Forestation Urbanization
Using trees as an agent to combat air pollution & climate change

With climate change arriving at an ever accelerating rate, there exists an opportunity to use the power of nature to combat rising temperatures. Industry and automobiles are principal contributors to today's largest emissions, emitting excessive CO2 levels and other harmful emissions into the air. Here lies an opportunity to provide sweeping amounts of green, greening cities to ease models to productive ecosystems from unproductive. Much of modern urban infrastructure is made conducive to these two pollution-emitting agents. The current built environment is dominated by asphalted surfaces—neighborhoods juxtaposed to industries, and an average of over 80% of city streets dedicated to vehicular usage. These conditions are devastating the possibility of a rich, green urban situation.

Since childhood, there is an inherent understanding that trees produce clean air—why cannot trees be used to mitigate the rise of climate change? Trees in urban contexts can assist in temperature reduction, removal of air pollutants and increase of available oxygen in the air. Projected Site is a new urban typology in which trees and vegetation are the primary infrastructure agents. This project advocates a new value system in which trees and vegetation are the primary infrastructural agent. Designing with trees in mind, it can serve to instill an understanding of the value of the environment and how to best interact with it.

Cities with highest levels of air pollution.
4.5 million die each year due to causes attributed directly to air pollution.

Results
URBAN FOREST: A New Urban Typology

Impact:
APPLICATION: Architecture Meets Nature

For every 500 trees:
- 24,000 lb of CO2 are absorbed/year
- $1,000 in energy costs are saved/year
- Enough oxygen is produced for 250 people/year
- Cities can be cooled up to 10°F
- Local air quality can improve up to 15%
- Noise pollution is reduced by 50%
- Creating sustainable, resilient cities working to combat climate change.
- Utilizing native trees to support local ecosystems.
- Reduce smog & air pollution from cities by filtering Ozone & other air pollutants from the air.
- Improve the mental and physical health of residents contributing to an overall public health.

Approach:
BUILDING BLOCK: The Tree

Benefits of a Single Tree:
- Shading, evapotranspiration, and photosynthesis
- Add soil carbon and improve local climate
- Provide habitat for wildlife
- Reduce urban heat islands

Benefits of a Canopy of Trees:
- Trees in urban contexts can assist in temperature reduction, removal of air pollutants and emission of volatile organic compounds.

Building Process:
1. Projected Site
2. Place Infrastructure
   - Residential
   - Office/Retail
3. Place Program
   - Residential
   - Office/Retail
4. Place Trees

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