

Technical datasheet 4

Health and safety



The use of aircrete and health and safety

The safe use of building materials and the protection of those employed in the various stages of construction is an inclusive responsibility now shared by clients, designers and contractors as well as manufacturers. This is explicitly recognised in the Construction (Design and Management) Regulations, which outlines the legal duties of care and methods of compliance – which are part of a broad initiative aimed at reducing the numbers of accidents and health problems occurring in the construction industry each year.

This Factsheet supplements the detailed information provided by aircrete manufacturers and summarises the key issues relating to both the composition of aircrete and its safe use in practice, and relates these to the CDM responsibilities of the construction team.

The Health and Safety Executive (HSE) is the body primarily responsible for driving forward initiatives to improve the safety of construction workers and this is being done through participation and engagement, as much as by statutory control. As with other sectors, there are pressures in the construction industry to achieve 'best value'. However, the HSE is keen that this is not simply interpreted as lowest cost and that the equally important factor of best practice – which includes quality, safety, training and design - is not compromised.



The key regulations – health and safety

1. Construction Design and Management (CDM)

The CDM Regulations are primarily about using good planning to reduce the likelihood of injury or illness; designers' and contractors' responsibilities are broadly defined as:

- To eliminate hazards where feasible
- To reduce risks from those hazards that cannot be eliminated
- To provide information on residual risks if they are significant

The role of the designer is further clarified:

- To make clients aware of their duties
- To give due regard to health and safety at the design stage
- To co-operate with others involved in the project

2. Control of Substances Hazardous to Health (COSHH)

The COSHH Regulations apply mainly to employers and are more focused on actual materials used, with the aim of minimising injury or illness through appropriate control and precaution as a result of understanding the material risks:

- Know the substances used and the risks of exposure when using them
- Know precautions to be taken and implement procedures to achieve this
- Monitor exposure and plan how to react in such an event
- Inform employees and ensure information is understood



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3. Construction Industry Advisory Committee (CONIAC)

CONIAC issues Guidance Notes on methods and activities likely to occur when working with building materials; information that can be used by designers, managers and employers to ensure good practices are observed.

- Identify hazardous tasks and the risks involved
- Establish precautionary rules to minimise these risks

Most typically, CONIAC notes relate to:

- Lifting and poor posture
- Slips, trips and falls
- Sharp edges
- Skin hazards and inhalation.



4. Others

There are various additional Regulations along with guidance documents which may apply to designers, contractors or employers in the construction industry and which should be referred to for more detailed information than can be outlined in this document, these include:

- Management of Health and Safety at Work Regulations 1999
- Construction (Health Safety and Welfare) Regulations 1996
- Personal Protective Equipment at Work Regulations 1992
- Manual Handling Operations Regulations 1992



Information relating to the safe use of aircrete blocks

Products	Autoclaved aerated concrete information relating to the safe use of aircrete blocks
Composition*	Pulverised fuel ash (PFA), sand, cement, lime, anhydrite, aluminium and water
Hazard identification	When used correctly for intended purpose and following good building practice, no significant hazards exist
First Aid measures	No specific requirements other than appropriate good practice
Damage to skin	Wash with soap and water and apply sterile dressing
Dust in mouth/eyes	Irrigate liberally with water
Impact/crushing injuries	Seek qualified medical advice
Fire	Products do not support combustion
Accidental Release measures	Not applicable

*Aircrete products are manufactured using either PFA or sand or a combination of these materials.



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Handling and storage

The benefits of improved construction times and easier handling have persuaded many of the major housebuilders to use aircrete blocks for foundations as well as above DPC.

- Where blocks are banded or strapped, take care to avoid injury as band tension is released and beware of loose blocks falling from the pack.
- Suitable gloves should be worn to prevent skin abrasion which could be caused by the rough edges of the blocks. Suitable head and foot protection should be worn where there's a risk of products falling from a height.
- Do not lift packs by the packaging alone but use suitable grabs or correctly positioned forks.
- Stack blocks on level ground no more than three blocks high.
- CONIAC identifies a significant risk of injury in single handed repetitive handling of blocks exceeding 20Kg (44lbs). Most aircrete blocks are available below this weight. However, precautions should be taken to avoid excessive strain as a result of poor posture when bending or twisting. Further guidance should be sought from Construction Information Sheet 37 (Handling or laying heavy blocks or other masonry units).
- The delivered weight format of the aircrete product range generally falls well below handling guideline limits. However, if there are specific manual handling concerns, particularly with larger block sizes, it is recommended that site sampling and weighing to determine safe handling is undertaken together with suitable risk assessments. For design purposes, it is recommended that advice on typical in-use/on-site block weights is sought from the manufacturer. If single handling is needed for larger sizes then, either blocks of reduced bed height or length can be used or, other precautions taken to reduce the risk, for example, the provision of mechanical handling.'
- Blocks should be stacked close to the place they will be used, with handling kept to a minimum and with access to all sides of the stack.
- Blocks should remain in the packs until required or covered to prevent moisture ingress from rain.
- Always ensure that the landing area of scaffolding is adequate for the temporary loading of blocks.
- Avoid over-reaching or twisting and ensure good grip and secure foot placement in the working area when handling blocks.
- If blocks are to be carried, avoid obstacles or tripping hazards and uneven, slippery or unstable ground conditions.
- Take particular care or avoid using the type of wall ties that have exposed sharp edges.

First aid measures

There are no specific requirements when using aircrete blocks other than the appropriate treatment of minor injuries.

- Damage to skin – wash with soap and water and apply sterile dressing.
- Dust in mouth or eyes – irrigate liberally with water.
- Accidents where products strike or crush parts of the body should be referred to a suitably qualified medical practitioner.

In all cases of doubt, or where symptoms persist, medical advice should be obtained.



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Cutting and chasing

Aircrete may be cut or chased using ordinary hand tools. Good practice in the use of such tools should be observed to avoid the risk of injury.

When cutting blocks with a mechanical saw, it is advisable to use bench saw with slow rotating blade or local exhaust ventilation to minimise the generation of dust which may contain respirable crystalline silica. Always wear an approved dust mask to protect against inhalation and wear protective goggles, spectacles or face shield to BS EN166 when cutting bands under tension.

Aircrete: a better, safer solution

Lighter

Aircrete blocks are almost one third the weight of aggregate concrete blocks, making them exceptionally light to handle and easy to work with. This means a 215mm block is still considerably less than the 20kg threshold that CONIAC conclude may lead to a high risk of injury through sustained, single-handed use.

Larger format

Aircrete's light weight allows larger block sizes to be safely used, a practical solution which can yield significant productivity gains on site, with time savings of around 50% compared to traditional blocks.

Innovative

Aircrete's versatility is apparent in its many product innovations – handholds in foundation blocks to aid handling and speed construction; thin-layer mortar for more rapid construction, foundation blocks and blocks in beam and block floors - its unique combination of light weight, strength and workability make it a preferred, modern approach to more efficient construction.

Summary

Aircrete is a strong but lightweight, low mass building material, allowing relatively large units to be used repetitively and without exceeding the guidelines for one-person lifting. It is an intrinsically safe, inert material that can be cut using ordinary hand tools and does not require any special handling or storage requirements other than those specified.

By specifying larger, lighter aircrete blocks and structural units, specifiers and managers can design-in a lower frequency of lifts as well as markedly reduced lifting weights.

Further references:

Handling heavy building blocks. HSE Construction Sheet No. 37

The Construction (Design & Management) Regulations 2007 (CDM 2007)

Dust Control on concrete cutting saws. HSE Construction Information Sheet 54

HSE general guidance: www.hse.gov.uk/construction

For more information

This publication is only intended to be an outline guide to Aircrete products. You are advised to contact respective APA members for more comprehensive technical support and guidance, and extensive technical literature covering every aspect of designing and working with aircrete products.



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