

GREEN BUILDING SUPPLY

SAFE · SUSTAINABLE · SMART

ESPAC

PRECAST AERATED CONCRETE

Company Profile — Executive Summary

2008

Since

2,000 m³

Daily Production Capacity

1B+ SAR

Total Projects Value

5

Export Markets



Engineered Building Solutions, Not Just Building Materials

ESPAC is a specialized manufacturer of Autoclaved Aerated Concrete (AAC) solutions, including blocks, precast panels, reinforced systems, and complete wall, roof, and floor systems.

Since our founding in 2008, we have focused on building solutions that combine engineering efficiency, industrial quality, and fast execution helping improve project performance and reduce complexity on site.

Our role does not end at supply. We work alongside developers, contractors, and consultants from the earliest project stages to help select the right system, refine design, plan procurement, and support execution.



2008
Founded

The smarter the building system, the faster, more efficient, and more sustainable the project becomes.

Vision, Mission & Promise



Vision

To be one of the leading partners in developing modern building solutions across the Kingdom and the region, through high-efficiency systems that help our clients deliver faster, higher-quality, more sustainable projects.



Mission

To develop, manufacture, and deliver advanced AAC-based building solutions backed by the technical and engineering support needed to maximize project value from design through execution.



Our Promise

We measure success not by how many products we supply, but by how many clients choose to work with us again.

Our Values

Quality

Product quality begins with raw materials, is controlled through manufacturing and testing, and is proven by real performance on site.

Commitment

We build long-term relationships based on clarity and adherence to specifications, schedules, and project requirements.

Innovation

We continuously develop solutions that improve construction speed, design efficiency, and building performance.

Partnership

We see the client as a partner in project success our role begins before supply and continues through execution and technical support.

Safety & Sustainability

We aim to deliver solutions that improve building performance while reducing waste and improving material and energy efficiency.



Part of SHAR HOLDING GROUPS

ESPAC is one of the companies of SHAR HOLDING Groups that reflects a shared industrial heritage and a long-standing presence in Saudi Arabia's construction sector

This affiliation gives ESPAC added operational depth and the stability to support large-scale, long-term projects.

A Partner Who Understands Construction

In a market where speed, quality, and efficiency matter more than ever, a project needs more than a building-materials supplier. It needs a partner who understands construction.

1

Industrial Manufacturing

Precision production capability under controlled industrial conditions.

2

Engineering Understanding

A technical view of how each project actually comes together.

3

Precast Flexibility

Blocks, panels, and reinforced elements suited to varied designs.

4

Technical Support

Guidance before and during execution — not just after the sale.

Solutions designed not only to meet specification, but to improve the overall performance of the project.

What Is Autoclaved Aerated Concrete?

AAC is a lightweight, high-efficiency building material produced from selected mineral components, processed under precise industrial conditions using pressure and steam inside autoclaves. Its structure contains millions of finely distributed air pores — giving it a set of properties especially valuable to modern buildings.

- ✓ Excellent sound insulation
- ✓ Lightweight construction system
- ✓ High thermal insulation, improves energy efficiency
- ✓ Cost-effective solution
- ✓ Reduces structural dead load
- ✓ Superior fire resistance
- ✓ Fast installation, reduces construction time
- ✓ Moisture-resistant materials
- ✓ Durable and sustainable building system
- ✓ Environmentally friendly

PROPERTIES

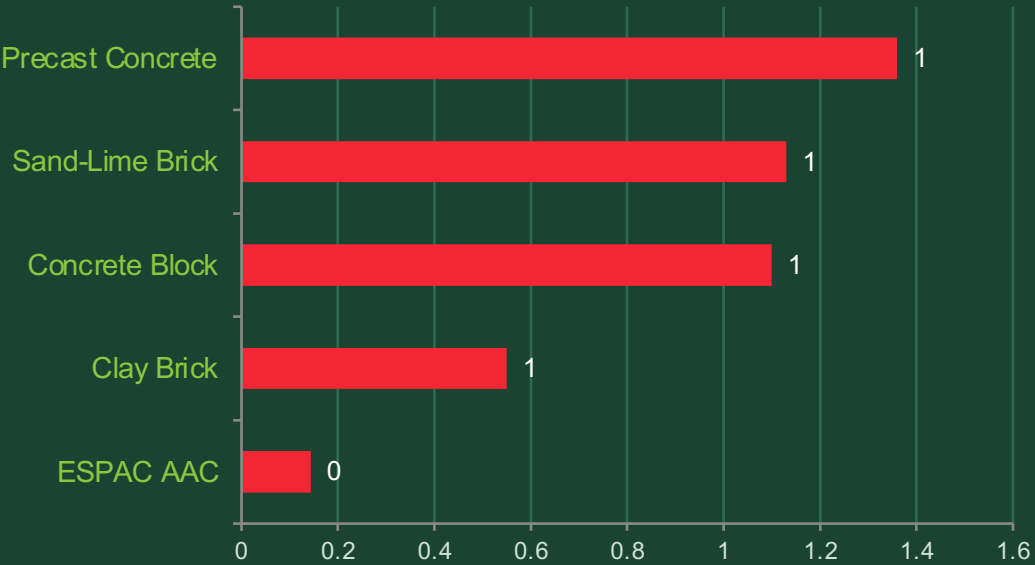
Strength Scales Directly With Density

ESPAC produces AAC at a nominal dry density of 550 kg/m³ (range 400–800 kg/m³ on request).

Dry Density (kg/m ³)	Compressive Strength (MPa)	Elastic Modulus (kN/mm ²)	Thermal Conductivity (W/m·°C)
400	1.3 – 2.8	0.18 – 1.17	0.07 – 0.11
500	2.0 – 4.4	1.24 – 1.84	0.08 – 0.13
600	2.8 – 6.3	1.76 – 2.64	0.11 – 0.17
700	3.9 – 8.5	2.42 – 3.58	0.13 – 0.21

At standard 550 kg/m³ density: 3.5–4.4 MPa compressive strength, tensile strength 20–40% of compressive, modulus of elasticity 16,000 kg/cm².

Thermal Conductivity vs. Other Materials (K-value)



Lower is better — ESPAC AAC insulates far more effectively than conventional materials.

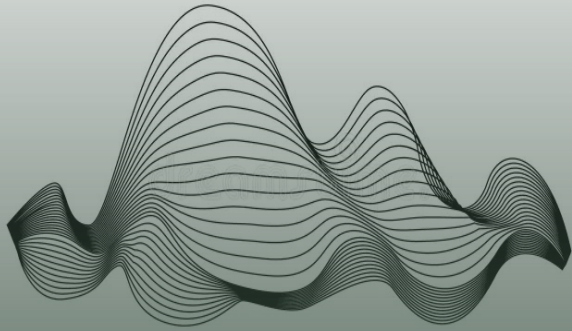
PERFORMANCE

Acoustic, Fire & Structural Behavior

dB

Acoustic Performance

90 dB → 42 dB



With a 20 cm AAC wall. Improves to 54 db reduction at 25 cm with gypsum-board finish.

°C

Fire Resistance

68°C



unexposed-face temperature after 6 hours of fire on a 150 mm wall (vs. 270°C for equivalent concrete).

Durability

A stable Tobermory structure and anti-rust-coated steel keep AAC sound for decades, buildings from the 1930s remain in service today.

Seismic Resistance

Low mass reduces total dead load and seismic demand; wall geometry acts effectively as a shear wall.

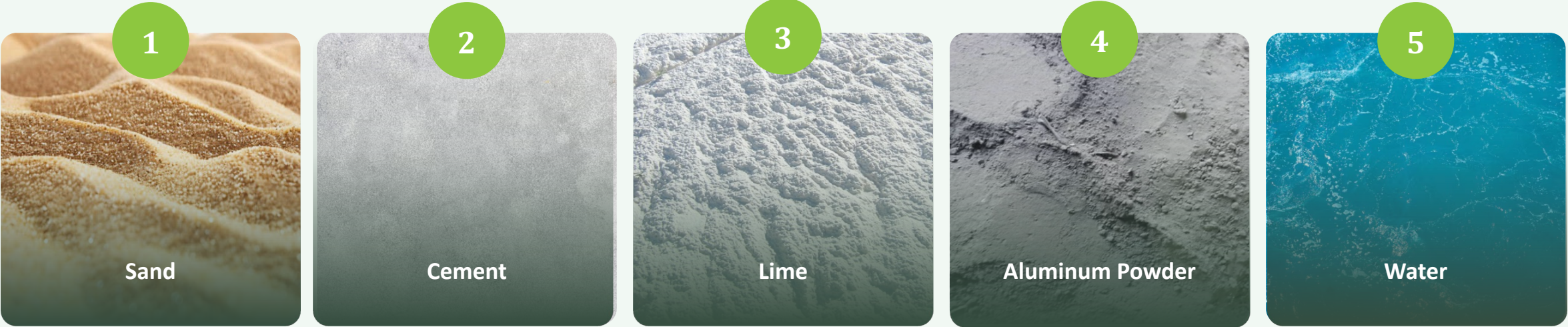
Thermal Movement

Expansion/shrinkage coefficients far below regular concrete, for superior long-term stability.

Melting Point

1,200°C, with air-tightness of 1–2.5.
Air changes per hour at 50 Pa reference pressure.

From Five Raw Materials to Finished Product



Unlike ordinary concrete, no aggregate larger than sand is used. Sand is ground to fineness, batched with the other materials, then mixed with water and aluminum powder into a cementitious slurry poured into molds.

Simplified Manufacturing Flow



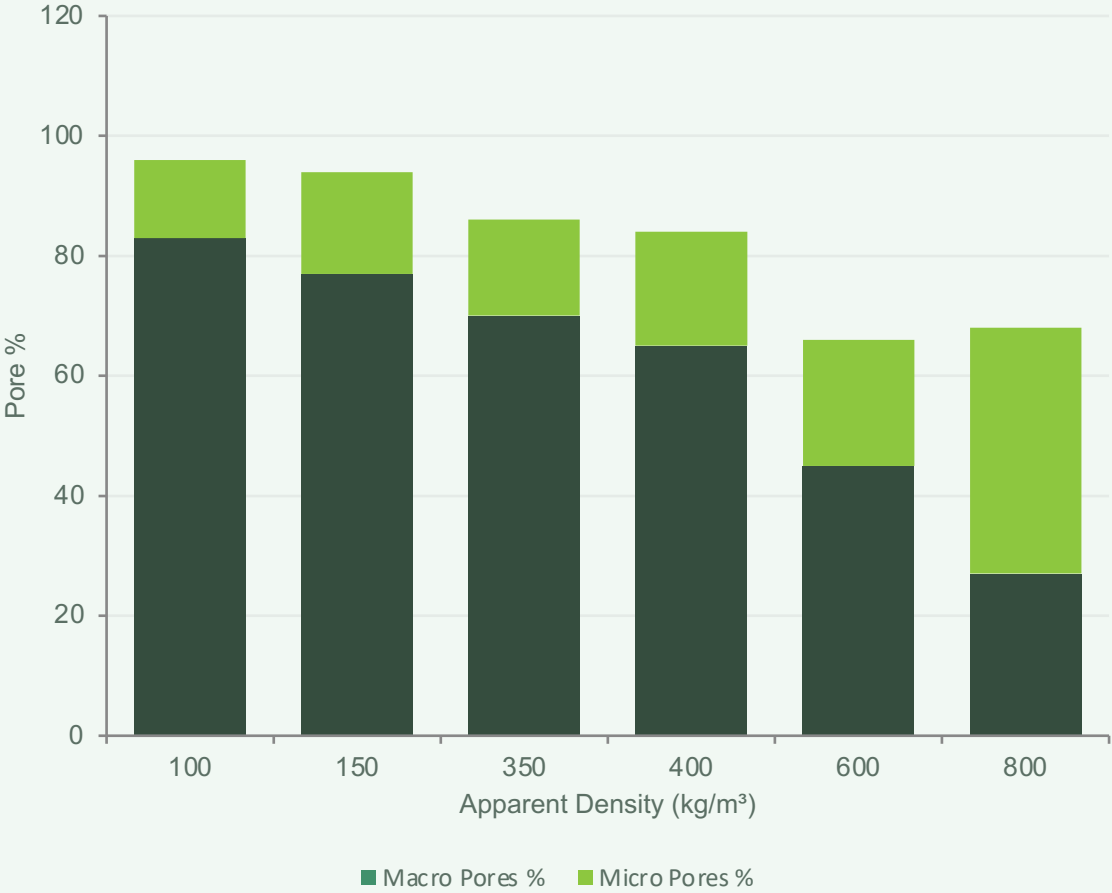
PROPERTIES

Microstructure & Porosity

AAC consists of a micro calcium-silicate binder matrix. During autoclaving, fine siliceous material reacts with lime to form a microcrystalline tobermorite structure. This composition contains no toxic or radioactive material and remains constant after manufacturing.

- Macro pores:**
0.1 – 1.0 mm, distributed uniformly for consistent density.
- Micro pores:**
~0.1 mm, formed on the walls between macro pores.
- Crystal structure:**
Plate-shaped tobermorite, $\text{Ca}_5\text{Si}_6\text{O}_{16}(\text{OH})_2 \cdot 4\text{H}_2\text{O}$.

Pore Distribution by Apparent Density (kg/m³)



Reinforced System

Code	Product	Thickness (mm)	Typical Usage
VP	Vertical Wall Panels	100–300	Load bearing, partition, cladding, parapet walls
HP	Horizontal Wall Panels	100–300	Boundary, cladding, parapet, partition, filling walls
FSP	Floor Slab Panels	100–300	Floor slabs, design load up to 600 kg/m ²
RSP	Roof Slab Panels	100–300	Roof slabs, design load up to 250 kg/m ²
LP	Wall Lintel Panels	100–300	Load-bearing lintels over openings
LX	Box Lintel Panels	100–300	Load-bearing box lintels, external walls

Complete Precast System

VP, HP, LP, LX, RSP and FSP products combine into a complete precast building system from foundation to roof — connecting to concrete or structural steel frames.

Maximum panel span: 6 m clear span

Preferred story height: 3 m

Module: 600 mm (300 mm cut panels)

Min. end-bearing: 75 mm (20 cm walls)

PRODUCTS

Blocks & Building Systems



S-Blocks

Standard PAC Blocks

Thermal & load-bearing walls, partitions.



J-Blocks

Jumbo PAC Blocks

External / internal walls; replaces C.M.U. or clay blocks.



H-Blocks

Hordi PAC Blocks

Lightweight infill between ribbed concrete slabs.

System Connections & Usage



From Design to Execution

1

Project Study

We begin by understanding drawings, technical requirements, timeline, and scope of work.



2

Engineering & Design

Our technical team studies the proposed system and prepares or reviews the required details within ESPAC's scope.



3

Planning & Production

Products and quantities are scheduled to match project needs and the approved program.



4

Quality Control

Products pass through inspection and testing stages during production per approved procedures and specifications.



5

Delivery

Transport and delivery are coordinated to match site needs and the execution sequence.



6

Technical Support

ESPAC continues to provide technical support and coordination with project stakeholders through execution.

Building Green Is at the Heart of ESPAC

Sustainability in construction does not begin after a building is operational — it begins with how it is designed, which materials are chosen, and how it is built.

1

Thermal Efficiency

Excellent insulation reduces heating and cooling energy consumption throughout the building's operating life.

2

Lower Carbon Footprint

Lightweight products require fewer raw materials and lower transport energy.

3

Less On-Site Waste

Precast, factory-made systems reduce waste, labor, and project timelines compared to fully site-built work.

4

Resource Efficiency

Lightweight systems reduce structural loads and concrete / steel consumption.

5

Supports Green Building Goals

May contribute toward select green-building credits such as LEED, depending on project design — ESPAC does not claim the product alone confers certification.

6

Vision 2030 Alignment

Contributing to sustainable urban development across the Kingdom.

Solutions Across Every Building Type

Residential

Villas, residential compounds, towers, and large-scale housing developments.

Commercial

Shopping centers, office buildings, retail outlets, and mixed-use projects.

Industrial

Factories, warehouses, logistics facilities, and industrial premises.

Hospitality

Hotels and serviced apartments requiring strong thermal and acoustic performance.

Education

Schools, colleges, and educational facilities with repetitive designs and tight schedules.

Healthcare

Hospitals and medical centers requiring high quality and precise coordination.

Government & Public

A wide range of institutional facilities and public projects.

Value for Every Stakeholder

Developers

- A shorter delivery program.
- Controllable quality.
- A better total project cost.
- Long-term performance.

Contractors

- Clear technical details.
- Reliable supply planning.
- Faster, easier installation.
- Technical support when needed.

Consultants

- A system that can be understood, verified, and designed to project requirements.
- Full technical documentation for engineering review.

Investors

- Faster execution, industrial-grade quality, and long-term operating value across the building's lifecycle.

A Clear Difference, Not a Competition

A simple comparison of characteristics — not a judgment against traditional solutions.

Factor	ESPAC AAC / PAC Solutions	Some Traditional Solutions
Weight	Relatively lighter	Higher in many applications
Thermal Insulation	Outstanding thermal performance	Depends on multiple layers
Prefabrication	Available in panel systems	Limited in traditional construction
Speed of Execution	High, especially with panels	More dependent on manual labor
Fire Resistance	Good properties depending on system	Varies by material
Waste	Reducible through pre-planning	Can be higher on site
Precision	Industrial manufacturing	More dependent on site conditions

A Partner From Day One to Handover



We aim to build a long-term relationship with our clients — not a single transaction.

TRACK RECORD

Delivering Landmark Projects Since 2008

2,000 m³

Daily Reinforced
AAC Capacity

1B+ SAR

Total Projects Value

5

Export Markets
(Kuwait, Qatar, Oman,
Bahrain, Iraq)

20+

Landmark Projects
Highlighted Below



120 Buildings — King Faisal Air Academy

SELECTED PROJECTS

Al Zenia Tower

Al Dar

Khalifa Port Industrial Zone

Abu Dhabi Ports

120 Buildings — King Faisal Air Academy

Ministry of Defense

9 Schools — TBC Project, Jeddah

Ministry of Education

691 Villas — Saheel Project, Riyadh

Ministry of Housing

Park Hyatt Hotel

AHDN / TDIC

2,945 Villas — Diar Al Hasa

Ministry of Housing

250 Factories Project

MODON Authority

Tabuk University Project

Ministry of Education

Amaala Triple Bay Builder Works

Red Sea Authority

A selection of completed projects — not the full portfolio.



PROJECTS



VILLAS - MINISTRY OF HOUSING



KING FAISAL AIR ACADEMY – MAJMAAH



BOUVARDIA CITY PROJECT JEDDAH



VILLAGGIO

PROJECTS

Industrial & Large-Scale Development



CLIENTS



Quality Recognized by Leading Authorities



Registration Certificate of Thermal Insulation Product

المواصفات السعودية
Saudi Standards



Saudi Standards, Metrology and Quality Organization



Certificate of Approval for the Load-Bearing Building System Using Precast Aerated Concrete (PAC)



Commercial Activity License



Precast Aerated Concrete (PAC) System manufactured by ESPAC Precast Aerated Concrete (PAC) System, KSA.



ISO 9001:2015
(Quality Management System)
Manufacturing of Precast Aerated Concrete



Fire safety and protection equipment installation certificate

System approved by: Municipalities, Civil Defense, the Royal Commission, Aramco, SCECO, Ministry of Health, Ministry of Housing, TBC, and SASO.

Compliant with ACI 523.4R, ASTM C1386, Saudi Standards (SASO), and USGBC / LEED credit guidance.

LET'S BUILD BETTER

Let's Talk About Your Next Project

Whether you are a developer planning a new project, a consultant looking for an efficient building system, or a contractor who needs to raise execution speed — the ESPAC team is ready to study your project's needs and propose the right solution.

Our commitment to the client does not end at the factory gate. Our true success is measured not by how many products we deliver, but by how many clients choose to work with us again.

Address

2nd Industrial City, Dammam 34324,
Eastern Province, Saudi Arabia

Phone

+966 558403000

Email

info@espac.com

Website

www.espac.com

Engineered for Faster, Smarter and More Efficient Building.