

Roofer

HAZARDS AND RISKS

Roofing work is varied – covering structures with shingles, slate, asphalt and other materials; spraying roofs, sidings, and walls to bind, seal, insulate, or soundproof; demolishing or repairing asbestos cement roofs; cutting wooden battens; cleaning roofs and clearing out roof spaces. It can, therefore, involve exposure to many different harmful substances which might generate hazardous dusts, or give off toxic fumes and vapours. The biggest respiratory health risks come from asbestos and silica.

Asbestos

Roofers may come into contact with or disturb asbestos containing materials (ACMs) during maintenance work. Asbestos is classified as a category 1 carcinogen meaning that it is capable of causing cancer. Inhalation of asbestos fibres can cause mesothelioma, asbestos-related lung cancer, asbestosis, and pleural thickening - all fatal or serious and incurable diseases that take many years to manifest. In Ireland over 50 mesothelioma cases are reported annually. The WHO* and the ILO* estimate that approximately 400 people die annually in Ireland from occupational exposure to asbestos.

Silica

Silica occurs in many types of stone and in concrete, including roof tiles and slate. In dust form it will be released during cutting or grinding, and when sweeping/cleaning work areas. Inhaling fine silica dust (Respirable Crystalline Silica or RCS) can lead to serious lung diseases, including fibrosis, silicosis, Chronic Obstructive Pulmonary Disease (COPD) and lung cancer. The WHO* and the ILO* estimate that approximately 30 people die annually in Ireland from occupational exposure to Respirable Crystalline Silica (RCS).

Bitumen & asphalt

Bitumen (aka asphalt) is commonly used as an adhesive to bond membranes onto the deck or insulation board. When inhaled, bitumen fume containing Polycyclic Aromatic Hydrocarbons (PAH) can cause irritation of the respiratory tract, eyes and skin, burns, and possibly lung cancer.

Glues and solvents

There are a variety of roofing products that use or contain glues and solvents which, when breathed in as vapour, can irritate the lungs. Exposure can also affect co-ordination and so increase the likelihood of accidents. Very high exposures can cause unconsciousness and even death, for instance where adhesives are used in unventilated confined spaces.

Wood dust

Breathing in wood dust can cause asthma, a serious, debilitating, life-limiting condition, as well as irritation, allergic rhinitis and, rarely, nasal cancer, as well as impaired lung function.

Biological hazards

Breathing in dust from dried bird droppings, often found in roof spaces, can cause psittacosis which in turn can lead to severe pneumonia

CONTROL OPTIONS

Elimination/prevention

- The aim is to avoid exposure. All premises should complete an asbestos survey (completed by a competent asbestos surveyor), asbestos management plan and asbestos register. For information on work tasks involving asbestos refer to the HSA's 'Asbestos-containing Materials (ACMs) in Workplaces - Practical Guidelines on ACM Management and Abatement.'
- Eliminate tile cutting by using ½ or 1½ size tiles.
- Do not exceed the recommended operating temperature for the asphalt mix whilst roof laying, as this may cause excessive fumes.

Safe working methods

- Choose methods that avoid or limit cutting, grinding, drilling, chiselling or abrasion of silica/ wood materials wherever practicable.
- Set up a cutting area on surrounding scaffolding not on the roof itself.
- Eliminate or minimise dust creation through wet working: dampen down the work area beforehand, use water suppression for repair/demolition tasks, and dampen down during debris removal and cleaning. Where tile resizing is needed, use water to stop the release of dust into the air (e.g. modern cut-off saws have an attachment for a water hose).
- Avoid high pressure spraying for dust and debris removal, as this can release dust into the air and make contaminated slurry difficult to contain.
- Apply glues and solvents by brush, rather than spraying.
- Use covered chutes and skips and, where needed, screen off areas to prevent dust spreading.
- Dispose of asbestos waste from site regularly and safely.
- Keep workers and others not directly involved in the task as far away from the source of bitumen fumes as possible.

PPE

- Disposable overalls (type 5) are necessary. Waterproof overalls may be needed for outdoor work. Dispose of used overalls as asbestos waste.
- Single-use disposable gloves should be worn.
- Non laced boots are preferable to disposable overshoes.
- RPE selection should be made in line with the risk assessment and with advice from the supplier sought if needed.

Silica

- Use either a FFP3 disposable dust mask or a half mask with P3 filters. Wearers must be face fit tested.

All roofing work

- RPE may also be appropriate in poorly ventilated areas such as roof spaces.

MANAGING THE RISK

Training & communication

Supervision, maintenance and testing of controls and air monitoring are all vital aspects of managing the risk, in addition to health surveillance which can be a requirement in certain circumstances.

Air monitoring

Air monitoring is a specialist activity. It may be required as a result of a chemical agents risk assessment, as a periodic check on control effectiveness and to assess compliance with relevant Occupational Exposure Limit Values (OELVs), or where there has been a failure in a control (for example if a worker reports respiratory symptoms). A qualified occupational hygienist can ensure it is carried out in a way that provides meaningful and helpful results.

Air monitoring in relation to asbestos should be decided and undertaken in accordance with Regulation 10 of the Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations (2006). Measurement of asbestos in air.

Refer to the current Health and Safety Authority's 'Code of Practice' for relevant OELVs.

To obtain the most accurate and up-to-date information, it is recommended to visit the Health and Safety Authority (HSA) website or contact the HSA directly. The website may have the latest versions of the relevant code of practice, guidelines, and regulations.

<https://www.hsa.ie>

*The WHO is the World Health Organization and the ILO is the International Labour Organization. Both are agencies of the United Nations.

Roofer

OCCUPATIONAL EXPOSURE LIMITS (OELs) & EXPOSURE LEVELS

Agent or substance	Control/Exposure Limit	Exposure Levels
Asbestos (all types)	0.1 fibres/cm ³ (8-hr reference period)	The aim should be to avoid any exposure. Generally, work with asbestos should be completed by trained personnel. There is a high risk from asbestos insulation board in soffits and roof linings, sprayed asbestos on structural roof members and applied as a coating to asbestos cement sheeting and asbestos pipe insulation in roof spaces. Work on these materials as well as any at exposures above the control limit must be carried out by a qualified competent asbestos contractor.
Silica - RCS	0.1 mg/m ³ (8-hr reference period)	Capable of causing cancer. It is estimated that over 5 million European workers are exposed to RCS. Different materials contain different amounts of silica; concrete tiles can comprise between 25 - 75%, and slate 30%. Even short periods of roof tile cutting can create high levels of silica dust. All dust exposure levels are affected by the frequency and duration of work and are likely to be higher in poorly ventilated spaces. Dry work without extraction is likely to produce the highest levels of dust.
Hardwood Dust	2 mg/m ³ (8-hr reference period)	Hardwood dust is capable of causing several occupationally acquired respiratory diseases including asthma and cancer. If a mix of wood dust contains both softwood and hardwood the OELV for hardwood will apply to the wood dust mixture. All wood dust levels are affected by the duration and frequency of work. Engineering controls (LEV) should be used to minimise exposure.
Softwood Dust	5 mg/m ³ (8-hr reference period)	Wood dust is capable of causing acquired respiratory diseases such as asthma. If a mix of wood dust contains both softwood and hardwood the OELV for hardwood will apply to the wood dust mixture. All wood dust levels are affected by the duration and frequency of work. Engineering controls (LEV) should be used to minimise exposure.
Asphalt, petroleum fumes (Inhalable fraction)	0.5mg/m ³ (8-hr reference period)	Bitumen temperatures should be kept as low as possible reducing fume production. Inhalation may cause eye, nose and throat irritation, respiratory irritation, headache and nausea. There is no current OELV for total PAHs although occupational exposure limits are available for some PAHs e.g. naphthalene.
Glues/Solvents	Refer to SDS for solvents present.	Refer to 'Current Chemical Agents Code of Practice 2024'

Further information

[Asbestos Containing Materials \(ACMs\) in Workplaces - Practical Guidelines on ACM Management and Abatement - Health and Safety Authority \(hsa.ie\)](#)

[Safety, Health and Welfare At Work \(Exposure to Asbestos\) Regulations - 2006. S.I. No. 386/2006 - as amended 2010](#)

[Current Chemical Agents Code of Practice 2024 - Health and Safety Authority \(hsa.ie\)](#)

[Your steps to Chemical Safety - A Guide for Small Business - Health and Safety Authority \(hsa.ie\)](#)

[Guidelines on Occupational Asthma - Health and Safety Authority \(hsa.ie\)](#)