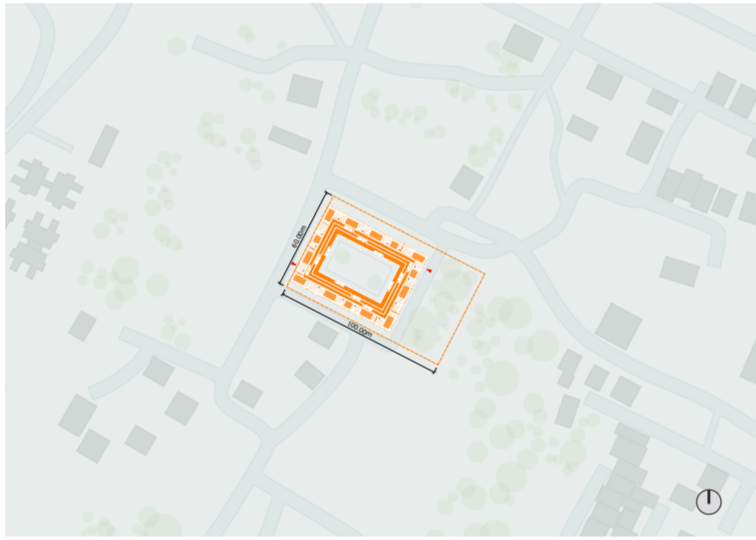




AANGAN

ADAPTING THE INDIAN COURTYARD IN CROSS LAMINATED TIMBER



Site

The project located in the city of Dehradun in India looks at how the introduction of Cross Laminated Timber (CLT) in the context of India creates an opportunity to bring elements of Indian architecture in a design that is sustainable, cost effective and quickly constructed, which is a necessity with the growing demand for housing in India.

It explores possibilities of improving CLT construction and how CLT's various advantages can allow a focus on the spatial quality of the architecture and adaption of qualities characteristic to traditional

houses and urban communities in India while providing interesting and adaptive solutions to the future of housing in India.

The city of Dehradun situated in the Doon Valley of the Himalayan foothills is an archetype of a rapidly urbanizing mid-sized city in India. The project is located in an area of the city where multiple developments are being planned and uses the design as an opportunity to further guide development of the area.

Aangan or The Courtyard

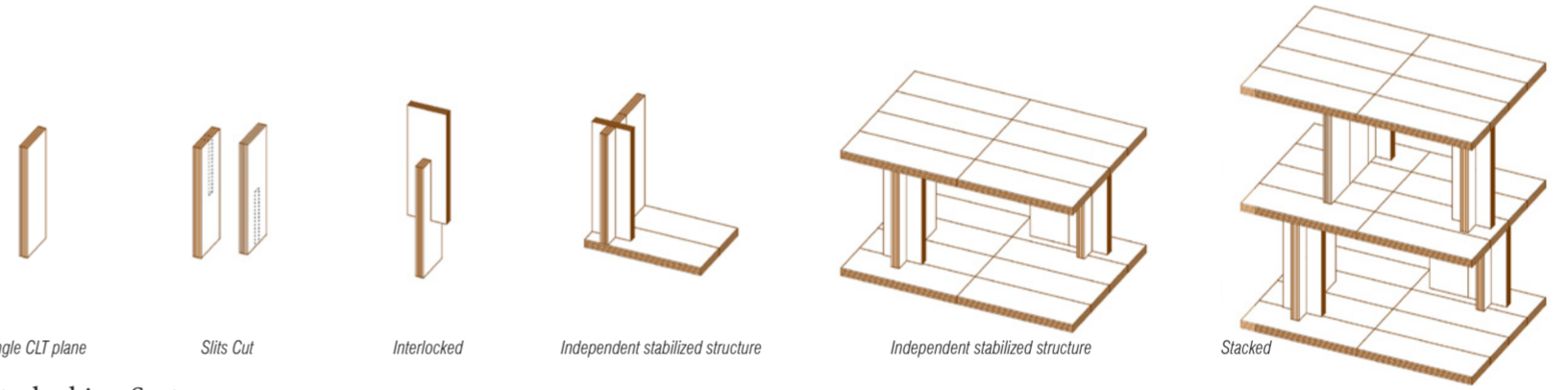


The courtyard as an architectural characteristic is consistently present across various types of housing in India and is a result of the social practices and climactic conditions. The architectural element is not just a style but essential to a way of life. It is present across India and emerges in various styles such as the Haveli, Wada, Deori or Nalukettu.

The courtyard acts as a mediator between inside and outside, public and private life and is a place for where the house brings together the various members of the extended family which is typical in

India as well as the larger community outside.

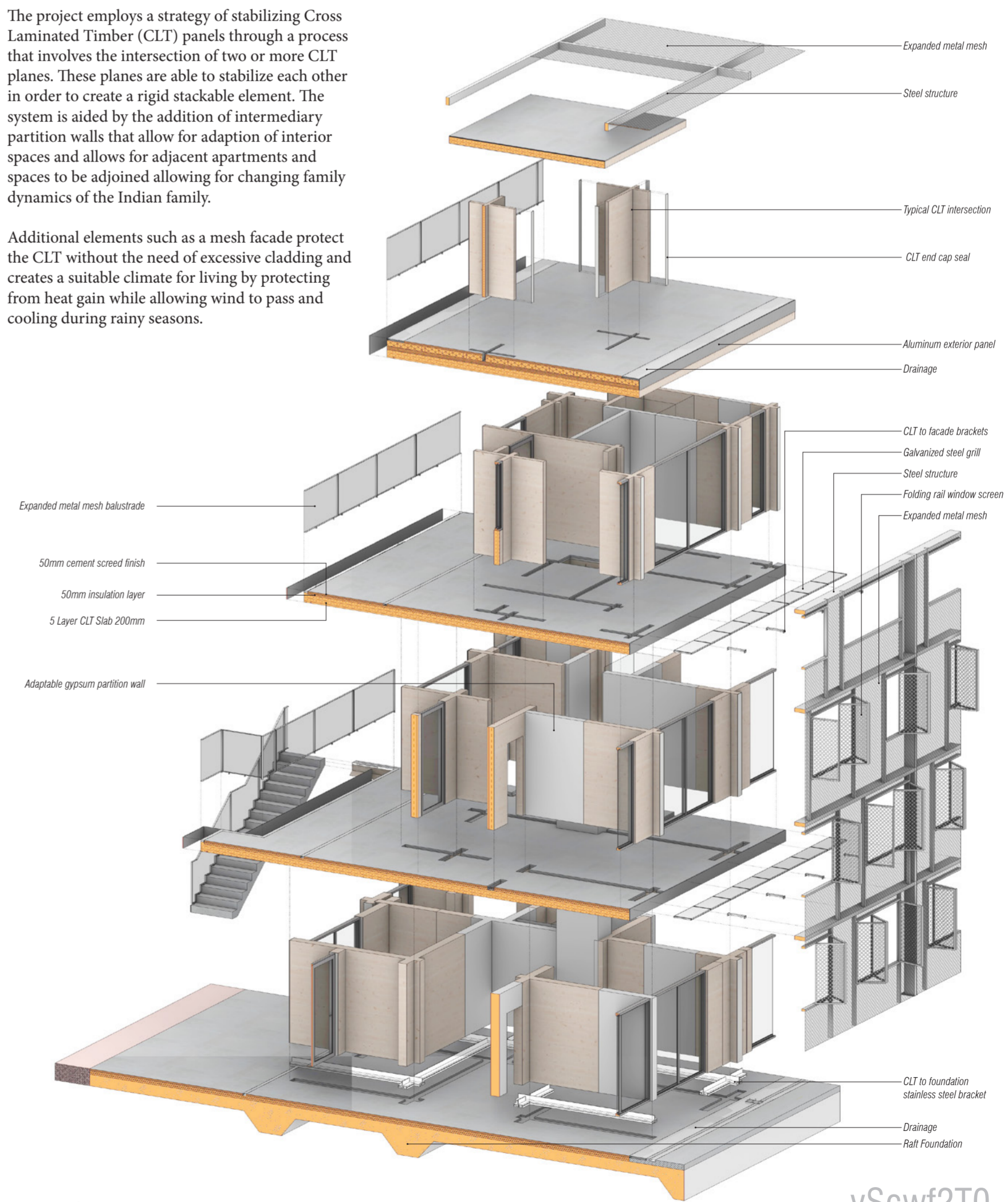
This project therefore focuses on the potential of a CLT structure to adapt this typology and provides a flexible framework where the CLT structure allows for adaptability of the living spaces to accommodate various family sizes and could potentially grow or shrink according to the needs of its users. Ultimately the Courtyard brings together the various residents providing various shared spaces for activities to flourish



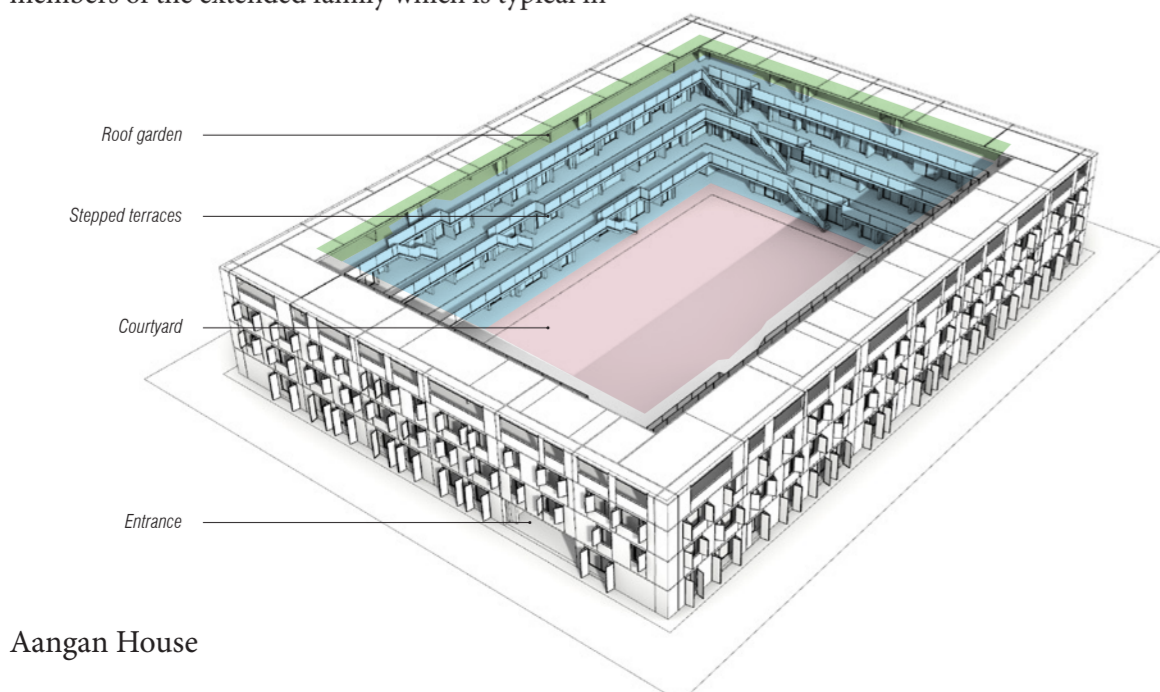
CLT Interlocking System

The project employs a strategy of stabilizing Cross Laminated Timber (CLT) panels through a process that involves the intersection of two or more CLT planes. These planes are able to stabilize each other in order to create a rigid stackable element. The system is aided by the addition of intermediary partition walls that allow for adaption of interior spaces and allows for adjacent apartments and spaces to be adjoined allowing for changing family dynamics of the Indian family.

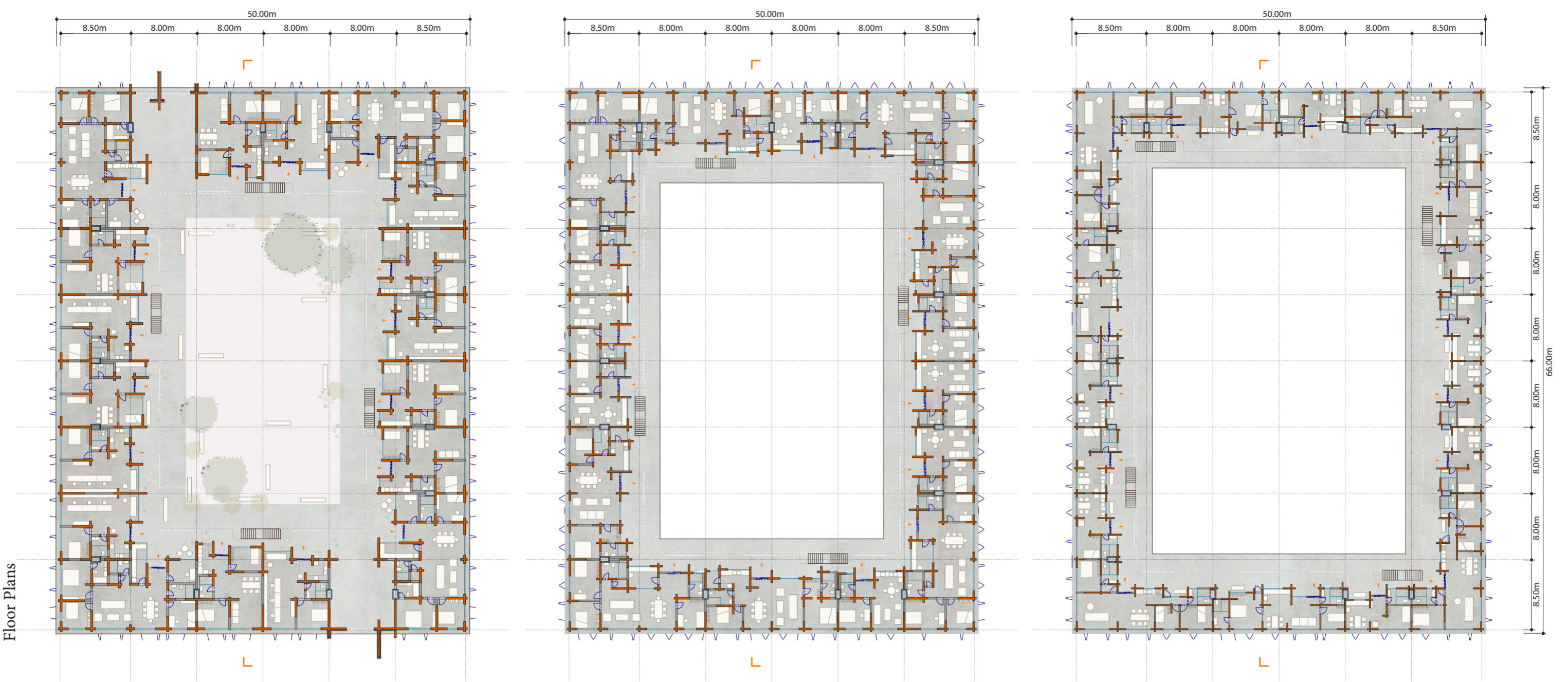
Additional elements such as a mesh facade protect the CLT without the need of excessive cladding and creates a suitable climate for living by protecting from heat gain while allowing wind to pass and cooling during rainy seasons.



Structural System

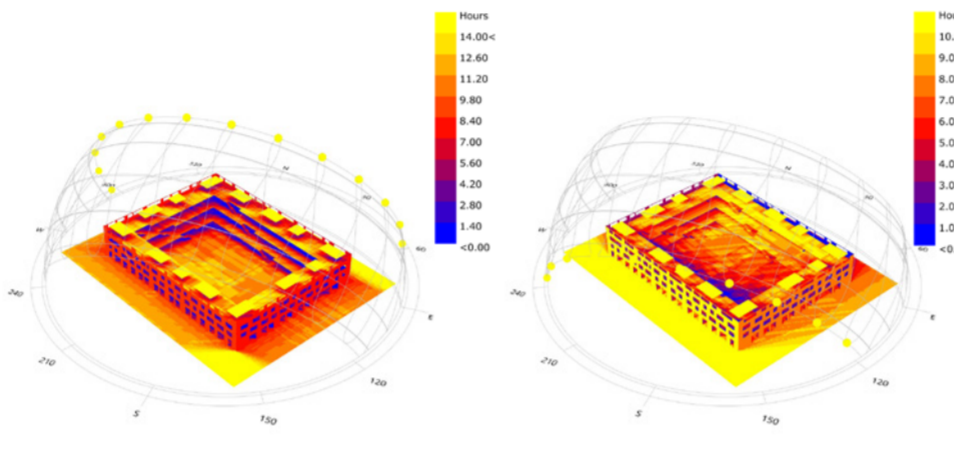
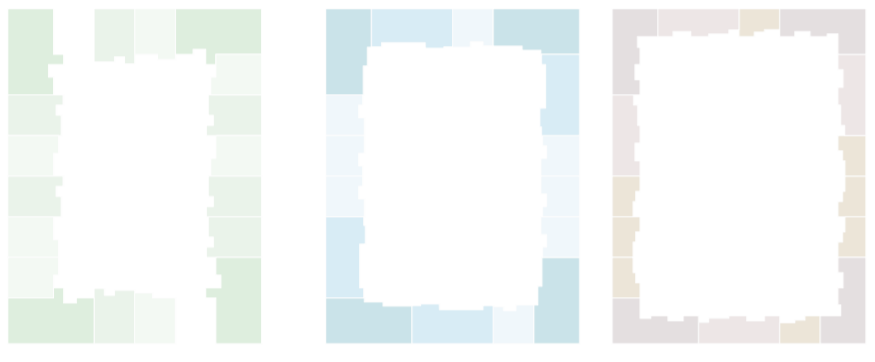


Aangan House

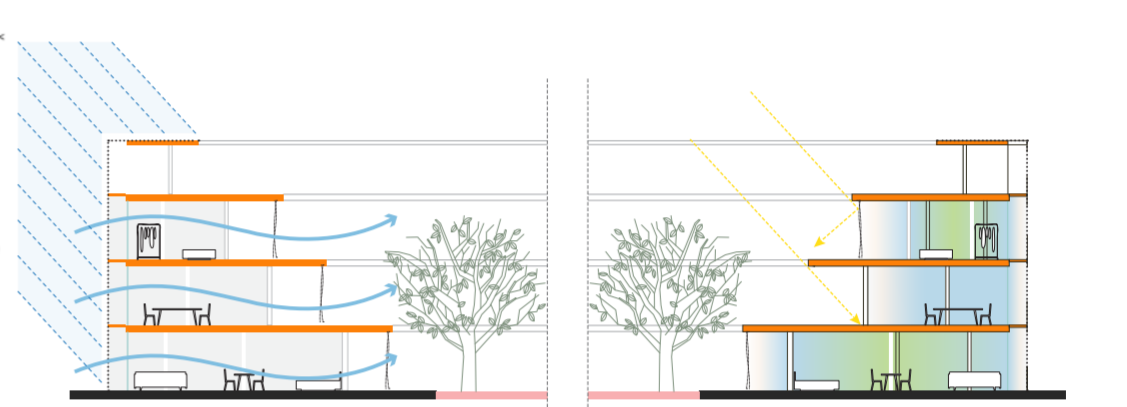


Floor Plans

Ground Floor 1st Floor 2nd Floor

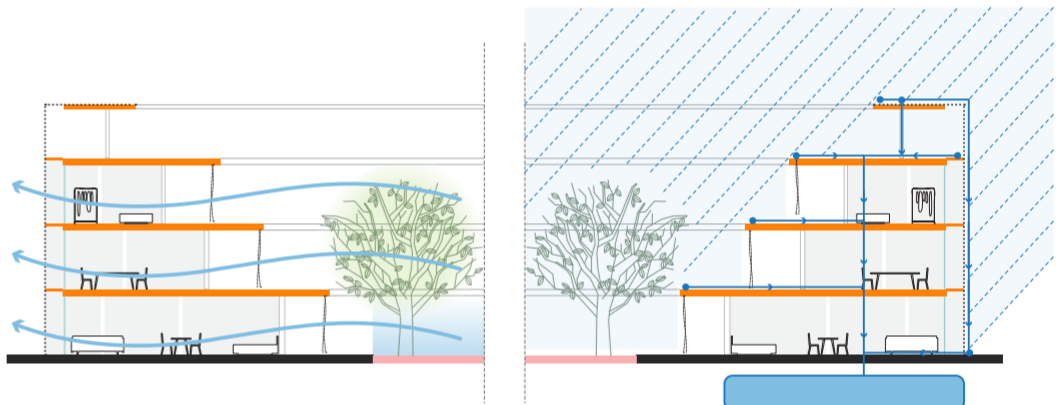
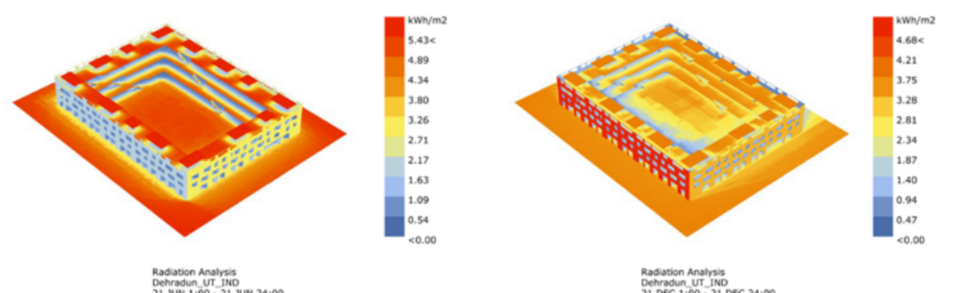


Apartment Typologies



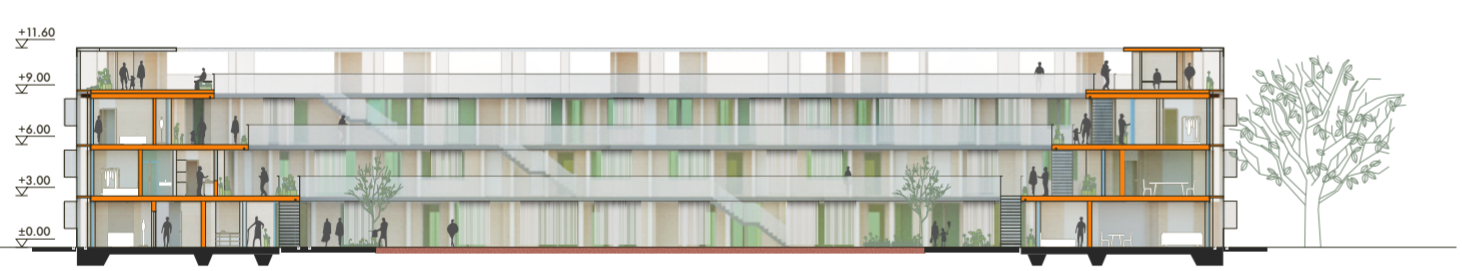
During the rainy season the mesh facade allows for evaporative cooling lowering the interior humidity and temperature

Intermediate spaces created with mesh and reflective curtains creates gradients of climatic zones and regulates temperatures



During the dry summer season the interior earth courtyard allows for evaporative cooling pulling air to the warmer exteriors

The large mesh surface area and terraces are used for evaporative cooling pulling air to the warmer exteriors



Section



Elevation

