

The Story of How Brimax Future-Proofed its AAC Plant

In April 2018, Aircrete, in collaboration with local partners Brayco and Pecam, successfully commissioned Brimax, a cutting-edge AAC plant near Rosario, Argentina. With an initial production capacity of 450 m³ per day, the plant was designed to produce high-quality AAC blocks and laid the foundation for future panel production, marking it as the first AAC panel-capable facility in South America. This project directly addressed Argentina's housing shortage by offering sustainable and efficient building solutions, aligning with the global shift toward prefabricated construction driven by faster build times, reduced complexity, and rising labour costs. In October 2024, Brimax and Aircrete completed a major upgrade, enabling full-scale production of AAC panels using Aircrete's flat-cake technology, further expanding its product portfolio. Efficient implementation of this transition was made seamless by Aircrete's forward-thinking plant design and BIM system with the help of experienced team of professionals at Brimax. Following the growing demand and its dominant position in the South American market, Brimax is now planning to increase its overall production capacity to meet market needs.

Initial turn-key project

Aircrete started the initial project by thoroughly analysing Argentina's market potential and engaging local stakeholders to identify the most suitable building applications. This collaborative approach ensured the plant's design was tailored to the country's specific construction needs, showcasing Aircrete's commitment to delivering customized

solutions for every project. The Brimax facility was engineered with flexibility in mind, allowing for a future product portfolio upgrade to panels production and for a future capacity upgrade up to 1,500 m³ per day with limited additional investments, primarily involving extra autoclaves, moulds, and frames. This future-ready design highlights Aircrete's ability to align technological innovation with long-term market demands.

Fig. 1: Inauguration of the Brimax panel upgrade.





Fig. 2: Some of the first 150 mm thick panels produced at Brimax. Strapped with gluts, ready to be shipped.

Overview of the upgrade to produce AAC panels

From the outset, Brimax envisioned manufacturing a full range of AAC panels. However, given that AAC was still an emerging product in South America, the company strategically chose to begin with blocks-only production. This approach allowed them to establish a strong market presence, build brand recognition, and refine their operations before expanding into more advanced AAC applications. Recognizing this long-term vision, Aircrete designed the plant layout to accommodate a seamless future transition to panel production. In the end of 2024, this vision was realized as Aircrete successfully completed the panel upgrade (Fig. 1), enabling Brimax to manufacture a comprehensive range of reinforced products, including partition panels, load-bearing wall panels (e.g. Fig. 2), and roof and floor panels and lintels. In a large, well-organized inauguration, which was attended by many local and national government

officials, Brimax officially marked the historical milestone of being the first AAC factory in South America that can produce both blocks and a large range of panels with a super smooth surface.

The upgrade project focused on enhancing two key areas: reinforcement and unloading. In the reinforcement section, two new reinforcement manipulators, two additional buffer lines, and an automated wax bath with a lifting station were installed to support efficient and high-quality reinforcement preparation. On the unloading side, a splitting table and additional roller conveyors were added to create an additional unloading line for all panels. Thanks to the foresight of the original plant design, the necessary civil works for these upgrades had already been allocated, minimizing disruptions with Brimax' current operations and ensuring a smooth integration. Executing such a complex upgrade within a tight schedule required meticulous planning and strong collaboration between Aircrete and Brimax. Their expertise and dedication, combined with Aircrete's experience in Building Information Modelling (BIM), allowed for extensive preparations ahead of time, significantly reducing the need for on-site intervention and plant downtime.

Brimax AAC plant today

Raw materials, mixing and rising

In the Brimax plant, sand and gypsum are ground in the ball mill that is already prepared for future portfolio and capacity extensions. Lime and cement are stored in silos within the mixing tower, while aluminium is precisely dosed using Aircrete's Alu Safe System for maximum safety. The mixing process is managed by an advanced control system, which, together with Aircrete's low-speed mixer, delivers highly accurate dosing and homogenous material distribution. The mixer's design is ideal for panel production, where variable cake volumes demand flexibility and precision. Flat-cake moulds with fully opening sides simplify cleaning and oiling, using an automatic brushing and low-pressure oiling system with individually adjustable nozzles that significantly reduce oil consumption. After casting into freshly cleaned moulds, vibrating needles are inserted to eliminate air

Plant manager quote Mattias Flores, Brimax Plant Manager

"The ability to manufacture AAC panels has always been part of our long-term vision. Thanks to Aircrete's advanced technology and well-planned design, we were able to upgrade our plant without disrupting operations. We can now offer a wider range of high-quality AAC products to the market."



Fig. 3: View of the covered rising area.

pockets, ensuring a high-quality product. The rising area (Fig. 3), designed without the need for complex pits or foundations, minimizes construction costs and facilitates easy cleaning and maintenance.

Reinforcement

The reinforcement area plays a crucial role in the production of AAC panels, as it ensures that panels meet the necessary structural requirements. The process begins with the reinforcement holding frame, which contains specialized clip or bayonet needles, being immersed in the automatic wax bath. This waxing process facilitates the smooth extraction of the needles from the risen cake while leaving the reinforcement steel embedded. After waxing and drying, the reinforcement frame moves to the assembly car, where pre-coated, anti-corrosion steel reinforcement is securely attached to the needles. Depending on the type of needle, a variety of steel reinforcement options is possible, ranging from single bar, single mesh to full cage steel reinforcement. The assembled frame is then transferred to the buffer line, where it waits until it is ready to be placed into an empty, closed mould. Following the casting and rising of the cake, the reinforcement frame is carefully extracted, leaving the reinforcement steel within the green



Fig. 4: Installed reinforcement manipulators gantry with the reinforcement manipulator at an end position in the far back.



Fig. 5: Reinforcement holding frames with needles, waiting for cleaning on the reinforcement buffer line.

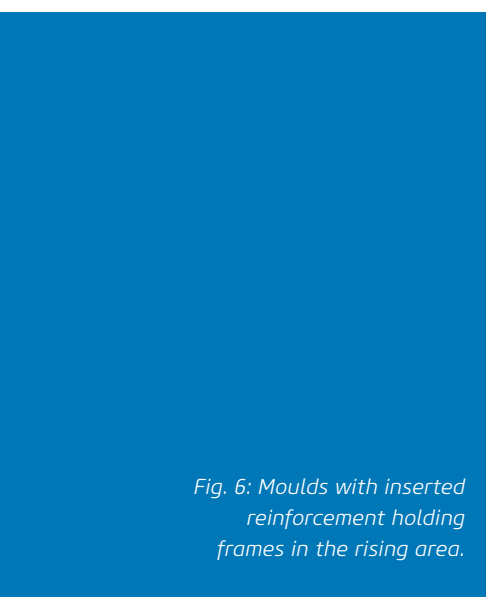


Fig. 6: Moulds with inserted reinforcement holding frames in the rising area.



cake. The empty frame is then returned to the buffer line, brushed clean, and reintroduced onto the buffer line where it waits for another cycle to begin.

To maximize efficiency and maintain seamless production flow, two reinforcement manipulators were installed to facilitate the movement of reinforcement holding frames. With only a single manipulator, the system would require additional waiting time between tasks, potentially causing bottlenecks in key areas such as mixing and cutting. By incorporating a second manipulator, the workflow remains continuous, significantly improving the overall efficiency of the reinforcement process. Another key innovation introduced in this upgrade is the advanced wax bath system. Unlike previous designs, this new standalone unit allows the reinforcement holding frame to be independently processed, freeing up the manipulator to perform other tasks. Additionally, the bath features an inclination mechanism that slightly tilts the frame, allowing excess wax to drip off more efficiently, further optimizing the process.

Beyond its immediate benefits, this reinforcement area has been strategically designed with future capacity expansion in mind. As Brimax continues to strengthen its market position, the plant layout ensures that scaling up production will require minimal additional modifications. This forward-thinking approach aligns with both Brimax's long-term vision and Aircrete commitment to providing future-proof, high-performance AAC manufacturing solutions.

Cutting

The cutting line is the core of any Aircrete plant particularly for producing panels. Brimax is equipped with Aircrete's advanced flat-cake Super Smooth cutting line, which provides very high precision and versatility, as well as the hallmark very smooth product surface that requires no plastering during wall installation.

When the green cake has risen, the mould automatically opens on all sides, allowing the grabbing



Fig. 7: Grabbing manipulator taking the cake from the open mould to move it onto the cutting line.

manipulator to lift the entire cake (Fig. 7) and position it on metal strips in the first section of the cutting line – the inclined cross cutter. After a precise inclined cross cut, the cake passes through the High-Speed Cutting Frame (Fig. 8), where oscillating double-wired cutting technology ensures highly accurate vertical cutting. This system not only delivers very smooth surfaces but also maintains minor tolerances, critical for reducing finishing costs and enabling a broader product portfolio, including thin panels. Aircrete's flat-cake process eliminates the need for separating or tilting equipment, minimizing product handling and the risk of damage. The horizontal cutting approach also prevents sticking between products, ensuring clean separations and greater efficiency. After cutting, the vacuum manipulator removes the top and side crusts, while all waste material is recycled back into the production cycle, maintaining circularity of the production process. This innovative cutting system highlights Aircrete's focus on precision, efficiency, and the flexibility to meet future market demands.

Curing and unloading

Following the cutting process, the cakes remain on their autoclaving frames, eliminating the need for additional mechanical handling or tilting. The frames are then stacked and transported directly to the autoclaves that are equipped with maintenance-free bearing wheels, eliminating the need for traditional autoclave cars and simplifying operations.



Fig. 8: Cross-cut cake going through the High-Speed Cutting Frame (HSCF).



Fig. 9: Hardened cakes stacked 3-high after autoclaving.



Fig. 10: Installing the additional line of conveyors for panels unloading.

President quote Mariano Brajkovic, Executive Director and Founder

"Brimax has established itself as the leader in innovation and technology in Argentina, and this panel upgrade marks a major milestone in our growth. Aircrete has been a trusted partner from day one, ensuring that our factory remains at the forefront of innovation. With this investment, we are not only expanding our product portfolio but also reinforcing our commitment to modern, efficient, and sustainable construction solutions."

Once the curing cycle is complete, the fully hardened cakes are transferred to the unloading area. A 6-meter long unloading manipulator swiftly moves each cake either onto a tilting table, where two full cakes of blocks are stacked and tilted 90° onto wooden pallets; or onto the splitting table, where full cakes are systematically divided into single panel packs, but instead of conventional palletizing, these packs are glutted and strapped vertically, streamlining the packaging process and ensuring the structural integrity of the panels during transport.

Much like the rest of the facility, the unloading area was originally designed with future upgrades in mind, reinforcing the plant's flexibility and scalability. This strategic approach highlights the synergy between Brimax and Aircrete in building a future-proof AAC production facility, capable of adapting to evolving market demands with minimal disruption.

interrupting production – demonstrates the efficiency of Aircrete's technology and the professionalism of Brimax's local team. With its expanded capabilities, Brimax is now positioned as a leading AAC supplier in South America, ready to meet the growing demand for innovative and sustainable construction solutions.



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Conclusion

The Brimax AAC plant stands as a testament to the power of strategic planning and future-oriented design. From the start, Aircrete ensured that the facility was not only optimized for block production but also prepared for seamless expansion into panel manufacturing. The successful implementation of the 2024 panel upgrade – completed on schedule and without



Aircrete Europe
Zutphenstraat 6
7575 EJ Oldenzaal, Netherlands
T +31 541 571020
www.aircrete.com