



Aircrete Blocks

The use of damaged or chipped Aircrete Blocks

BS 8000-3:2020 recognises that it is not possible to write a universally applicable definition of the acceptable appearance of any masonry unit with regard to damage or chips as this varies significantly upon the type of masonry unit chosen and proposed use. It is also dependent upon the mortar, joint profile and workmanship. The characteristics of the surface of the masonry unit are relevant only in so far as they prohibit the achievement of the specified required appearance.

In general, poorly prepared and presented building materials will hamper the achievement of good quality blockwork. It is in the best interest of all parties to ensure that all materials are correctly stored and handled before they are used on a site.

It is also in the blocklayer's interest to ensure that when all laying work is complete, it will be respected by other trades and protected from weather or damage whilst the remainder of the work is completed.

Aircrete manufacturers are committed to their responsibility to ensure strong and durable blocks and hence, it is essential that all care should be taken during transport and handling on site to avoid subsequent chipping and damage.

Factory production control and modern methods of manufacture with the subsequent mechanical packaging and handling and particularly the virtual elimination of laborious hand loading has helped to minimise damage to the product.

Handling, storage and use of aircrete blocks

Upon delivery, Blocks should be checked against the specification and possible reference panel by whoever is receiving the delivery. Marks, labels and condition of the materials and components should be examined as delivered and any discrepancies reported to the supplier immediately.

The acceptability of minor defects when delivered to site such as damage or chips should be assessed. Blocks should be reasonably free from deep or extensive cracks and damage to the edges and corners.

A non-conformance report (NCR) may be required for the purpose of quality control which will detail the problem through a thorough investigation process, how it occurred and how to prevent it from happening again.

Once delivered and safely unloaded, place the packs carefully with a forklift on to a firm, dry, puddle free and level surface and cover them to protect them from inclement weather conditions. Avoid allowing any distortion of the pack shape to occur.

The packs can eventually be moved mechanically to site stacks on the ground, loading platforms or floors of buildings which greatly reduces the risk of damage. Note that the loading of building materials onto floors should be checked and approved by the Project Structural Engineer and suitable protection to the floor applied prior to loading.

Alternatively, a central site area or compound that is easily accessible to delivery vehicles can provide better control.

As with any Blocks or Masonry Units, there is an increased risk of damage or chipping when handled on site. If the blocks are to be used on upper floors, they should be unloaded within the handling radius of tower cranes or placed directly by rough terrain forklift trucks on a gantry scaffold.

Any additional requirements received from the Aircrete manufacturer for handling and site storage of the materials should be followed.

Packs should only be opened with sharp band cutting tools. Use of a lump hammer and bolster to break the bands should be avoided as this gives rise to damage and chipping and potential collapse of the pack.

Mechanical handling equipment should be used where practicable with the wrapping and banding kept in place unless it is impractical to do so. If the wrapping is removed for inspection purposes, replace or provide alternative protection.

Do not lift the packs by the packaging alone but use suitable grabs or correctly positioned forks. Some products are not suitable for lifting by a grab. Consult the aircrete block manufacturer for further guidance.

Packs should only be opened with sharp band cutting tools. Use of a lump hammer and bolster to break the bands should be avoided as this gives rise to damage and chipping and potential collapse of the pack.

Where blocks are banded or strapped, take care to avoid injury as the band tension is released and beware of loose blocks falling from the pack.

Blocks should be stacked close to the workplace where they will be used with handling kept to a minimum and with access to all sides of the stack. This reduces the risk of damage and the expense of double handling. Stack blocks on level ground and no more than 3 blocks high.

Work should be covered at the end of each day and covers should be readily available for use. Covers should be weighted to prevent the wind from lifting them.



Reference Panels and Benchmarks

The use of a reference or sample panel (approx. 1 – 1.5m² in size) may be an unnecessary extra but they can give the opportunity for everyone involved in the project to agree the standard of quality that can be expected with the particular block, mortar and design details that the building project demands.

Most blockwork is subsequently hidden between a plaster or render coat or plasterboard. So, it should be noted that the construction of a reference or sample panel for finished blockwork is rare as they are generally only used to check the visual characteristics if the finished blockwork will be visible at the end of the project.

An alternative method is to benchmark an area of the permanent works.

Time and effort spent in this “initial exploratory” work may be worthwhile as it may avoid delays caused by later dissatisfaction, disagreement or demolition of unacceptable work.

Blocklayers who understand why such reference panels may be required, as well as how to build them, can contribute much to achieving good quality blockwork and avoiding costly delays. The reference panel should be built to the specification and contract requirements of the finished work so that it exposes for assessment those faces that may be visible in the finished work.

Final appearance of the blockwork is a matter of agreement between the specifier or user and the supplier and may vary depending on the use to which the blocks are to be put. The whole wall panel should be viewed from a distance of not less than 3 metres in normal daylight conditions. The visual impact tends to be purely cosmetic and although may appear unsightly initially, it will have no detrimental impact on the overall structural integrity or performance of the leaf of blockwork.

If required and deemed necessary, the blocks for a reference panel should be supplied by the Aircrete manufacturer or supplier so that they are reasonably representative of the average quality of the whole order to be delivered or randomly selected in accordance with BS EN 771-4.

Summary

The blockwork should be examined as a whole rather than just viewing individual units. Some degree of damage may be inevitable on an individual block, depending on the subsequent site handling but generally speaking blocks are required to be reasonably free from deep or extensive cracks and damage to edges and corners. However, it is generally accepted that some blocks may have some form of damage or chipping. These blocks can be used as cuts to reduce the amount of block wastage on the site particularly ones with major damage to the edges or corners.

The blocks should be laid with a solid mortar bedding and fully filled perpend to reduce the risk of rain penetration and dampness in the wall. Once the mortar has cured and a full bond is achieved, then it will be at least as strong as the surrounding blockwork.

Isolated damaged or chipped blocks would be acceptable provided they have been successfully built in and regular bond patterns and minimum overlaps are maintained.

Blockwork is normally built in stretcher bond with the vertical joints in successive courses overlapping the preceding one.

A regular bond pattern should be maintained with a minimum overlap of 0.4 x the height of the block recommended in BS EN 1996-1-1. For 215mm high blocks this equates to 86mm (or 75mm for designs to BS5628).

A wall completely built with cut blocks is not acceptable and avoid using severely damaged or chipped blocks beneath lintels and beams or for the construction of isolated piers between openings.

The blocks should be laid with a solid mortar bedding and fully filled perpend to reduce the risk of rain penetration and dampness in the wall.

References

BS 8000-3:2020

Workmanship on construction sites Part 3:
Masonry – Code of practice.

BS EN 771-4:2011+A1:2015

Specification for masonry units Part 4: Autoclaved aerated concrete
masonry units.

Aircrete Products Association

Technical datasheet 4 – Health and safety – for further
guidance on Handling and storage of aircrete blocks.



Published 2022 © Mineral Products Association (MPA)

MPA Masonry is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar, and silica sand industries.
www.mineralproducts.org

MPA Masonry
The Old Rectory
Main Street
Glenfield
Leicestershire
LE3 8DG

Web
www.mpamasonry.org

Twitter @mpa_Masonry

LinkedIn @mpamasonry