

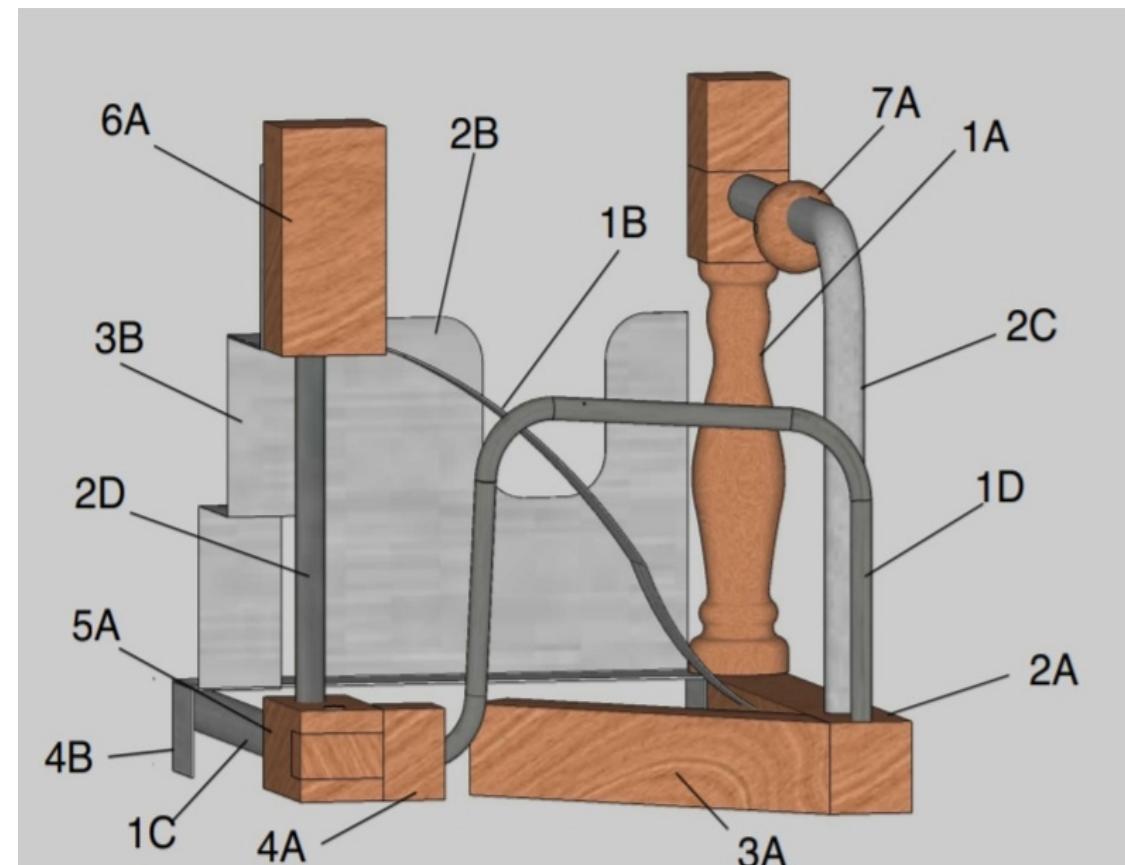
Portfolio

Diya Pujara

1.

Joining Elements

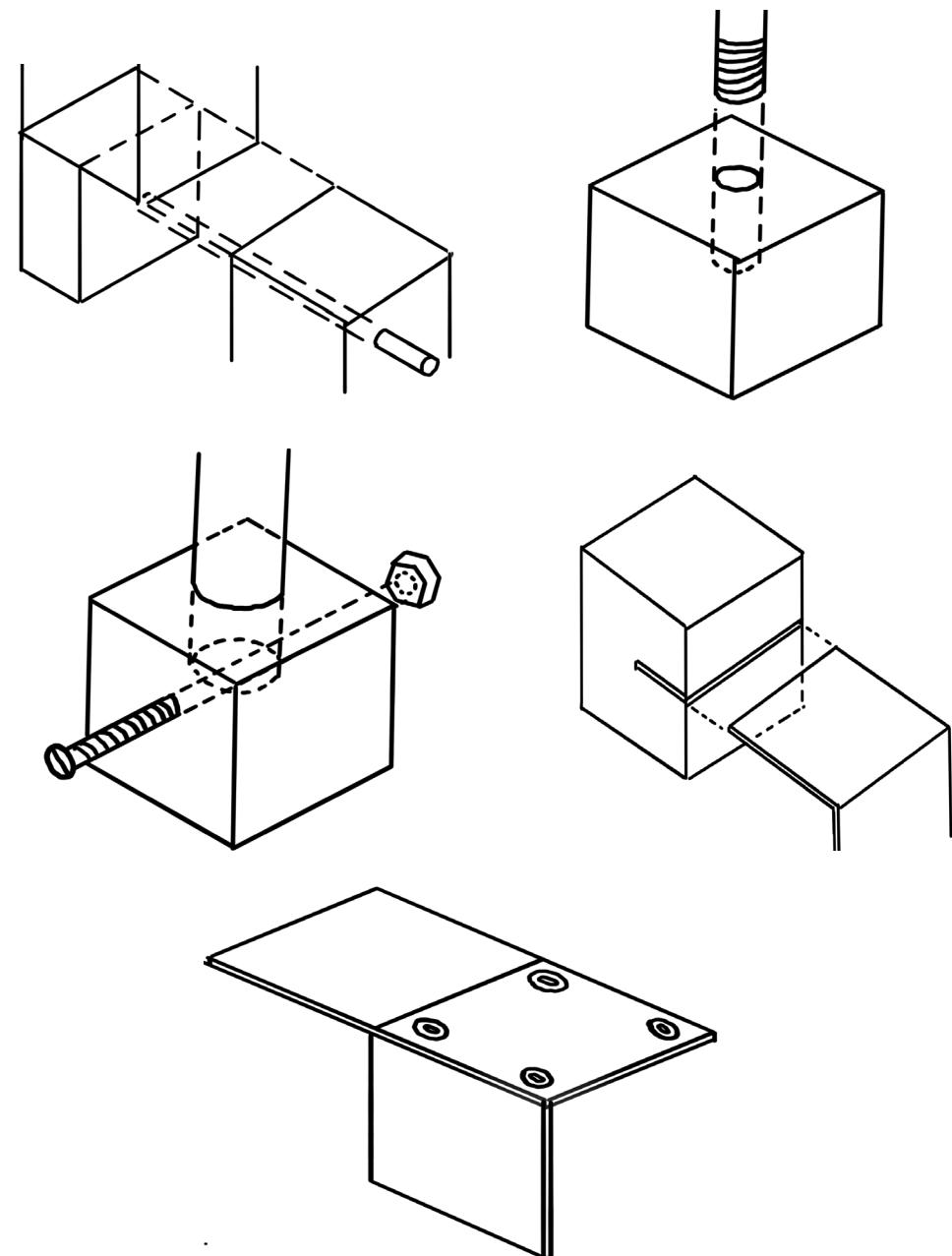
I took part in a cooperative group project that involved real-world application in a workshop environment, where I helped fabricate different parts. Exhibited expertise in constructing a variety of items and joinery using specified amounts of wood, metal pipes, metal rods, and metal sheets.



Final Model



Joinery Details



Used best practices for material use to create a prototype. experimented with a variety of connecting methods for various materials, such as metal-metal, wood-wood, and wood-metal combinations. used industrial equipment and tools, such band saws, drill machines, metal crop saws, metal sheet shears, chisels, hammers, and so on, to speed up the manufacturing process.

Cost Estimation of the model

Detailed Estimate							
S.No.	Particulars	L(mm)	B(mm)	H(mm)	Total Quantity	Rate	Amount
1	Wood				in cumm	3000/cuft in Rs	
	(a) 1A	300	40	40	480000		50
	(b) 2A	300	40	40	480000		50
	(c) 3A	200	40	40	320000		34
	(d) 4A	60	40	40	96000		10.17
	(e) 5A	80	40	40	128000		13.56
	(f) 6A	100	40	40	160000		16.95
	(g) 7A	160	40	40	256000		27
	Total quantity of wood						
2	Metal Rod 12 mm dia					40/kg	
	(a) 1D	520					51.26
	(b) 2D	180					17.74
	Total quantity of metal rod						
3	Metal Sheet 1mm thick					75/kg	
	(a) 1B	350	40				4.48
	(b) 2B	220	180				12.66
	(c) 3B	700	40				8.95
	(d) 4B	350	40				4.48
	Total quantity of metal sheet						
4	Metal Pipe 19 mm dia 1.2 mm thick					42/kg	
	(a) 1C	270					5.76
	(b) 2C	650					13.89
	Total quantity of metal pipe						
5	Hardware						
	(a) Rivets					2.5/piece	20
	(b) Nut and bolts					2.5/piece	10
	Total quantity of Hardware						
6	Labour				Days	no. of labourers	
	(a) Wood work				3	2500/day	2625
	(b) Metal work				3	700/day	3200
	Total Labour						

General Abstract		
	Particulars	Amount(R)
1	Wood	201.68
2	Metal Rod	69
3	Metal Sheet	39.2
4	Metal Pipe	19.66
5	Hardware	30
6	Labour	5825
	Grand total	6157.54

2.

Making and Testing Bridge Structure

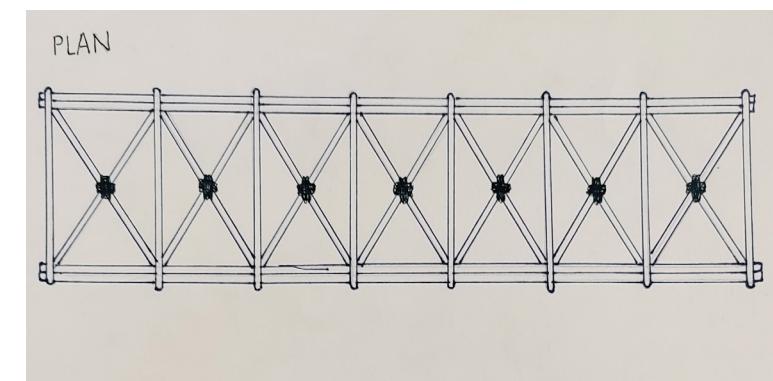
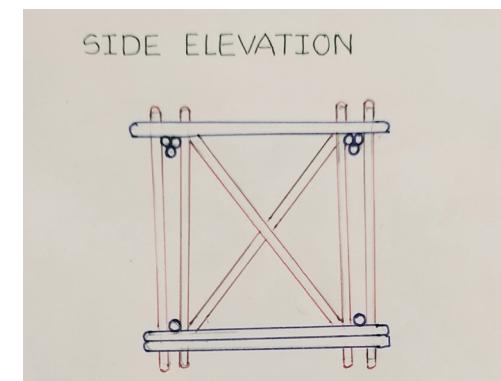
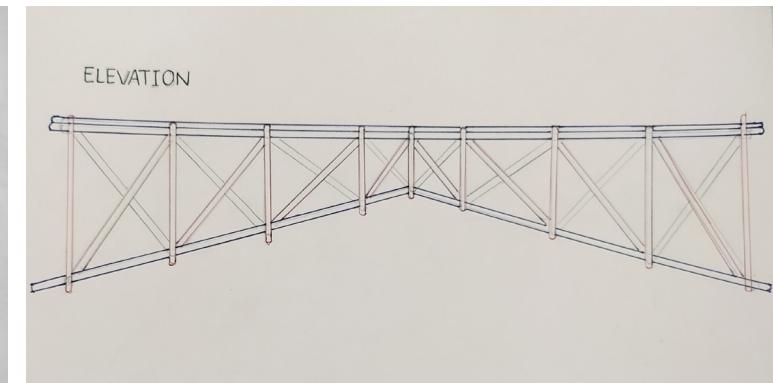
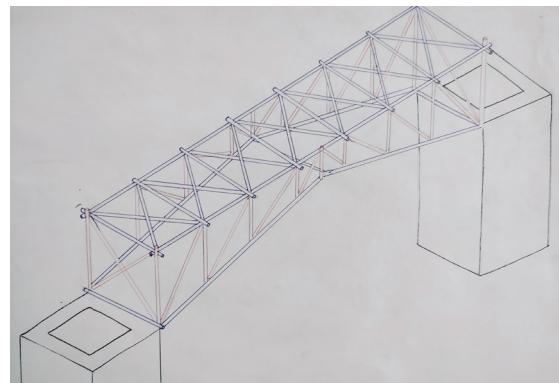
Took part in an organised practice aimed at understanding different aspects of structural construction. Building a framework and then evaluating its ability to support weight were both emphasised.

Design Inspired From

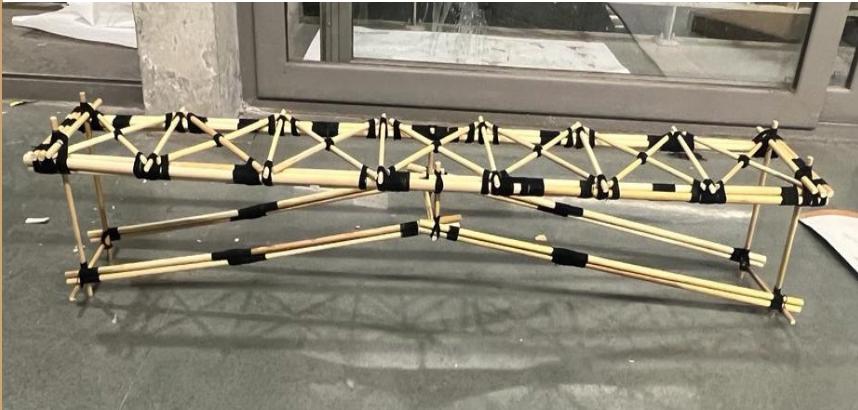


The final design was inspired by the image shown here. The structure required a flat surface on the top proposed design is a modified version of the curved structure instead of a curve below the main structure. A triangular shaped design was used.

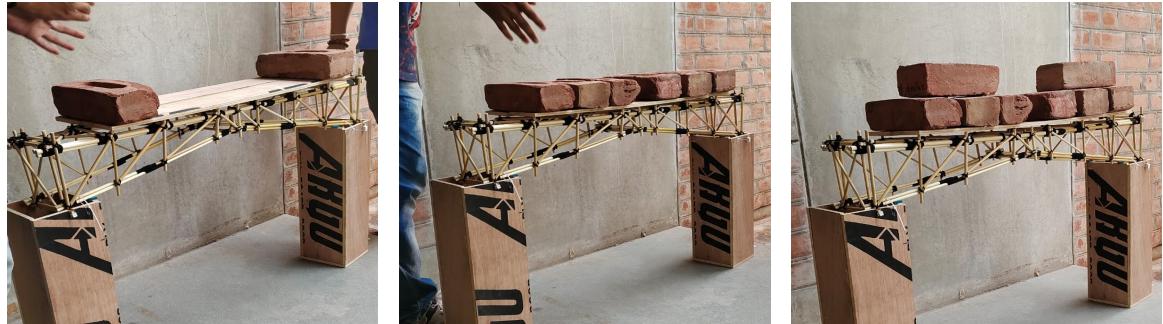
The Final Design



1st attempt



Loading Process



The structure was rested on two plywood columns. The bridge started bending after putting a load of six bricks. Under thid load condition, the load bearing members started facing compression and finally it buckled from one end.

Structure Failure

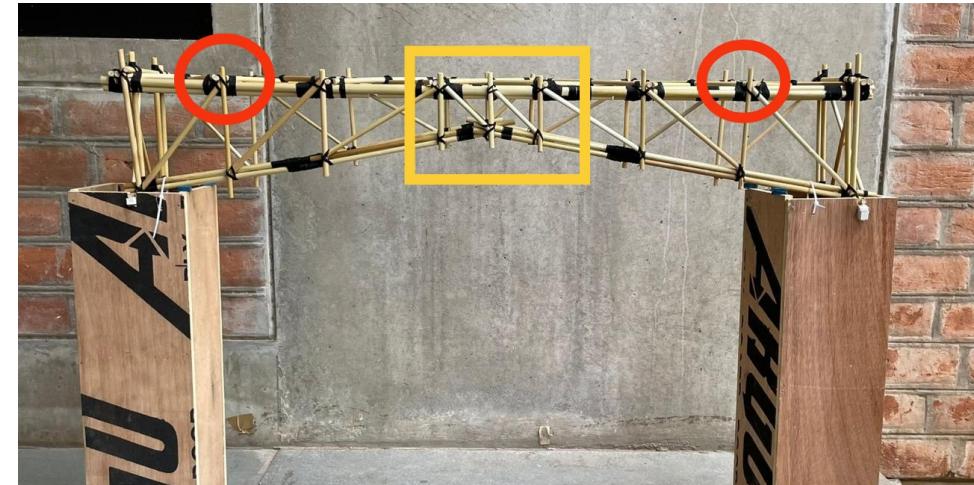


Maximum capacity

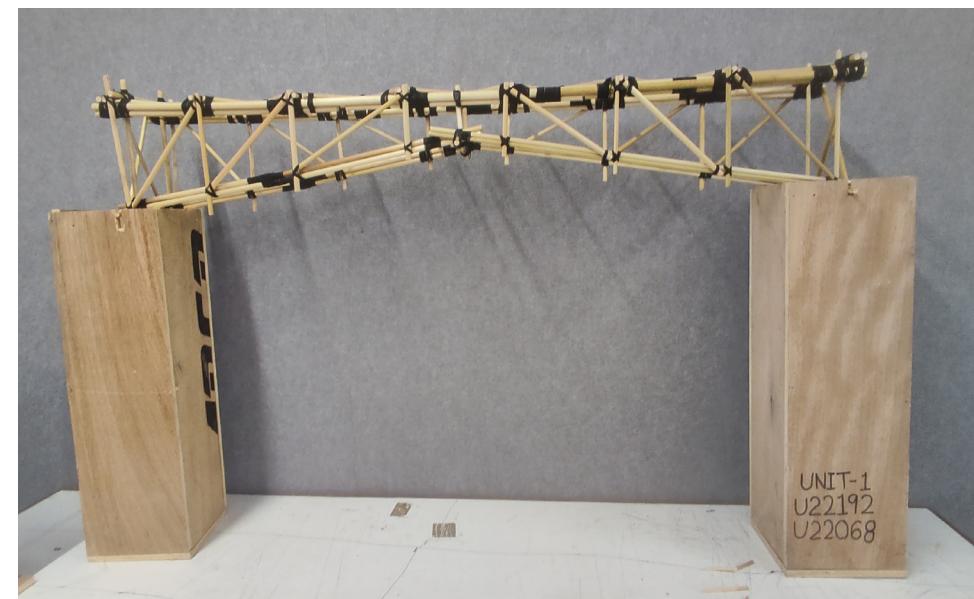
The structure carried a load of 15 bricks (approximately 49 kgs), which was more than the specified limit of 35-40 kgs.

Changes in structure

After putting the bricks the load did not fall on the top of the structure and the base members. This was because of extended vertical bracings members. As a solution they were pulled down so that the load get distributed equally.



Final Model



3.

Site Visit to Gandhi Aashram

Participated in an assigned project that focused on a residential property named Namrata and Karuna, which included a site visit to Gandhi Ashram in Ahmedabad. carried out thorough measurements that included height, length, and breadth specifications for doors, windows, rooms, and furniture. Afterwards, created several designs, sections, and roofs for the assigned location.

Front view



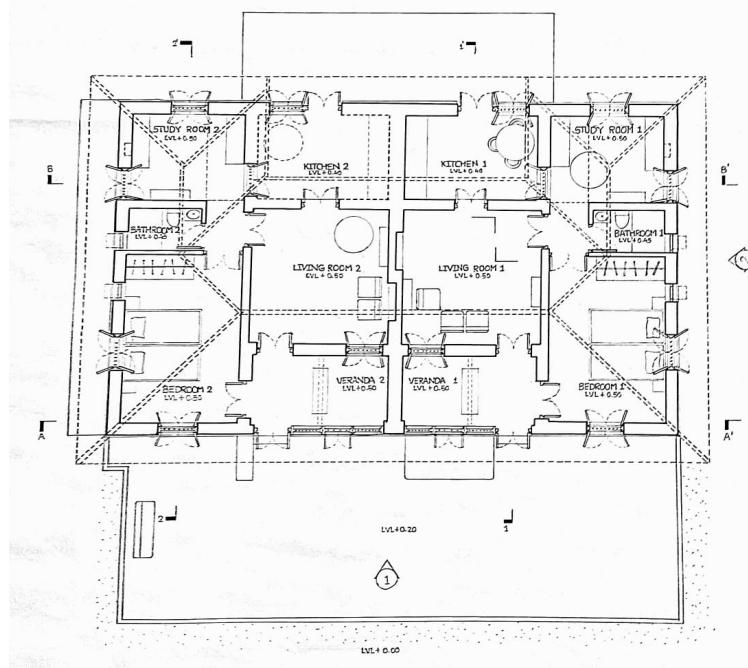
Side view



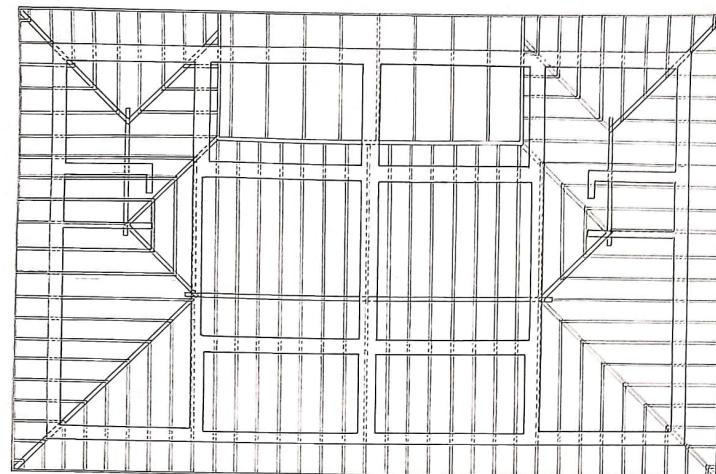
Back View



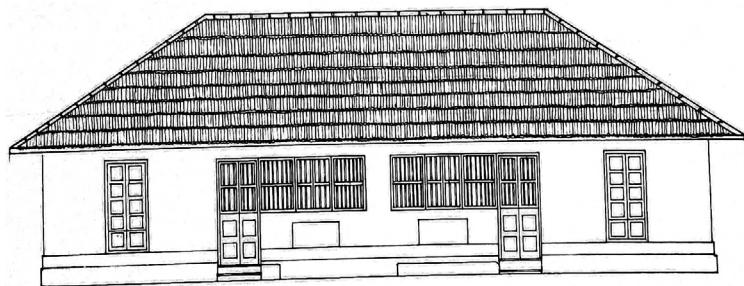
Plan



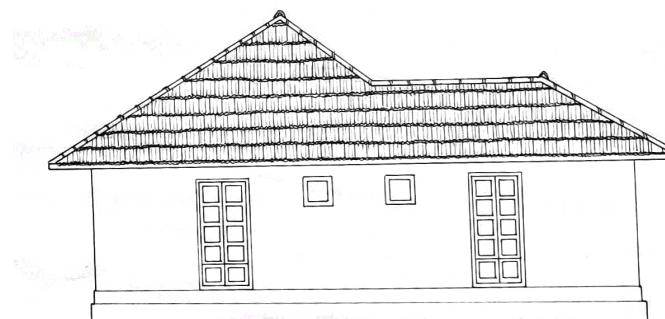
Roof Plan



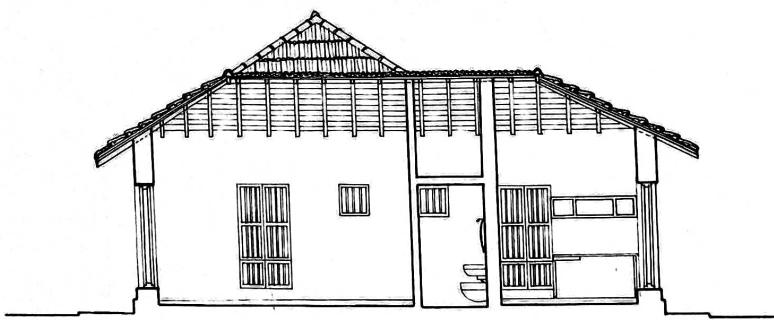
Front Elevation



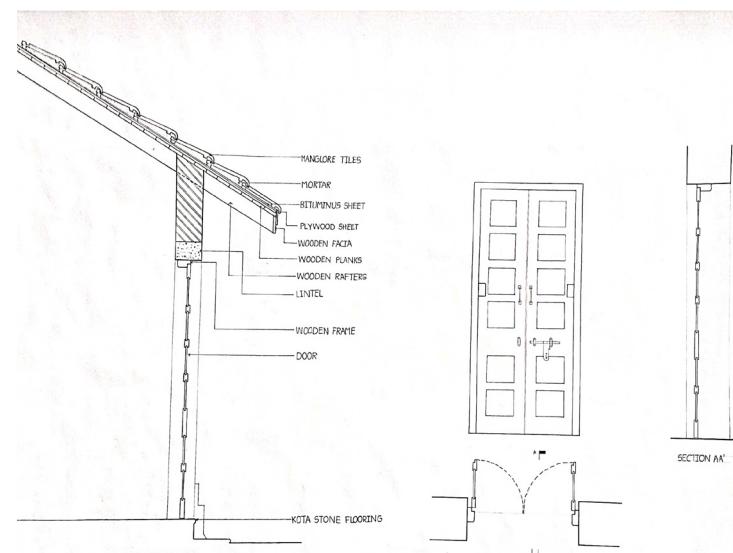
Side Elevation



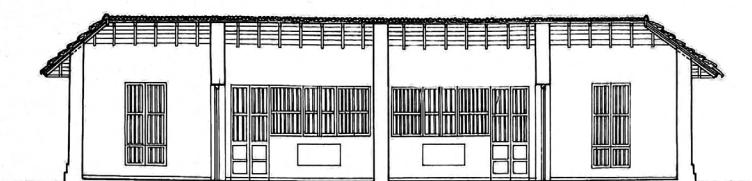
Vertical Section



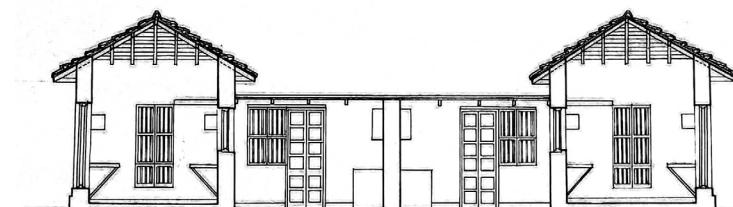
Wall Section



Horizontal Section



Horizontal Section



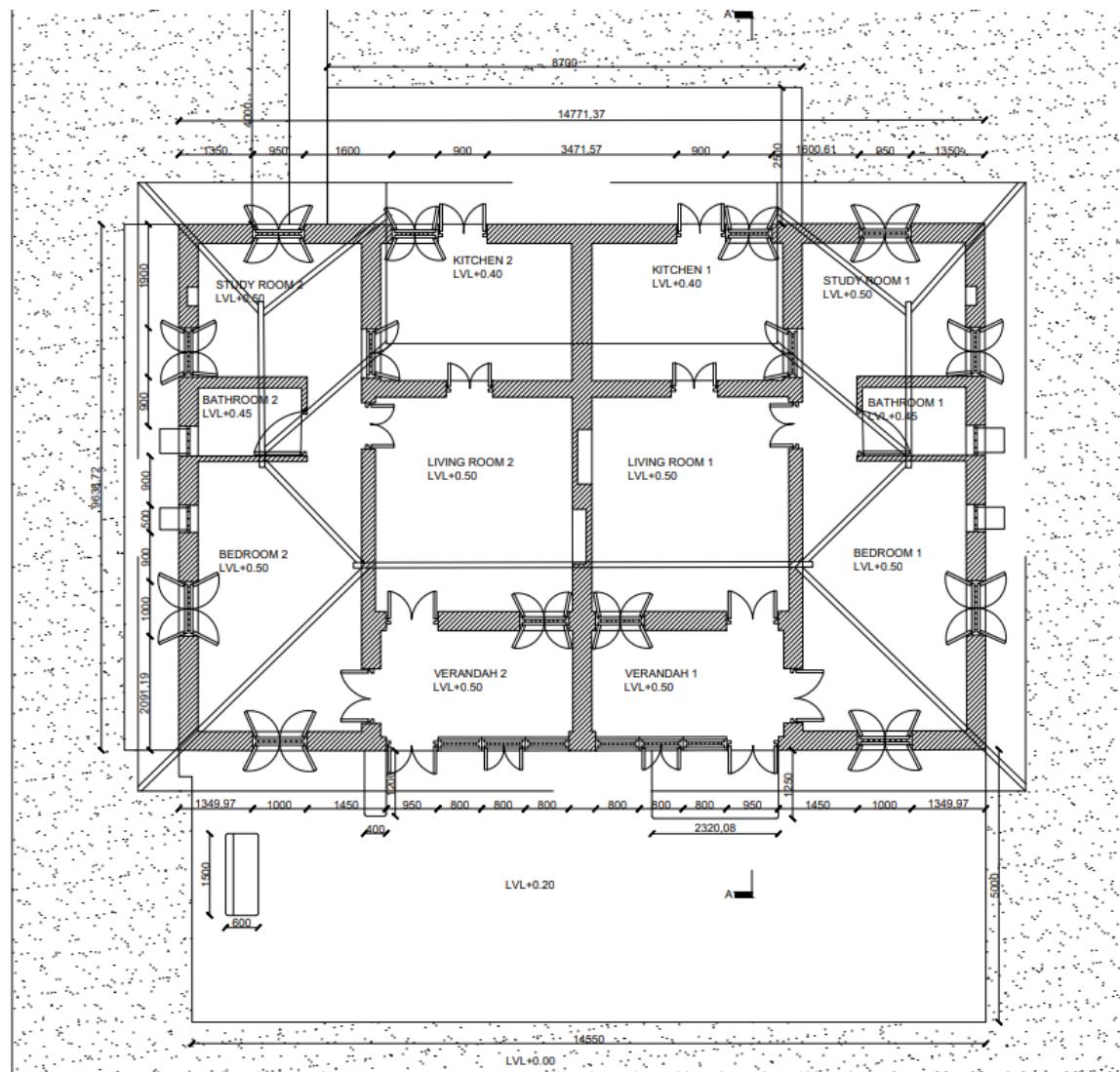
Digital Representation

I used AutoCAD software to carefully create the architectural plan and section of the Namrata and Karuna home project within the parameters of this module, showcasing my ability to produce accurate technical documentation.

Vertical Section



Plan

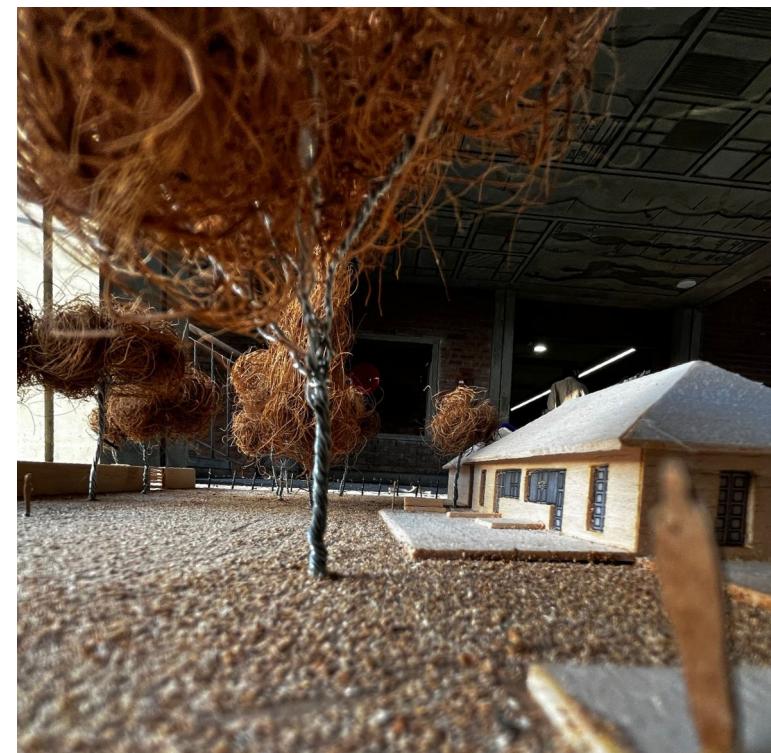


Model Making

Crafted scaled replicas using balsa and jute board; the models' measurements were painstakingly trimmed down to 1/50th of the real building's size, shown mastery of precise modelling techniques to faithfully capture architectural structures.



Site Model



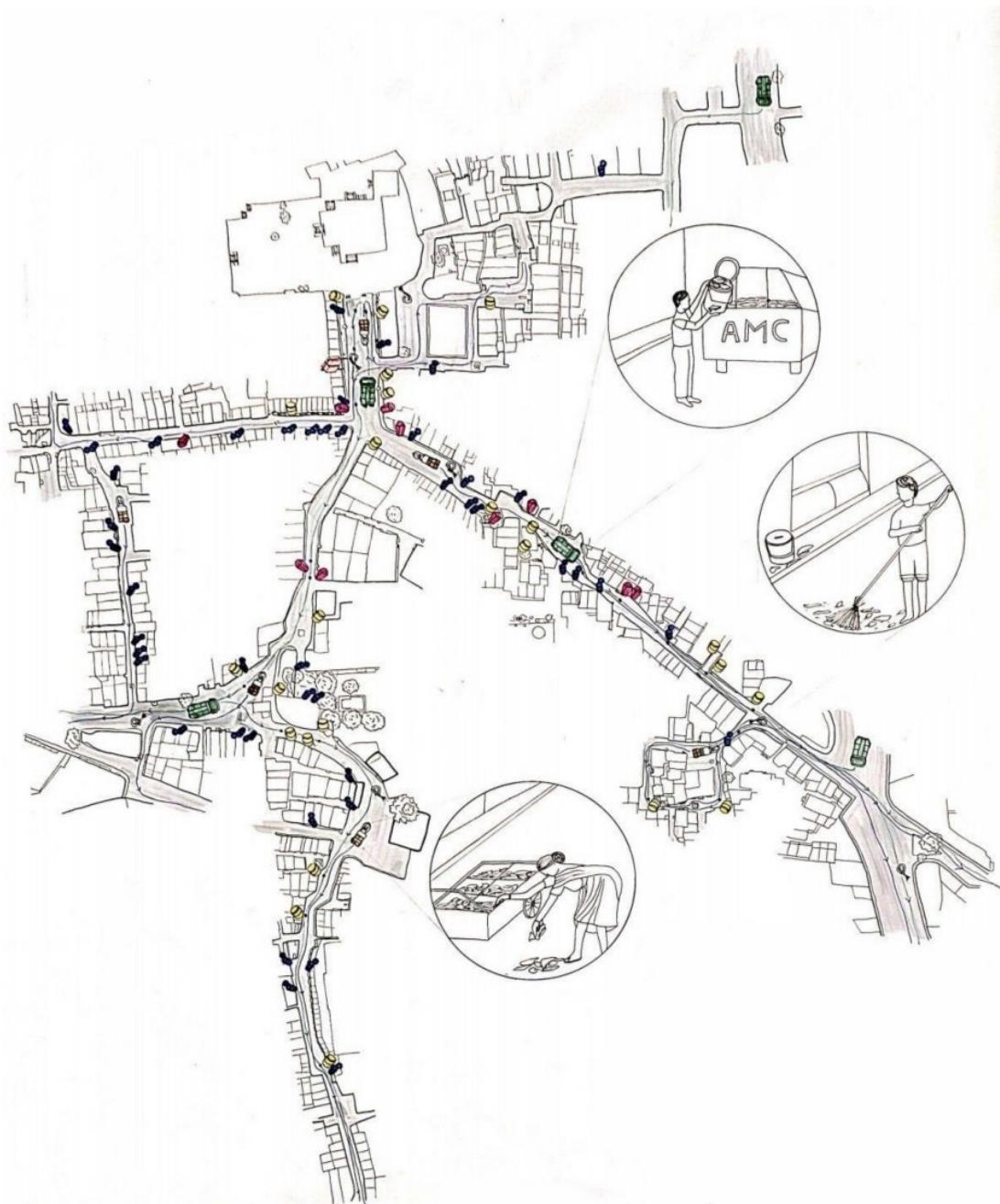
4.

Mapping in Kalupur

Started a project to map Ahmedabad's ancient Kalupur neighbourhood, which is known as the oldest part of the city, in a methodical manner. This experiment was designed to thoroughly record and examine different aspects of the neighbourhood. With an emphasis on historic preservation and urban growth, the goals were to satisfy the unique requirements of the area, support informed development decisions, and keep an extensive record.



Conducted a thorough investigation throughout the contacts, which showed that workers and sweepers were routinely given specified routes and time periods between 6:00 and 11:00 in the morning. The study's conclusions highlight the need of implementing a systematic garbage collection strategy that includes identifying trends in waste production, classifying different types of waste, identifying areas where significant waste accumulation occurs, and allocating a sufficient number of vehicles and personnel. In addition,



It became clear that the use of technology, raising public awareness, making sure there are enough dustbins available, and putting in place venue-specific garbage recycling techniques were crucial tactics for streamlining operations and making an urban environment cleaner and greener. These preventative actions not only encourage a safer current but also set the stage for the citizens of the city to have a sustainable future.

Site Chosen for Study



5.

Field Workshop at Bhuj

Took part in a session on ecologically friendly building conducted by the Sankalan Foundation. contributed to studies designed to provide novel concepts and approaches for developing technology through knowledge production. created a thorough book that details the activities carried out over the course of the four days of the workshop.





Engineering Brug
U22068 Diya Pujara