



Chaos Lotus

The establishment of domesticity through the use of chaos

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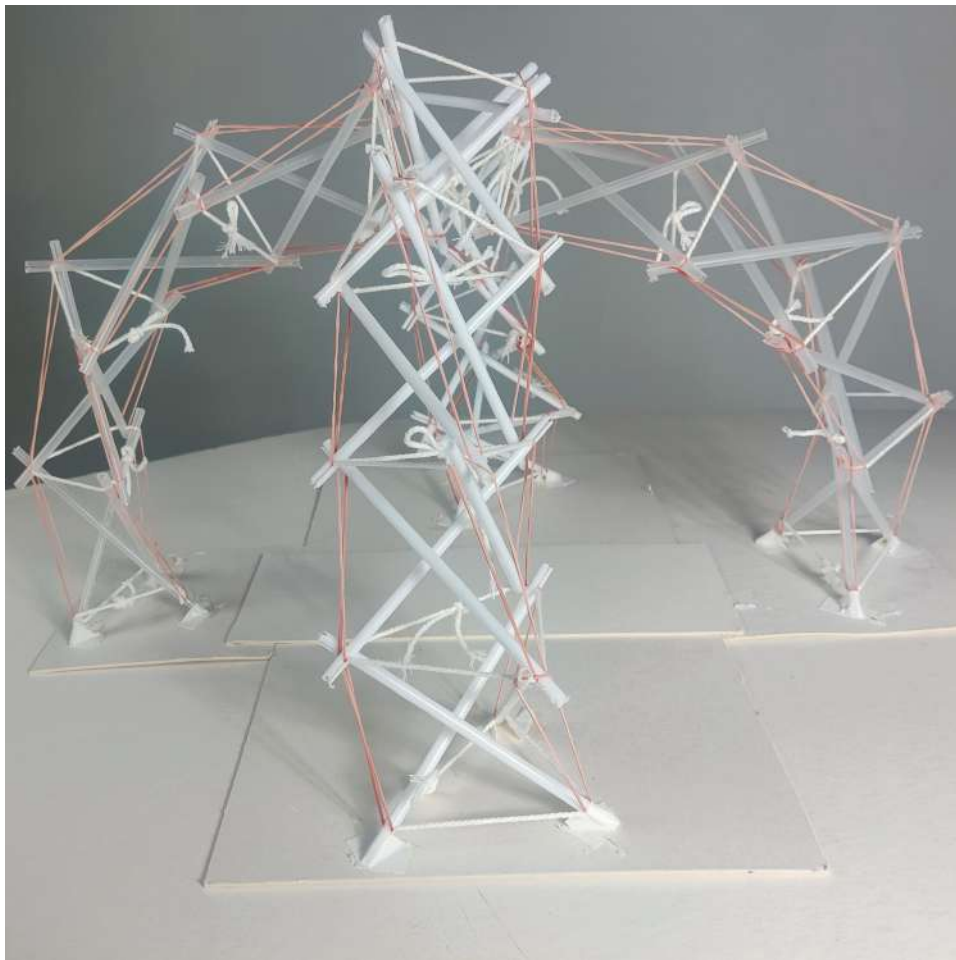
The project seeks to use a volatile and chaotic structure that could be used in a way to form a space that establishes domesticity, through the ‘taming’ of space and the derivation of order out of chaos. It uses structures that exist within all living things, the tensegrity structure, to achieve this, making each device and space an extension of the tensegrity within ourselves, reaching out and establishing a system of order where we ‘tame’ the space.

The main proposition is a dome-like structure composed of composite tensegrity structures that act like nodes to a larger helix, which is then used to derive a structure that is expressive. The people that enter the dome acts as a downwards force on a platform connected to the first tensegrity node, on the side that is nearest to the center of the structure, which slowly contributes to the ‘activation’ of the structure. The more people that enter, or the more activity that is displayed in the space, the more the structure engages, elevates itself, and allows light to enter through the radial separations of the ceiling. This gives an incentive to use the central area as a social hub or a ‘living room’ and promotes a communal atmosphere.

Orbiting the central dome are rooms in the forms of the petals of a lotus flower that are held up by receding helix structures that use a tensile material. This houses individual actions of domesticity as each room would have its own objective purpose. This contrasts with the central dome which is more fluid in purpose. This would mean that the building as a whole is able to hold different expressions of domesticity, be that with basic physiological needs, social needs, creative endeavors or spiritual ones.

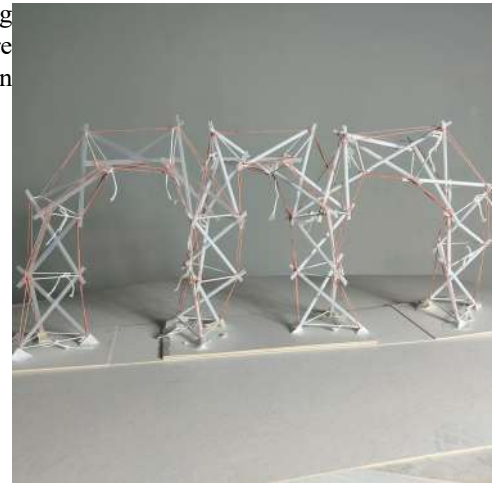
Chaos Lotus, Zach, Zachariya Hemmunt

My journey into my design project initiated through the exploration and understanding of the tensegrity structure, especially how to use its form in the creation of a space. Through that goal I derived the preliminary structures that make up the bulk of my experimentation and would go on to influence the structure that I designed

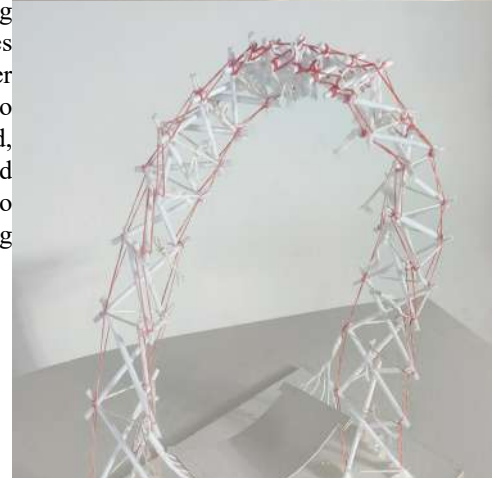


This structure is comprised of two regular tensegrity structure helices that meet in the middle, forming the shape of a dome. This model would be used to derive the main mechanism of the chaos lotus - the central engaging dome

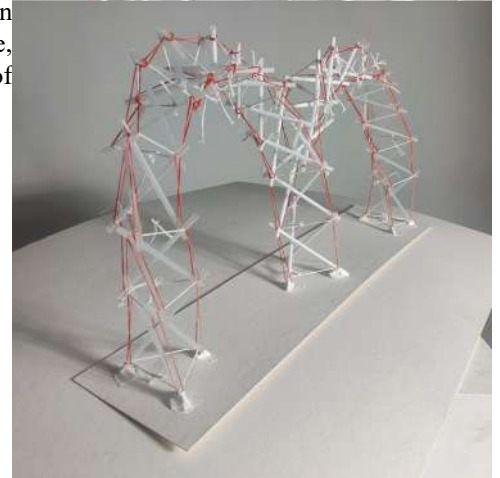
This structure is constructed using interlocking regular tensegrity structure helixes which curves together to form an arcade-like structure.



This structure is formed through the merging of two receding tensegrity structure helixes that interlock at the top. Due to its lighter weight at the top, this allows the structure to easily move whenever there is force applied, be that weight or even wind. The helix used for this type of structure would be used to create the structures of the rooms surrounding the central dome



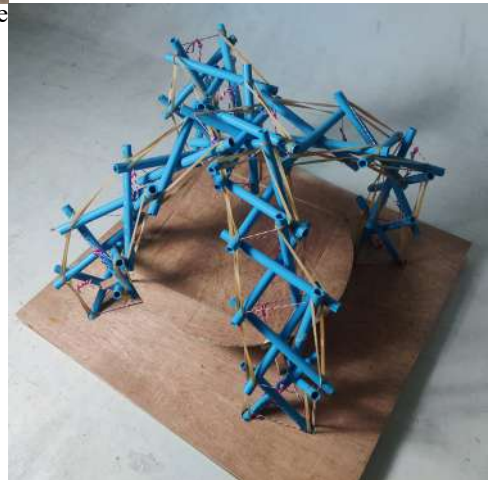
This structure is a sort of synthesis between the previous structures mentioned above, which retains some of the characteristics of both





The whole tensegrity structure system of the central dome

This led to the creation of the central dome model. Due to the mechanical properties of the cross arch tensegrity structure, if weight is applied to the 4 corners above the first tensegrity node, the structure would warp upwards, this infers that a ceiling could be placed onto the structure which allows light and wind to enter as there is more weight applied to the floor. If the weight is replaced with people, this would indicate that the more people use the space, the more it contributes towards the atmosphere to increase the social and communal acts.



The receding helix tensegrity structure leads us to the creation of the rooms that surround the central dome, designated as 'petals' due to their likeness to that of the petals of a lotus flower. These petals are made out of a tensile fabric which when the dome engages upwards, would make the structures move outwards, giving the appearance that the whole building is 'blooming'. Along the fabric that is closest to the tensegrity structure are mesh windows that bear the resemblance of the tensegrity structure, this would fulfill all the uses of the structure as a utility, structural, and decorative inspiration.





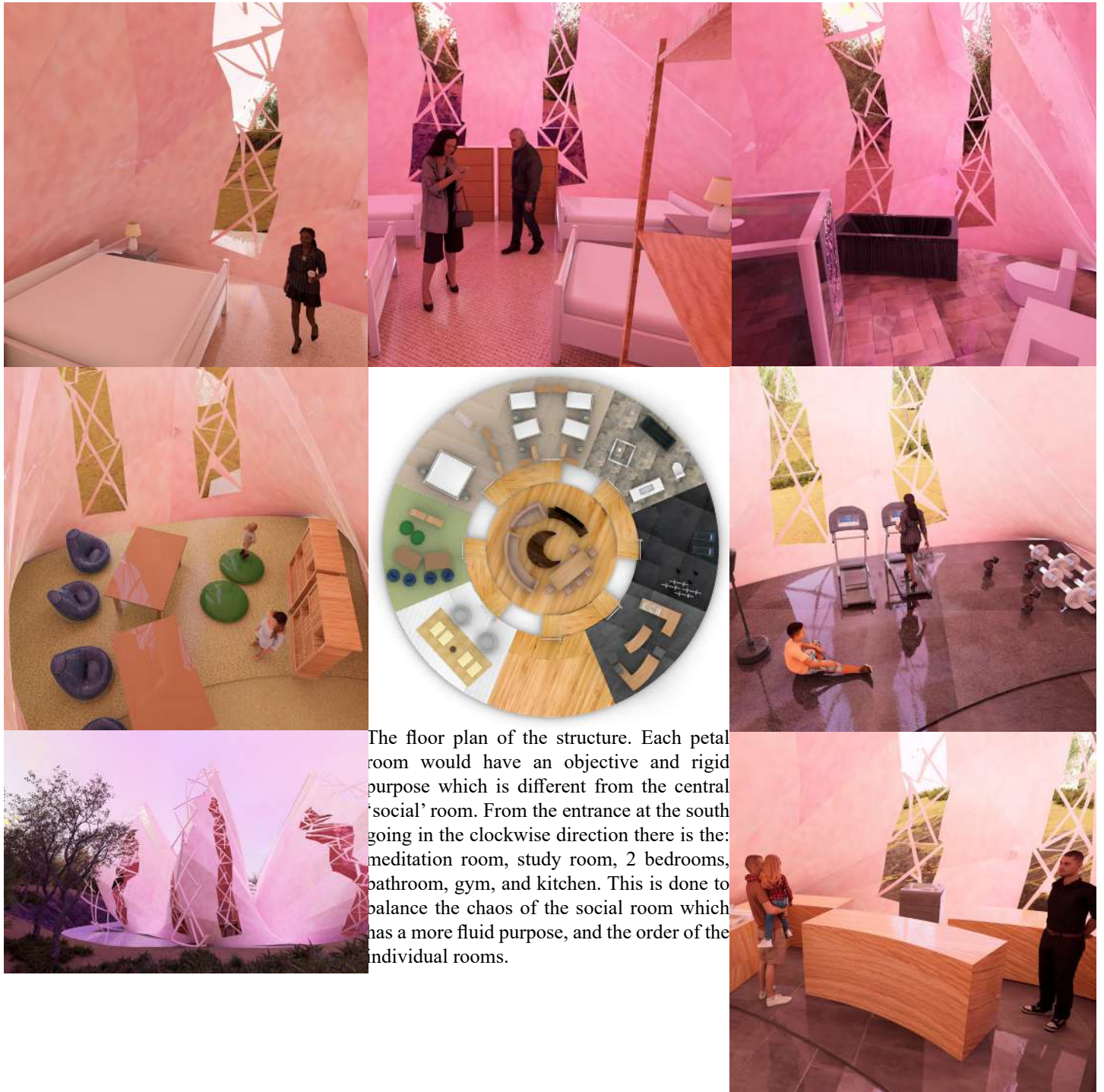
Depiction of the central dome room that has engaged due to the social activities that are conducted inside



Depiction of the singular entrance petal on the south side of the dome

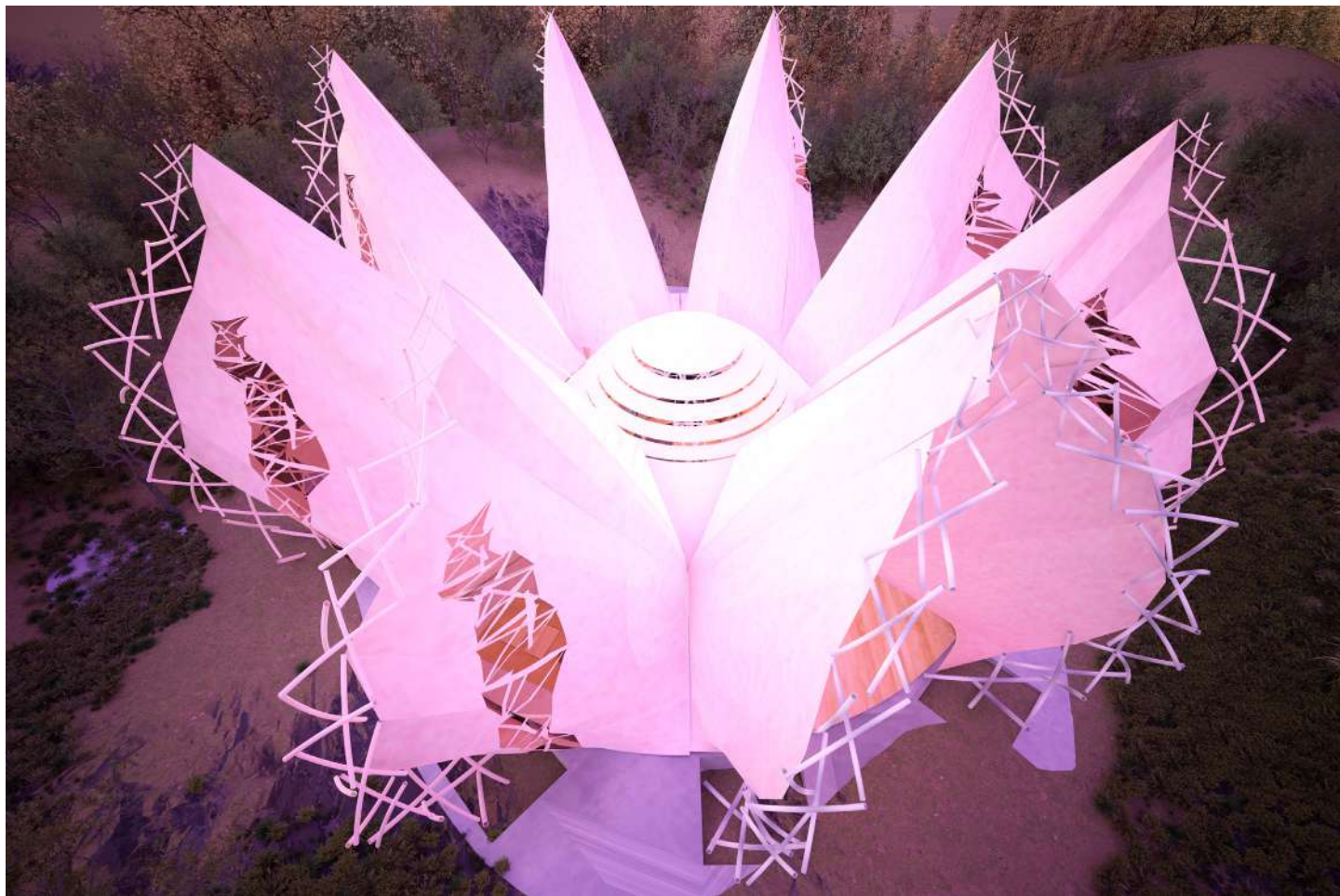
Depiction of one of the 7 petals the orbit the main dome.







The site of the structure would be within a natural environment due to the coverage of light and abundance of clean air. The specific time in which the structure would truly shine would be during dawn or dusk when the sky could become purple, this would be the situation that the building is best expressed and experienced in



Axonometric depictions of the stucture

