



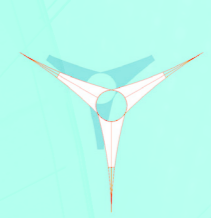
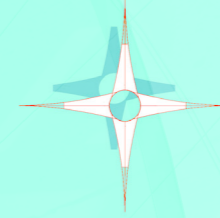
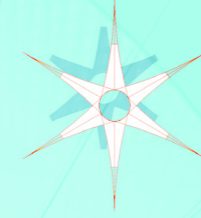
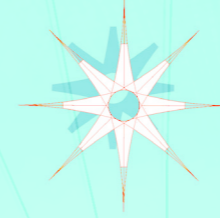
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TERNI FESTIVAL INTERNAZIONALE 2016  
OPEN CALL PER CASE SUGLI ALBERI

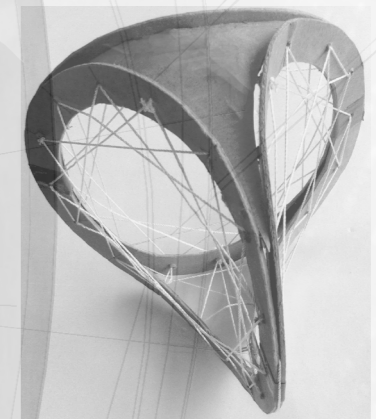
JACOB DENCH  
architect

DARÍO SÁNCHEZ  
biologist

CHRIS PUGSLEY  
builder and creator.



## RESIDING IN THE SUSPENDED CITY OF OCTAVIA



*If you choose to believe me, good. Now I will tell how Octavia, the spider-web city, is made. There is a precipice between two steep mountains: the city is over the void, bound to the two crests with ropes and chains and catwalks. You walk on the little wooden ties, careful not to set your foot in the open spaces, or you cling to the hempen strands. Below there is nothing for hundreds and hundreds of feet: a few clouds glide past; farther down you can glimpse the chasm's bed.*

*This is the foundation of the city: a net which serves as passage and as support. All the rest, instead of rising up, is hung below: rope ladders, hammocks, houses made like sacks, clothes hangers, terraces like gondolas, skins of water, gas jets, spits, baskets on strings, dumb-waiters, showers, trapezes and rings for children's games, cable cars, chandeliers, pots with trailing plants.*

*Suspended over the abyss, the life of Octavia's inhabitants is less uncertain than in other cities. They know the net will last only so long.*

- Invisible Cities, *Le città ragnatela*,  
Italo Calvino, 1972.

# PROJECT SPECIFICS

## Materiality, construction and timing:

The central sphere living space (1) is constructed of sustainably sourced ply-wood sheets. Three Ring shapes are made of two layers of plywood sheets. Cut from standard 2.4x1.2m plywood sheets. 6 sheets will be needed to create a stable structure. Layers are bend over form and glued together to hold curve. Each ring is joined at their flat surfaces at three points. Remaining timber pieces are used to lay flooring, install seating semi-circle and construct hanging table surface. Lockable doors are also constructed from the remaining timber. The sphere structure will be supported by the tree horizontally - to be hung 500mm over the shelf of the tree (7) - supported by tight rope to thick rising branches - spreading weight evenly.

The residence will be partially prefabricated off-site; including cables, belt structures and membrane fabrics. The timber elements will be cut and fitted together over a four day period. Three days will be given to on-site assembly, and a further final three days will be devoted to rigorous safety testing and design tweaking.

## Requirements of Foresta brief:

• *I : to not entirely weigh on the tree structure (roots, branches, trunk)*

Emerging outward horizontally from the sphere is the first tension wing built of a structural belt and ratchet system (2), as well as structural ropes and climbing knots. The horizontal wing stretches away from the sphere and houses the sleeping space (3). It is supported by these light-weight tension elements with tensioned membrane sleeping surface. The tension structure links the sphere horizontally to a single anchor point attached to a neighbouring tree, or alternatively; a purpose built cable-supported post; or existing wall structure.

The second wing rises up diagonally and is attached to a high branch of the tree. It is not a space to be inhabited, but a display tower (4). The artist resident can exhibit their artwork to the public or simply hang their clothes to dry. A pulley system allows work to be raised and lowered.

The lowering wing stretches to the earth, where they ropes are anchored (10). This wing supports a stable suspended entrance staircase (5).

• *II : to not damage the tree structure in any way (roots, branches, trunk)*

The design is naturally flexible to allow for on-site adjustment. Extruding elements can be positioned as to have little impact on branches. Our team's understanding of the tree-biology will enable us to understand the limits of our tree-host and make design decisions accordingly.

• *III : to ensure the safety of the house for the artists who will live in it and the visitors.*

Tension belts (2), cables are designed to be able to support great amounts of weight and adhere to European safety regulations. The residence will be enclosed in a flexible spandex membrane which will ensure no chance of occupant falling. Stairway rope structure acts as hand-railing for user-support. The circular door provides only access to the residence. It is lockable a provides security.

• *IV: to be durable for a minimum of 1 month*

The design enables the residence to be easily de-constructed from its tree host and reconstructed elsewhere. Structural materials are designed to last a minimum of a year in good conditions.

• *V : to ensure a comfortable habitability for 1 guest*

The tensile membrane sleeping surface (6) will be tightly tensioned as to provide a stable and comfortable place for good rest. A spandex membrane covering will enclose the space and screen light as well as maintaining a thermally insulated interior environment through the night. Water-proof sail-cloth will provide weather-proofing for sleeping space. The sphere space is ergonomically designed to comfortably accommodate sitting or standing. A retractable hanging table and lamp (8) give a responsive flexibility to this main space.

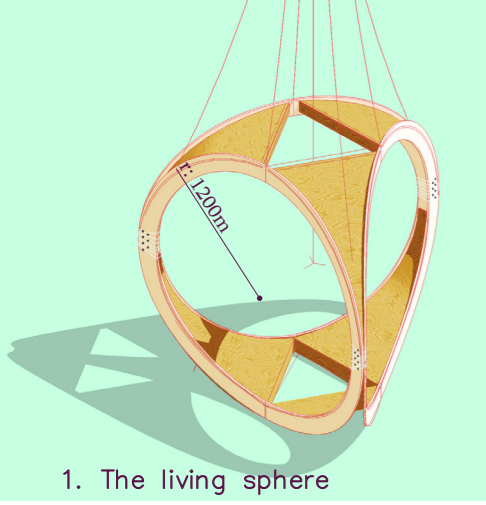
• *VI: to be sustainable, by using available materials preferably biodegradable*

The use of light-weight tension structure and spandex membrane results in a very lightweight residence with minimal material used for maximum inhabitable space created. All wooden components will be recyclable and biodegradable. All tension elements and membrane can be re-used after.

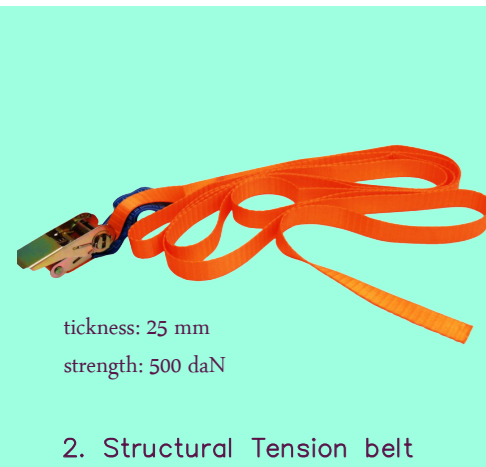
• *VII: Ideas engaging local communities will be preferred.*

Non-structural rope elements of the building have been designed in order to be installed by knotting. We imagine engaging with local volunteers teaching knotting and threading techniques during and after construction. We hope to learn as much from the community as they could learn from us.

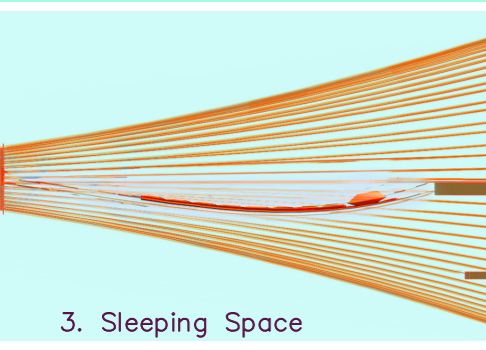
Our tree house project invites the local community, visitors to engage with an architecture of air and lightness. Our resident artist will experience the life in a possible urban future that is floating by nature, rather than weighing heavily on the earth and the environment.



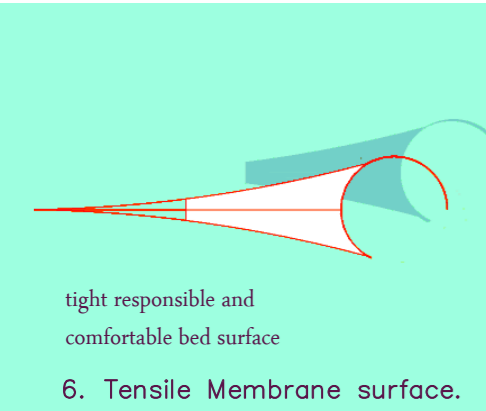
1. The living sphere



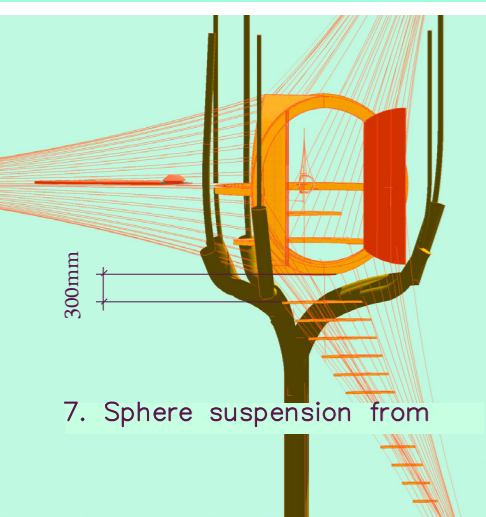
2. Structural Tension belt



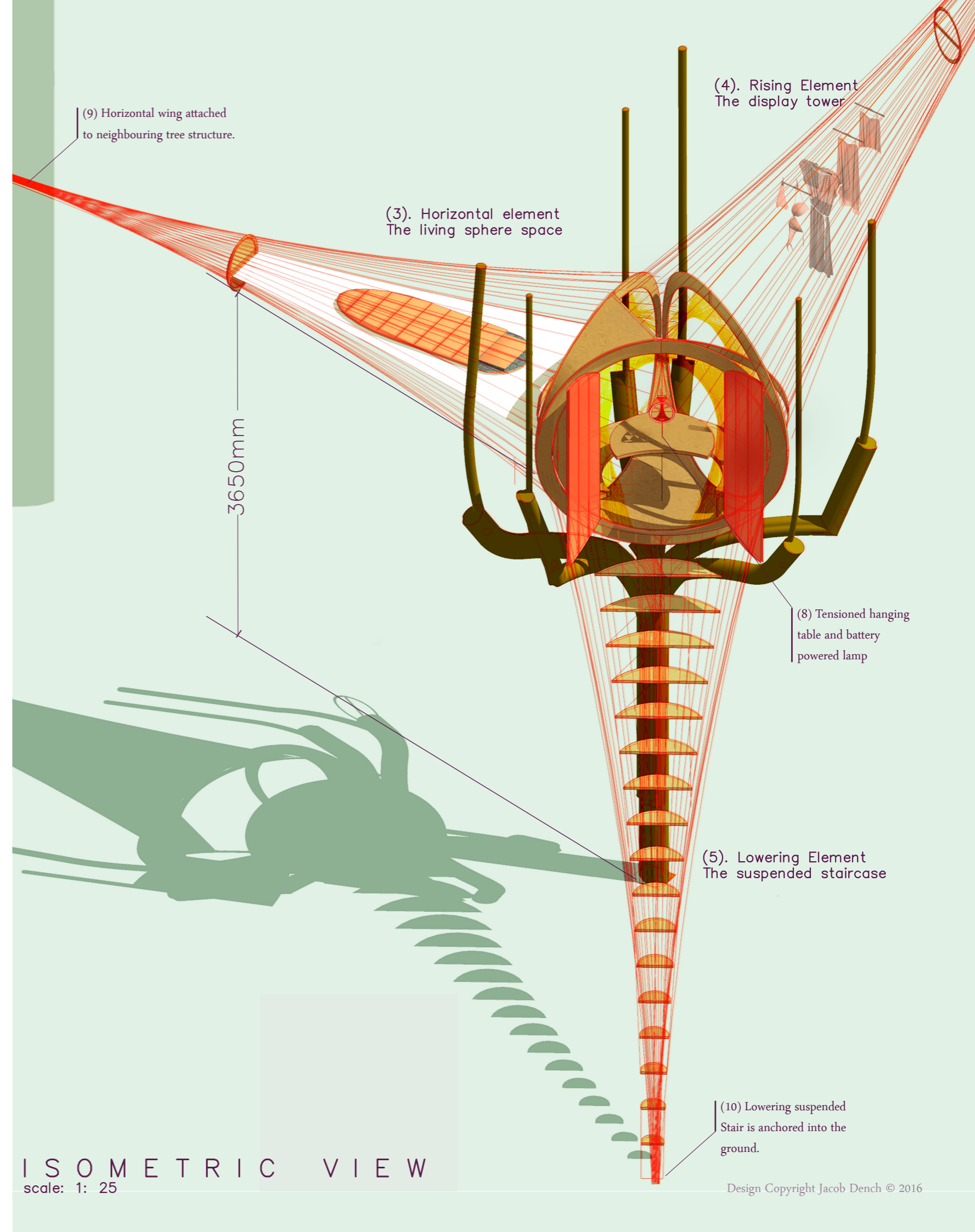
3. Sleeping Space



6. Tensile Membrane surface.



7. Sphere suspension from



(9) Horizontal wing attached to neighbouring tree structure.

(3). Horizontal element The living sphere space

(4). Rising Element The display tower

3650mm

(8) Tensioned hanging table and battery powered lamp

(5). Lowering Element The suspended staircase

(10) Lowering suspended Stair is anchored into the ground.

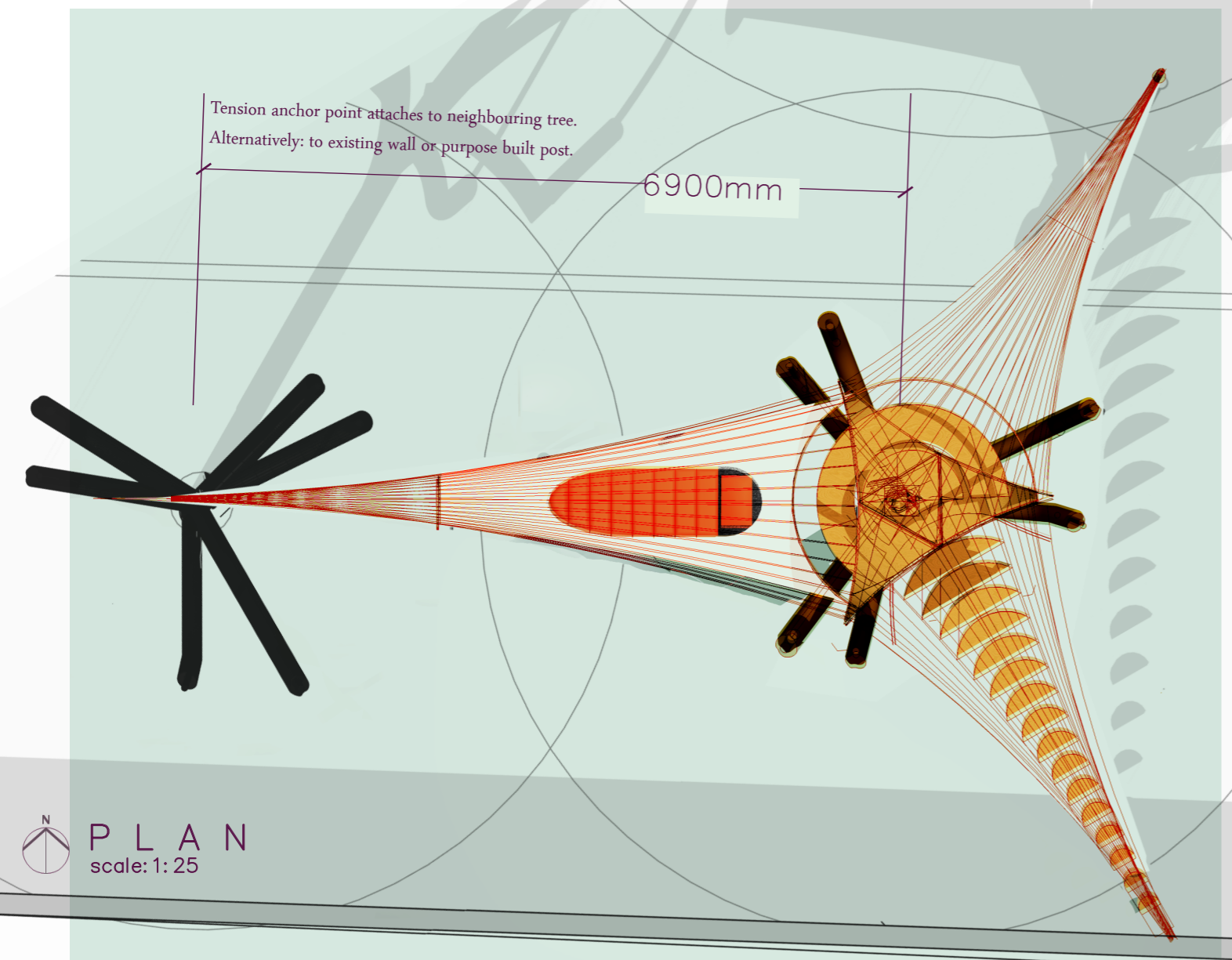
ISOMETRIC VIEW  
scale: 1: 25

# TENSION STRUCTURE

The foundations of a suspended city.



**S I T E**  
five possible locations of residence  
scale: 1:400



Tension anchor point attaches to neighbouring tree.  
Alternatively: to existing wall or purpose built post.

6900mm



**P L A N**  
scale: 1:25

