007-08	4	19	2	0	0	0	0	1	0	2	13	152
2008-09	0	39	1	1	0	1	0	0	2	2	4	201
2009-10	3	42	4	0	0	0	0	1	1	3	3	236
2010-11	3	64	4	0	1	0	1	2	1	1	1	311
2011-12	0	45	2	0	1	0	0	0	1	1	2	221
2012-13	0	32	1	0	1	0	0	0	1	1	0	172
2013-14	0	36	1	0	0	0	0	0	0	1	2	218
2014-15	2	52	3	0	0	0	0	0	1	0	0	240
2015-16	0	29	1	0	0	0	0	0	0	1	3	187
2016-17	0	24	1	1	0	2	0	0	0	0	2	186
2017-18	0	21	0	0	0	0	0	0	0	0	1	181

2018-19	0	16	0	0	0	0	0	0	0	0	0	156
2019-20	2	15	0	0	0	0	0	0	0	0	0	144
2020-21	0	10	0	0	0	0	0	0	0	1	0	107
Total	14	444	20	2	3	3	1	4	7	13	28	2712

Improvement notices

The table below shows the number of Improvement Notices served by HSE for breaches of CAR (April 2007 to March 2021) by individual regulation and reporting year. For details of topics covered by individual regulations, see the key below.

Reg	4	5	6	7	8	9	10	11	12	13	14
2007-08	91	1	2	4	0	0	25	8	2	2	1
2008-09	261	4	1	2	0	0	31	6	0	2	1
2009-10	236	9	3	5	1	1	57	17	5	2	0
2010-11	345	8	4	4	1	1	91	15	1	3	0
2011-12	267	14	7	9	3	0	109	9	0	0	0
2012-13	140	10	8	6	0	3	77	21	0	0	0
2013-14	92	17	9	9	1	1	86	9	2	1	0
2014-15	92	9	12	7	0	0	61	15	5	6	0
2015-16	89	18	3	4	1	1	58	12	0	0	0
2016-17	51	15	9	3	0	0	37	9	1	2	0
2017-18	52	7	5	3	0	1	44	3	2	1	0
2018-19	29	13	1	2	0	0	50	8	1	0	0
2019-20	36	9	5	3	0	0	32	6	0	0	0
2020-21	19	8	4	7	0	0	22	2	0	0	0

Total	1800	142	73	68	7	8	780	140	19	19	2
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Improvement Notices continued

Reg	15	16	17	18	19	20	21	22	23	24	27	Total
2007-08	1	3	0	0	0	0	0	0	0	2	0	142
2008-09	2	3	0	0	0	0	0	0	0	0	0	313
2009-10	3	11	2	0	1	0	0	1	1	0	0	355
2010-11	2	16	3	0	0	0	0	2	1	1	0	498
2011-12	0	2	2	4	0	0	0	0	0	2	0	428
2012-13	2	17	0	0	4	3	1	1	0	0	0	293
2013-14	1	6	0	0	0	0	0	0	0	0	0	234
2014-15	6	14	0	0	0	0	0	0	0	6	1	234
2015-16	0	11	0	0	0	0	0	0	0	1	0	198
2016-17	1	7	2	0	0	0	0	0	0	2	0	139
2017-18	3	2	0	0	0	0	0	0	0	1	0	124
2018-19	0	0	0	0	0	0	0	1	0	1	0	106
2019-20	1	5	0	0	0	0	0	0	0	1	0	98
2020-21	0	0	0	0	0	0	0	0	0	0	0	62
Total	22	97	9	4	5	3	1	5	2	17	1	3224

Key to individual regulations under CAR:

- 4 - the duty to manage asbestos in non-domestic premises
- 5 - identification of the presence of asbestos
- 6 - assessment of work which exposes employees to asbestos
- 7 - plans of work
- 8 - licensing of work with asbestos

- 9 - notification of work with asbestos
- 10 - information, instruction, and training
- 11 - prevention or reduction of exposure to asbestos
- 12 - use of control measures etc.
- 13 - maintenance of control measures etc.
- 14 - provision and cleaning of protective clothing
- 15 - arrangements to deal with accidents, incidents, and emergencies
- 16 - duty to prevent or reduce the spread of asbestos
- 17 - cleanliness of premises and plant
- 18 - designated Areas
- 19 - air monitoring
- 20 - standards for air testing and site clearance certification
- 21 - standards for analysis
- 22 - health records and medical surveillance
- 23 - washing and changing facilities
- 24 - storage, distribution and labelling of raw asbestos and asbestos waste
- 27 - labelling of products containing asbestos

There may be additional asbestos-related notices served under The Health and Safety at Work Act not included in the above figures.

September 2021