



Q-CON Autoclaved Aerated Concrete

The Total Solutions for Wall and Floor System

Q-CON



លេខក. 1505-2541
លេខក. 1510-2541
ISO 9001:2000



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What's Autoclaved Aerated Concrete " AAC " ?



Autoclaved Aerated Concrete (AAC) is a lightweight, strong masonry product. Manufactured using naturally available materials such as sand, cement, lime, gypsum and small amounts of aluminum. And "AAC" is an energy efficient, environmentally friendly masonry product.

"Cement Base" Portland cement type I is used as main raw material to produce this kind of concrete. The quality of concrete produced by using Portland cement type I is consistent. Moreover, this kind of Autoclaved Aerated Concrete is stronger and more durable than concrete blocks made from some other production processes because of the calcium silicate generated by this production process.

"Q-CON" Autoclaved Aerated Concrete is an international standard quality because we are an autoclaved system with our cement base formula for all of our Q-CON products. This production process is acceptable worldwide to produce excellent quality Autoclaved Aerated Concrete.

Furthermore, "Q-CON" is strict and careful in every each and every step of the production process to produce Q-CON products. We use aluminum in our production to make a superior quality of Autoclaved Aerated Concrete. We always test the quality of all raw materials before we mix them together regarding to the formulation of HEBEL Technology, Germany. Then we wait until the small bubbles produced in this stage of production are distributed consistently and thoroughly within the concrete blocks before we incubate them. Next step, we will cut them with high standard cutting machines to make each block have precise dimensions before they are sent to be autoclaved in high pressure streaming machines. Within a specific high temperature, high pressure and perfect timing, calcium silicate will be produced to make "Q-CON" Autoclaved Aerated Concrete with their unique excellent quality, which is lighter but stronger, that comply to world standards for Autoclaved Aerated Concrete.



"Q-CON Autoclaved Aerated Concrete is an International Standard of Quality"



Quality Construction Products Public Company Limited was established in 1994. We are the only authorized manufacturer and distributor of "Q-CON" Autoclaved Aerated Concrete in Thailand and South East Asia. We use "Cement base" formulation technology from HEBEL Technology, Germany, to produce our products. HEBEL Technology, Germany is the market leader for Autoclaved Aerated Concrete that has been known and accepted in many countries worldwide for more than 70 years.

"Q-CON" is the market leader for Lightweight Concrete in Thailand. The quality of our products is guaranteed and accepted by customers in Thailand. With the rapid high company growth, the company has become to be a public company.

Quality Assurance

"Q-CON" Autoclaved Aerated Concrete meets the industrial standard from the Thai Industrial Standard Institute.

TIS 1505-2541: Autoclaved Aerated Concrete Elements

TIS 1510-2541: Autoclaved Aerated Reinforced Lightweight Concrete Panels

And it meets worldwide industrial standard such as:

DIN 4165: Autoclaved Aerated Concrete Blocks & Flat Elements

DIN 4223: Steam Cured Reinforced Roof and Floor Panel out of Gas and Foamed Concrete

JIS A 5416-1995: Autoclaved Lightweight Aerated Concrete Panels.





Q-CON is a proven masonry building product used in residential, commercial, hospitality, school & public, manufacturing, warehouse and civil buildings.

A high performance autoclaved aerated concrete (AAC) available in blocks, lintels, panels, counter, Q-CON is strong, versatile and resilient. It is quick and easy to build with, energy saving, better quality of life, better to live in, sustainable building material and environmental sustainability.

What is Q-CON?

Q-CON is brand of Autoclaved Aerated Concrete (AAC).

Q-CON is available as blocks, lintels, panels and counter, it's easy to handle and cut. Q-CON lintels, panels and counter contain steel reinforcement for added strength and are available in a variety of sizes, depending on the application.

Q-CON is strong, versatile and delivers a range of benefits including thermal and acoustic insulation, fire resistant and faster construction and structural performance for earthquake.

The Superior Characteristics of Q-CON



Energy saving:

Q-CON is 4-8 times more energy-efficient than solid clay brick. It will reduce the transference of heat from the outside to the inside of buildings. Your air conditioner will run less often. You will save up to 30% on your electric bill.



Lightweight:

Q-CON is 2-3 times lighter than solid clay brick and 4-5 times lighter than normal concrete. Without losing any strength, the total mass of your foundation can considerably reduced. It will obviously help you reduce your construction costs.



Accurate:

Q-CON has precise dimensions, helping the builders produce nice smooth finishes. It comes with many sizes that you can choose to fit in your projects.



Easily worked:

Q-CON is easy to use. There is no skill require to do such works. You can easily cut, saw, plane, drill, and chase for the placement of electrical lines and water pipes by using conventional working tools.



Rapid Assembly:

Q-CON in bigger but lighter, which makes it more convenient for transportation. Consequently, your projects can be completed with Q-CON 2-3 times faster than with solid clay brick.



Noise resistant:

The structure of Q-CON provides superior acoustic applications. It can help to reduce all the noise from outside to inside the buildings better than solid clay brick.



Fire resistant:

Q-CON is fire resistance. It can resist fire 2-4 times longer than solid clay brick, so that it will help reduce all injuries and damages to you and your assets.



Non-toxic:

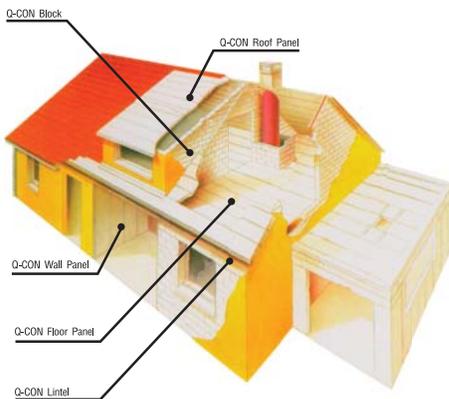
Q-CON is a non-toxic material, so you can work without harm. After burned, it will not generate smoke and any toxic fumes.



Long lasting:

Q-CON is durable. It will be good in any kind of weather and in all circumstances. It cannot be worn away easily.

Quality Products from "Q-CON"



"Q-CON", the market leader of Autoclaved Aerated Concrete has a variety of products that you can use for different kinds of jobs.

Quality Assurance

Each step of the production processes to produce Q-CON products is carefully checked and controlled to make sure the product meets the quality standard set by HEBEL Technology. Therefore, our products will comply with German and Tai industrial standard. We start with testing the quality of all raw materials used to produce "Q-CON" Autoclaved Aerated Concrete until the last step of production. We final check qualifications such as compressive strength and density before delivery to customers.

Qualifications of Q-CON Product

1. "Q-CON" Blocks can be used to build interior and exterior walls as load bearing walls, and non-load bearing walls. The dimension is 20x60 cm, each block. The thickness is in the range from 7.5 to 25 cm in 2.5 cm increments. To build 1 sq.m. of wall, you will need only 8.33 "Q-CON" blocks.

Q-CON BLOCKS

Block Thickness (cm)	Width x Length (cm)	Block/Sq.m	Weight(kg)/Sq.m	Block/Pallet	Sq.m/Pallet
7.5	20 x 60	8.33	46.5	200	24
10	20 x 60	8.33	62	150	18
12.5	20 x 60	8.33	77.5	120	15
15	20 x 60	8.33	93	100	12
17.5	20 x 60	8.33	108.5	80	10
20	20 x 60	8.33	124	70	9
25	20 x 60	8.33	155	60	7





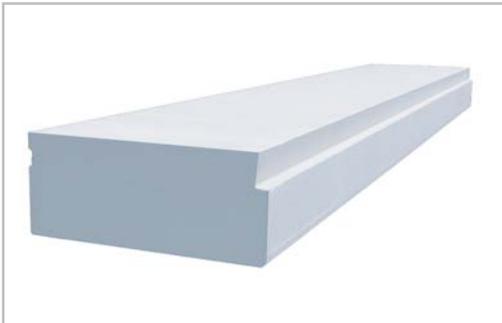
2. **“Q-CON” Lintels** is an beam with steel reinforcement that you can use horizontally above door and window frames that will support the wall built on top of it, without concrete stiffeners. Q-CON lintel comes in 10, 12.5, 15.20 cm thickness and the lengths available are from 1.2 – 3.6m in 30 cm increments.

Q-CON LINTELS			
Lintel Thickness (cm)	Width (cm)	Length (cm)	Min. Load Bearing (cm)
7.5	20	1.20, 1.50, 1.80, 2.10, 2.40, 2.70, 3.00, 3.30, 3.60	40
10, 12.5, 15, 17.5, 20, 25			15-30



3. **“Q-CON” Wall Panel** is pre-fabricated reinforced that you can use to build interior and exterior walls. The walls that are built by Q-CON wall panels can withstand 180 Kg/sq.m. of direct wind load. It is available with 60 cm width, 6 m of maximum length, and 10-20 cm thickness in 2.5 increments.

Q-CON WALL PANEL			
Thickness (cm)	Width (cm)	Length (m)	Load Bearing (Kg/m ²)
7.5	60	4.00	≤ 160
10	60	4.50	≤ 160
12.5	60	5.00	≤ 160
15	60	5.50	≤ 160
17.5	60	6.00	≤ 160
20	60	6.00	≤ 160
22.5	60	6.00	≤ 160
25	60	6.00	≤ 160



4. **“Q-CON” Floor and Roof Panel** are reinforced product that is used to build your floor and roof without having any support. The maximum length available is 6 m with 60 cm width and 10-30 cm thickness. Live load is 100-1,000 Kg/sq.m.

Q-CON FLOOR PANEL			
Thickness (cm)	Width (cm)	Length (m)	Load Bearing (Kg/m ²)
10	60	2.00 - 3.00	150 – 500
12.5	60	2.00 - 4.00	150 - 800
15	60	2.00- 4.50	150 - 1,200
15	60	2.00 - 5.50	150 – 1,800
15	60	2.00 - 6.00	230 – 2,400
22.5	60	≤ 6.00	≥ 230
25	60	≤ 6.00	≥ 320
30	60	≤ 6.00	≥ 550



5. **“Q-CON” Thin Bed Adhesive Mortar** is a Pre-mixed mortar that you can just mix with clean water, stir, and it will be ready to work without adding any more chemicals. A 2-3 mm laying of thin bed adhesive mortar has high compressive strength.

Q-CON THIN BED ADHESIVE MORTAR	
Technical Data	
Packaging	50kg bag
Colour	Grey
Mixing Ratio	12 - 14 Litres of clean water / 50kg bag
Coverage	Approx. 25m ² / 50kg bag for 10cm blockwork (Estimated based on 0.2cm thick bedding for 10cm blocks)
Fire Rating	Up to 4 hours when used with Q-CON AAC Blocks
Fire Hazard	Non-Flammable
Toxicity	Nil



6. **“Q-CON” Rendering Mortar** is the special mortar for Autoclaved Aerated Concrete. It is an ultra-smooth, slick mortar that is easy to trowel. It contains additives to increase adhesion and make the mortar more hygroscopic, thus eliminating cracking.

Q-CON RENDERING MORTAR	
Technical Data	
Packaging	50kg bag
Colour	Grey
Mixing Ratio	10 - 12 Litres of clean water / 50kg bag
Coat Thickness	0.5 – 1.0cm
Coverage Approx.	8.9kg/m ² , 5.6m ² /50kg bag at 0.5cm thickness
Additives	Water soluble additives to improve workability, water retention, durability and adhesion
Fire Hazard	Non-flammable
Toxicity	Non



7. **“Q-CON” Tools and Accessories** such as trowels, rubber mallets, handsaws, toothed trowels, sanding trowel, grooving tools, metal straps, and frame anchors also provide to make your work more efficient.

Why is Q-CON worth more than Clay Brick?

Topics/Details	Q-CON Autoclaved Aerated concrete	Clay Brick or Red Brick
Product Categories	International standard products Stable, Strong and durable.	Made from clay, cut to shape, and then put it in the brick kiln. Unstable quality.
Production Process	German technology. Autoclaved in high standard steaming machines with high pressure until it's strong and light.	Low Technology. Made by local laborers where there is clay.
Industrial Standard	TIS1505-2541: Autoclaved Aerated Concrete Elements DIN 4165: Autoclaved Aerated Concrete Blocks & Flat Elements	Most products in the market are not standardized. Cannot control quality.
Packing & Transportation	Stack on wooden pallet. Machine and fork lift are used to delivery. Delivery by pallet.	Delivery by hand, block by block. So, it's too difficult especially for High-rise buildings. Require more space to store
Installation Cost per 1 Sq.m. of Wall (Approximate)	Q-CON 7.5 cm thick with rendering	
	Material Cost	Labor Cost
Materials		
Laying Mortar		
Plastering both sides		
Steel Rod or Metal Strap		
Lintel or concrete stiffener		
Total Cost		
Designing Stage - Building Structure	Cost Saving because of smaller structure regarding half of the weight. (90 Kg/sq.m.) Light Weight but Strong.	Bigger structure because it's twice as heavy (180 kg/sq.m.) Heavy
Construction Stage - Quick Installation	Due to lightweight and dimensional accuracy. With the use of 2-3 mm thick premixed joint mortar and 10 mm. thick plastering material, installation of Q-CON block wall is 2-5 times faster than clay brick.	Heavy and rough surface, need to use thick cement sand joint mortar render, lot of site mixing and storage space for different kinds of bulky material.
- Cleanliness and Wastage	Use premixed joint mortar and plaster, only water is needed, cleaner and neater site conditioning. Much less construction wastage thus saves site cleaning cost.	Site mix of cement, sand, lime, very wet and messy site condition. High ratio of construction wastage. Difficult to control quality of site mix of joint mortar and render, affects quality of final product.
- Quality of Final product	Materials produced in factory under stringent quality control, good quality of finished wall can be achieved with less skillful labor.	Lot of site mixing and difficult to maintain consistent quality. Skillful labor is required.
Using Stage - Up to 20% energy saving for air conditioning system capacity	Save money approximately 89-265\$/unit.	Bigger size of air conditioning units that have to work all the time.
- Money Saving from Electricity Cost	Up to 25% money saving	Not a heat insulator. Keep heat. Need more electric to run the air conditioning system.
- Sound Resistant	Excellent sound resistant	Non-sound resistant.
- Fire Resistant Rating	4 hours fire rating for only 75 mm thick. Very cost effective	Only 1-1.5 hours fire resistant rating
- Modernization	Modern products for buildings and occupants	Old fashioned products used than 100 year with no development.
- Life Time	More than 50 years	A lot shorter than 10 years



Material Qualification Comparison

Material Property	Q-CON	Clay Bricks
Material weight (Kg/m ²)	~ 45	130
Weight with 2-sides (Kg/m ²)	90	180
Usage per sq.m. (piece/sq.m.)	8.33	130 - 145
Compressive strength (Kg/cm ²)	30 - 80	15 - 40
Thermal Conductivity (Aatt/m.k.)	0.13	1.15
Overall Thermal Transfer Value (Watt/m ²)	32 - 42	58 - 70
STC Rating (Decibel)	43	38
Fire Rating (Hour)	4	1 - 2
Erection speed (m ² /day)	15 - 25	6 - 12
Waste and loss stiffening	0 - 3 %	10 - 30%
Installation of door/window	No added concrete & No support	Both required

Physical Product characteristics

Characteristic	Unit	Block		Lintel / Panel
		G 2	G 4	
1. Normal Dry Density	Kg/m ³	500	700	≥ 600
2. Working Density	Kg/m ³	620	910	≥ 780
3. Compressive Strength	Kg/cm ²	≥ 30	≥ 50	≥ 40
4. Modulus Of Rupture	Kg/cm ²	4.4	8	-
5. Ultimate Tensile Strength	Kg/cm ²	4.4	4.4	-
6. Modulus Of Elasticity, E	Kg/cm ²	15,000	17,500	21,900

Thermal Performance

Product	Thermal Conductivity (W/mk)	Heat Thermal Resistivity, R(m2/mk)	
		10 cm	0.77
Q-CON Blocks	0.13	15 cm	1.15
		20 cm	1.54
		Q-CON Panel	10 cm
Q-CON Floor	0.16	15 cm	0.94
Q-CON Lintel		20 cm	1.25

Acoustic Performance

Q-CON Block	Finishing	STC Ratings (Decibel)
10 cm	None	38
	Rendering	43
15 cm	None	43
	Rendering	46
20 cm	None	48
	Rendering	50

Fire Rating

Thickness	Fire Rating Level (Hr)				
	7.5	10	12.5	15	20
Q-CON Blocks	-	2	2	4	4
- Load Bearing	4	4	4	6	6
- Non Load Bearing					
Q-CON Floor Panel	-	-	3	4	4
Q-CON Wall Panel	-	-	-	1	2.5



"Q-CON" Autoclaved Aerated Concrete can be used to eliminate weaknesses of solid clay brick. It solves the problems of the old ways of building walls. It is obviously the new solution for modern buildings and houses. All the benefits for all parties are listed:

1. Designing stage

Architects can freely design various kinds of walls without worrying about leaking problems. All projects can be done perfectly to the designs of architects because of the qualities in every block such as the accuracy of the blocks and their smooth surfaces.

Engineers can reduce the size of structures such as beams, columns, and foundations. They can also decrease the amount of reinforcement and the number of piles used without interfering with the structural strength of buildings. With only 500 kg/m³ normal dry density, Autoclaved Aerated Concrete is 2-3 times lighter than clay brick and 4-5 times lighter than regular concrete, so it can decrease labors and costs.

2. Construction stage

It's easier for masons to get their jobs done because it's so easy to saw, plane, drill, and mill. It's convenient to transport and move since the size of each block is larger but lighter. Moreover, installation instructions. So, masons can finish their jobs quicker.

Constructions will be able to precisely estimate materials and set an accurate job schedule. The reliability of "Q-CON" Autoclaved Aerated Concrete helps you to save money and avoid unexpected costs. It needs only 0.5-1.5 cm thickness for the mortar coating and 2-3 mm thickness for the mortar joint between each block which will help you save a lot of money. Your projects will be finished 2-5 times faster because you can eliminate unnecessary labor. It will be easier for engineers to inspect and get projects done on time.

3. Using stage

"Q-CON" is an excellent heat and acoustic insulator, not only reducing heat transfer from outside to inside building 4-8 times better than clay brick does but also not retaining heat inside itself. Thus you could save electric bills regarding air conditioning system up to 30% and the capacity of air conditioning systems could be reduced. Also, it reduces the level of noise transfer between rooms so it is perfect for meeting rooms, theaters, hotels, hospitals, office buildings and houses.

Having tested for fire resistance, "Q-CON" can block fire up to 4 hours and resist the heat transfer up to 1,100 oC from one side of the wall to the others. Therefore, you would have enough time to save lives and assets. Furthermore, it eliminates the mold problem occurring from humidity because it absorbs water more slowly than some other materials do. Also, it reduces any leaking problem and it is easy for maintenance. Last but not least, it is absolutely non-toxic product because it is made from natural materials.



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