

# URBAN TREE HOUSE

UP TO 35 INTERNATIONAL COMPETITION



## Can Student Housing become a prototype of future Urban and Sustainable Community housing experiences?

The University experience is a transitional stage in our lives. We learn and develop many of the habits and practices we will incorporate into our daily routines during those years. It is a time to start implementing sound practices learned about sharing with others, working with others toward common goals, and caring for the environment and our community. We see our proposal as a way to capture the imagination and energy of today's college student and inspire them with the possibilities for developing sustainable buildings and sustainable communities in Athens and all over the globe. Shaped by their experiences in college we would hope that they would take this knowledge and enthusiasm and spread it virally wherever their paths might lead them.

The concept for this housing project is that of an urban tree house. Tree houses are cool places that defy gravity and bring the occupants closer to nature. This housing project forms a protective oasis, a hideaway that refreshes the spirit, and is designed to delight and inspire.

### Construction:

The proposal is a modular system that can adjust to the parcel shape and size, in order to comply with the building regulations of Athens. The foundation of the system is a stem which contains the vertical circulation, and all vertical systems (water, electricity, drainage, etc). The living units branch off the stem and vertical and horizontal green screens surround the building to create a protective canopy.

Laundry, mechanical space and storage are located in the basement. The footprint at this level is kept to a minimum to reduce the amount of required excavation and associated cost.

Code Summary		
	Allowed	Proposed
Building Footprint	145.11 m2	140.8 m2
Building Area	456.06 m2	435.05m2
Building Volume	2052.27 m3	1839m3



At the ground floor you enter off the street into an open shaded plaza that provides a transition from the larger city fabric to the cool oasis within. Bike parking is provided and space for an accessible parking space. Light filters from above through light wells adjacent to the vertical stem. Views to the back yard can be glimpsed through the glass enclosed kitchen and dining areas situated at the back of the building. Here one can deposit groceries and enjoy views of the garden. The garden is flexible and can contain student gardening, composting and recycling areas. As you proceed to climb the stem the wall of the light well flashes silver and green. Sleek rainwater storage towers serve a dual function by providing yet another vertical garden surface.



Above are the sleeping rooms lifted safely up off the street. Each unit contains restrooms and a small kitchenette (sink and refrigerator). These service modules are connected to and served by the stem. The sleeping and study areas then extend out as open space to allow flexibility in the arrangement of furniture. The rooms themselves are clean and modern - blank canvases on which the students can make their own mark and shape to their own liking. Each unit has large windows that provide filtered light which is dappled by the shadows of the hanging plants in summer. The building also contains a barrier free unit which incorporates a larger restroom and a more open plan to allow ease of movement for those who might require a wheelchair. At the third floor as the building begins to recess back from the street a communal study lounge with terrace is created. Above the roof serves as a social gathering space with terrace gardens. Here the students can study, play, and garden. They form bonds of friendship and a sense of community while looking out on the city whose future they will shape. The green canopy above serves to shade the occupants from the hot summer sun.

## Response to climate:

Athens has little rain, snow is rare and summers are hot and relatively dry. The project is designed specifically for that climate.

The building seeks out a symbiosis of nature and technology. At once using ancient natural techniques to heat and cool the building while fusing these with forward thinking technologies that are on display for the students to engage with and learn from. It is meant to be self sustaining with room for photovoltaic panels to be arrayed to provide energy, while natural cooling, and ventilation techniques minimize the amount of energy required. The potential to grow food for the occupants exists in multiple places on the terraces, the green screens and in the garden. This fresh locally grown food provides another model of sustainable living.



From the street the building exudes life and freshness. The green screens are a hanging garden serving to cool and clean the air. Confederate Jasmine could be used, which has flowers, provides shade, thermal protection and fragrance, and requires minimal maintenance and water. The structure of the screens integrates with the living plants to create a dynamic ever changing sculpture. They are functional yet beautiful at the same time. In winter the plants die back allowing greater amounts of sunlight to enter the building and warm the air. Operable windows are situated to work with the patterns of air movement by pulling hot air through the stem in summer time to provide natural ventilation in the summer. All rooms (including sanitary services) have natural light and ventilation to provide energy savings.

When possible, each building provides two light wells adjacent to the stem, one has Boston ivy, a shade vine that helps regulate the temperature of the building. During winter the stem works as a winter garden, and the vine helps to maintain humidity and temperature.

The Boston Ivy grows on a storage-tank of rain-water which serves for irrigation purposes, and could also potentially be used for evaporative cooling.



**Integration to neighborhood/viral response:**

The utilization of the building as a viral model on other nearby vacant lots required a building whose size and shape could be made flexible without changing the overall concept, organization and language. To that end the stem and canopy would remain consistent on all lots while the size of the units could vary to house different numbers of students, depending on the parcel's size and shape. After studying options to increase the number of units on the larger plots, it was found that doing so would greatly decrease the efficiency of the design adding a lot of additional circulation and spreading out the building systems without a large increase in the number of students served. In response the proposal maintains smaller, but more efficient buildings and uses the open areas of the plots as green space.

The neighborhood currently has no green areas. The proposal provides horizontal and vertical greenery and shares it with the city, providing both environmental and psychological benefits. These gardens can also be connected to create a larger community garden and park like setting if desired. In addition many of the roof top social terraces can be connected thus creating a public social area for students. Each of the buildings however can operate and function independently from the others if these connections are not realized.

On some of the smaller lots where few units can be introduced the proposal suggests the introduction of mixed use development to add services to the neighborhood. A „glass-box is introduced at the ground floor for uses such as a cafe, store, gallery, etc. This glass-box can also be used as vertical parking if required. This would increase the density of the development of these parcels while still maintaining the essential language and concepts of the virus.

**Conclusion:**

The project seeks to promote community, sustainable living and a barrier-free culture. By doing this **another virus is created, the student**, inspired and informed by the technologies, techniques and communal living that make up their home environment can take these ideas and experiences and spread them virally wherever their paths lead them.

