

TOPIC INSPECTION PACK

INSPECTION INTERVENTION IN THE STONEMASONRY INDUSTRY

STONEMASONS: EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA (RCS)

DISEASE REDUCTION PROGRAMME (DRP) RESPIRATORY DISEASE PROJECT

VERSION 0.4

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1. PURPOSE OF THE INTERVENTION

1.1 The Disease Reduction Programme (DRP) is part of the FIT3 strategic programme. The aim of the DRP is to reduce the incidence of work-related ill health caused by exposure to hazardous substances. Respiratory disease, covering occupational asthma as well as the longer latency diseases such as Chronic Obstructive Pulmonary Disease (COPD) and silicosis, accounts for a significant proportion of work-related ill health and so the DRP has a specific respiratory disease project to address this. This intervention falls within the scope of this respiratory disease project.

1.2 The aims of this inspection intervention are to: -
assess and ensure compliance with the Control of substances hazardous to health Regulations (COSHH), in particular the proposed new Workplace Exposure Limit (WEL) for Respirable Crystalline Silica (RCS); and
to promote the good practice control guidance in Silica Essentials.

1.3 This intervention is specifically targeted at those stonemasons who: -
routinely work with stone that has a high RCS content;
are poor performers; and
are unregistered and have not been visited before.

1.4 This pack provides the necessary information and guidance for awareness-raising and enforcement activities on controlling exposure to RCS in stonemasons.

2. WHY STONEMASONS?

2.1 A recent HSE review of the ill health effects associated with occupational exposure to RCS revealed unacceptable risks at the existing exposure limit - namely a 20% risk of developing silicosis at the exposure limit of 0.3 mgm^3 for RCS.

2.2 The DRP has developed a 3 year action plan for Silica, which targets the available resource on those industries where there is evidence of exposures above 0.1 mgm^3 (the new WEL – see paragraph 3.1) - the selected industries being stonemasonry, brickmaking and tile manufacture, quarries and construction.

2.3 Why stonemasons?

HSE visit reports identified that 46% of the exposures to RCS in stonemasons were above 0.1 mgm^3 , 31% were above 0.2 mgm^3 and 11% were above 1.0 mgm^3 ^(a);

10% of all pneumoconiosis reported via the SWORD system between 1989 and 2005 were in stonemasons ^(b);

Evidence suggests that stonemasons still appear to have little appreciation of the health risks associated with RCS.

This illustrates that stonemasons are a high-risk group when discussing exposure to RCS.

3. BACKGROUND INFORMATION

New Workplace Exposure Limit

3.1 The primary driver for reviewing the existing occupational exposure limit was scientific evidence that suggested that at the limit of 0.3 mgm^3 there was a 20% risk of developing silicosis.

3.2 At the same time SCOEL ^(b) recommended a limit of 0.05 mgm^3 purely on the grounds of health risks – a level difficult to measure with current technology.

3.3 HSC has decided to reduce the WEL to 0.1 mgm^3 with a further reduction to 0.05 mgm^3 when the measurability issues have been resolved ^(c). The new WEL will come into force from 1st October 2006.

^(a) EH74/2 1999 Respirable crystalline silica: exposure assessment document

^(b) THOR <http://www.coeh.man.ac.uk/thor>

^(b) Scientific committee on occupational exposure limits

^(c) Consultation Document CD 203 - proposal for a workplace exposure limit for respirable crystalline silica

3.4 One of the aims of this intervention is to raise awareness of the new WEL.

Silica Essentials

3.5 COSHH Essentials is a tool designed to provide guidance on good control practice for exposure to hazardous substances. Silica Essentials covers the specific industries and activities where the highest exposures to RCS are found e.g. brickmaking and tile manufacture, construction, quarries, ceramics, foundries and stonemasons.

3.6 Silica Essentials aims to provide easy-to-understand, step-by step control guidance on approximately 50 tasks/activities that is consistent with the requirements of COSHH. It will be available on the web from October in line with the change in the WEL. This supplements existing guidance HSG 201 'Controlling exposure to stonemasonry dust: guidance for employers' and INDG315 'Stone dust and you; guidance for stonemasons'. <http://www.hse.gov.uk/pubns/guidance/index.htm>

Control of substances hazardous to health (COSHH)

3.7 Regulation 7 of COSHH has been substantially revised to include a new approach to control, which is based on the application of 8 principles of good control practice, detailed in Schedule 2A to the regulations. These principles are listed in Appendix 1 of this inspection pack.

3.8 The primary duty on employers is to apply these principles of good practice; in conjunction, they should not exceed any approved WEL. The rationale is that if all principles are being properly applied and maintained, then effective, reliable and sustainable control of exposure should have been achieved and any WEL will not have been exceeded.

3.9 The COSHH OC is currently being re-written. This should be available sometime in the near future.

4. HEALTH EFFECTS OF EXPOSURE TO RCS

4.1 Exposure to RCS can result in varying forms of damage to the respiratory system as the fine dust particles penetrate deep into the lungs potentially causing the following ill health effects: -

Silicosis – A slow, progressive, irreversible disease that usually develops many years after initial exposure. The main symptom is breathlessness. In severe cases death can ensue. Silicosis is diagnosed by chest X-ray where the presence of rounded nodules of scar tissue on the lungs is visible as white opacities. The highest risk of developing silicosis is from exposure to dry, freshly fractured fine particles of RCS that are generated during many common workplace tasks such as drilling, cutting, grinding, polishing etc;

Acute Silicosis – People who experience exceptionally high exposures over a few months or years can develop this rapidly progressive and often fatal condition (exposures in the order of 1.5 mgm³ on a daily basis for a year or two). This can result in death within months of exposure;

Lung cancer – Heavy and prolonged exposure to RCS under the conditions that produce silicosis can cause lung cancer;

Chronic Obstructive Pulmonary Disease (COPD) – an umbrella term that covers emphysema and chronic bronchitis. It is characterised by impaired airflow within the lungs and is not fully reversible. The symptoms are cough with phlegm, and/or wheezing and breathing difficulties and it too can result in death;

Workers with silicosis are at increased risk of tuberculosis and may develop kidney disease and arthritis (and related conditions).

Smoking may influence the development of symptoms in silica-exposed workers.

Health surveillance and health monitoring arrangements for these ill health effects are detailed in Section 11 below.

5. PREMISES SELECTED FOR INSPECTION

5.1 The following criteria should be used in determining the premises for inspection: -

SIC code 2670 not 2661 for cast stone – please note that other SIC codes may be relevant. Advice on this is contained in guidance on the selection of premises for this intervention that has been provided to HSAOs

Those premises where stone with a high RCS content is regularly worked on - the higher the RCS content of the stone, the more hazardous the material and the more stringent the control measures need to be. Here are some common types of stone along with an indication of the likely RCS content: -

| | |
|-----------|--------------------------|
| Flint | >90% |
| Granite | 20 – 45% (typically 30%) |
| Limestone | <2% |
| Sandstone | 70 – 90% |
| Siltstone | 50 - 90% |
| Slate | 20 – 40% |

HSAO's are to identify suitable premises using a telephone-screening questionnaire; Unregistered, unvisited sites identified locally via the usual means e.g. Yellow Pages; and Already known poor performers identifiable from COIN records.

5.2 Inspectors should receive a list of premises from local HSAOs along with relevant completed telephone questionnaires from which to prioritise their inspections.

6. PURPOSE OF INSPECTION

6.1 Inspectors should focus on the following 3 areas during their visit: -

- Assess the control measures in place against good control practice guidance;
- Assess awareness of compliance with the new WEL; and
- Raise awareness of published guidance.

7. FACTORS AFFECTING EXPOSURE TO RCS

| | |
|----------------------------------|---|
| Type of stone | The higher the RCS content of the stone, the more hazardous the material |
| Nature of task/activity | Different tasks generate vastly differing levels of dust Simple dimensioning of stone with a circular saw generates comparatively little dust as water suppression is usually provided Decorative work (dressing and finishing) usually liberates substantial quantities of dust as power tools are used and water suppression is difficult |
| Wet or dry working | Pre-soaking stone reduces dust levels considerably Water suppression should be provided wherever practicable |
| Hand or power tools used | Power tools generate considerably more dust than hand tools The type of tool used and the speed of the tool are important factors |
| Provision of exhaust ventilation | Exhaust ventilation booth provided where practicable Captor hoods provided have to be positioned and used correctly Routine daily/weekly checks should be in place Maintenance regime should be in place Positioning of employee relative to extraction important |
| Length of time on the task | Intermittent or prolonged |
| Segregation of the work areas | High dust generating activities should be in a segregated work area where possible |
| Provision and maintenance of RPE | Correct RPE used Face fit tests done RPE stored and maintained properly |
| Work Practices | Vacuum off stone debris rather than blowing it off Vacuum rather than sweep up |

8. ENFORCEMENT GUIDANCE

8.1 The guidance in this section is based upon the Enforcement Management Model (EMM) - the tool to help Inspectors reach proportionate and transparent enforcement decisions.

8.2 This guidance applies to those tasks and activities which involve working with stone with a high RCS content and where there is potential exposure to freshly fractured RCS from sawing, cutting, grinding, chiselling, polishing, machining activities etc.

8.3 The following provides guidance on working through the EMM: -

Risk Exposure to RCS in stonemasonry activities can result in several ill health effects such as silicosis, acute silicosis, COPD and lung cancer – all debilitating and life threatening diseases, which can seriously restrict work capabilities, quality of life and indeed life expectancy;

Immediacy of risk Failure to adopt appropriate control measures can result in exposures to RCS with the possible risk of a **serious health effect**;

Benchmark standards The benchmark set is a **nil or negligible risk of a serious health effect**. This benchmark can be achieved by applying the COSHH principles of good control practice (see appendix 1 for details) and using a variety of measures including the use of water suppressant, provision of exhaust ventilation, segregation of high dust generating activities, provision of suitable RPE etc. as well as the provision of good instruction, information and training and indeed health surveillance;

Risk Gap Non-compliance with the benchmark standards will produce at least a '**substantial risk gap**' and since the standards are established or defined this would result in an initial enforcement expectation of an Improvement Notice. More detail on the risk gap for common high-risk stonemasonry activities is provided in the following table. This table provides guidance on the likely issues to be encountered on site, the reasonably practicable measures for controlling exposure to RCS as well as the initial enforcement expectations.

Exposure benchmark The new WEL of 0.1 mgm³ is the established standard.

8.4 Available control options

In order to reduce exposures as low as is reasonably practicable COSHH regulation 7 makes provisions for prevention and control of exposure. In particular COSHH regulation 7(7)(a) Schedule 2A refers to 8 principles of good control practice and these should be applied to reduce exposure to silica. A variety of control options can be employed. Their relative merits and applications are discussed below. COSHH silica essential sheets give details of the good practice control options to reduce exposure to silica, see paragraph 3.6. If you are unsure of the control options on site you should consult your local occupational hygienist for clarification or assistance.

PROCESS CHANGES

In line with COSHH regulation 7(7)(a), Schedule 2A(a) it may be possible to change the process in terms of replacement of stone with one containing less RCS. This option could be limited due to customer requirements (particularly relevant in restoration work). If this is not possible, more initial dimensioning (shaping) on the stone using primary and secondary cutting saws prior to handwork using power tools may help reduce individual exposures. Reducing the use of hand held power tools may also be an option.

SEGREGATION

In line with COSHH regulation 7(7)(a), Schedule 2A (b)(c)(d), high risk processes should be segregated where possible. Access should be prevented, entry only for authorised persons with RPE. Primary and secondary saws can be remotely operated and personnel should be excluded from the area where possible. Processes involving the use of power tools e.g. disc cutting, polishing, pneumatic chiselling should also be segregated where possible. Only in extreme circumstances where there are few or single employees or tasks are very short would segregation not be considered necessary.

In line with COSHH regulation 7(7)(a), Schedule 2A (b)(c)(d) should be applied to determine the most appropriate good practice controls in terms of ventilation and suppression to reduce exposures.

SUPPRESSION - Wet Working

Even where there is segregation or provision of LEV it is recommended water is used to suppress the evolution of dust. This could be either by wetting the stone or by providing a water stream onto the blade or disc during cutting. In primary and secondary saw cutting water jetting is used as the primary control

in addition to segregation of the process. For processes involving the use of hand tools the use of water jetting should be considered where possible (may not be an option where electric tools are used). Where water jetting is not possible the stone should be kept wet and dry working should be avoided where at all possible. Where running water suppression is provided it is recommended that where water impacts on surfaces the surfaces are coated to reduce the generation of mists (e.g. Astroturf or similar to line surfaces around primary saws). The clearing and removal of the stone slurry will need to be managed and operators will require protective clothing to keep them dry and warm. It is likely that RPE will still be required when water suppression is used.

VENTILATION

Booths

High risk processes using hand held power tools should be carried out in a ventilated booth. These include disc cutting, disc polishing, pneumatic chiselling. For hand chiselling where high silica stone and duration of work is in excess of 1 hour a ventilated booth is preferred although an effective and properly used capture hood could be used in some circumstances. Operator should be trained in the effective work practices to be employed when working in the booth e.g. position of the work piece, use of the tools to ensure dust jet is directed to the back of the booth, use of open framed, rotatable 'banker', use of other controls if necessary etc.

Capture hoods

These are less effective than booths and should not be used for high speed power tool operation e.g. disc cutting, disc polishing or sanding unless for very short duration work on small workpieces and very low RSC stone. They may be of limited use for pneumatic chiselling, but can be used for other hand held tool work. The hood should be positioned as close to the point of origin of the dust, the hood ductwork should allow easy placement close to the work and the operator should be aware of the effective capture distance of the hood. A rotatable 'banker' should be used. Where hoods are used wet working is recommended and additional use of a high standard of RPE is likely to be necessary.

On-tool extraction

This can be more effective than capture hoods where straight lines or flat surfaces are being worked. The blade should be totally enclosed by a hood, guard or brushes and these should be well maintained. On-tool extraction is limited where there are curves, bends or uneven surfaces being worked or where work is at the edge of the stone. A high standard of RPE should be used in conjunction with on-tool extraction.

General ventilation

It is likely that where there is work involving the use of power tools some dust will escape into the general workroom unless the processes are enclosed. Addition of clean air into the workroom is the most effective way to reduce general build up of dust over the working day.

In line with COSHH regulation 7(7)(a), Schedule 2A(e) the following PPE should be provided to reduce exposures that cannot be controlled by other means.

PPE

RPE

Different respirators provide different levels of protection (check 'assigned protection factors'). Respirators should only be used to control exposure after all other controls are in place. It may not always be possible to introduce some of the controls above e.g. water suppression or it may be that the controls introduced do not sufficiently reduce exposures e.g. for disc cutting and polishing even introducing water suppression and LEV controls exposures may be above the WEL. In these circumstances RPE and in some cases a high standard of RPE may be required in addition to the controls implemented. Where a high level of protection is required (e.g. for high residual risk and/or work of more than 1 hour duration) then only power assisted respirators or air fed breathing apparatus will be adequate and suitable. If negative pressure RPE is used it should be selected and face fit tested for the operator.

Clothing

Modern fabrics are less likely to retain dust than cotton overalls and suitable overalls should be selected on their dust retention and release characteristics.

INFORMATION INSTRUCTION AND TRAINING

In line with COSHH regulation 12 and, where applicable, 7(7)(a), Schedule 2A (g) the following Employees should know: -

The risks associated with exposure to RCS

The suitable methods of work;

The correct use and maintenance of the control measures in place;

The correct use and maintenance of any RPE provided;

Health surveillance provided.

HEALTH SURVEILLANCE

In line with COSHH regulation 11 a high level of health surveillance is required for all employees who routinely work on stone with a high RCS content. It should be provided by a health professional and may include the following:

Assessing respiratory health prior to employment in pre-employment screening;

Regular tests involving questionnaires, lung function tests and occasional chest X-rays

Health records.

MAINTENANCE OF CONTROLS

In line with COSHH regulation 7(7)(a), Schedule 2A (f) & (h) any control measures introduced should be checked and maintained to ensure that they continue to be effective and the control measures introduced should not increase the overall risk. Any LEV installed should be thoroughly examined and tested every 14months and the RPE should be examined and tested at least every 3 months.

| Activity | Benchmark/Controls | Potential Issues | Risk Gap | Initial Enforcement Expectation |
|--|--|--|--|--|
| <p>(c) Hand chiselling</p> <p>(d) General dust in workshop</p> <p>May be due to either poor control at source or poor housekeeping and/or provision of general ventilation to remove residual dust</p> | <p>with pneumatic chiselling. Capture hoods may be used only if RPE is of high standard and process segregated. Worker may work outside for very short duration work less than 1hour per week, then high standard RPE required for individual worker and exclusion of others.</p> <p>Segregation +LEV + damped stone + RPE</p> <p>Good segregation and provision of LEV + provision of general ventilation</p> | <p>required and water suppression if possible*)</p> <p>Tools used inside in the open workshop inadequate LEV and/or dry stone and/or unsuitable RPE</p> <p>Dust in workshop indicative of Poor segregation and control at processes</p> <p>Evidence of dust around the workplace indicating lack of housekeeping arrangements or provision of general ventilation.</p> | <p>Substantial/moderate</p> <p>Extreme/substantial</p> <p>Substantial/moderate</p> | <p>in some cases for no water suppression**))</p> <p>IN (if two or more absent or inadequate)</p> <p>Letter (if only damping of stone absent and others all present <u>and</u> Power assisted RPE or air fed BA used)</p> <p>(see above under individual tasks for action required)</p> <p>IN or letter (IN for either cleaning or provision of ventilation depending on circumstances. Refer to occupational hygienist for advice)</p> |
| <p>Training</p> | <p>All employees potentially exposed to</p> | <p>Evidence of poor work practices,</p> | <p>Extreme/substantial</p> | <p>IN (if poor work</p> |

| Activity | Benchmark/Controls | Potential Issues | Risk Gap | Initial Enforcement Expectation |
|----------------------------|---|---|------------------------|---|
| Health Surveillance | RCS should be provided with sufficient information instruction and training Health surveillance provided | inadequate use of the control measures provided, employees unaware of health risks associated No or inadequate health surveillance | Compliance | practices or inadequate use of controls) IN |

Notes to accompany TABLE 8.1: This guidance assumes that high silica content stone is being worked. If you are unsure of the required IEE or of the risk of serious personal injury or the relative merits of the control options implemented on site then you should consult your local occupational hygienist for further guidance and assistance. This table only deals with the high risk activities and there may be other circumstances where the EMM would indicate that formal enforcement should be considered. The issue of a PN is to prevent risk of serious personal injury, accelerated silicosis can occur within a matter of months it is therefore not appropriate to wait for the 3weeks for an improvement notice. The provision of RPE would be sufficient to comply with the PN as an interim measure however INs should be issued for provision of engineering or other controls.

9. KEY MESSAGES

9.1 The top 5 'headline' messages to promote during the inspection visits are:

- Wet work where possible;
- Segregate the workshop;
- Provide and maintain exhaust ventilation;
- Provide and maintain suitable RPE; and
- Vacuum not sweep

10 RISK CONTROL INDICATORS FOR IRFs

| | |
|---------------------------------------|---|
| Respiratory Disease Management System | Effective organisation and arrangements including adequate COSHH assessments, provision of information, instruction, training and supervision. Evidence of management commitment and arrangements for review Is the employer aware of the health risks associated with RCS? Is he aware of the range of health effects resulting from exposure to RCS? Has he provided suitable information on these health effects to his employees? Is there a suitable and sufficient COSHH assessment? |
| Control strategy | Substitution considered and effected where possible. Adequate engineering controls provided, used, maintained, examined and tested at suitable intervals. Suitable PPE provided, worn and stored correctly, suitably cleaned and well maintained. Appropriate instruction and training in proper use of engineering controls and PPE Is wet working used where practicable? Have exhaust ventilation booths been provided where practicable for 'banker work'? Are the captor hoods suitable? Is all LEV maintained, examined and tested as required? Is a segregated work area provided if practicable for the 'dustier' work? Suitable and maintained RPE? Good housekeeping? |
| Health Surveillance | A competent person has advised on the need for health surveillance. Cases of silicosis (and lung cancer occurring in the presence of silicosis) are reported under RIDDOR Are suitable arrangements in place? |

10.1 Please note that an RCI score of 1 should only be allocated where all the above elements are in place and no improvements can be made. A score of 4 should be allocated if there is little evidence of any of the indicated elements in place – when a 4 is allocated enforcement action is appropriate. Scores of 2 and 3 indicate that specific enforcement action may be appropriate.

10.2 Record inspection in COIN as per OM 2006/08.No keywords are required for this intervention.

11. HEALTH SURVEILLANCE AND HEALTH MONITORING

Silicosis and Health Surveillance

11.1 Where there is a reasonable likelihood of silicosis developing in the particular conditions of work, then health surveillance is necessary. Employers need to consult a health professional and assess the risk of silicosis or tuberculosis developing as a consequence of employees' exposure to RCS in order to decide whether health surveillance is appropriate. If the employer concludes that the risk of exposure to RCS is low, then health surveillance involving an x-ray and symptom enquiry may be unnecessary (please note however that a health professional may recommend an x-ray as part of the clinical investigation of an individual who reports new or worsening respiratory, or other symptoms).

11.2 Health surveillance for silicosis should include: -

- Chest x-rays at intervals in addition to enquiries about the onset of new or worsening respiratory symptoms. A baseline assessment of respiratory symptoms would always be appropriate where there is a risk of silicosis. Symptom enquiry will also be appropriate where there is a risk of tuberculosis of the lung;
- A health professional must explain the test results to the individual, and report to the employer on the worker's fitness to work;
- Providers interpreting the result trends for groups and individuals, and identifying any need to revise the risk assessments;
- Appointing a responsible person, supported by the health professional, to report any symptoms that occur between tests;
- Keeping health record, and encouraging workers to keep a copy of their results, in case they change jobs;
- Keeping simple attendance records to identify and any patterns to sickness absence.

COPD and Health Monitoring

11.3 This is more relevant for those workplaces working on low RCS content stone where there is still potential for exposure to dusts. Health monitoring for COPD should also involve a health professional and could include: -

- Assessing workers' respiratory and other health before they start a relevant job, to provide a baseline (perhaps using a questionnaire and lung function assessment);
- Regular tests (as advised by the health professional) – this could involve a questionnaire and possibly lung function assessments;
- The test results should be explained to the individual, and report should be provided to the employer on the worker's fitness to work;
- Health providers should be suitably qualified, e.g. with an ARTP diploma;
- Providers interpreting the result trends for groups and individuals, and identifying any need to revise the risk assessment;
- Appointing a responsible person, supported by the health professional, to report any symptoms that occur between tests;
- Keeping a health record, and encouraging workers to keep a copy of their results, in case they change jobs;
- Keeping simple attendance records to identify and any patterns to sickness absence.

11.4 In light of the selection criteria for the premises to be inspected under this initiative, it is likely that regulation 11 health surveillance will be required unless they are working with low RCS content stone or they do very little work with higher RCS content stone. HSE is considering whether additional health surveillance is required for COPD. In the meantime it is good practice for employers to monitor all workers with exposure to RCS for signs of this disease.

12. FURTHER GUIDANCE

There is a considerable amount of published guidance on controlling exposure to dusts in the stonemasonry industry: -

- 'Controlling exposure to stonemasonry dust: Guidance for employers' HSG 201;
- 'Stone dust and you: guidance for stonemasons' INDG 315;
- Silica Essentials; and
- 'Control of Substances Hazardous to Health Regulations' L5.

13 CONTACTS

For procedural queries -

Colette Nimbley, Disease Reduction Programme, Belford House, Belford Road, Edinburgh, EH4 3UE
 Colette.nimbley@hse.gsi.gov.uk
 0131 662 8320 VPN 520 2036

For technical queries -

Trevor Hay, Manufacturing Sector, Government Buildings, Ty Glas, Cardiff, CF14 55U
 Trevor.hay@hse.gsi.gov.uk

02920 263 077 VPN 511 3077

For occupational hygiene queries –

1. In the first instance - local Specialist group Occupational Hygiene Inspectors

2. Lead Occupational Hygienist on silica - Marjorie Mitchell, Scotland Specialist Group, Belford House,
Belford Road, Edinburgh, EH4 3UE

Marjorie.mitchell@hse.gsi.gov.uk

0131 247 2112 VPN 520 2112

APPENDIX 1 - Principles of good practice for the control of exposure to substances hazardous to health

- a) Design and operate processes and activities to minimise emission, release and spread of substances hazardous to health.
- b) Take into account all relevant routes of exposure inhalation, skin absorption and ingestion when developing control measures.
- c) Control exposure by measures that are proportionate to the health risk.
- d) Choose the most effective and reliable control options that minimise the escape and spread of substances hazardous to health.
- e) Where adequate control of exposure cannot be achieved by other means, provide, in combination with other control measures, suitable personal protective equipment.
- f) Check and review regularly all elements of control measures for their continuing effectiveness.
- g) Inform and train all employees on the hazards and risks from the substances with which they work and the use of control measures developed to minimise the risks.
- h) Ensure that the introduction of control measures does not increase the overall risk to health and safety.

APPENDIX 2 - Guidance on the Selection of Companies for the Inspection Intervention in the Stonemasonry Industry

Aim

This guide is produced to explain and assist in the procedure of selecting suitable companies for Band 4 inspectors to visit as part of the above intervention.

Staff involvement

It is anticipated that the following staff will be involved:

- **HSAO's** to:
 - Look through traditional information sources to identify undertakings which are likely to work with natural stone either in a workshop, or out on site.
 - Contact (telephone) the undertaking to identify whether they work with natural stone in such a way that is likely to cause dust.
 - Identify the type of natural stone used
 - Identify and record the type of work done to the stone
 - Pass the completed questionnaires to the Band 2 or 3 inspector tasked with selecting suitable premises to visit.

- **Band 2s** (or senior Band 3s) to:
 - Select work activities based upon risk:
 - "Highest silica" stone (see appendix X)
 - Working procedures used likely to create inhalable dust
 - Numbers employed exposed to inhalable dust
 - Duration of exposure to inhalable dust
 - Allocate incumbent visits to Band 4s
 - Advise and guide Band 4s as appropriate on inspectorial issues arising

- **Band 4s**
 - To visit and apply the guidance in SIM 03/2006/07

Procedure for HSAO's

To select undertakings for preliminary enquiries, the usual and traditional sources of information may be used. Some are listed here:

- Focus incumbents/COIN comments by SIC. Many will have been visited before. Stonemasons should be found under SIC 2670 -Cutting, shaping and finishing of stone (examples will include, but are not confined to:
 - Cathedral workshops
 - Restorational stonemasons (e.g. stonemasons that restore old buildings to their former state)
 - Memorial stonemasons (i.e. those that make headstones for graves)

Some other SICs MAY hold stonemasons, especially if they have been miscoded, or their *major* activity is not stonemasonry. Examples may be:

| | |
|--|--------------|
| Stone articles for use in construction (manufacture) | <u>26.61</u> |
| Stone carving | <u>45.25</u> |
| Stone chippings production | <u>14.21</u> |
| Stone dust production | <u>14.21</u> |
| Stone setting | <u>45.25</u> |
| Stone walling | <u>45.25</u> |
| Stonemasonry (building) | <u>51.53</u> |
| Stones (wholesale) | <u>26.81</u> |
| Stones for sharpening or polishing (manufacture) | <u>26.21</u> |
| Stoneware for domestic use (manufacture) | <u>45.45</u> |
| Stonework cleaning and renovation | |

- Yellow pages, trade directories etc. etc.
HSAOs will be familiar with their own local sources of information.
Smaller stonemasonry undertakings may include:
 - Kitchen fitters that fit granite work-surfaces
 - Natural stone fireplace fitters
 - Sculptors (if not truly self-employed)

The attached questionnaire contains blocks of questions to allow suitable undertakings to be selected on the basis of risk, and to EXCLUDE those that:

- Do NOT work natural stone
- Do NOT create large dust clouds
- Are Construction sites
- Are “cast stone” workers, rather than “Natural stone”

Do you use stone in your business?

This question is trying to establish what type of stone they use. We are interested ONLY in “natural stone” – stone that occurs naturally, (has been quarried at some point before delivery) and is worked as a single piece of stone.

“Cast stone” is different, and we will NOT be visiting cast stone premises. Cast stone is mixing stone with a mortar and pouring it into moulds. Examples of cast stone will include such products as pipe-making and garden ornament manufacture (gnomes and similar).

If the answer includes “natural stone”, continue. If the answer is “cast stone only”, terminate questionnaire.

What does your company do with this stone? (stipulate)

Here, we are trying to establish the processes carried out.

Some processes are unlikely to liberate breathable dust, and we will NOT be visiting these. Examples of answers that will not make breathable dust are:

Chemical cleaning (only) of stone

Wholesaling, retailing or warehousing of stone (where no cutting-to-size is carried out)

Some answers may indicate that we need to ask more questions. If the answer is restoring, cleaning (other than only chemical cleaning), cutting to size, etc, then the process may create dust.

Does your company do any of the following on the premises?

We are trying to establish whether they have a yard/workshop where they work stone. We will be visiting workshops and yards, and also stonemasons that fit stone in domestic premises (e.g. stone kitchen top fitters), but NOT visiting construction sites.

| | |
|--------|--|
| Quarry | We will be visiting Quarries in year 3 of the project. Terminate questions but keep questionnaire record. |
|--------|--|

| | |
|--|---|
| Dimension stone | "Dimensioning" is the term for "cutting-to-size". Using a saw or grinder to dimension stone is a dusty process. |
| Wholesale stone –with dimensioning (cutting-to-size) carried out on the premises | We are only interested if the company cut the stone in the premises. If they only hold and distribute pre-cut stone, terminate questions . |
| Saw stone | e.g. use circular saws and disc cutters |
| Split stone | Usually by hydraulic splitter or hand splitting by using a chisel (e.g. roof slates) |
| Drill or bore stone | |
| Polish or finish stone using tools | If they ONLY clean, polish etc without tools (e.g. using ONLY waxes or chemicals) and without creating dust, make comment in last box. |
| Chisel stone | |
| Use disc cutters and/or angle grinders on stone | Examples of answers may include trimming, chamfering (i.e. taking a corner off the stone to make the edge round), finishing, polishing, making fine adjustments to the stone to ensure a good fit |
| Grind or abrade stone | |
| Does your company do any work on stone OFF the premises (i.e. on site)? We are trying to establish whether they do all their work on construction sites. We will NOT be visiting construction sites, but will be visiting other off site activities such as granite kitchen-top fitting, natural stone fireplace fitting, natural stone floor-laying etc in trade or domestic premises. | |
| Is further work on the stone done by your customers? If the answer to this question is Yes, then the customers may be suitable for further enquiries and/or a visit | |
| If the company works on stone OFF the premises (such as trade and domestic premises – but not construction sites), do they: | |
| Dimension stone | |
| Saw stone | |
| Split stone | |
| Drill or bore stone | |
| Polish or finish stone using power tools | |
| Chisel stone | |
| Use disc cutters and/or angle grinders on stone | |
| Grind or abrade stone | |
| Clean stone using either chemicals, water jetting (with or without a grit in the water) or blasting techniques | (STIPULATE WHICH) Chemical cleaning and water jetting are self-explanatory terms. We will not be visiting these firms. If this is ALL that they do, terminate questions. Cleaning by a blasting technique is similar to water jetting, but it is done dry using a dry grit instead of water, or with a grit mixed in with a water jet. Blasting techniques create lots of dust and should be visited) |
| Fit stone | |
| Do you work the following types of stone? Ticking the boxes below will help establish the risk. Although no dust is good for the lungs, the high silica/quartz content stones present bigger risks. It is likely that the stonemason will not know the quartz content, but will be able to say which type of stone (e.g. sandstone, granite, slate etc.) is used. | |
| Quartz content >70% | (e.g. sandstone and chert) |
| Quartz content >20% | (e.g. Slate and granite) |
| Quartz content <20% | (e.g. Marble, Limestone) |
| Unknown (other stones) | Stipulate stones used |
| | |
| How many people do you employ on the stoneworking side of the business? | This question enables us to determine roughly how many workers may be at risk from working with natural stone. |

APPENDIX 3 - Selection Questionnaire

| Are you, or do you? | (Explanatory notes) | Yes Or No | Comments (if needed) |
|---|---|-----------|----------------------|
| Quarry | We will be visiting Quarries in year 3 of the project. Terminate questions but keep questionnaire record. | | |
| Dimension stone | "Dimensioning" is the term for "cutting-to-size". Using a saw or grinder to dimension stone is a dusty process. | | |
| Wholesale stone – with dimensioning (cutting-to-size)) carried out on the premises | We are only interested if the company cut the stone in the premises. If they only hold and distribute pre-cut stone, terminate questions . | | |
| Saw stone | e.g. use circular saws and disc cutters | | |
| Split stone | Usually by hydraulic splitter or hand splitting by using a chisel (e.g. roof slates) | | |
| Drill or bore stone | | | |
| Polish or finish stone using tools | If they ONLY clean, polish etc without tools (e.g. using ONLY waxes or chemicals) and without creating dust, make comment in last box. | | |
| Chisel stone | | | |
| Use disc cutters and/or angle grinders on stone | Examples of answers may include trimming, chamfering (i.e. taking a corner off the stone to make the edge round), finishing, polishing, making fine adjustments to the stone to ensure a good fit | | |
| Grind or abrade stone | | | |
| Does your company do any work on stone OFF the premises (i.e. on site)? We are trying to establish whether they do all their work on construction sites. We will NOT be visiting construction sites, but will be visiting other off site activities such as granite kitchen-top fitting, natural stone fireplace fitting, natural stone floor-laying etc in trade or domestic premises. | | | |
| Is further work on the stone done by your customers? If the answer to this question is Yes, then the customers may be suitable for further enquiries and/or a visit | | | |
| If the company works on stone OFF the premises (such as trade and domestic premises – but not construction sites), do they: | | | |
| Dimension stone | | | |
| Saw stone | | | |
| Split stone | | | |
| Drill or bore stone | | | |
| Polish or finish stone using power tools | | | |
| Chisel stone | | | |
| Use disc cutters and/or angle grinders on stone | | | |
| Grind or abrade stone | | | |
| Clean stone using either chemicals, water jetting (with or without a grit in the water) or blasting | (STIPULATE WHICH) Chemical cleaning and water jetting are self-explanatory terms. We will not be visiting these firms. If this is ALL that they do, terminate questions. Cleaning by a blasting technique is similar to water | | |

| Are you, or do you? | (Explanatory notes) | Yes Or No | Comments (if needed) |
|---|---|-----------|----------------------|
| techniques | jetting, but it is done dry using a dry grit instead of water, or with a grit mixed in with a water jet. Blasting techniques create lots of dust and should be visited) | | |
| Fit stone | | | |
| Do you work the following types of stone? Ticking the boxes below will help establish the risk. Although no dust is good for the lungs, the high silica/quartz content stones present bigger risks. It is likely that the stonemason will not know the quartz content, but will be able to say which type of stone (e.g. sandstone, granite, slate etc.) is used. | | | |
| Quartz content >70% | (e.g. sandstone and chert) | | |
| Quartz content >20% | (e.g. Slate and granite) | | |
| Quartz content <20% | (e.g. Marble, Limestone) | | |
| Unknown (other stones) | Stipulate stones used | | |
| How many people do you employ on the stoneworking side of the business? | This question enables us to determine roughly how many workers may be at risk from working with natural stone. | | |