

CANUPY

parallel tree

What is Canupy?

Canupy is an alternative 'tree' for the urban environment: a safe, sustainable, engineered structure of at least 5 metres designed to support growing plants. Canupy complements urban forestry renewal.

Who will benefit from Canupy?

Canupy 'trees' are for people who live in cities where there are not enough trees; people who want shade, clean air, beauty and compelling gathering places.

Why Canupy?

Natural trees struggle to survive in the urban environment. Their numbers and scale are rapidly decreasing. They are destroyed in the belief that trees are unsafe and incompatible with overhead utilities, roads, sightlines, flowers and property maintenance. Especially in intensive urban settings, our way of living and infrastructure damages trees and there is inadequate space for them to grow.

Canupy aims to provide new options for urban trees designed to survive harsh and overcrowded built environments. Canupy 'trees' are quick to bring into being. They cool and heal urban spaces while the natural urban forests is under renewal.

Precedents

Man-made *Supertrees* as tall as skyscrapers in Singapore are fitted with solar panels, hanging gardens and rainwater catches. The trees are used to display plants from around the globe.



<http://www.dailymail.co.uk/news/article-2157488/Gardens-By-The-Bay-Supertrees-Singapore-light-night-sky.html>

Biowall is a woven scaffold created by Rachel Wingfield and Mathias Gmachl at Loop pH studio that becomes a partition when colonized by living plants.



<http://loop.ph/>

Precedents

Bougainvillea trees in *The Central Garden* designed by artist Robert Irwin at Getty Museum, Los Angeles.



<http://imoralist.blogspot.ca/2008/08/robert-irwin-garden-at-getty-center.html>

Boston's *Treepds initiative* proposes to embody, and artificially enhance, the most important biological characteristic of natural trees: the capacity to clean the air, taking the CO² and releasing O².



<http://www.evolo.us/architecture/artificial-trees-clean-bostons-air-treepods-initiative-influx-studio/>

Precedents

The *Solar Forest*, with photovoltaic leaves is conceived by Neville Mars as an evergreen glade of solar trees. It provides a shaded parking lot where electric cars can recharge their batteries.



<http://inhabitat.com/solar-forest-charging-system-for-parking-lots/>

The French company NewWind has invented the Arbre a Vent / Wind Tree, a biomimetic tree in which each Aeroleaf turbine produces electricity from air currents.



<http://www.newwind.fr/en/>

Precedents

Tree Mobiles in Four Seasons by Jan R. Carson consists of four life-size kinetic sculptures suspended in the emergency room lobby at Castle Rock Adventist Hospital in Castle Rock, Colorado.



<https://www.codaworx.com/project/tree-mobiles-in-four-seasons-castle-rock-adventist-health-campus>

The Pecan Springs bus shelter designed by the Larson Studio features a green (vegetated) roof on a custom-designed bus shelter.



<https://www.codaworx.com/project/pecan-springs-bus-shelter-green-doors-and-capitol-metro>

Dream Team

advisors or collaborators

- arborists
- architects
- artists
- biologists or botanists,
- community activists
- cultural geographers
- designers
- engineers
- environmental engineers or scientists
- horticulturalists
- industrial designers
- inventors
- landscape architects
- project facilitators
- urban foresters
- urban designers and visionaries
- urban farmers
- social enterprise change agents
- and other professionals whose skills and knowledge align with the project

SWOT

Positives and Negatives

Strength

- adaptable to varied climatic conditions
- requires minimal space
- reduces urban heat island effect
- provides direct predictable shade
- withstands adverse urban conditions
- can be created in short timeframe
- uses of diverse materials
- reliable structural and material strength
- attractive in 4 seasons
- integration with urban infrastructure
- accommodates diverse aesthetics
- reflects community-based priorities
- costs, maintenance and longevity can be managed through design

Weakness

- high initial cost to build (as compared to tree planting)
- requires ongoing commitment to maintenance
- not entirely natural or renewable
- uses significant resources (e.g energy and manufacture)
- scrubs less Co2 than a tree
- public resistance
- may be perceived as interfering with efforts to renew/expand urban forest
- susceptible to natural damage (from weather, sun, animals, etc.)

Opportunity

- provides contact with nature in intensely urban settings
- enhances aesthetics of urban settings
- delivers ancillary benefits (water, lighting, etc)
- provides focal point(s) for public use
- encourages street life
- engages communities
- protects other plants
- contributes to reduction in energy use and in health risk from sun exposure
- design as habitat for birds and animals
- sustainable social enterprise
- open source dissemination
- creates research options

Threat

- access to all relevant expertise
- organizational capacity
- economic sustainability of enterprise
- achieving optimal design
- genuine innovation
- accessibility to communities in need
- perceived competition to all-natural solutions

SWOT

Potential Strategies

Design for complementarity

- adapt to varied climatic conditions
- modify for unique sites
- focal for urban spaces
- respond to community needs
- reduce impacts of urban conditions
- buildable in short timeframe
- use diverse materials
- innovate in structural, material and horticultural methods
- optimize for all seasons
- integrate with urban infrastructure
- address diverse aesthetics
- manage costs, maintenance and durability through design

Adapt to external conditions

- communicate value proposition in long term commitment to parallel trees
- meet the needs of diverse communities
- relate multiple disciplines, perspectives and skills in design
- research and use diverse materials and processes that minimize negative impacts
- include innovative functionality
- engage communities in process

Maximize opportunities

- use in a wide variety of places and conditions
- integrate with urban utilities (water, energy, etc)
- provide habitat for birds and animals
- partner with utilities
- collaborate with urban planners
- collaborate with communities
- cultivate new options for greening urban spaces

Evaluate Outcomes

- strength, durability and low cost
- ease of maintenance
- environmental sustainability
- support reliable plant growth sufficient to create shade
- complement urban infrastructure and forestry

Goals

2016

- research
- establish team
- frame project vision
- define project scope and goals
- develop strategies for collaboration
- develop and disseminate information
- identify partnerships
- iterate design options in public exhibition context

2017

- operationalize design process: conceptualization, design requirements, visualization
- establish relevant partnerships; sponsorships
- explore research collaborations
- virtual prototype process for most promising concepts
- develop, test and evaluate physical iterations in public art commissions

2018

- continue prototyping process
- expand, test and evaluate iterations in large scale public commissions
- explore community-based creative processes
- pursue new design alternatives with partners

Contact

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