



CONSTRUDOBE

Sociedade de construção civil ecológica Lda.

Construdobe Lda.

Our firm was established 1995. We made clay a construction material, that can be used economically and efficiently.

Since the fifties clay has not been used in Europe as a building material. Only in the last 15 years clay is being rediscovered. Meanwhile universities have developed processes to use the advantages of clay as a building material in all its physical, historical and biological aspects rationally and by ways of modern techniques.

To apply this knowledge optimally we co-operate with our German partner: CLAYTEC, Lehm bau Peter Breidenbach- the leading clay construction firm in Germany, founded 1984. Experts of this firm have analysed the clay deposits of the Algarve with us and have developed techniques of processing it. Moreover we maintain a permanent personal contact with our partner.

Many People, who are interested in healthy living, have in this context heard about clay construction. In the most of the concrete projects the builder will not work with the „adventure clay construction“.

We have developed an easy and compatible System of prepared clay construction materials - the **Adobe-Building-System**. All clay bricks and elements are delivered on euro pallette. The ready-made mixtures have only to be mixed with water in normal concrete mixer. By alien companies we undertake the technical consultancy and the overlooking of the Clay building period.

An exact Cost calculation is so possible. The construction period is the same as that of a conventional building. To date, 01/2000, we have over 25 projects as proof of our quality standards. All our products are solely produced by **Construdobe Lda.** under permanent supervision.

The Product „Adobe-Building-System“

We produce the following materials for new buildings and the renovation or restoration of old clay buildings:

- § „hand formed“ clay bricks of various sizes
- § light clay brick with cork granulat
- § conic clay elements for arches
- § clay plaster
- § clay mortar
- § various light clay mixtures upon order

Clay Bricks

The „handformed“ bricks are half automatically produced following a traditional technique. It is only with the use of this technique that bricks with the highest quality and pressure resistance may be assured. Therefore it is possible to produce a brick that - after adding chaff or soft wood chips - is homogenous in its material structure and quite resistant against humidity. The additives increase the insulation capacities and stability of the bricks so that the risk of breakage during transportation is very limited.

These bricks can be used for retaining walls at the appropriate width of 40 cm for upto 1.5 stories high. This is possible without the use of a concrete frame.

Our Bricks are produced in 2 standard sizes: NF (24x11,5x7.1cm) 2 DF (24x11,5x11,3cm). These sizes complement with each other and may be used in Combination.



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We also produce conic forms who may be used to form arches within our **Adobe-Building-System**. Light clay bricks with cork have a high insulation capacity and have all the advantages of a clay brick. Because of the cork however they are not as pressure resistant as the normal clay brick.

Ready- to- use Clay Mortar and Plaster

Ready-to-use clay mortar is a mixture of clay, sand and chaff. The mixtures are delivered dry or slightly humid, depending on the season. Stored properly, this mixture may last a lifetime. The mixture is ready to use, meaning you only have to add water and mix. Clay mixtures can be prepared in a normal concrete mixer. You can also use rendering machines. Clay Mortar blends so smoothly with the claybricks, that after drying the wall shows only a homogenous structure.

The use of Clay plaster, within the **Adobe-Building-System**, is the ideal choice of plaster. The Clay plaster used on the clay walls regulates humidity to a level of approx. 50 % to guarantee the best climatic conditions for your health. Clay plaster allows for the finished look to appear either smooth or artistically rough, according to your choice. Together with the use of mineral colour, the walls are instantly made waterproof.

Other Clay Mixtures

We will produce clay mixtures, upon request, for example, light mixtures with chaff, wood chips or cork for filling in roofs or ceilings.

Why choose Clay ?

Clay has excellent physical characteristics for construction. For example:

- § it regulates humidity. Clay bricks are able to absorb 30 times more water than normal bricks.
- § it breathes and filters the air
- § it keeps warmth in and insulates against excessive heat and cold when necessary.
- § it insulates against noise
- § it preserves wood. Clay permanently extracts humidity from wood so that fungi and parasites cannot survive in it.

These factors cause a very pleasant interior climate, a factor which is confirmed by all those who enjoy the privilege of living in such a house.

Furthermore the production of clay bricks requires very little energy - contrary to the production of other building materials - so that it contributes to preserve our natural resources.

When and if your clay house needs to be pulled down (in many hundred years to come) the waste can be recycled or be deposited without any negative effect to the environment. You will not live in a house that will end up one day in a deposit for contaminated waste.

Clay is a natural, geological final product. It cannot decay and can only be worn down by superficial forces (such as water). However this may be avoided by taking adequate precautions (stone foundations, horizontal insulation, multi-layered plaster containing slaked lime on the outside).



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Why Build with Clay Bricks?

Clay bricks are prefabricated and delivered in dry condition to the building site. After a short introduction, any bricklayer can work with them and with the appropriate clay mortar. Contrary to building with rammed earth (taipa) for example, this kind of building is easier to apply and quantities easier to calculate. Walls made of clay bricks do not settle after building (which is a huge problem when building with taipa). By adding certain materials to the clay (wood, straw, etc.) the insulation capacities are increased. You can also reach varying widths of walls by using different techniques of laying the bricks.

With Clay it is possible to build practically any building structure from arches to round walls to free standing domes.

Passive Solar Architecture with Clay

Passive solar architecture means designing in order for solar energy to hit massive walls where it is then stored and gradually passed on throughout the room. For this, the walls indeed need to be massive. To build with clay then is the healthiest and also the most economical way.

The building must be facing south and the southern front must be glazed with warmth-insulating glass. This ensures that heat entering in is trapped and therefor maintains the warmth. Insulated shutters or curtains keep the warmth in at night. In the cool season the house is heated by solar energy. In summer the house is kept cool by its own good insulation, shading systems and strategically placed plants.

Is Building with Clay Permitted?

Yes. For example in the National Park Costa Vincentina region you only get building permission for building with clay and other natural materials and using the „olden Day“ techniques of construction.

In Portugal you are allowed to build houses without concrete pillars when the walls are massive and at least 40cm wide (Art. 25, Regulamento Geral das Edificacoes Urbanas). Clay walls of this strength even exceed the obligatory stability by 300%.

Clay Homes - The healthy Alternative

The advantages of living in a home built of clay are numerous. There are however two particular benefits to ones health which need to be addressed in some detail.

Firstly, it is the ability of clay, „to breath“. This feature characteristic of clay is what gives this micro-fine, porous substance such a unique and advantageous nature to that of all other building materials. Like a human who inhales fresh air, and exhales used air, clay too has the potential for not only allowing air to pass through it, but to ensure that the air is filtered. This means that while fresh, clean air is permeated within, used up stale air is carried onto the outside.

Clay walls therefore, provide you with an in-build, permanently functioning air filter at no extra cost or effort on your part in order to air your home. With a clay house, the only reason to leave your doors and windows open, is for entering or exiting.

The second most important benefit to ones health is that the level of humidity in a clay house is that which is ideally suited to the human being. Furthermore, clay has the extraordinary capability of maintaining this level, regardless of external climatic conditions, ensuring that the climate within your home remains to your best advantage. When an increase in humidity is detected, the clay is able to



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rapidly absorb and store large quantity of moisture (This capacity is approx. 30 times that of regularly used burned bricks).

In the case of a drop in humidity, the clay then releases moistures from its stores, into the air, ensuring that the level of humidity remains constant. This does not mean however, that the walls of a clay home are damp. Far from it, as damp and fungus is something one will never have to deal with in a clay house. The moisture which is stored, is done so in the very centre of the wall ensuring that the actual surface of the wall remains dry.

The ideal level of humidity, for optimum human well being is at 50 % . The humidity level within a clay house has been proven to remain between 45 % and 55 % all year around. The need for humidity control is of significant importance because of the very serious ill effects that can occur when humidity levels drop below 40 % or rise above 70 %.

At less than 40 % humidity, the risk of infection is greatly increased. The reason is that in such conditions, the otherwise moist nasal passage dries up. This drying effect retards the system from carrying out its vital function of filtering what enters and leaves the body via the nose or mouth. As a result, harmful bacteria and dust particles are not prevented from entering the body and in turn, not prevented from causing various illnesses.

At over 70 % humidity on the other hand, various other dangers may occur. When the air is warm and damp for example, oxygen in the blood is reduced. When the air is cold and damp the on set of rheumatism is a great possibility as well as various fungal infections. Inhaled in large amounts, fungus may lead from mild allergic reactions to even severe poisoning.

At the ideal 50 % humidity the body is able to function at optimum capacity. This is because, at this level the normally harmful effects of dust particles expelled into the air, are reduced, and killing of the ability of numerous types of bacteria and viruses to survive. Furthermore in these optimum conditions the skins defences against microbes is greatly increased, and there is evidence to prove that chronic cases of skin disease have been cured by moving into homes build of clay.

Finally, various odours are kept under control and the often disturbing effects of static electricity is eliminated

Construction Planning and Supervision

Our GERMAN PORTUGUESE CONSTRUCTION COMPANY will undertake the realisation of your dream house from step one of the planing to the final stage of construction completion. A clay building together with ecological concepts and your preferences catered to will prove the ultimate in both comfort and healthy living.

For the purpose of restoration or renovation of already existing clay buildings too, our **Adobe-Building-System** is ideal. Our experience and flexibility is unsurpassable. Projects exceeding 25 constructions of restorations and construction from scratch are proof of our expertise and standards.

For further details of our Construction Company special brochures are available.

Post Script

We not only build however. We also supply other construction companies with our **Adobe-Building-System** and offer training and consultations to such organisations.

No matter what, the building with clay requires technical, construction and general knowledge. However, consideration for the natural elements is of immense importance. I.e. if it is raining or sunny,



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winter spring or summer etc. . If in the slight doubt contact a specialist. The use of samples (Plaster) is recommended. Clay and Clay products do not adhere to any norms. All materials are in keeping with our expertise.

We obviously cannot answer all possible questions in this short brochure, we will however be happy to discuss any further questions and queries at a personal meeting. Please feel free to call, send us a fax or e-mail us.