EST. 1935
KOTHALI
KEBE
NORTHERN GREECE CERAMICS

new generation of ecological products

BUILDING SYSTEMS

ORTHOBLOCK®
ORTHOBLOCK® PLUS
NewORTHOBLOCK®
New ORTHOBLOCK® PLUS

Ecology and Clay

The realization that we can no longer inconsiderably waste resources to provide for a way of living that leads our planet and our civilization to disaster, lead to the major switch to **Ecology** and **Green Development**.

Ecological Building is the construction of low cost buildings that consume little energy to create thermal comfort, are made of natural readily available materials, demand minimum maintenance and have practically unlimited life expectancy.

Clay is used for over 4,000 years to make brick and roof tiles, due to its excellent performance regarding fire, weather and sound, its remarkable endurance and its eloquent aesthetics.

For the production of clay bricks, the only ingredients are clay mixtures and water.

When considering the availability, the ability to fully reinstate the clay quarries, the carbon print (energy consumption) for the production, the transport and the laying, the service life expectancy and the energy savings through thermal gains of the building, **clay is a unique ecological building material**.

Ecological Production

By **Green Development** we mean the utilization of innovative technologies for the production of necessary goods and materials, consuming minimum energy and with zero littering.

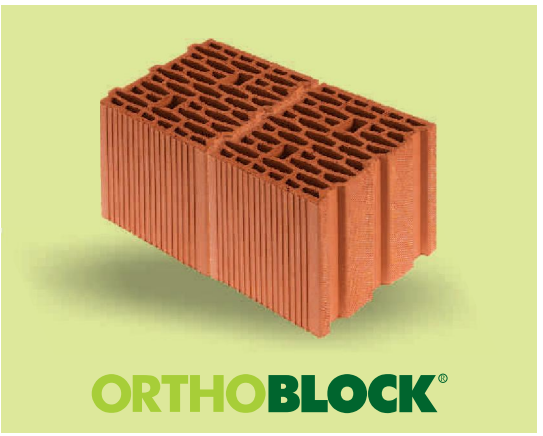
With the employment of robotic technology and the most advanced production control systems in the new production facilities of **KEBE** in Nea Santa, Kilkis, energy consumption and emissions are kept to a minimum and liquid and solid waste is eliminated.

Besides the well known range of bricks, the new plant has the capacity to produce a new series of vertically perforated blocks for both load bearing and non-load bearing masonries, named **ORTHOBLOCK®**, which offers great cost savings both in building and in living.

A **"green" investment** that capitalizes three generations experience of the biggest Clay Manufacturing Group in the history of Greece for the production of building products made of clay, a **purely ecological material**.

NEW BUILDING SYSTEMS!

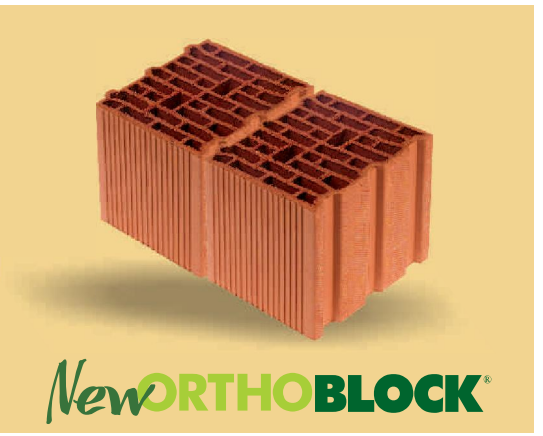
for LOAD BEARING MASONRY



ORTHOBLOCK®

ORTHOBLOCK® PLUS
FILLED WITH GRAPHITE EPS

for NON LOAD BEARING MANSORIES



New ORTHOBLOCK®

New ORTHOBLOCK® PLUS
FILLED WITH GRAPHITE EPS

Inexpensive and fast construction

- Covers the thermal insulation requirements
- Very large thermo-cumulative capacity
- Significant savings in heating and air conditioning
- Ideal healthy living conditions
- Practically unlimited life

The company has been certified by **ELOT EN ISO 9001:2015** as regards the design, production and trade of its products, which are accompanied by **European CE Certificate of Conformity**, by means of which our company certifies their properties and guarantees for them.

KEBE is in the process to be certified for the **Environmental management according** to **EN ISO 14001**.

ORTHOBLOCK® Building System includes:

- **ORTHOBLOCK®** **K 100, K 120, K200, K 250** and **K 300**
- **ORTHOBLOCK®** thin layer mounting mortar
- Metal lintels
- Tools
- **New Products** ***New*ORTHOBLOCK®**

With square hole pattern and less weight!

BUILDING SYSTEMS

ORTHOBLOCK® ORTHOBLOCK® PLUS NewORTHOBLOCK® New ORTHOBLOCK® PLUS

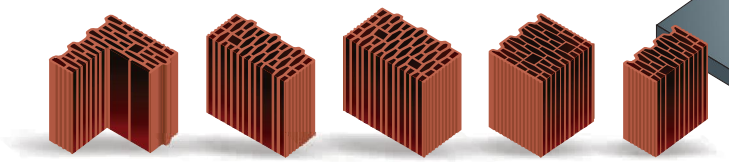
Economical and fast construction

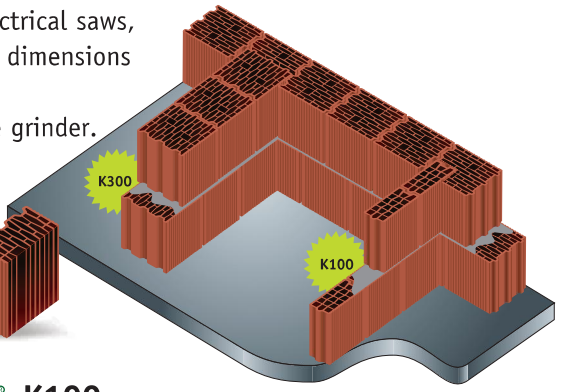
KEBE reintroduces the traditional Greek Bioclimatic Architecture using the most modern clay building products.

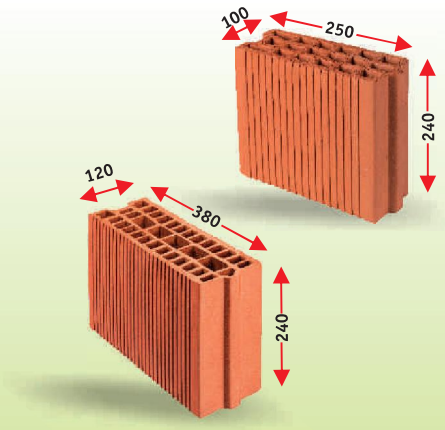
The new innovative vertically perforated blocks of KEBE are specially designed with:

- **Specific rhomboidal perforation pattern that gives thermal insulation advantages**
- **Special grip holes to facilitate handling and laying**
- **Installation without vertical assembly with mortar in completion masonry**
- **High Strength. The specific geometrical characteristics give, besides the high mechanical strength, high stability**
- **Ease and speed in laying (11, 12 or 16 pcs/m²)**
- **Easy cutting to desired dimensions.** The company also provides ready cut in half ORTHOBLOCK® to be used in the angles and in the alternation of the layers.
- **The mutual overlay of bricks at corners, junctions and the alternation of layers is 125mm, that is half their length**

Using special blades for ceramic material on electrical saws, it is very easy to cut ORTHOBLOCK® to the desired dimensions with admirable precision.
The same result is also achieved by using the angle grinder.





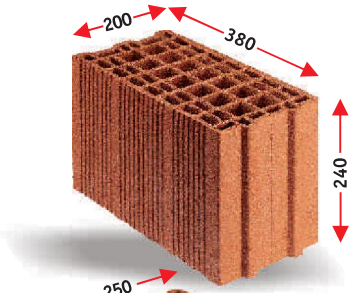


ORTHOBLOCK® K100

Block Dimensions (mm) **WxHxL**	100 X 240 X 250
Weight of Block (kg)	5,25
Masonry width (mm)	100
Number of Blocks / m²	16

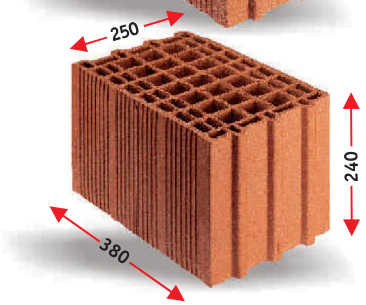
ORTHOBLOCK® K120

Block Dimensions (mm) **WxHxL**	120 X 240 X 380
Weight of Block (kg)	8,90
Masonry width (mm)	120
Number of Blocks / m²	11



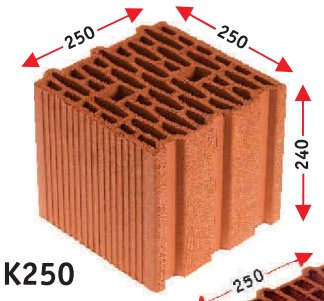
ORTHOBLOCK® MK200

Block Dimensions (mm) **WxHxL**	200 X 240 X 380
Weight of Block (kg)	12,3
Masonry width (mm)	200
Number of Blocks / m²	11



ORTHOBLOCK® MK250

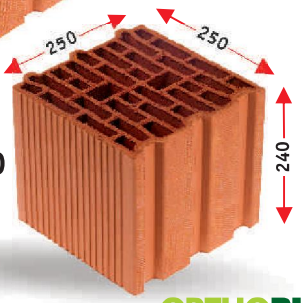
Block Dimensions (mm) **WxHxL**	250 X 240 X 380
Weight of Block (kg)	14,5
Masonry width (mm)	250
Number of Blocks / m²	11



K250

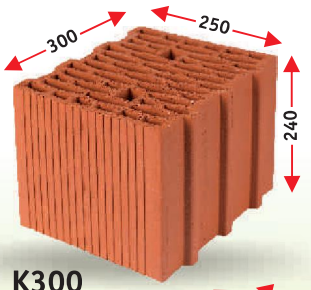
ORTHOBLOCK® K250 & NewORTHOBLOCK® K250

Block Dimensions (mm) **WxHxL**	250 X 240 X 250
Weight of Block (kg)	12,20 / 10,80
Masonry width (mm)	250 / 250
Number of Blocks / m²	16 / 16
Maximum permissible height of masonry between tiers h max (mm)	3000 / 3000
Sound insulation (dB) - Certified value for **K250**	43



NK250

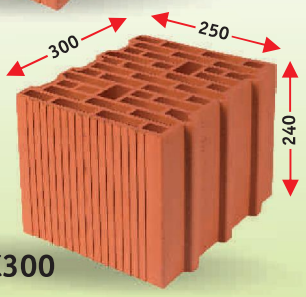
New Products NewORTHOBLOCK
With square hole pattern
and less weight !



K300

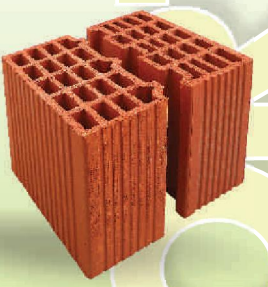
ORTHOBLOCK® K300 & NewORTHOBLOCK® K300

Block Dimensions (mm) **WxHxL**	300 X 240 X 250
Weight of Block (kg)	14,40 / 12,80
Masonry width (mm)	300 / 300
Number of Blocks / m²	16 / 16
Maximum permissible height of masonry between tiers h max (mm)	3600 / 3600
Sound insulation (dB) - Certified value for **K300**	46



NK300

We also supply ready cut
in half ORTHOBLOCK®
to be used in the corners
and in alternating layers

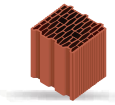
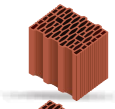
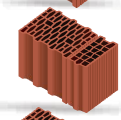
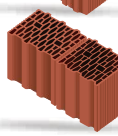


Load Bearing Masonry

Load bearing masonries are being used for the construction of buildings all over the world from ancient times until today, as witnessed by the monuments around the world as well as the Greek Architecture inheritance.

These monuments, just like the traditional houses in the Greek countryside verify the **endurance through time** and earthquakes of **load bearing masonries** made with **clay** bricks, the negligible maintenance and the **minimal energy requirements**.

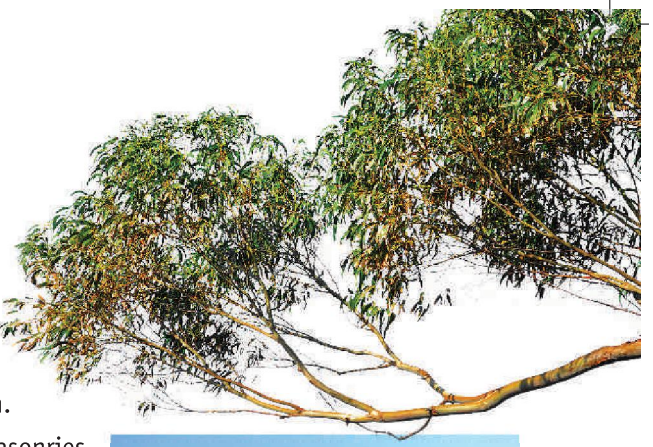
ORTHOBLOCK® combinations for load bearing masonries:

WIDTH (cm)		ORTHOBLOCK®
25		K 250
30		K 300
40		K 300 + K 100
55		K 300 + K 250

Buildings with **load bearing ORTHOBLOCK® masonries** offer:

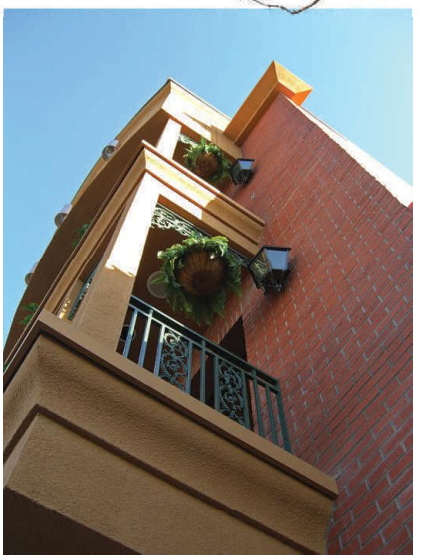
- **Economical and fast traditional construction with high value that lasts for long**
- **High structural stability and endurance**
- **Exceptional antiseismic characteristics**
  (absorption of seismic energy without damages)
- **Exceptionally high fire resistance** (fire proof)
- **Ideal conditions for hygienic living** (create best indoor environment)
- **Exceptional thermal properties that do not alter with moisture and time**
- **Very big thermal capacity** (thermal delay)
- **Big savings in heating and air conditioning**

Non load bearing Masonries



Clay bricks **ORTHOBLOCK®** have great compressive strength.

When used in non load bearing masonries, the use of **ORTHOBLOCK®** enhances significantly the durability of the frame of concrete or metal construction against seismic energy.



ORTHOBLOCK® is also recommended for constructions with a frame from reinforced concrete without requiring vertical assembly with mortar.

- **Enhances the antiseismic characteristics of the building**
- **Offers big savings in heating and air conditioning**
- **Improves fire resistance**
- **Lowers external noise and radiations**
- **Improves indoor climate**
- **Increases the life expectancy of the concrete frame**

ORTHOBLOCK® *Mounting mortar*

Certified with CE Marking

Its features, according to standard EN 998-2 are:

Group based on crushing strength:	**M10**
Content in chlorides:	**≤ 0,01 %**
Reaction to fire:	**A1**
Water absorption:	**≤ 0,58 kg/(m²min^{0,5})**
Steam transmittance:	**M 15/35 (tabulated value)**

It is an adhesive cement-based material in powder form.

Mix with 20% pure water per powder weight (25 kg material with 5.0 – 5.3 lt of water).

We recommend the use of a machine mixer. It remains workable for 2-3 hours after mixing.

Immersion is recommended.

The joint must have a maximum thickness of 3 mm.

Consumption is 6 - 7.5 kg per m² of surface for joining.

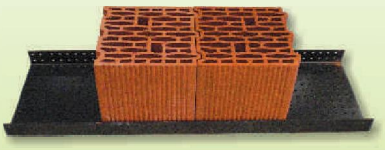
ORTHOBLOCK® mounting mortar is available in 25 kg bags and covers masonry surface 3 - 4,5 m² **K250** and 2,5 - 3,5 m² **K300**.

Metal lintels

Metal lintels are a horizontal metal construction designed to carry the masonry of interior and exterior openings.

They are available in direct correspondence to the width of **ORTHOBLOCK®**.

Their length will cover all openings of any dimension.



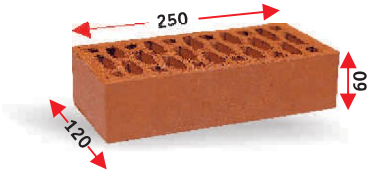
Their technical features are:

- they conform to CE marking
- they conform to the standard EN 845-2
- they are dyed with a special sandy texture powder electrostatic paint, for coating to have a good grip.
- offer anti-rust protection, polymerization at 200° C.

Application related practical features:

- render construction faster and save time.
- create a strong bond between **ORTHOBLOCK®** and the coating.
- offer a simple, easy and cost efficient solution.

Facing brick



Brick dimensions (mm) **WxHxL**	**120 X 60 X 250**
Brick weight (kg)	**2,00**
Width of masonry	**120**
No of pieces/m^2	**55**

Facing bricks complete the range of clay building products offered by **KEBE**.

Due to the unlimited endurance to the various weather conditions (sun, rain, frost, winds), their attractive appearance and their very low cost, **facing bricks** are a top architectural choice.

The conspicuous shades of fire, on fired clay, create an unsurpassed combination of warmth and grace and at the same time, a unique aesthetic simplicity.

Besides **external walls of buildings**, facing bricks are being used for:

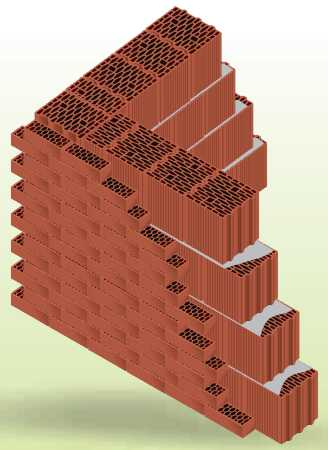
- **columns**
- **fences**
- **chimneys**
- **bar-b-q' s**
- **garden decorations**
- **pathways and floors**

Facing brick masonries

Facing bricks can be used in conjunction with load bearing masonry made with ORTHOBLOCK®

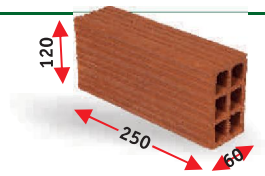
The facing brick masonry skin reduces maintenance costs eradicating painting, and increases:

- **mechanical strength**
- **thermal capacity**
- **sound insulation**
- **thermal insulation**



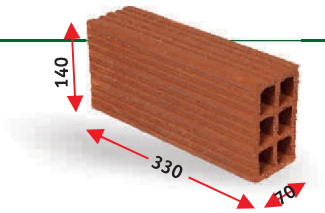
Horizontally Perforated Bricks

No 60



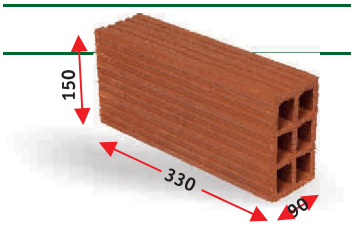
Brick Dimensions (mm) **WxHxL**	**60 X 120 X 250**
Brick Weight (kg)	**1,60**
Masonry Width (mm)	**60**
No of pieces / m^2	**29,50**

No 70



Brick Dimensions (mm) **WxHxL**	**70 X 140 X 330**
Brick Weight (kg)	**3,00**
Masonry Width (mm)	**70**
No of pieces / m^2	**19,50**

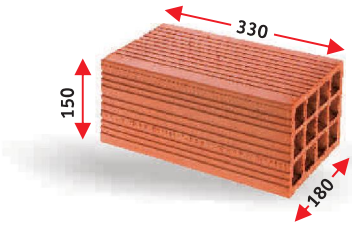
No 90

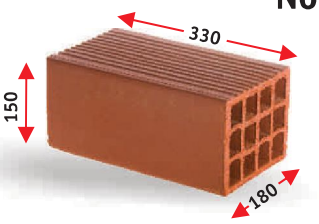


Brick Dimensions (mm) **WxHxL**	**90 X 150 X 330**
Brick Weight (kg)	**3,70**
Masonry Width (mm)	**90**
No of pieces / m^2	**18**

No 180 and No 180 Facing Brick

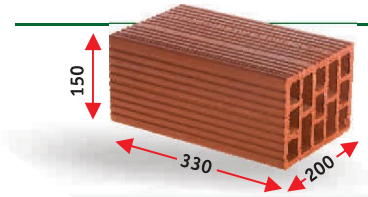
Ideal for fencing





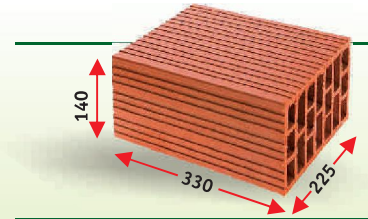
Brick Dimensions (mm) **WxHxL**	**180x150x330**
Brick Weight (kg)	**6,80 / 7,10**
Masonry Width (mm)	**150 or 180**
No of pieces / m^2	**15 or 18**

No 200



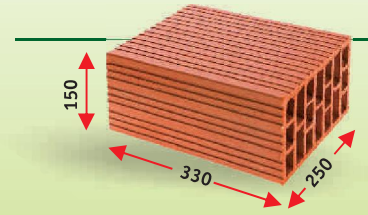
Brick Dimensions (mm) **WxHxL**	**200 x 150 x 330**
Brick Weight (kg)	**7,30**
Masonry Width (mm)	**200**
No of pieces / m^2	**18**

No 225



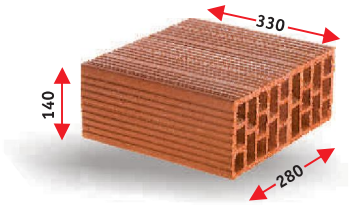
Brick Dimensions (mm) **WxHxL**	**225 x 140 x 330**
Brick Weight (kg)	**8,40**
Masonry Width (mm)	**225**
No of pieces / m^2	**19,50**

No 250



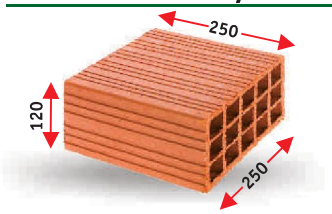
Brick Dimensions (mm) **WxHxL**	**250 x 150 x 330**
Brick Weight (kg)	**9,00**
Masonry Width (mm)	**250**
No of pieces / m^2	**18**

No 280



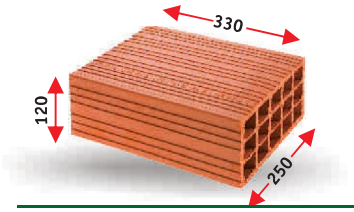
Brick Dimensions (mm) WxHxL	280 X 140 X 330
Brick Weight (kg)	10,80
Masonry Width (mm)	280
No of pieces / m^2	19,50

B 250 - 12 / 25



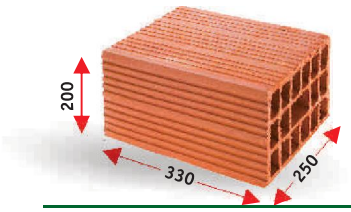
Brick Dimensions (mm) WxHxL	250 X 120 X 250
Brick Weight (kg)	5,50
Masonry Width (mm)	250
No of pieces / m^2	29

B 250 - 12 / 33



Brick Dimensions (mm) WxHxL	250 X 120 X 330
Brick Weight (kg)	7,30
Masonry Width (mm)	250
No of pieces / m^2	22

B 250 - 20 / 33

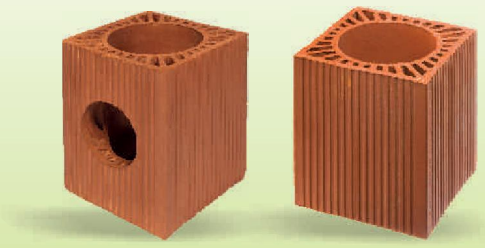


Brick Dimensions (mm) WxHxL	250 X 200 X 330
Brick Weight (kg)	10,60
Masonry Width (mm)	250
No of pieces / m^2	14

Chimneys and Chimney Hats

KEBE has the **Certificate of Conformity for the factory production control,** according to **ELOT EN 1806:2006.**

Chimney Hat
Wide range of options



	Φ 180	Φ 250
Dimensions (mm) **WxLxH**	250 X 250 X 330	320 X 320 X 330
Weight (kg)	13,00	18,00
Diameter (mm)	180	250
Side hole (mm)	130 or 150	150 or 180

The interlocking that occurs through the specific design of ORTHOBLOCK® in combination with the multiple mechanical strength of vertically perforated clay blocks, give to the building a much higher stability that lasts.

In constructions made with load bearing masonries, the greater the thickness of the wall, the higher the mechanical resistance and stability and with ORTHOBLOCK® it becomes higher than any other means of construction, with costs that are significantly lower than the conventional.

Clay is a naturally fire resistant material and withstands fire better than any other building material. Besides retaining its coherence and mechanical strength in temperatures exceeding 1000˚C for over 300 minutes, in distinction to other building materials it does not release any toxic gases.

Perhaps, the biggest advantage of using clay as a building material is the creation of exceptional indoor climate. The ability of clay blocks to store heat and humidity and continuously tranquilize ambient temperature and humidity offer the highest indoors comfort of all building materials.

In addition, they do not deteriorate, they do not release odors and they do not reflect the various radiations.

Clay blocks are 100% natural materials, odorless, non radiating and in general, they do not expose to any immediate or long term hazard.

Clay has the capacity to partially absorb noises, thus reducing noise intensity in accordance to its mass.

The highest the clay mass in the shell of a building, the less the noise in the inner space.

The thermal storing shell from clay that is created with **ORTHOBLOCK®** is an excellent passive heat and humidity exchange system.

It allows maximum utilization of energy, natural ventilation, temperature changes between day and night, so that affluent indoors heat comfort is achieved with minimal or no energy consumption.


TUV HELLAS

CERTIFICATE


KEBE

Declaration of Conformity

CE

KEBE in the crossroad of evolutions ...

The head offices and the plant of **KEBE SA** are strategically positioned in N. Santa Kilkis, directly connected with two major drive ways, PATHE and Egnatia, very near to the Greek borders with the Balkan region and 25 km from the port of Thessaloniki.

The coordinates of our factory are:

Latitude **40° 50' 29" N**

Longitude **22° 53' 54" E**

follow us...

EST. 1935
KOTHALI
KEBE
NORTHERN GREECE CERAMICS

www.kebe-sa.gr

Head Offices - Factory	Thessaloniki Office	Chrisoupoli Factory	Larissa Factory	Halkidiki Factory
Nea Santa, Kilkis	12 km Thessaloniki-Moudania	Chrisoupoli, kavala	5 km Larissa - Sykourio	Agios Mamas
61100	57001, P.O. BOX 60142	64200	41004	63200
T: +30 23410 75570	T: +30 2310 474100	T: +30 25910 23611	T: +30 2410 575300	T.: +30 23730 91800
F: +30 23410 75574	F: +30 2310 473080	F: +30 25910 23617	F: +30 2410 575307	F: +30 23730 91711
e-mail:trade@kebe-sa.gr	e-mail:trade@kebe-sa.gr	e-mail:trade@kebe-sa.gr	e-mail:trade@kebe-sa.gr	e-mail:trade@kebe-sa.gr