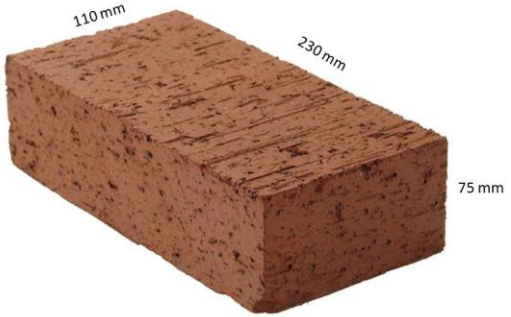
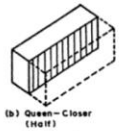


STANDARD BRICK SIZE

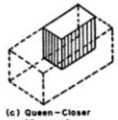
It is a portion of a brick with the cut made longitudinally, and is used to close up bond at the end of the course. A closer helps in preventing the joints of successive sources (higher or lower) to come in a vertical line. Closers may be of various types.

QUEEN CLOSER

It is the portion of a brick obtained by cutting a brick lengthwise into two portions. Thus, a queen – closer is a brick which is half as wide as full brick. This is also known as **QUEEN – CLOSER – HALF**.


(b) Queen – Closer (Half)

When a queen closer is broken into two pieces, it is known as **QUEEN - CLOSER – QUARTER**. Such a closer is thus a brick piece which is one quarter of the brick size

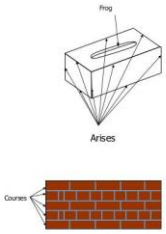

(c) Queen – Closer (Quarter)

CLOSERS

ARISES: The edge formed by the intersection of plane

Basics Terms

- **Arises**
  The edges formed by the intersection of plane surfaces of a brick are called arises.
- **Frog**
  The depression provided in the face of a brick during its manufacturing is called the frog.
- **Course**
  Each horizontal layer of bricks laid in mortar is called course.



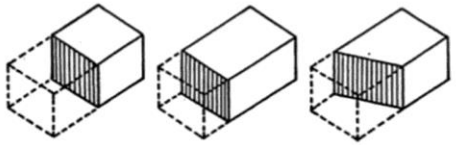
BASIC TERMS

It is the portion of a brick cut across the width. Thus a bat is smaller in length than the full brick.

If the length of the bat is equal to half the length of the original brick, it is known as **HALF BAT**.

A **THREE-QUARTER-BAT** is the one having its length equal to three-quarters of the length of a full brick.

If a bat has its width beveled, it is known is **BEVELED BAT**.


(g) Half Bat (h) Three Quarter Bat (i) Bevelled Bat

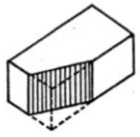
BATS

BURNT BRICK

BONDS & MASONRY

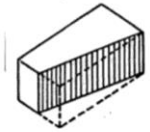
KIND CLOSER

It is the portion of a brick which is so cut that the width of one its end is half that of a full brick, while the width at the other end is equal to the full width. It is thus obtained by cutting the triangular piece between the center of one end and center of the other side. It has half header and half stretcher face.

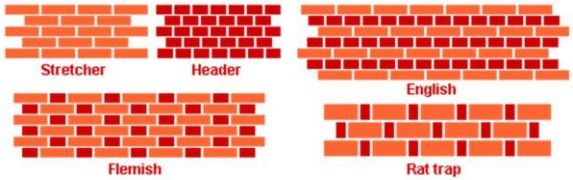

(d) King Closer

BEVELLED CLOSER

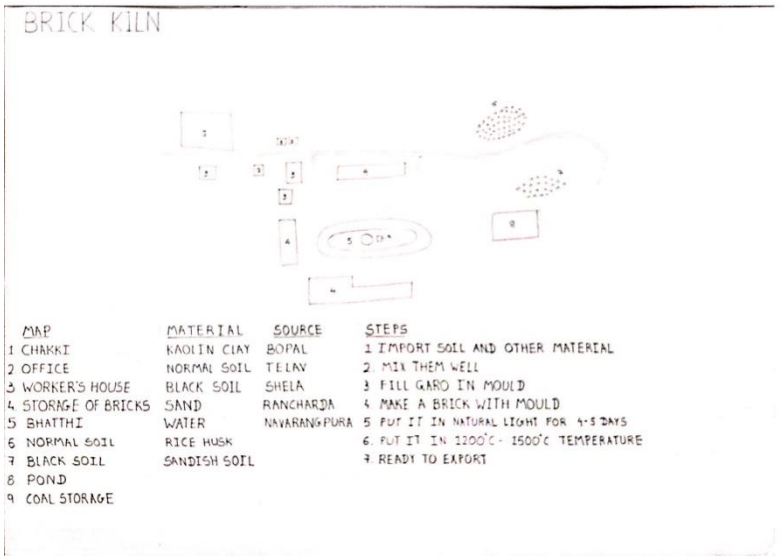
It is a special form of a king closer in which the whole length of the brick (i.e. stretcher face) s beveled in such a way that half width is maintained at one end and full width is maintained at the other end.

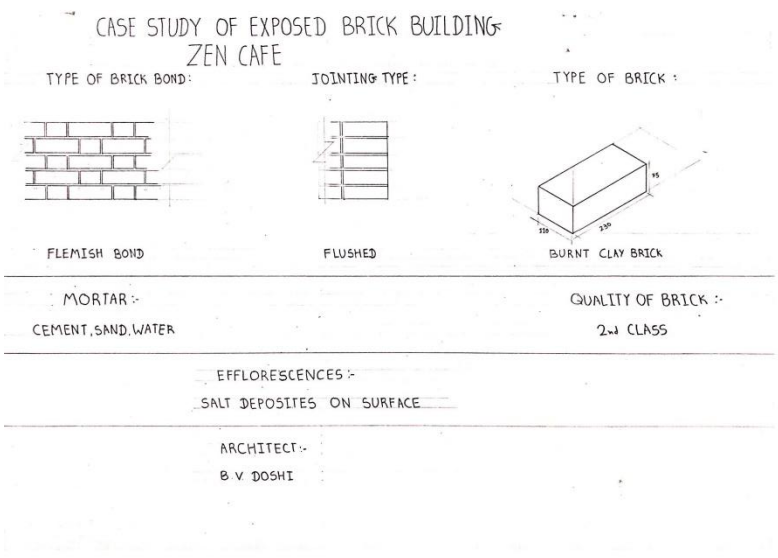

(c) Bevelled Closer

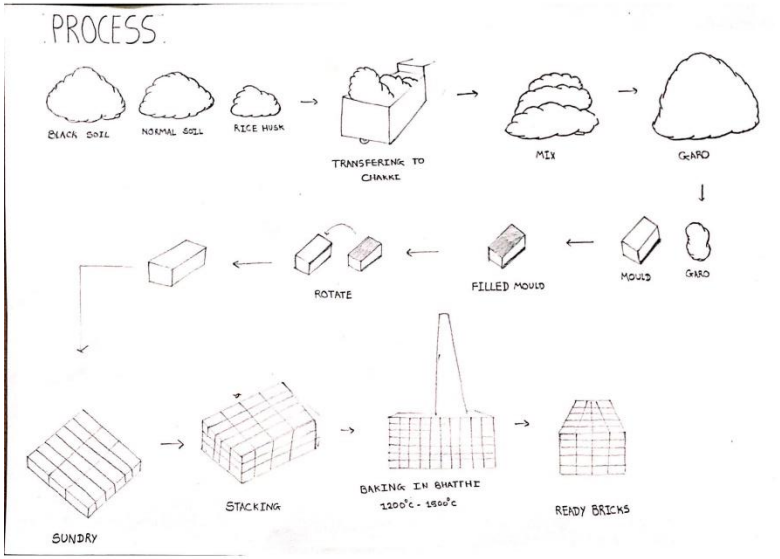
CLOSERS

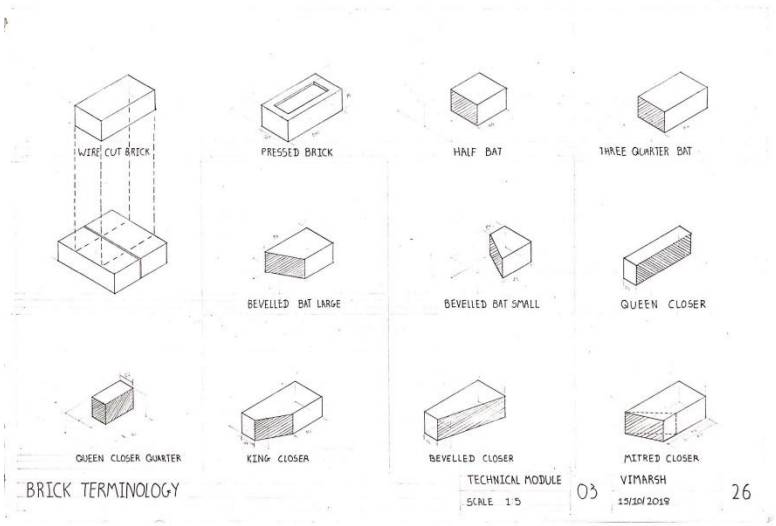


BRICK MASONRY BONDS

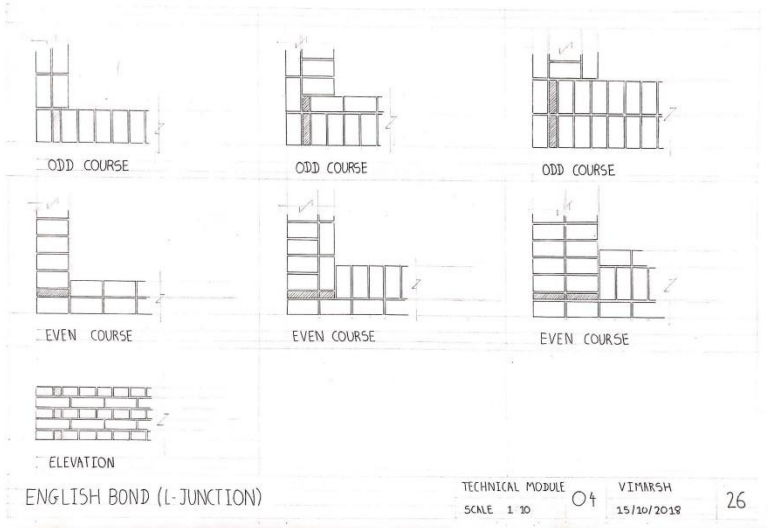


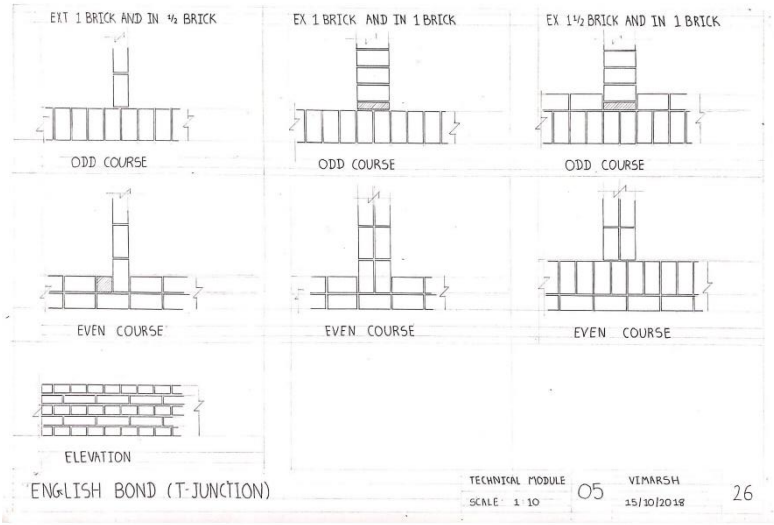


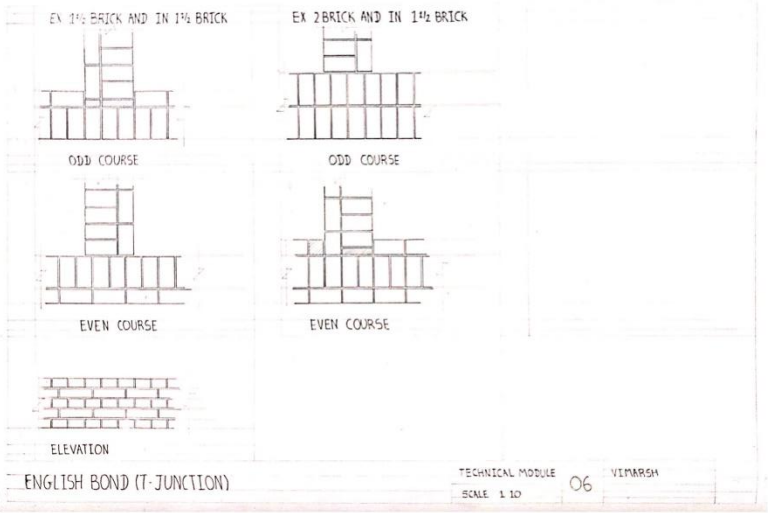


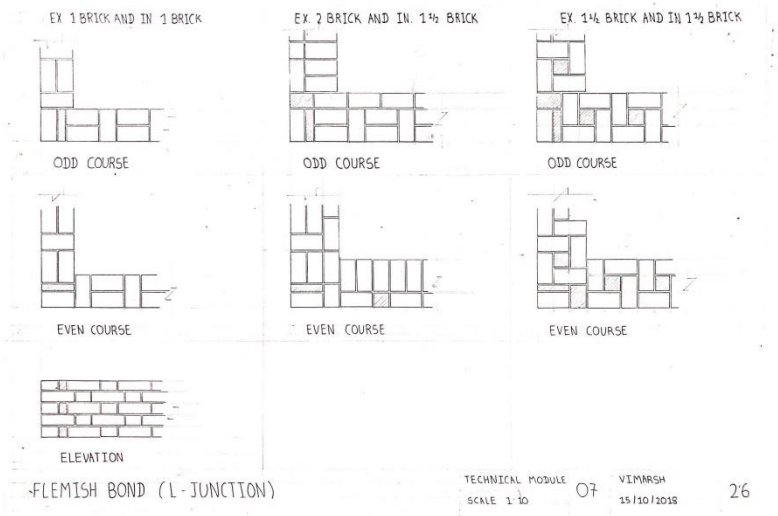


Student work









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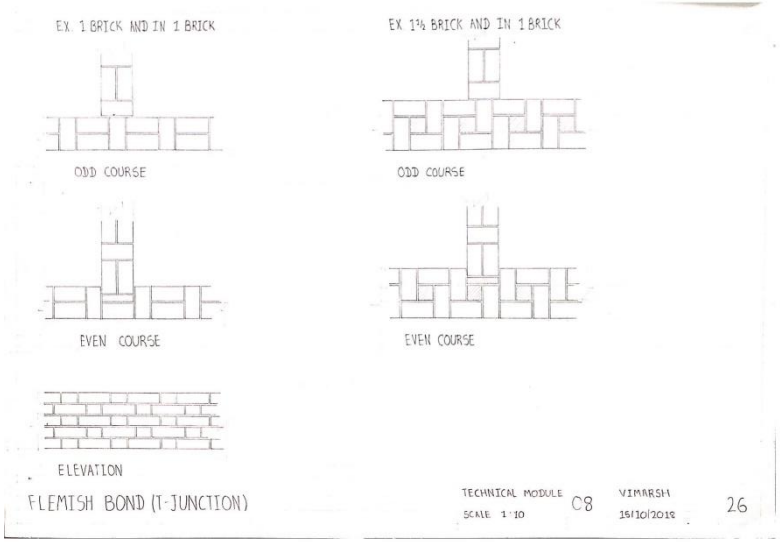
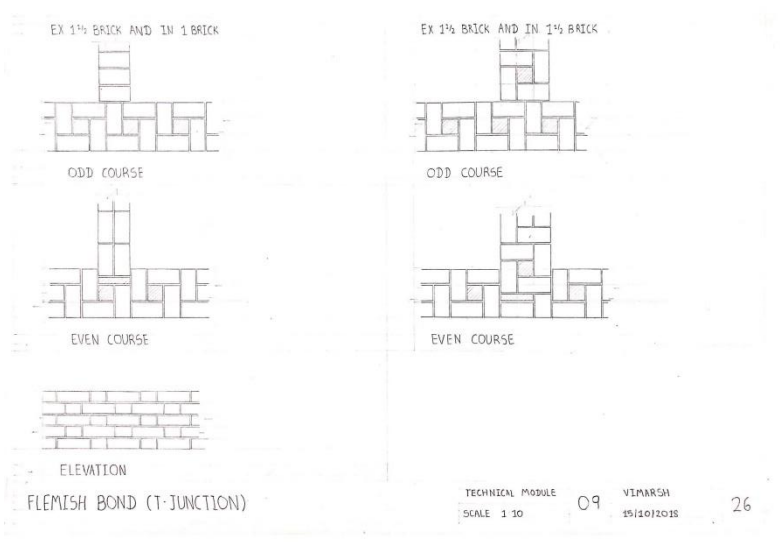
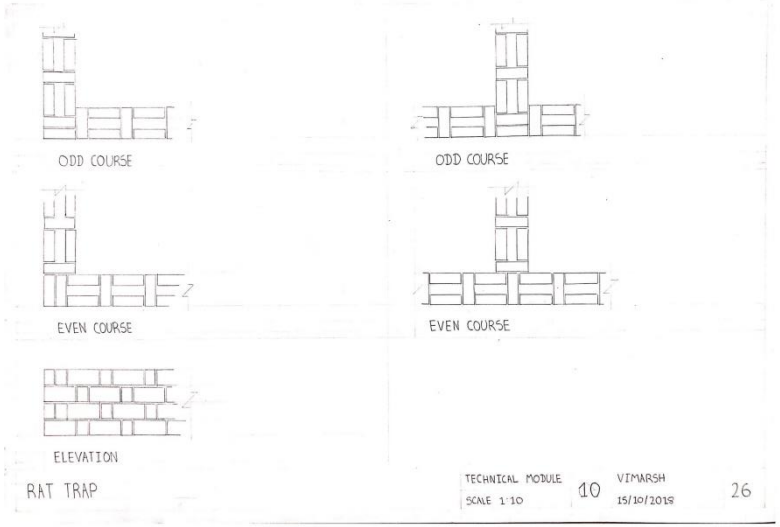
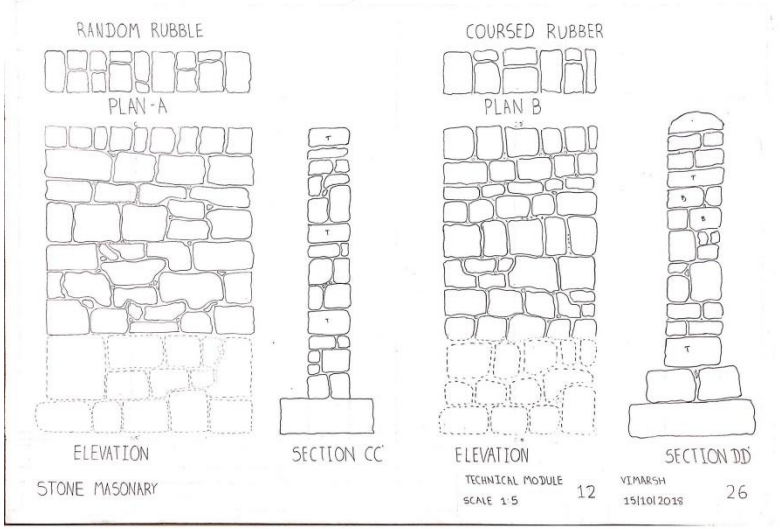
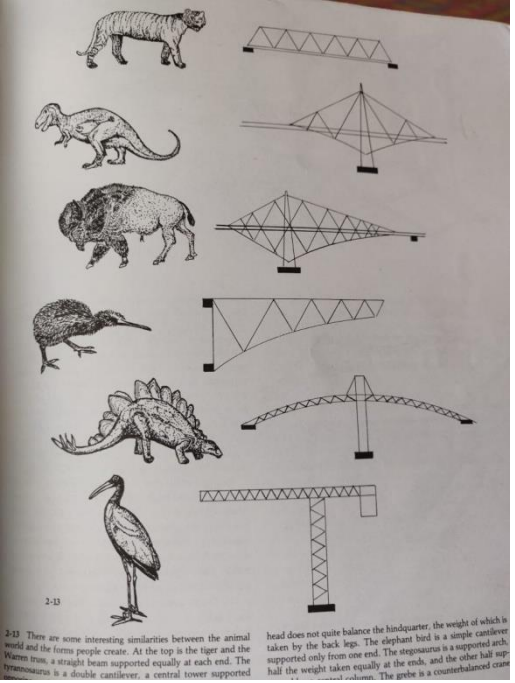




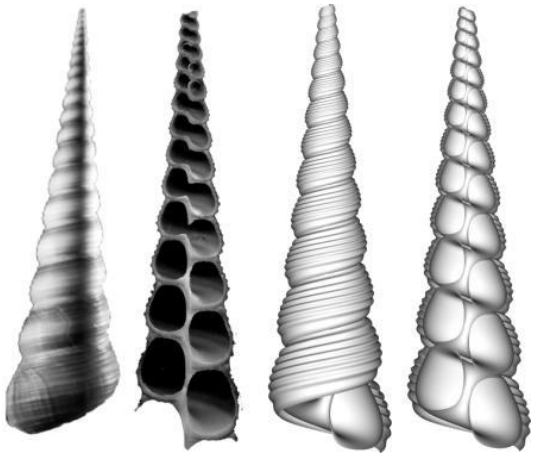


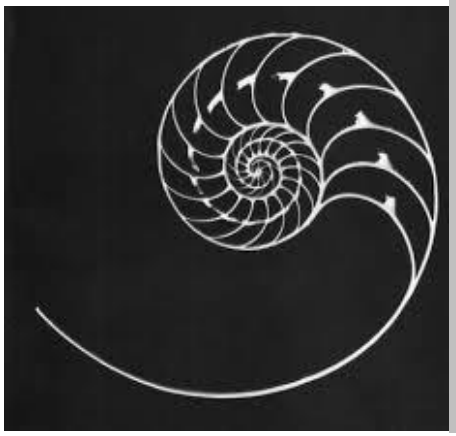


Student work



2-13 There are some interesting similarities between the animal world and the forms people create. At the top is the tiger and the Warren truss, a straight beam supported equally at each end. The tyrannosaurus is a double cantilever, a central tower supported head does not quite balance the hindquarter, the weight of which is taken by the back legs. The elephant bird is a simple cantilever supported only from one end. The stegosaurus is a supported arch; half the weight taken equally at the ends, and the other half sup- The grebe is a counterbalanced crane





Technical Module 01

Class I – What is building - discussion

- Introduction to technical module
- Importance of structure in nature & architecture
- Vernacular dwellings as the basis for understanding the challenges of construction

Building structures – Exercise

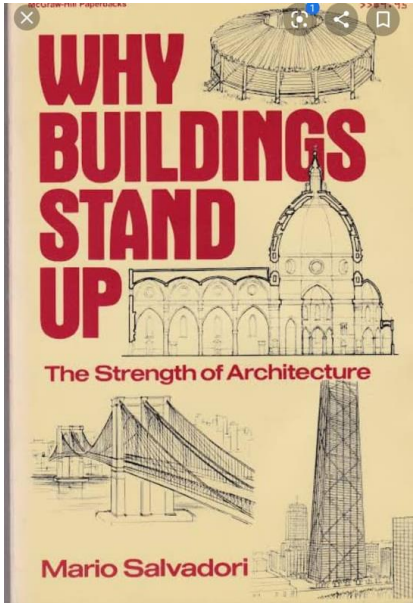
Make a note on initial dwelling -

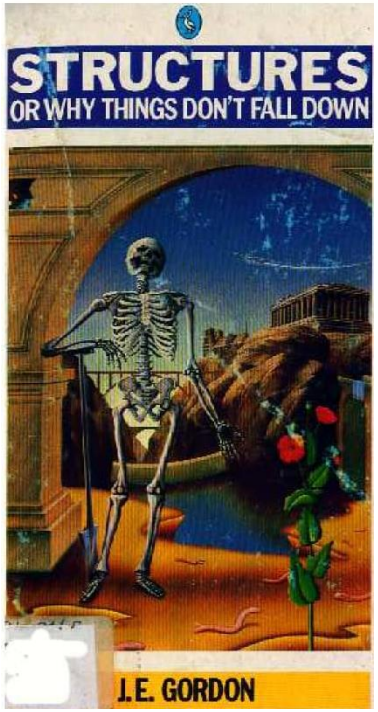
- Discuss the initial dwellings made by humans. – caves, twigs, earth, stone
- Primitive builders have ability to use minimum resources for maximum comfort.
- Materials and their importance, Climatic challenges that were addressed
- Tools that were used

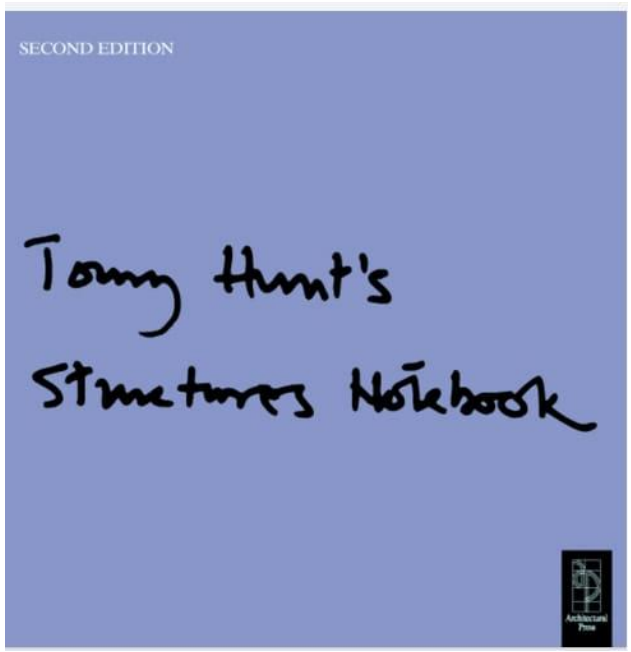
What is important to extract from these studies?

Although the solutions might not be best in terms of health and hygiene requirements (Services) , the principles that were used to construct and accomplishments with the available tools and innovations in techniques

Igloo – desert – humid tropics







Technical Module 01

Make a Bridge - Exercise

1. To practically understand load and transfer of load.
2. What is Structure – basic organization or arrangement of things or elements
   What is a structural system – a system that transfers loads through interconnected elements or members.

Design a spanning system between two supports kept 300mm apart. The system should be supported only at the two ends, no additional support from the ground should be taken.

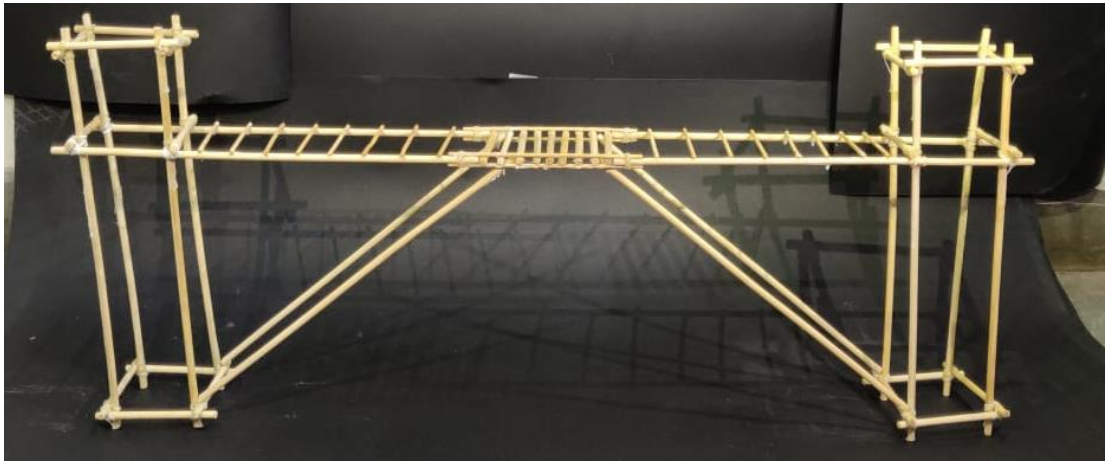
Materials: Watchmaker stick and string, rubber bands for joining

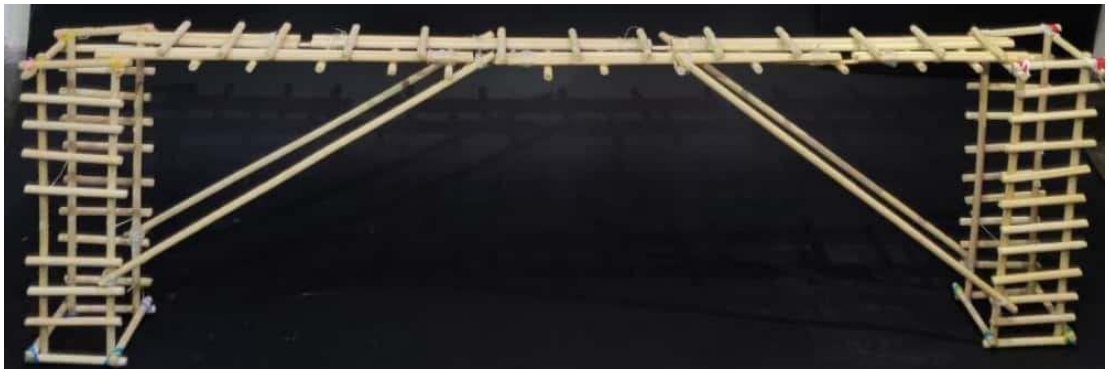
Learnings:

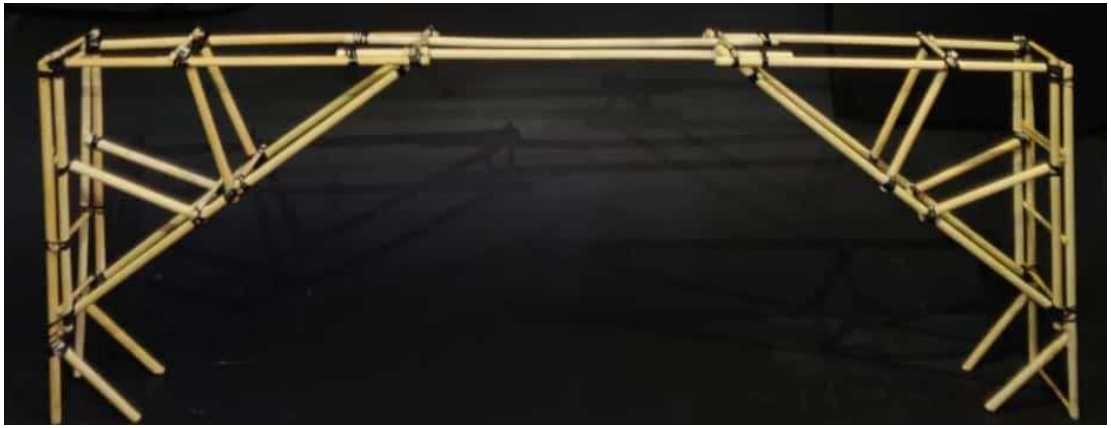
The students make multiple iterations, testing every time by applying vertical and horizontal loads – push, pull. This is their initial encounter with the concepts of tension and compression.

The two materials used have different strength, and hence the students think which material to use, how and where.

The ideas of buckling and bending are introduced, and strategies are designed to counter it though adding specific elements.







Structure in nature - Discussion

[leaves, shells, coral, folded sheet of paper, spider web, cell-wall structure, human skeleton]

How do we stand, let students perform push and pull motions in pairs to understand how they resist external loads.

Identify what gives the leaf stiffness – holding self-weight

a. Ribbed structure

- Explain in shells , folded sheet of paper also in some type of leaves
- Staggered arrangement to get strength and avoid weak points.