

## EGYPTIAN MUD BRICKS

The absence of rain, the scarcity of wood and an abundance of sunshine made adobe the preferred building material. Loamy Nile mud mixed with straw resulted in surprisingly strong bricks. A sunbaked mud brick without straw had a strength of less than 6 kp/cm<sup>2</sup>, the addition of straw resulted in a brick three times as strong (about 20 kp/cm<sup>2</sup>). As long as groundwater did not dissolve their foundations and floods did not reach them, well-tended mud brick walls could stand for generations.

In every location during a building project, brick molds (see picture below) of equal size were used which were between about 45 to 30 cm in length and 20 to 15 cm in width. The brick size was thus standardized, e.g. 30 by 15 by 7.5 cm during the Middle Kingdom. At Karnak the bricks measured 40 by 20 by 15, at the Late Period Naukratis they were about the same size. These dimensions suggest they were generally laid in cross bond (English bond). But other bonding patterns such as running bond, Flemish bond, and stack bond were apparently also used at times.

A modern mud brick maker can produce between 1000 and 2000 bricks a day. One may assume that ancient workers were about as efficient. Five days' work should therefore have sufficed to make about 5000 bricks needed for a worker's one storey house of 60 to 80 m<sup>2</sup> with 40 cm thick walls.

Few ancient mud bricks survived, but those that did can sometimes be dated because they were frequently stamped with the cartouche of the reigning monarch

Not surprisingly, given the scarcity of fuel, the Egyptians rarely used burned bricks. But one of the earliest tombs to be opened at Nebesheh was built of red baked bricks, dated to Egypt's Nineteenth Dynasty

*This tomb was of Pa-mer-kau, according to the two limestone ushabti found in it; and from a statue in the temple, representing Merenptah, son of Pa-mer-kau, and bearing the cartouche of Ramessu II., it may be dated to the nineteenth dynasty.* W.M.Flinders Petrie, Tanis, Part II, Nebesheh (Am) and Defenneh (Tahpanhes)

Workmen had buckets and baskets to carry the mud, hoes for mixing it with straw or chaff and standard sized wooden molds (see picture below). Wheelbarrows were unknown and the dried bricks had to be carried, for which a yoke was often used.



*Drawing by W.M. Flinders Petrie*

A mud brick is a fire-free brick, made of a mixture of clay, mud, sand, and water mixed with a binding material such as rice husks or straw. They use a stiff mixture and let them dry in the sun for 25 days

You might wonder why so many ancient monuments are left standing while we don't have any ancient Egyptian homes still around. The answer: Mud versus stone. Stone was built to last, and the ancient monuments are, for the most part, built from stone. Homes, however, were built out of a much less expensive material – mud brick. This basic building material consisted of chopped straw mixed with mud from the Nile. Ancient homeowners then shaped the bricks in a wooden mold and left them to dry in the sun. After time, the elements would lead to crumbling and some bricks in the walls would have to be replaced. To protect them from the heat of the beating sun, the ancient Egyptians placed narrow windows high on the walls. As in Egypt today, many of the mud brick walls were whitewashed to deflect the sun's heat.

Depending on how wealthy and elaborate the dwellers were, the walls inside would be painted with colorful scenes of everyday life. Beneath your feet would be an earthen floor covered with reed mats.

From the beginning of Egyptian history mud bricks were used as a basic material for construction. In the course of the Early Dynastic Period (about 3100-2613 B.C.) and the Old Kingdom (about 2613-2160 B.C.) bricks remained the basic building material of structures for living in, whether palaces or the houses of the ordinary people. Stone was gradually introduced for temples and the tombs of the élite.

Bricks were produced in vast quantities for all sorts of projects. They were made from Nile mud mixed with sand and straw, the latter two elements giving strength to the basic material.

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### *Egyptian Mud Brick Construction*

While the Sphinx and the pyramids in Egypt have survived the vagaries of age, Egyptian houses are another story. The main reason for this is that ancient residential and commercial construction in Egypt utilized Egyptian mud bricks and these are not durable.

Homes were constructed out of this material because it was very cheap and economical. The basic method of constructing Egyptian mud bricks was to combine small pieces of straw with soil from the Nile River and shape this mixture into bricks by filling it in wooden molds. These were then dried out in the sun and resembled baked clay.

The houses were constructed out of Egyptian mud bricks and then painted with a whitewash on the outside to reduce the impact of the harsh sunrays. Windows were placed on the upper parts of the walls and were extremely narrow in order to reduce the amount of heat that was transferred inside the house.

Both affluent and working-class homes were sparsely furnished with basic furniture constructed in a very functional form and the most common piece of furniture was a flat and low square created out of wood. This had a comfortable seating cushion made out of leather or fleece.

#### *Ancient Egyptian Mud Brick Homes in Affluent Areas*

Affluent homes were painted on the inside with different scenes depicting the daily lifestyle of Egyptians and the floor made out of mud was covered with mats woven from reed. The ceilings were crafted out of tightly woven palm rafters and sticks. The Egyptians believed in vertical construction and often had multiple story homes to utilize the land to its maximum potential.

#### *Ancient Egyptian Mud Brick Homes in Working-Class Areas*

Archaeologists have discovered ancient Egyptian houses in labor villages at Deir el-Medina in Upper Egypt. These followed a basic square shape and had three main working areas.

This included the living room, a yard and the bedroom or sleeping area. The yard was utilized as an outdoor kitchen and always consisted of baked clay ovens and a floor space for grinding grain which would later be used to make bread or beer.

Apart from this a basement was constructed with two cellars which were utilized as storage areas. The front of the house was utilized by the craftsman in the labor village to conduct their work like pottery and carpentry or farming.

During the hot months the stairway would lead to a flat roof where the Egyptians would cook and sleep and even dine in the company of their family members.

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#### *Wood In Ancient Egypt*

Wood was extremely scarce, almost non-existent in ancient Egypt. The two construction materials that the ancient land of Egypt seemed capable of producing in multitude was sand and papyrus reeds; with some stone quarries. Therefore, for the most part, the majority of ancient Egyptian houses were constructed of mud brick. Ancient mud houses in Egypt were made by first mixing a compound of mud and straw. The mixture could then be formed into bricks that were allowed to bake and dry under the hot Egyptian sun. While the mud might be plentiful, it was not particularly sturdy. In a very short amount of time, usually just a few years, an ancient Egyptian house constructed of mud brick would begin to deteriorate and crumble. Ancient mud houses in Egypt were primarily constructed and lived in by the commoners on the lowest social strata in Egypt, who could afford little else.

#### *Ancient Egyptian Houses*

In Egypt ancient houses constructed by the wealthy nobles were much different than those built by commoners. Those who could afford to do so built their ancient Egypt house of stone taken from stone quarries. Ancient Egypt houses constructed of stone

were much sturdier and solidly built. The wealthy could afford to fill their homes with far more luxuries than poorer families. In Egypt ancient houses built by wealthy families, were likely to contain tiled floors and beautifully painted walls.

While ancient Egypt houses built by commoners and nobles might have differed in many respects, in many others, they were quite similar in order to survive the burning heat of the Egyptian climate as comfortable as possible. Almost all ancient Egypt houses were constructed with a flat roof. Not only did this most likely make the construction process simpler, but the flat roofs also offered a welcome respite from the burning Egyptian sun. Families often lounged, ate and slept on the roofs of ancient Egypt houses.

Another similarity in a typical ancient Egyptian home and houses was the presence of a hearth. Even in wealthy ancient Egypt houses, there was a need for a hearth in order to prepare food. Due to the arid climate of the Egyptian nation, it is not likely the hearth of a house of ancient Egypt, although quite common, would have been needed for heating.

The abundance of furniture was not common in most ancient Egyptian houses, due to the lack of wood. The most common furnishings were three legged stools and chests; even in wealthier Egyptian homes.