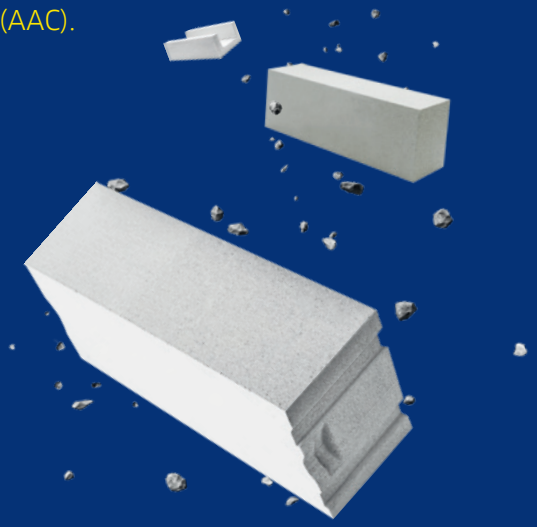
masa
Milestone to your success.

WhiteHUB

Construct sustainably. Think modular.

Building with AAC

Discover the efficient building material Autoclaved Aerated Concrete (AAC).



AAC – The Smart Building Material

Autoclaved Aerated Concrete (AAC) is a modern, mineral-based building material that has been successfully used in the construction industry for over a century. Renowned for its outstanding ecological, economic, and safety-related properties, AAC offers an ideal solution for sustainable and cost-effective building. Whether for residential, commercial, or industrial projects, this innovative material combines durability with environmental responsibility – making it a smart choice for addressing the challenges of tomorrow.

- Structural Benefits
- Eco-friendly
- Fire Resistance
- Construction Efficiency
- Sound Insulation
- Thermal Insulation
- Durability & Resistance
- Frost Resistance
- Termite Resistance

Natural Ingredients Intelligent Process

AAC is made from a carefully balanced mix of mineral raw materials – quartz sand or fly ash, lime, cement, gypsum (anhydrite) – and water. A small amount of aluminium powder or paste is added as a foaming agent, triggering a chemical reaction that releases gas and causes the mixture to expand. This process creates the distinctive air bubbles that give AAC its lightweight structure and excellent insulation properties. After the material has risen, it is cut precisely into panels or blocks and then steam-hardened in autoclaves. This final step ensures the product's strength, stability, and long-lasting performance.


Sand or fly ash


Lime


Cement


Gypsum


Aluminium


Water

From raw to remarkable!

Outstanding results start with outstanding ingredients. At our advanced **Technology Centre** in Porta Westfalica, we analyse and evaluate raw materials supplied by our customers. To give you a clear preview of your product's future, we also offer the production and testing of samples under controlled laboratory conditions.

Recarbonation

The Hidden Climate Benefit of AAC

AAC actively absorbs CO_2 from the air throughout its lifecycle. Through the natural process of recarbonation, CO_2 reacts with calcium hydroxide in the material to form calcium carbonate, which is permanently stored.

Although CO_2 emissions are generated during production due to the use of cement and lime, AAC develops a positive environmental balance over time:

After approximately 60 years, the CO_2 released during manufacturing is fully offset.

A study by the Fraunhofer Institute for Building Physics shows: AAC can absorb 76.9 kg of CO_2 per cubic metre – which equates to 198.2 kg per tonne at a bulk density of 388 kg/m³.

AAC stores CO_2 – enabling climate-neutral construction with masonry.

Advantages of AAC

Lightweight, efficient, and built for comfort

AAC blocks and panels are a modern, eco-friendly alternative to traditional building materials. Clay or red bricks, for example, have long been valued for their strength and durability, but they are labour-intensive to work with and require a lot of mortar. In contrast, AAC is lighter, larger, and offers excellent thermal insulation, making it a popular choice in contemporary construction.

Durability & Resistance

- Lifespan of up to **100 years**
- Resistant to **ageing, weathering,** and **temperature fluctuations**
- Minimal **shrinkage and expansion**
- **Alkaline composition** protects against chemicals, pollutants, and acid rain

Thermal Insulation

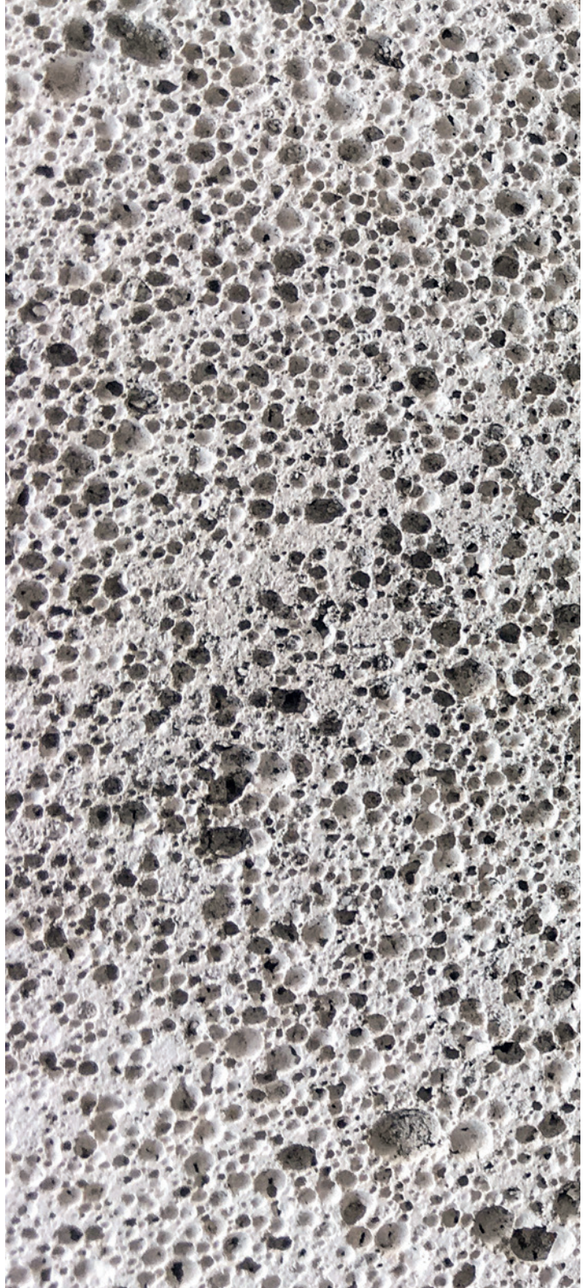
- Outstanding **thermal insulation** – 10 times better than concrete, 2–3 times better than clay bricks
- Maintains a **stable indoor temperature**
- Reduces **air-conditioning costs** significantly

Sound Insulation

- Excellent acoustic performance compared to other materials of similar weight
- Creates a quieter and more comfortable indoor environment

Frost Resistance

- Winter performance – dry AAC has reliable **frost resistance**
- With proper moisture protection, AAC retains its **strength and performance** in freezing conditions



Structural Benefits

- High **compressive strength** – suitable for load-bearing walls
- Reduces **steel and concrete usage** in multi-storey buildings
- **55% lighter walls** – lowers foundation load and earthquake impact

Fire Resistance

- **Non-combustible** – withstands heat up to **1200°C**
- Highest **fire performance class A1** according to the European DIN EN 13501 standard
- High **ASTM E119 fire-resistance ratings** – 4-hour rating for a 200 mm thick wall, 2-hour rating for a 100 mm thick wall
- No emission of **smoke or toxic gases** during fire

Termite Resistance

- **Inorganic materials** – no attraction for termites or other insects

Construction Efficiency

- **Lightweight** – easy and cost-effective transport, even to upper floors
- **Large block and panel sizes** – fewer joints, faster installation
- Saves up to **48% mortar**
- **Twice as fast to build** compared to traditional clay brickwork

Eco-friendly

- Up to **80% air content** – high resource efficiency
- **Closed-loop production** – no waste, residues reused, industrial-grade water used, no toxic emissions
- Low **energy consumption** during production

Modular Construction

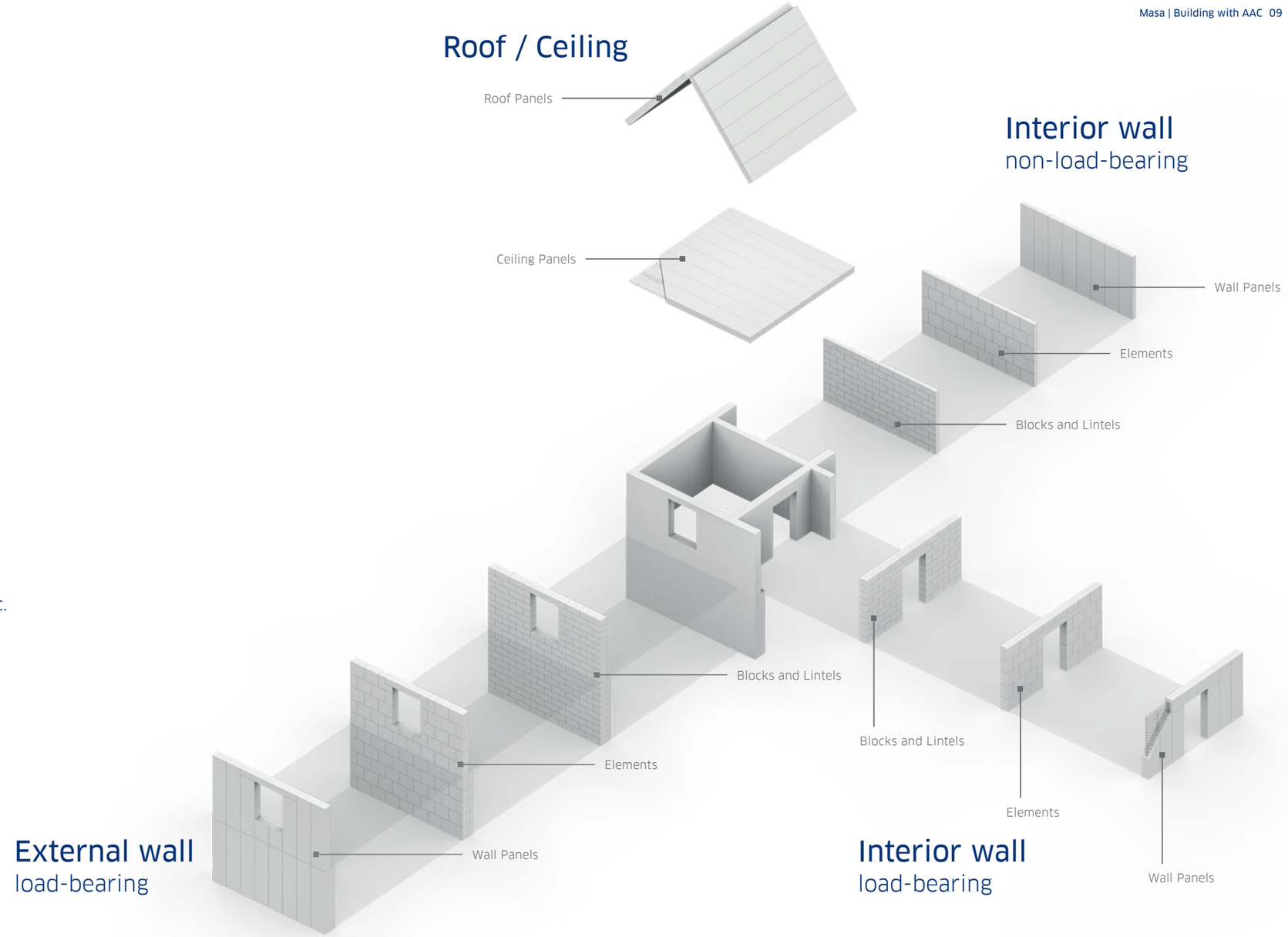
Flexible Solutions for Every Building Project

AAC is ideally suited for both new builds and renovation projects. It's perfect for single and two-family homes as well as multi-storey residential and commercial buildings.

The AAC building system includes a wide range of components:

- Blocks
- Elements
- (Reinforced) panels, such as wall panels, roof panels, ceiling panels etc.
- Flat lintels, lintels, and U-blocks for constructing load-bearing and non-load-bearing walls, as well as detailed structural solutions

All AAC masonry products are available in standard formats and offer various combinations of strength classes, densities, and thermal conductivities – ensuring maximum flexibility and compatibility for diverse building requirements.

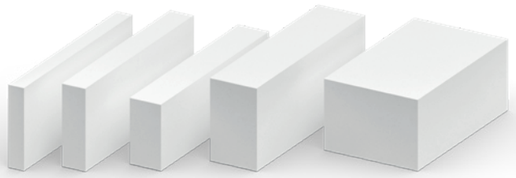


Blocks

AAC blocks are an ideal choice for both load-bearing and non-load-bearing interior and exterior walls. They are lightweight and easy to handle, available in various formats and designs. Laid with thin-bed mortar, AAC blocks enable fast, precise and efficient construction.

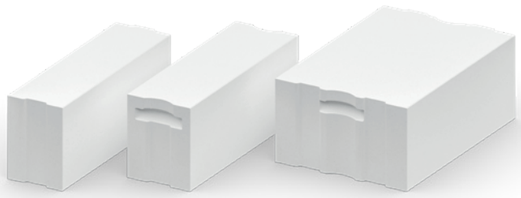
Blocks

- for external, internal, partition & load-bearing walls
- suitable for single- and multilayer walls with insulation



Blocks with Profiling

- profiled blocks with tongue/groove and grip pocket
- for external, internal, partition & load-bearing walls
- no need to mortar vertical joints – thanks to the tongue-and-groove system
- faster installation and reduced labour costs



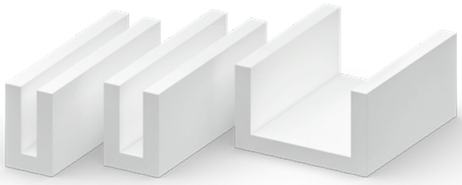
All formats and designs shown are for illustrative purposes only. Masa WhiteHUB plants offer a wide range of custom solutions.

Lintels

- for bridging wall openings such as doors and windows
- suitable for both load-bearing and non-load-bearing applications
- prevent thermal bridging thanks to uniform surface and material continuity

U-Blocks

- used as formwork for beams, lintels, tie beams or concrete pillars
- fewer thermal bridges, effective thermal insulation



Get in touch with us – we'd be happy to advise you!

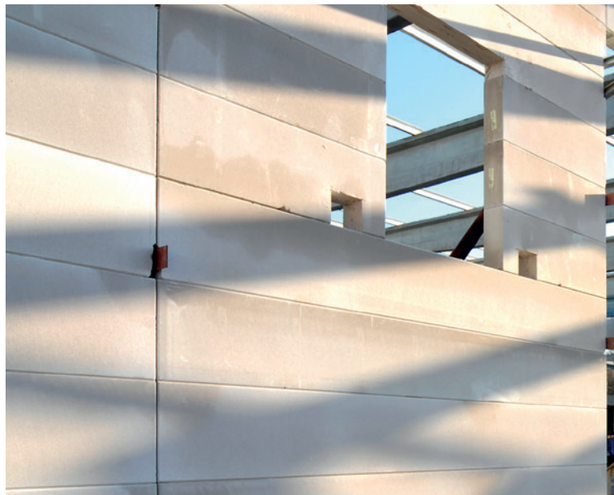
Panels

AAC is perfectly suited for element construction, using large, prefabricated components such as wall, ceiling, and roof panels to accelerate building processes and enhance overall quality. The integrated steel reinforcement gives each panel its strength.

Thanks to precise factory production, AAC elements enable fast and accurate on-site assembly, significantly reducing manual labour. Their low weight facilitates easier and more efficient handling and transportation of large-format components.

Wall Panels

Floor and Roof Panels



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Ready to bring your AAC project to life?

Let's build something great together.

For more details, explore our brochure:
"AAC – Plants, Machines, Concepts"
Scan the QR code to learn more.

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