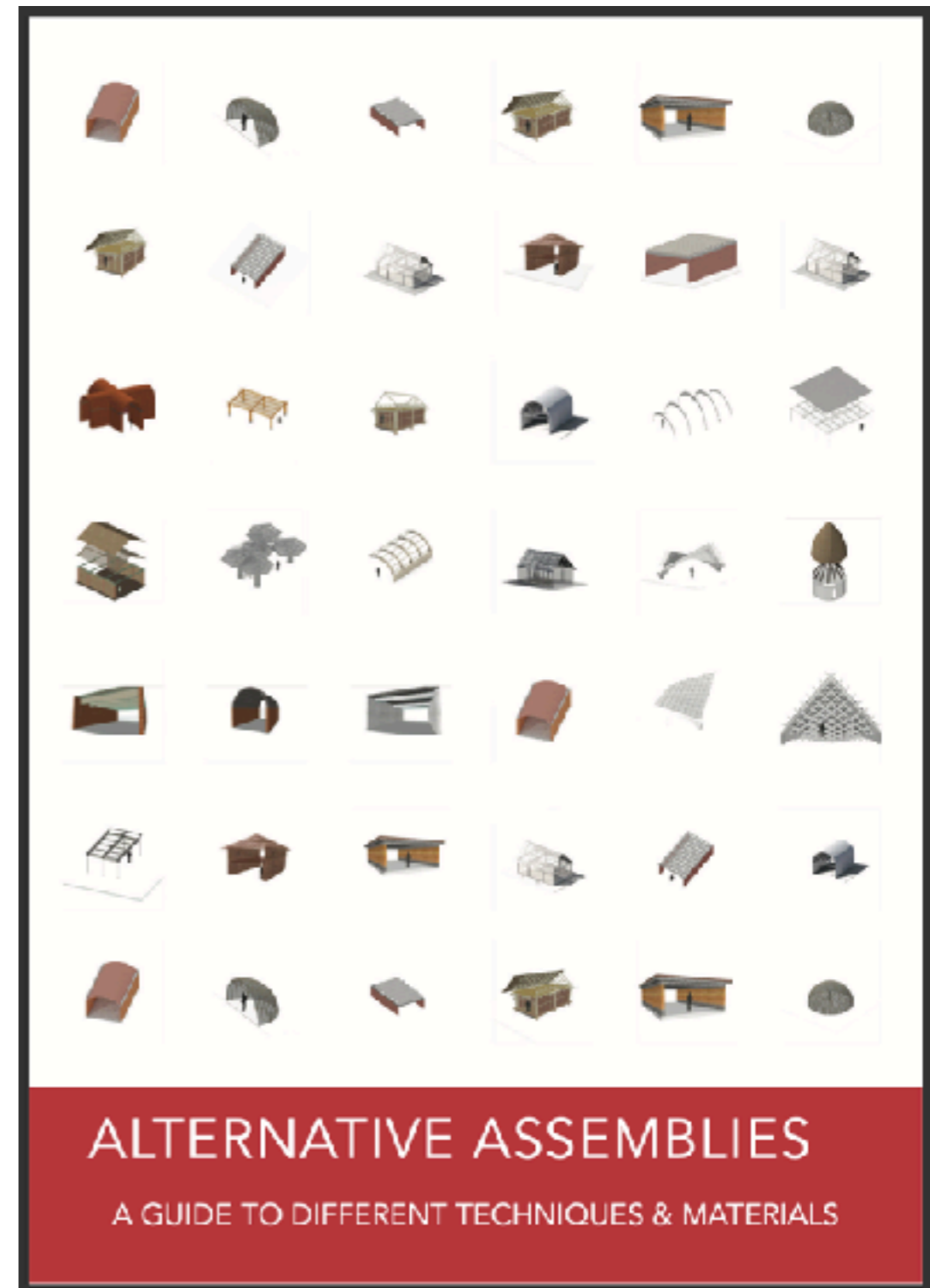


Skill

Assignments

1. Learning ArchiCAD
2. Research on Alternative Construction Technique and use of Sustainable Material, Ex. Construction Techniques like Rammed Earth, Adobe, Achakal Brick wall, Ferro cement Chanel, Brick Arch, different type of slabs etc.
3. Understanding the properties and behaviour of the material.
Hands on work – Making Physical models with various materials like Cob, Rammed each, ferro cement, earth sand bag, bamboo etc.
4. Design and represent a space with the selected material and construction technique with Spatial Views and illustration of the design.
5. Study of the individual site interns of area, location, topography, context and nature.
6. How to make book/Publication, Composition, Layouts and Typography.



Assignment 1.

Learning ArchiCAD

Objective –

- The ARCHICAD Interface
- Navigation
- Creating Basic Structures
- Annotation
- Visualisation
- Layout

Assignment 2.

Research on Alternative Construction Technique and use of Sustainable Material.

Ex. Construction Techniques like Rammed Earth, Adobe, Achakal Brick wall, Ferro cement Chanel, Brick Arch, vaults and different type of slabs etc.

The approach to the materials will include,

Earthen materials like CSEB, wattle and daub, COB, timber and bamboo.

Fired earth materials like

Terracotta, Gunna tile.

Steel, concrete and ferrocememnt.

Assignment 3.

Understanding the properties and behaviour of the material.

Hands on work – Making Physical models with various materials like,

Earth –

CSEB vault

Wattle and daub

COB wall

CSEB vault

Wood –

Timber lean to roof

Timber pitched roof

Timber vault

Timber hip roof

Bamboo flat roof

Fired Earth –

Terracotta roof

Gunna tile roof

Groin vault

Semi circular vault

Steel –

Canopy structure

Arched structure

Castellated structure

Truss

Concrete –

Hyperbolic paraboloid

Ferrocement channel

Filler slab

Concrete vault

Hyperbolic parabola

Ferrocement vault

Ferrocement channel

Folded plate



Rammed Earth



Wattle and Daub

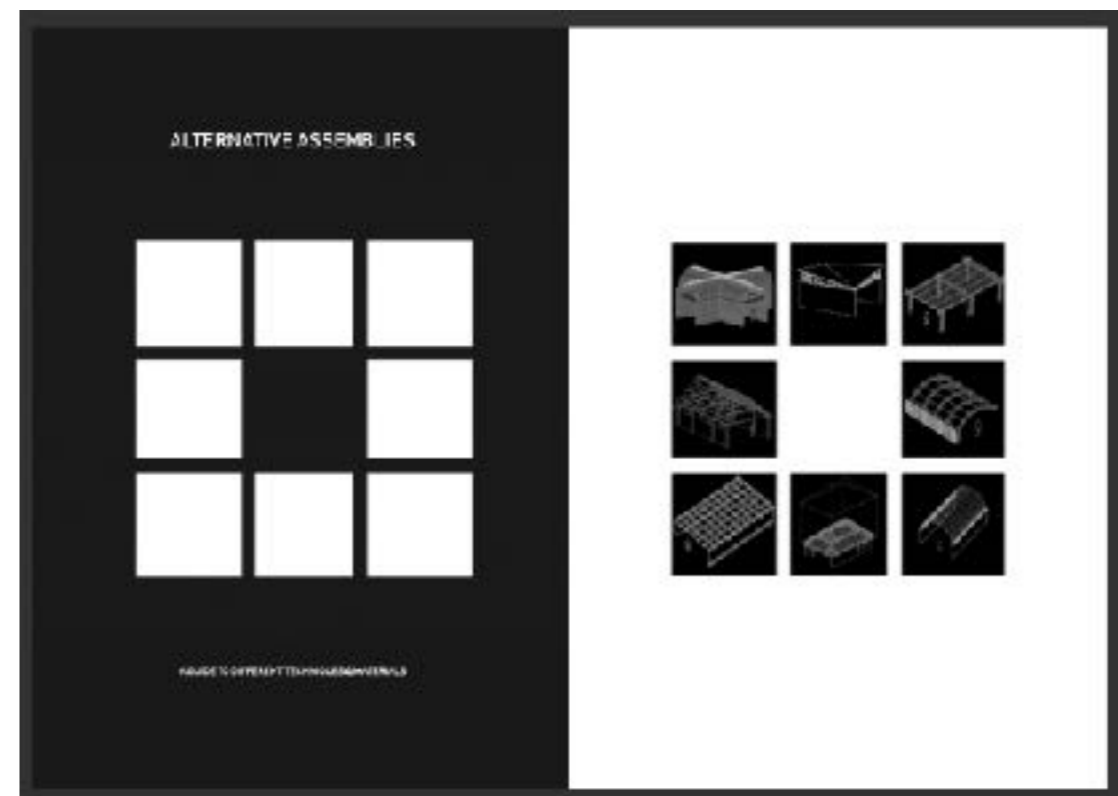
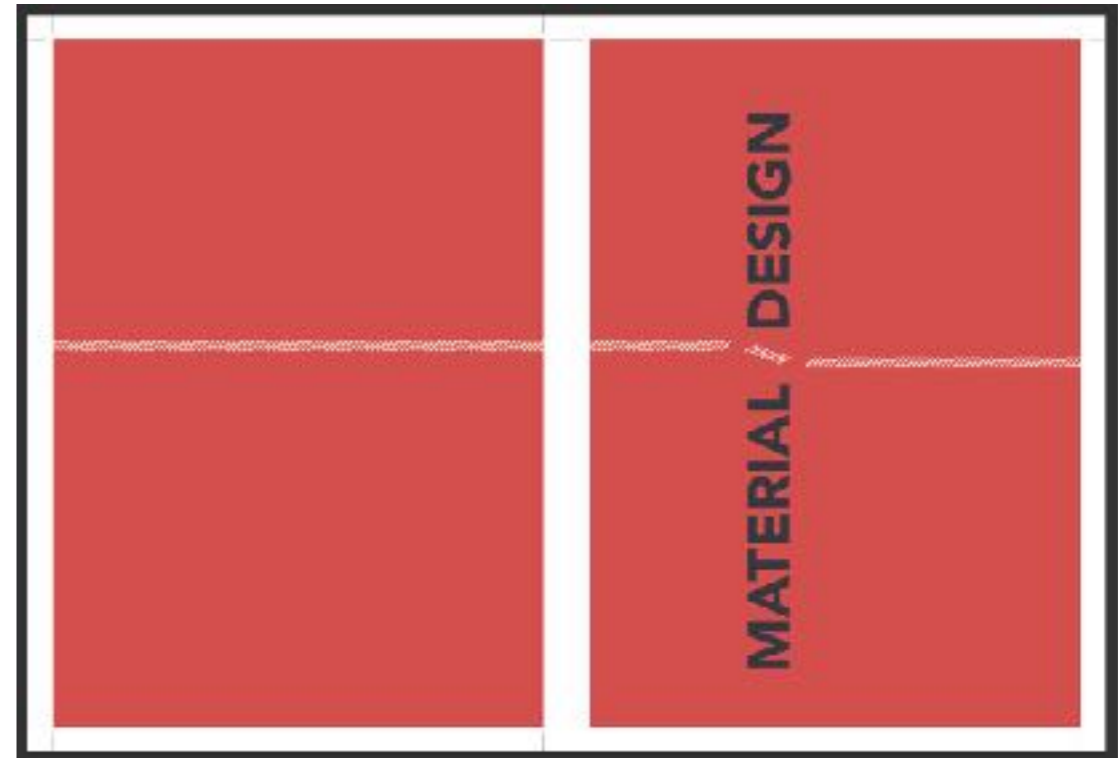


Assignment 4.

Design and represent a space with the selected material and construction technique.

- Spatial Views and illustration of the design.
- Design a cover page for the Alternative Assembly book.

alternate building materials using axonometric and perspective views to show overall structure and the spatial experience of the person occupying the space, respectively, using these alternate building material. This would help to understand the nature of the material, chose and devise a suitable technique that may use just one or a combination of these techniques.



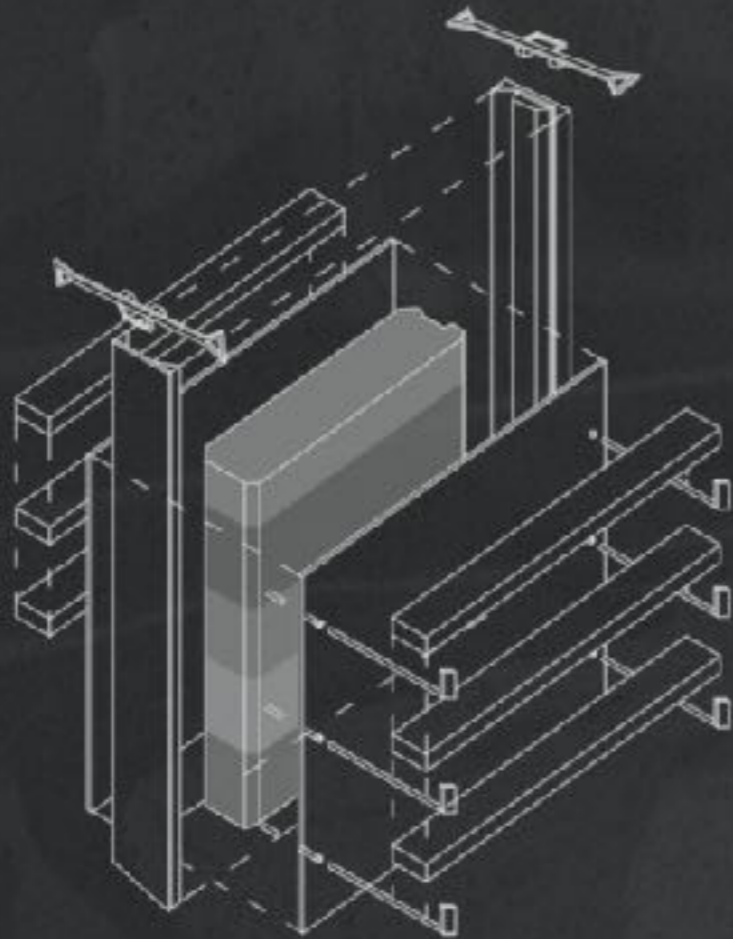
Cover Page Design

The changing times and finding sustainable ways to build being the need of the hour, as a part of the studio, 'Alternate Techniques in building Materials'. It is a compilation of different building techniques and attempt to represent them in a clear way which can be easily understood.



ALTERNATE ASSEMBLIES

A GUIDE FOR DIFFERENT MATERIALS AND TECHNIQUES



a guide for different material and technique

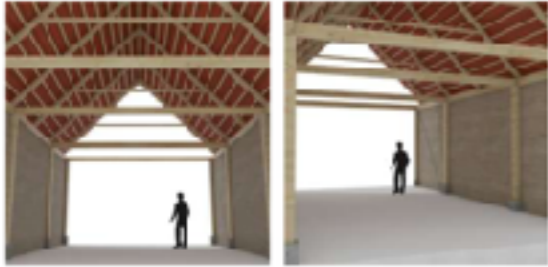
Alternative Assemblies



Roof system

TIMBER PITCHED ROOF

A pitched roof is a roof that slopes downwards in two parts at an angle from a central ridge. A pitched roof's two eaves are made of truss. A traditional method of cutting the timber on-site and building up the roof using rafters, joins, purlins, ridge boards etc.

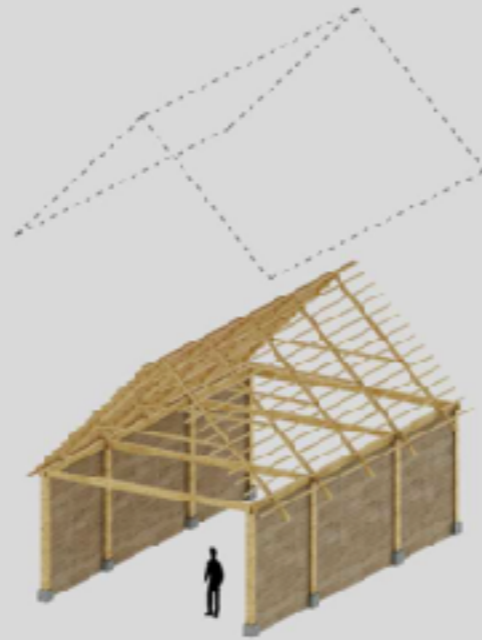


Properties

typical rafter spacing is 600mm, closer spacing will allow small section rafters and batten, that are fixed to the rafters to fix the slates or tiles.

Properties

pitched roofs are built to withstand snow, ice, water and wind.



Roof system

FERROCEMENT CHANNEL

Ferrocement Channels are pre-cast hollow units made with rich cement mortar (8:2 to 1:3) and reinforcement consisting of a continuous layer of chicken mesh with steel bars provided at two ends of the channel. These hollow units are cast either manually on a masonry mould or mechanically on steel moulds mounted on table vibrator.

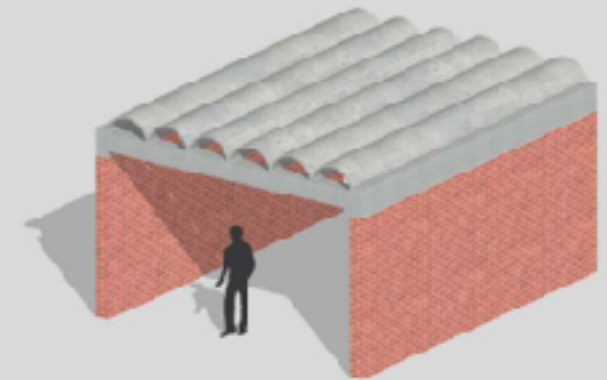


Properties

The channels are supported on ends either on load bearing masonry or on a frame structure (RCC or steel).

Properties

ferrocement roofing channels enable cost savings upto 40% and saves energy upto 25% in comparison with R.C.C. roof.



Wall

WATTLE AND DAUB WALL

Wattle and daub is a composite building method used for making walls and buildings in which a woven lattice of wooden strips called wattle is daubed with a sticky material. Daub is usually created from a mixture of ingredients from three categories: binders, aggregates and reinforcement. Binders hold the mix together and can include clay, lime, chalk, dirt and limestone dust.



Properties

The wattle is made by weaving thin branches either whole, or more usually split or cut between upright stakes.

Properties

In moderate, temperate conditions and if well maintained, a wattle and daub panel should last indefinitely.



Roof system

GROIN VAULT

Roman architects discovered that two barrel vaults that intersected at right angles formed a groin vault, which, when repeated in series, could span rectangular areas of unlimited length. Medieval European builders developed a modification, the rib vault, a skeleton of arches or ribs on which the masonry could be laid.



Properties

The groin vault thrusts are concentrated at all four corners. Its supporting walls need not be massive and require buttressing only where they support the vault.

Properties

It doesn't need a massive wall because groin vault thrusts are concentrated at all four corners.

