



HISTORY OF BUILDING MATERIALS

1ST LECTURE

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HISTORY OF BUILDING CONSTRUCTION

- Assembling and constructing buildings, mainly those used for shelter, falls under the umbrella of building construction.
- Humans have been building structures for years. It started out as a practical necessity to mitigate the impact of climate change.
- Humans became a global species in part because of their ability to adapt to many climates through the use of built-in shelter.
- In the beginning, human shelters were relatively basic and lasted just a few days or months. Even impermanent constructions, such as the igloo, then developed into more complex shapes over time.
- As humans began to settle down for extended periods of time due to the introduction of agriculture, more lasting constructions began to form.





- As time went on, shelters became more than just places to sleep; they also served other purposes, such as food storage and ceremonial purposes.
- Numerous developments in design may be seen in the field of construction. **Leaves, twigs, and animal skins** were common early building materials.
- **Clay, stone, and wood**, which are more long-lasting, came into use later.
- Finally, man-made materials like **brick, concrete, metals**, and plastics are included. As a result of their development for use in building construction,



Primitive Buildings and its materials

1- HUT:-PRE HISTORICAL

Early stone people constructed temporary shelters using **available materials**.

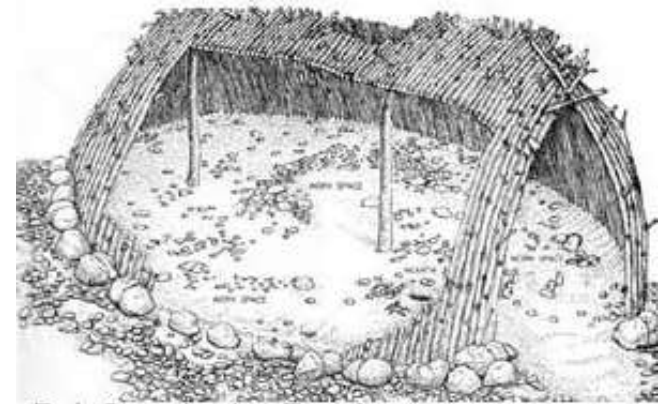
One of earliest known example discovered in 1966 at Terra Amata **France (400000) years ago**.

Oval in shape & constructed of tree branches circular & Longitudinal.

Hut walls made by stakes set in sand & braced by ring of stones

Space inside is organized for different uses with a **central hearth**.

The hut was used by a band of people for limited hunting days.



Early Stone Age hut, Terra Amata
Source: Spiro Kostof (1995)



Primitive Buildings and its materials

2-TENT:-

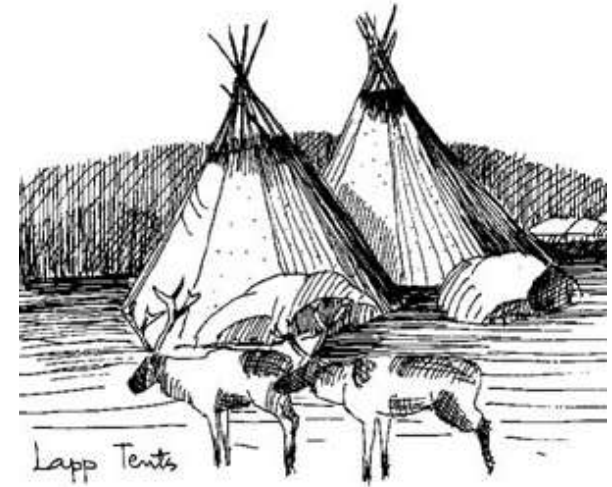
It have been extremely common in late Europe first discovered in 13000B.c. in Germany & France, a tent with an area of

(3 x 3)m.

As a materials they used wooden posts driven in to the earth covered with (animal skin).

The skirts of the tent were weighed down with (small stones).

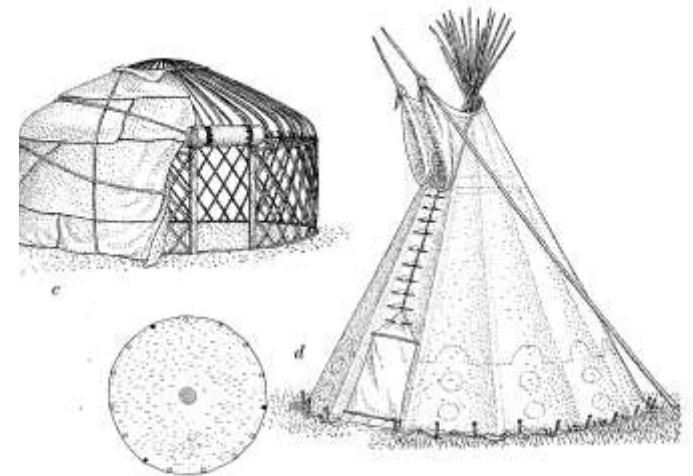
Part of its ground was paved area.



Lapp Tents

Lapp tent

Source: S. Norbert, 6000 years of Housing



Primitive Buildings and its materials

3- PIT-HOUSE:-

It is more common in **Eastern Europe** where the **climate** was **severe (cold)**.

Shapes are differs from oval, pear-shaped, regular cross & H shaped with different activities in different parts of the pits.

On the River Don in **Russia** (22000B.c.) more houses were **constructed by making shallows in the ground & surrounded by a ring of massive bones** ,some of them were **large houses** (35×15)m with nine hearths on the long axis ,maybe several families my have passed the winter together.



4 -Ritual Buildings

Buildings whose functions are not **entirely certain** connected with **Ritual Ceremonial activities** related to religion.

As in the Stone alignment Carnac & the Stonehenge in England.



❖ Materials, Construction System:-

- Most popular construction materials were wood ,tree saplings, leaves, grasses, adobe, animal skins & stones.
- Availability of material & construction technology varied between locations.
- Materials & construction technology varied between the early & new stone age.

❖ materials & construction system in early stone age:-

used **simple easily available** materials usually of **plant & animal materials** such as wooden poles, grasses, leaves & animal skins

❖ Materials & Construction System in New Stone Age:-

More **varied construction materials**.

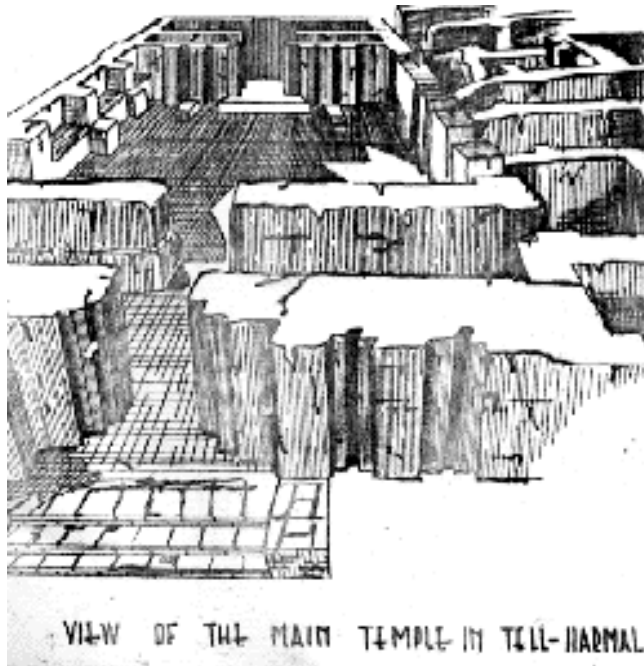
Adobe & Stone most popular materials for **houses**.

Large stone was used for **monuments**.

Basic material in Mesopotamian Architecture

❖ 1- Sumerian Building Materials:-

Mud was their building material, was formed into **brick**, sun dried & built into massive walls... . Walls were **thick** To **replace the weakness** of mud.



❖ THE ZIGGURAT & ZONE OF UR:-

- Ur was a Sumerian city located near the Euphrates river.
- It was constructed of **mud bricks reinforced with thin layers of matting & cables of twisted reeds.**



❖ 2- Akkadian building Materials

Two famous heads of Akkadian statues have survived: one in **bronze** & the other of **stone**, which indicates the first using of bronze material.



❖ 3- ASSYRIAN BUILDING MATERIALS

- **Materials:** buildings were built with **sun-dried bricks** then they were **Painted** or they were **faced with hard brick or stone.**
- **Walls:**
 - **Thick walls** were necessary both for **stability & protection** from the burning heat of the climate.



4- BABYLONIAN BUILDING MATERIALS

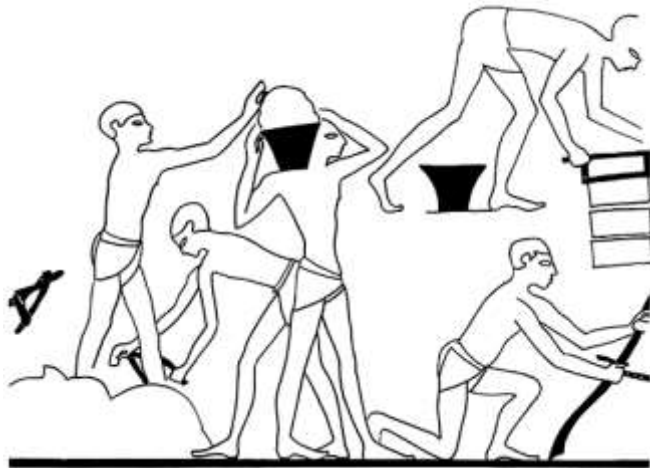
There was a large **quantity of clay** and a **little amount of stone** which was a result of the use of **'mud brick.'**

The **temples** are **very large** and built of **simple brick** and **supported by buttresses.**



BASIC MATERIALS IN NILE ARCHITECTURE

- There are **three common materials** of construction in Egypt; **Plant materials, clay & stone.**
- **Plants** consist of available material like **reeds, papyrus & palm branch plastered over with clay.**
- **Timber** was available; **used for roofing.**
- **Clay** was used for construction either as for frame construction or as **sun dried brick .**
- Even **palaces made of Nile mud** & mixed with chopped straw or sand & exposure to sun.



Stone was **not much used** during the **early period** of ancient Egyptian, It became popular after **the 3rd dynasty** of the Early Kingdom & was used for **Temples** and as a **foundation**.





- ❖ The famous Egyptian **limestone** in the north.
- ❖ Then came the **sandstone** in the central districts.
- ❖ Then **red granite** in the south.

- ❖ **Because of the hard & durable nature of these materials that so many monuments still exist.**

Thanks

