

SEMESTER 6 Technical Module AR0603

COURSE OBJECTIVE

In-depth understanding of all components of a building and finishing elements of the building in alternative material construction and technology.

CONTENT FOR THE MODULE

Understanding of properties of materials, their use and construction methodologies, Understanding of Services integration within the built form and use of BIM software (Archicad) to develop working drawings.

LEARNING OUTCOME

Ability to understand the structural and technical details of the building through wall sections of different conditions in alternative material construction and assembly.

REFERENCES

Books:

1. McKay's Building Construction, William Barr McKay
2. Building Construction Illustrated, Francis, Ching, D K

EXERCISE 1.

This Exercise was designed to make the students explore BIM software to work out toilet and plumbing detailing in 3-D model.

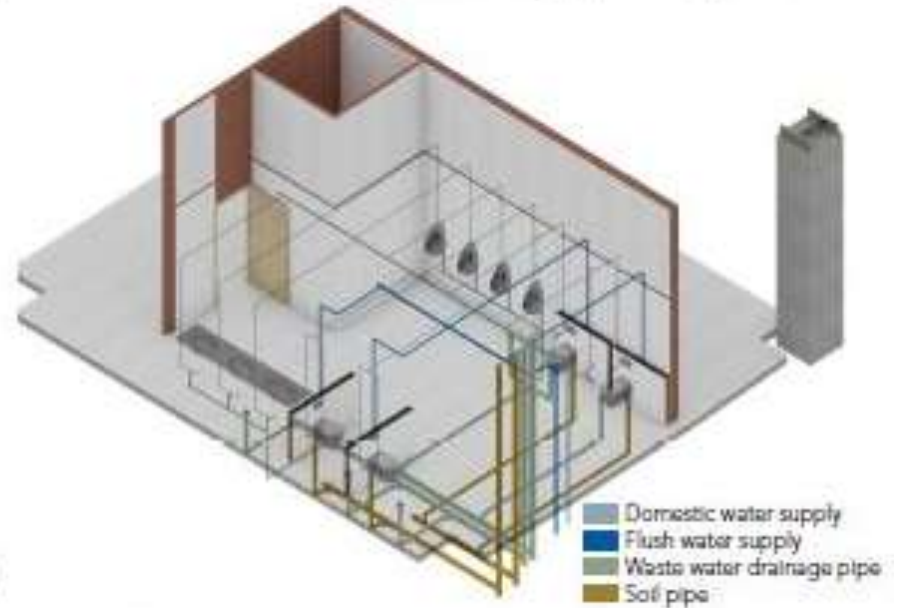
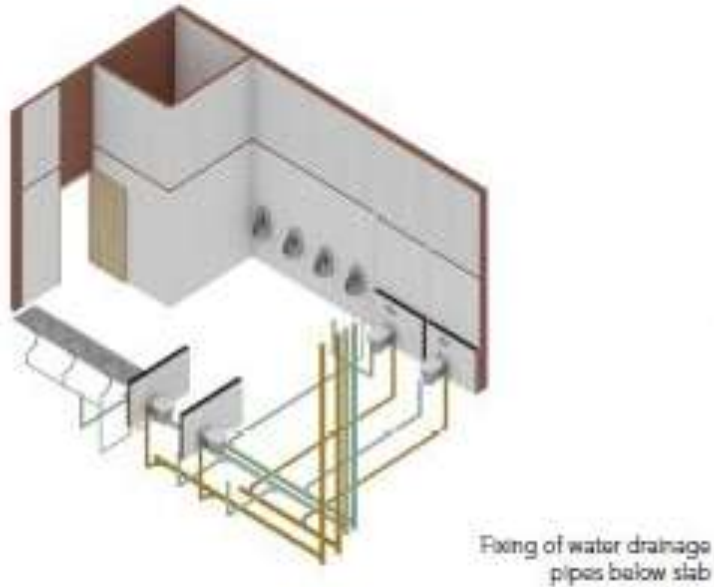
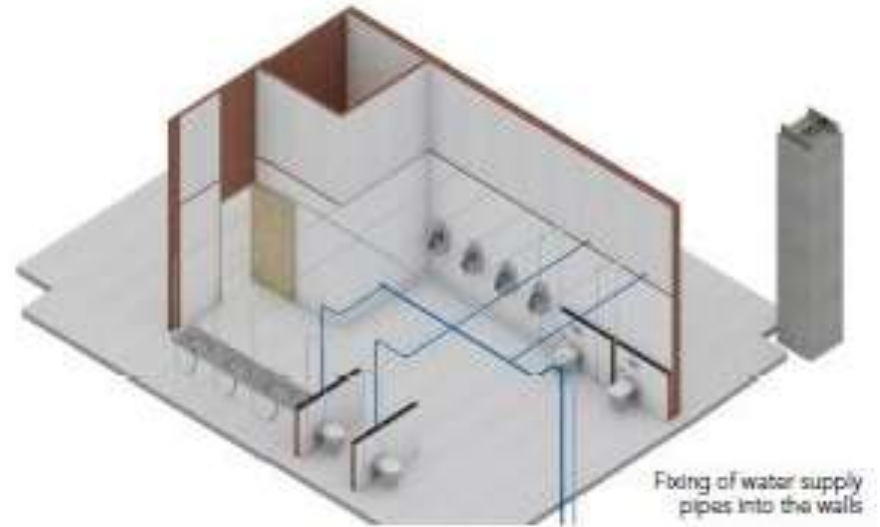
LEARNING OBJECTIVE:

In today's competitive professional environment knowledge of BIM softwares give an edge over the regular students. This exercise would enable students to be future ready and have thorough knowledge of such software where they can use it efficiently to carve out desired solutions.

Methodology :

Guest lectures from experts in the field are arranged and one to one problem and doubt solving sessions are held to refine the process. Some online tutorial based exercises were also introduced to develop deeper understanding.

STUDENT'S WORK



EXERCISE 2.

Developing Wall Section from Alternative Material Assembly.

LEARNING OBJECTIVE:

In this exercise, the students were made to explore alternative building materials and develop a wall section from their design intervention. The idea was to encourage the students to explore different materials and understand how their assemblies come together.

METHODOLOGY :

Site visit and case studies were arranged, and the students also had first hand experience of how such assemblies come together at Auroville.

STUDENT'S WORK



EXERCISE 3.

HVAC services case studies to understand complexities of multiple services.

EXERCISE 4.

Plumbing, water supply and drainage of the selected case studies

LEARNING OBJECTIVE:

The prime objective of this exercise was to understand how complex services such as HVAC and plumbing are taken care in large scale projects.

METHODOLOGY :

The students prepared 3-D model of the case studies taken earlier for plumbing services, and understood the entire process flow at one floor level that enabled them to get hold of the functioning of the system at Macro and Micro level.

STUDENT'S WORK: Exercise 3



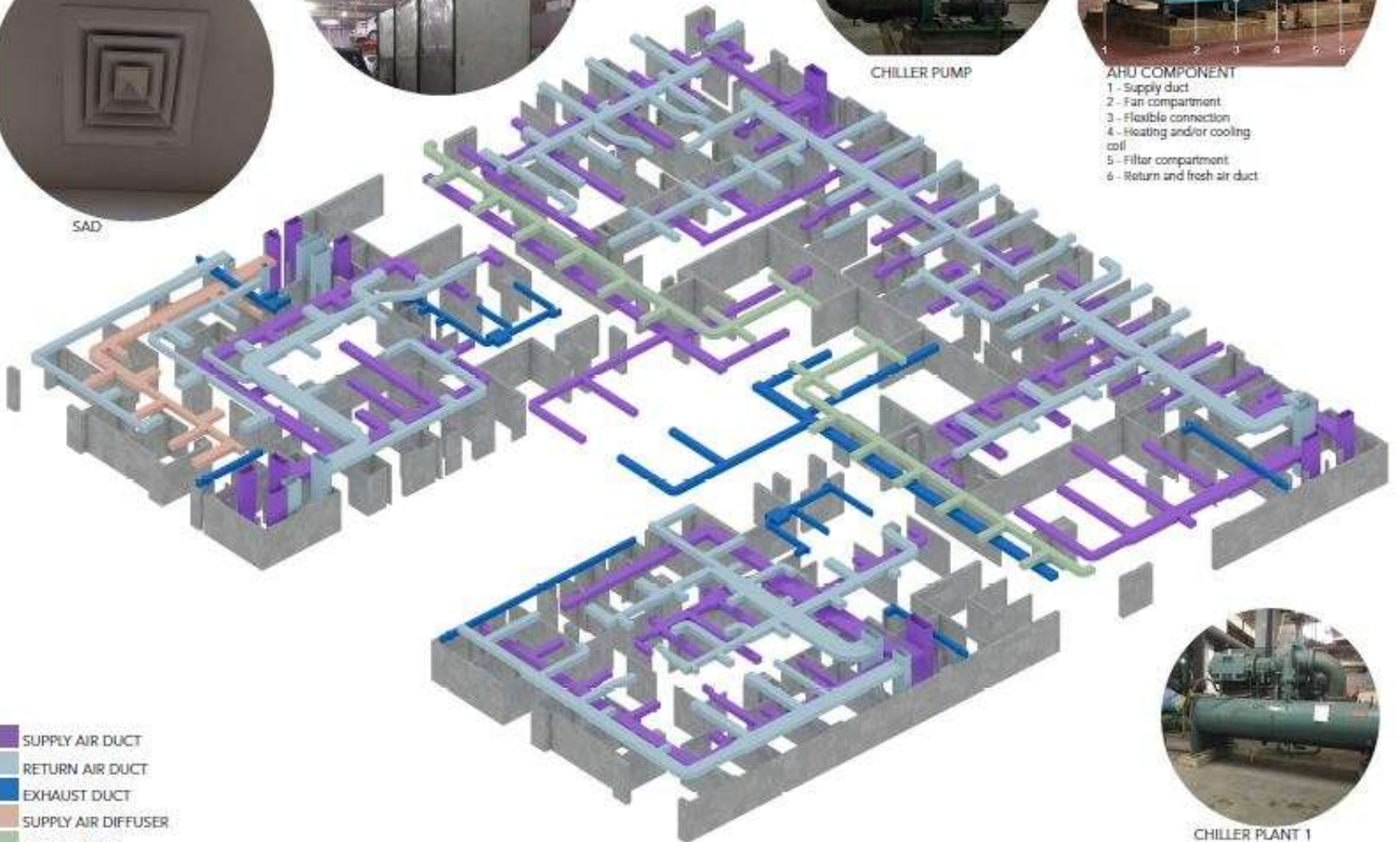
SAD



CHILLER PUMP



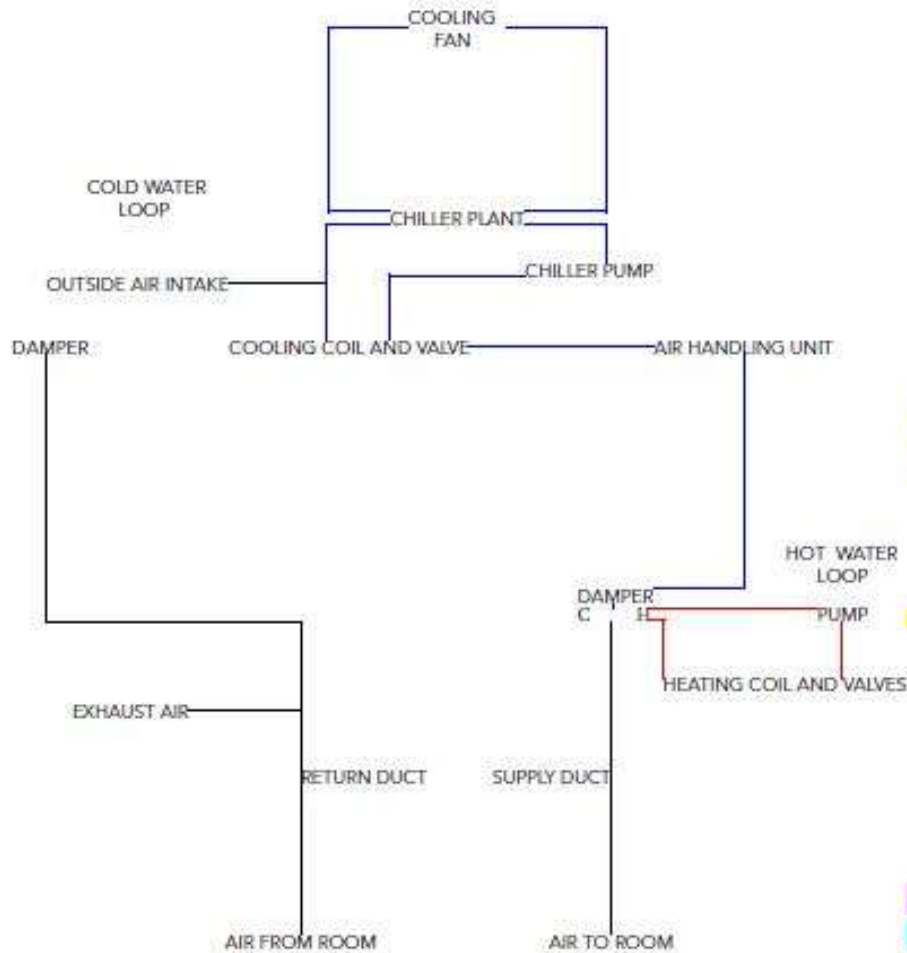
AHU COMPONENT
1 - Supply duct
2 - Fan compartment
3 - Flexible connection
4 - Heating and/or cooling coil
5 - Filter compartment
6 - Return and fresh air duct



- SUPPLY AIR DUCT
- RETURN AIR DUCT
- EXHAUST DUCT
- SUPPLY AIR DIFFUSER
- SMOKE DUCT



CHILLER PLANT 1



- SUPPLY AIR DUCT
- RETURN AIR DUCT
- EXHAUST DUCT
- SUPPLY AIR DIFFUSER
- SMOKE DUCT

FIRST FLOOR PLAN

TECHNICAL
MODULE VI

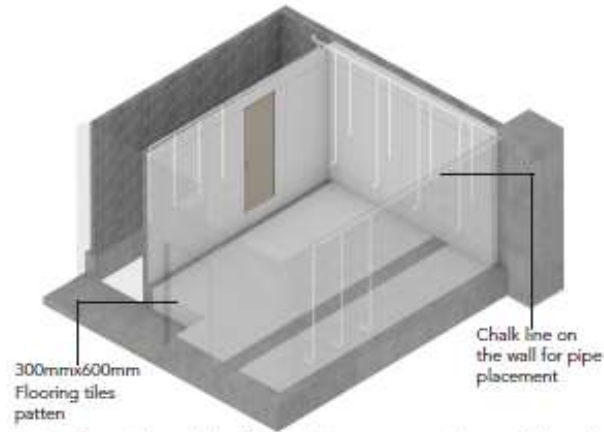
HVAC SERVICE SYSTEM
CENTRAL HVAC SYSTEM

CASE STUDY - ZYDUS HOSPITAL, THALTEJ
AHMEDABAD, GUJARAT

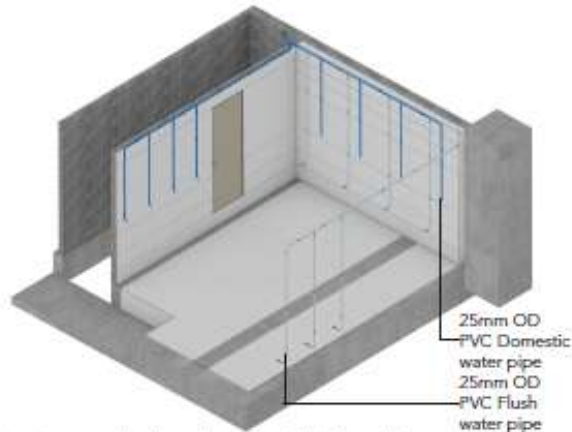
DEEP GODHANIA
ACHAL RAJAN
BIMAL PANDYA

IU174300007
IU174300026
IU174300020

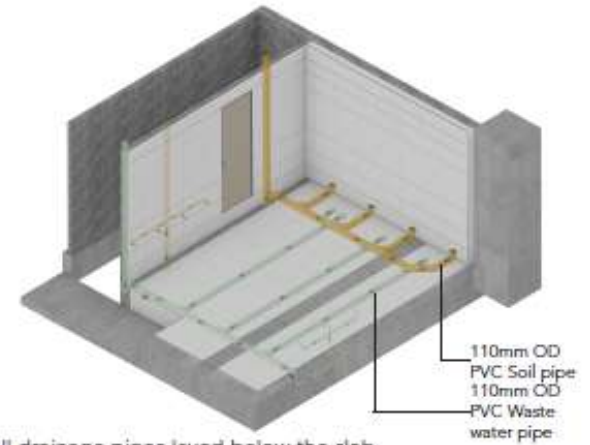
STUDENT'S WORK: Exercise 4



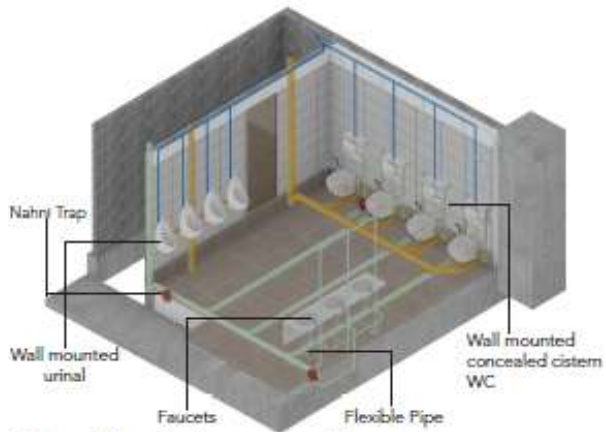
Jari work on the wall, with chalk to represent the position of pipes in the wall.



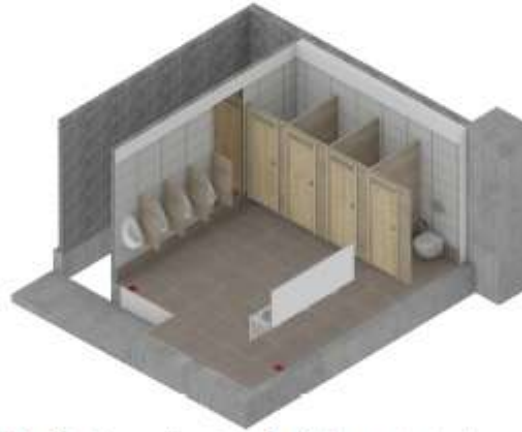
All water supply pipes layed inside the wall.



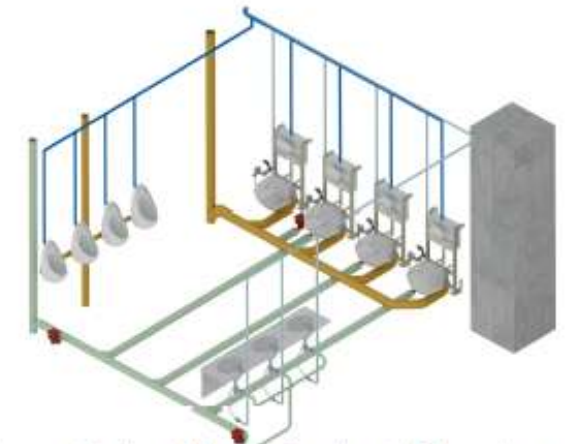
All drainage pipes layed below the slab.



Fixing of Tiles, Sanitary ware and Faucets.



Adding Partition walls. view after fully constructed.



Axonometric view of the plumbing layout of the washroom.

- Domestic water supply
- Flush water supply
- Waste water drainage pipe
- Soil pipe

TECHNICAL
MODULE VI

PLUMBING DETAILS CASESTUDY
SITE - ZYDUS HOSPITAL, THALTEJ

DEEP GODHANIA
ACHAL RAJAN
BIMAL PANDYA

IU1743000007
IU154300000A
IU1543000020

EXERCISE 5.

Developing working Drawing Set of design using Alternative building materials.

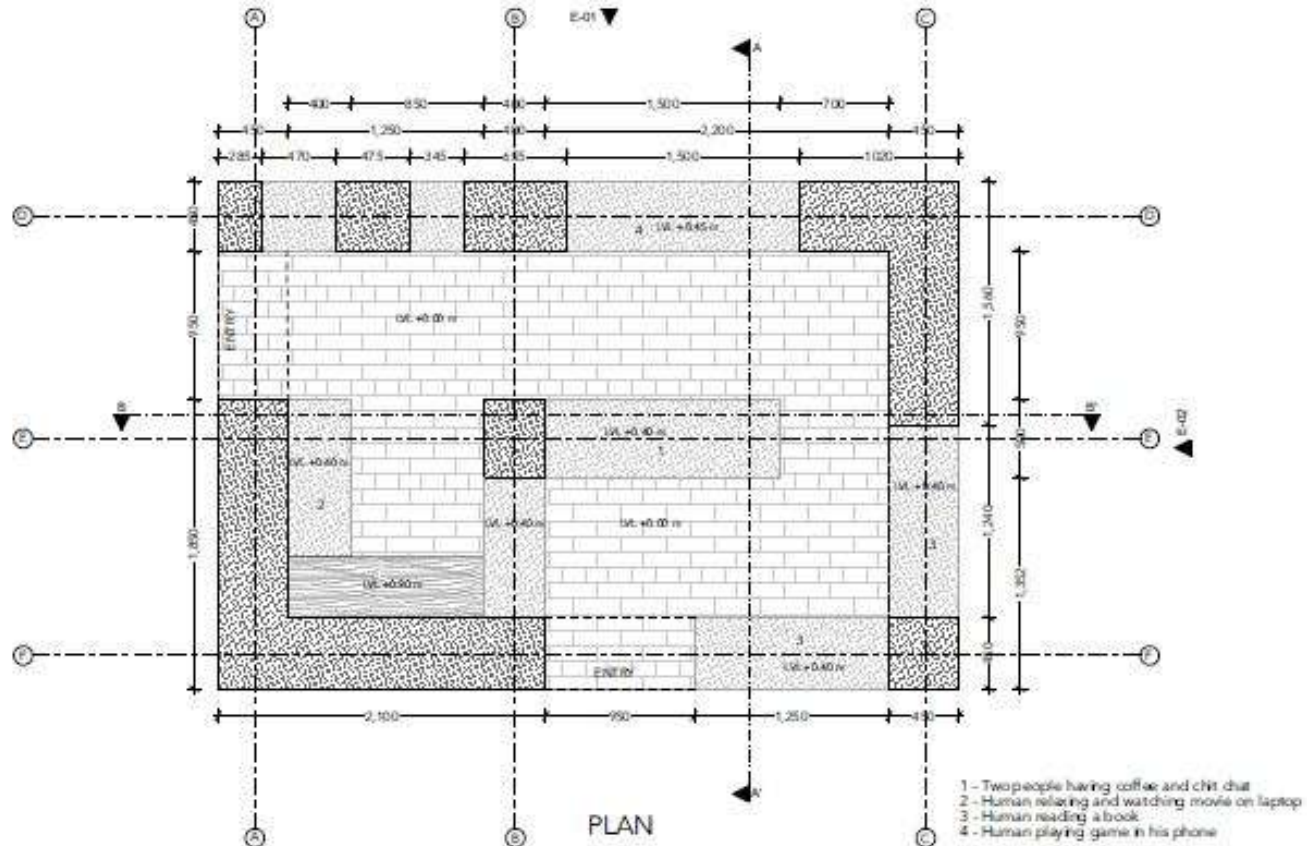
LEARNING OBJECTIVE:

In this exercise, the students prepared final set of working drawings using BIM software(ArchiCAD) and the use of alternative materials were explored to design a small space which would be an expression of materials to be used.

METHODOLOGY :

Taking the learning's from Auroville site visit and alternative materials assemblies, this exercise was done in ArchiCAD to workout the detailing that goes into preparation of working drawings in a BIM software.

STUDENT'S WORK: Exercise 5



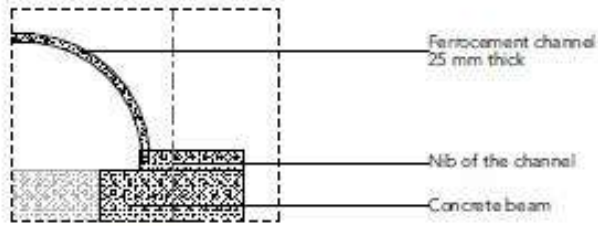
- 1 - Two people having coffee and chat
- 2 - Human relaxing and watching movie on laptop
- 3 - Human reading a book
- 4 - Human playing game in his phone

TECHNICAL - 6
CRAFTING DETAILS

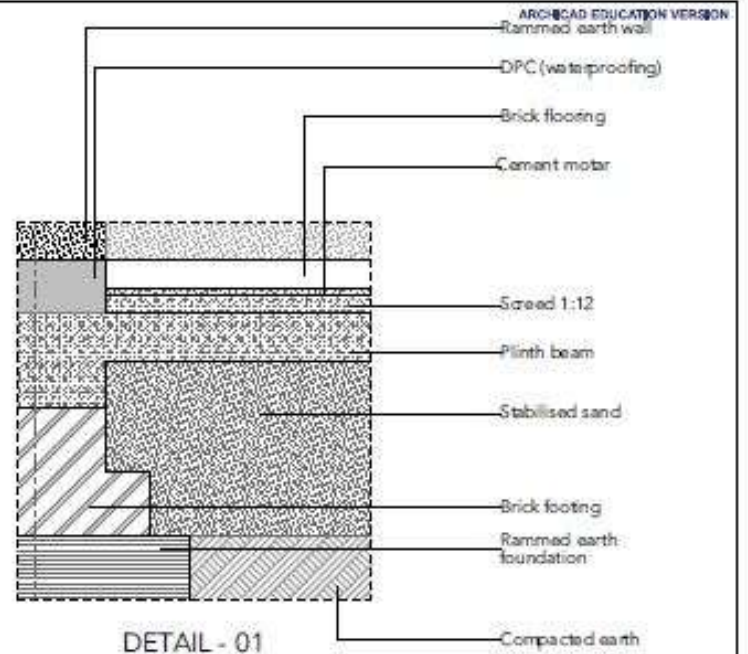
Activity - Lounging
Material - Rammed earth

PLAN - 1:20

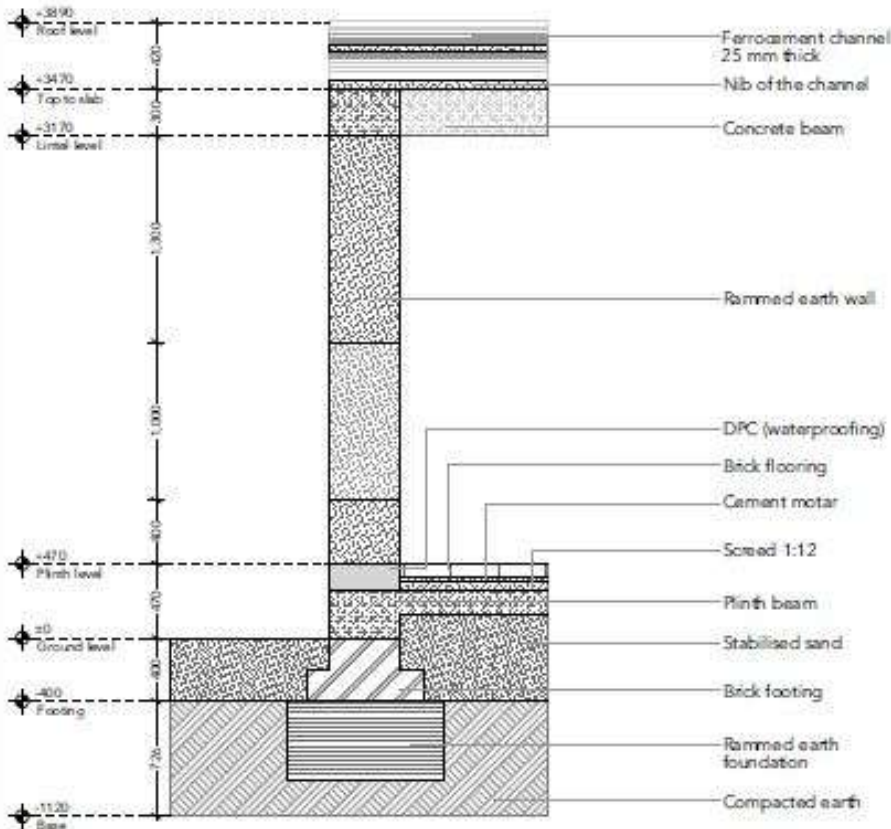
Tish Patel
10164300025



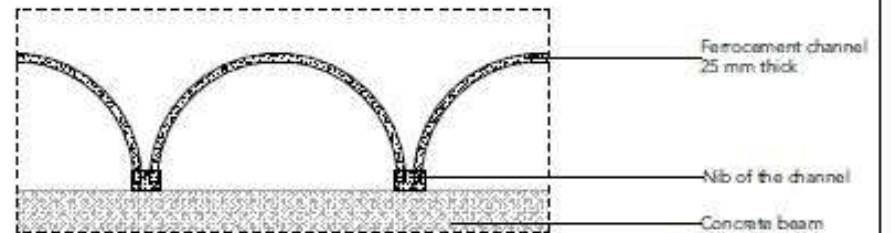
DETAIL - 02



DETAIL - 01



WALL SECTION



DETAIL - 03

TECHNICAL - 6
CRAFTING DETAILS
Activity - Lounging
Material - Rammed earth
WALL SECTION - 1:20
DETAILS - 1:10
Tirth Patel
11/164-300025