



Final 2019 Edition

# PORTFOLIO OF ART & DESIGN

HORIZON OF THE FUTURE

DAVID (YUAN RONG) PAN



David Y.R. Pan  
Original Designs

# DAVID PAN, PORTFOLIO OF ART & DESIGN (2011-2019)

\*The sample designs below are all original, non-derivative designs

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## The 5797-Acre Mountainous North Future City Design\* (2019)

*Submitted to the Vectorworks Design Competition 2019.* Designer: David Pan, Renderer and Editor: Xiaoyan Luo. All buildings including the maglev car were individually designed by David. 2019-08-28

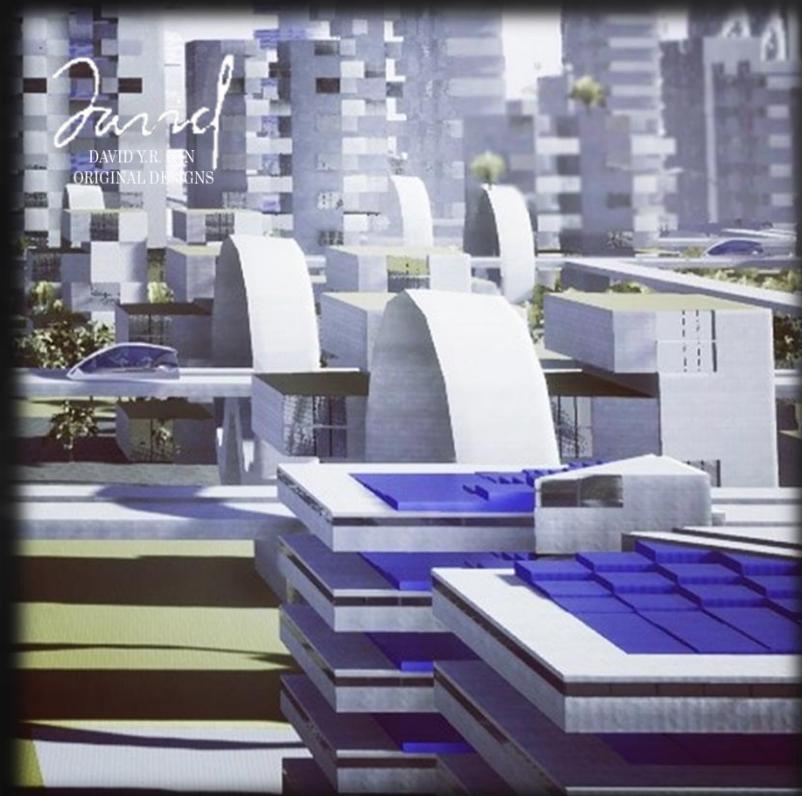


Future city with maglev cars drifting along the elevated intelligent sensor guideways and intercity express rails gliding stealthily at the ground level. Intelligent sensor guideways (roads) are elevated to maximize the available area of green and open spaces below while avoiding conflicts with the ground-level intercity express rail so that both cars and rail transits can operate at optimum. These roads can sense/ detect ambient obstacles and motions, communicate with maglev cars, and are painted white to improve air quality and lower emissivity, hence reducing the urban heat island effect.



Residential towers with radiant cooling systems and vegetated roofs, and cylindric towers with auto-tilt solar panels follow the direction of the sun all day long. The green roof of each

story teems with trees and vegetation that absorb carbon dioxide within the building and release them as fresh air and oxygen, creating the cycle for a healthy living environment.



A mix of high- and medium density buildings hemmed in by conveniently accessible shops and businesses, parks for recreation and open space buffers that eliminate potential land-use conflicts with the high-tech industrial parks. The community center and healthcare facilities are located in the central squares for the ease of access. Industrial clusters are more competitive thanks to the complementary functions, knowledge sharing, and innovation that come with spatial proximity.

The cylindric design of the blue towers provides a bonus to insulation and air circulation and is fundamentally aerodynamic. The central geothermal tunnel acts as a heating system that brings the heat of the soil up to each unit during the winter and cools the units by diverting the heat into the ground during the summer. To provide for electricity, the massive auto-tilt universal solar panel absorbs solar energy and converts it into electricity for residential uses, with any excess energy conserved in rechargeable batteries so that electricity is made available even during the night.

## The Horizon of the Future: Forest Tower\* (2012-2017)

(originally 2012, Grade 10) (a personal project, later adapted for a high school science project which achieved the top grade)

The Forest Tower is among my first original designs of a self-sufficient residential building that integrates itself seamlessly into its environment, whether harsh or mild, and converts natural energy on-site for its own use. It does so through the integration of geothermal, photosynthetic and solar energy, and a microclimatic transparent alumina cylinder that shelters residents from the inclemency of nature and from the forbidding northern and “tropic of cancer” environments. A full description of the project can be found here: ([Click Here](#))



The idea of a Forest Tower was first conceived in 2012 when I was in grade 10 and had since been revised. A hand-made physical model was built at that time using only paper, glue, and plastic (a video recording of the original model is also available):



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An added layer of plastic created a reflection of the towers along the still water

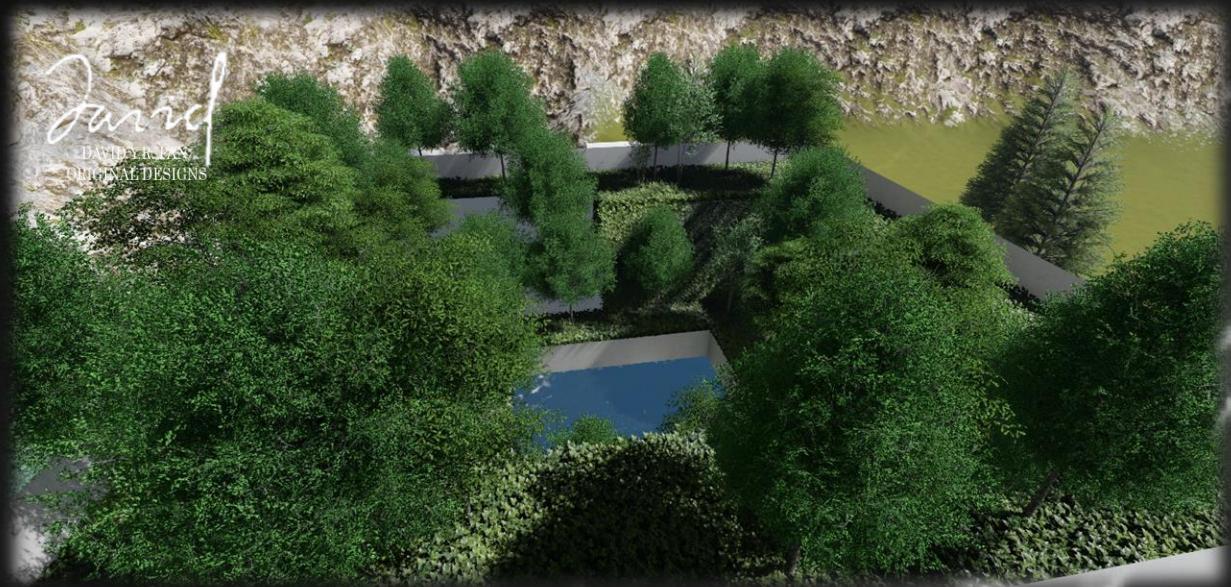
## Area51 residence\* (2018)

(personal project)



Named after Area 51, this unparalleled novelty brings forth a gust of fresh air out into the domain of architecture & design. It blends its futuristic style organically into its environment, harmonious with biotic features inside and out. Inclined surface maximizes natural lighting while shedding snow and rain away from the building foundations

### Interior Garden:



Planted roof terraces (or interior garden) intake and filter stormwater, improve air quality and conduct stormwater into the replenishable central reserved water for building temperature regulation and irrigation

## Other Conceptual Designs

### Crystalline Tower (2017)

(Personal Project)

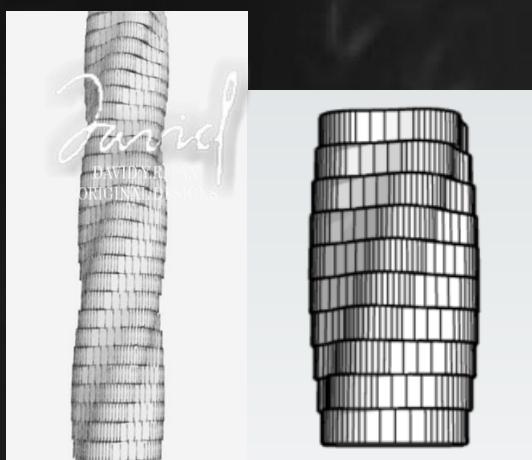
This product of recursive design and serendipity has an intricately undulating pattern draped over a simple building profile



### Spiral Tower (2017)

(personal project)

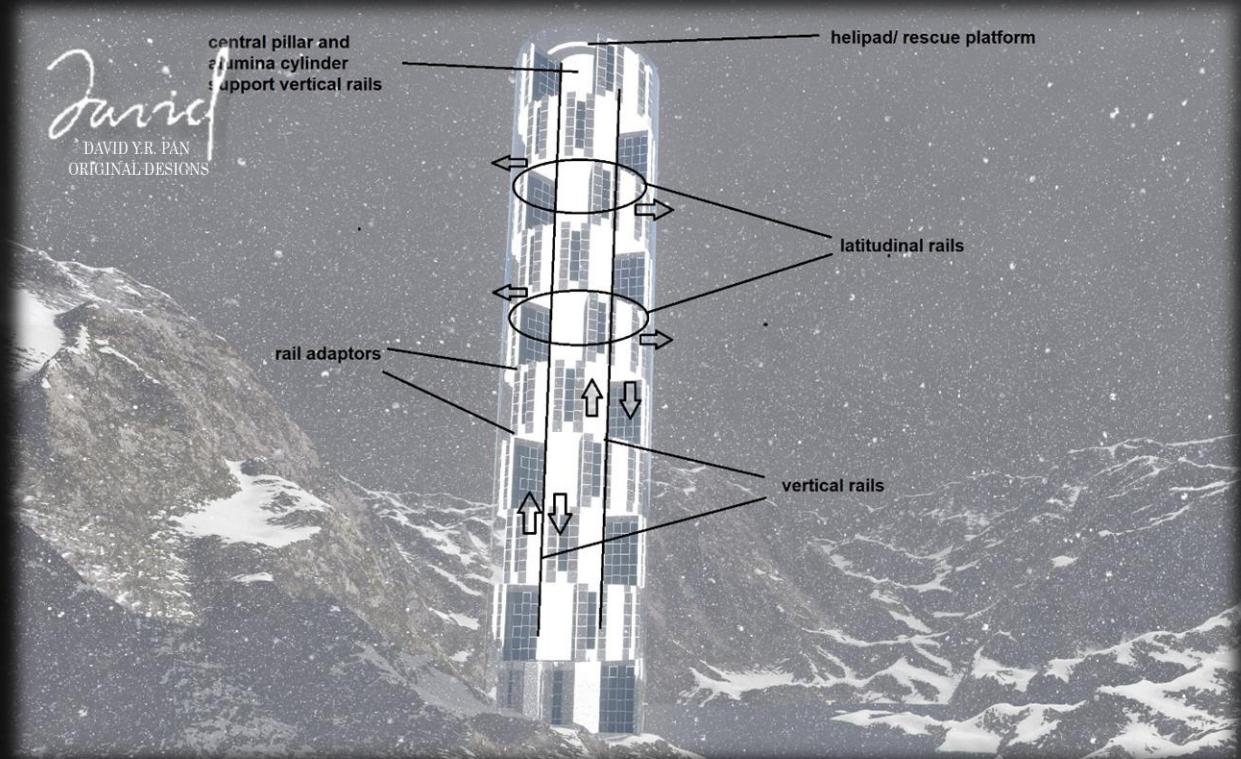
Spiral towers are among the most excellent definitions of architectural elegance. Their curvaceous patterns command the eyes of every passerby. This spiral tower was created using the repeatable pattern below (right):



**The concept of a transposable future building (2017)**

(personal project)

Modules are attached to the rails. Each module may have a latitudinal (or visually horizontal) translation along the central axis. The repositioning of modules is serviceable to major evacuations by compressing modules towards the upper rescue platform or the ground-level egress.



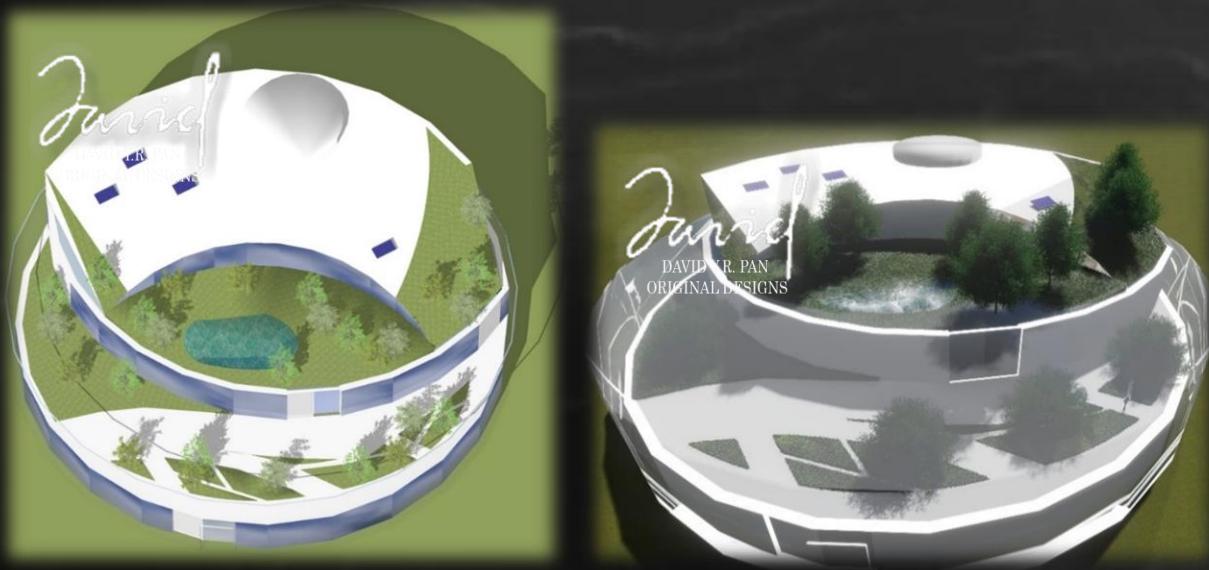
DAVID PAN, PORTFOLIO OF ART & DESIGN (2011-2019)

Microclimatic Home (2013, Grade 11)

(academic project)

The product of a 2013 high school architectural design class design-your-own-home assignment. Akin to Forest Tower, this solar- and geothermal-powered house has a microclimatic cover.

Original (left) vs. newly rendered bird-eye model (right and bottom):

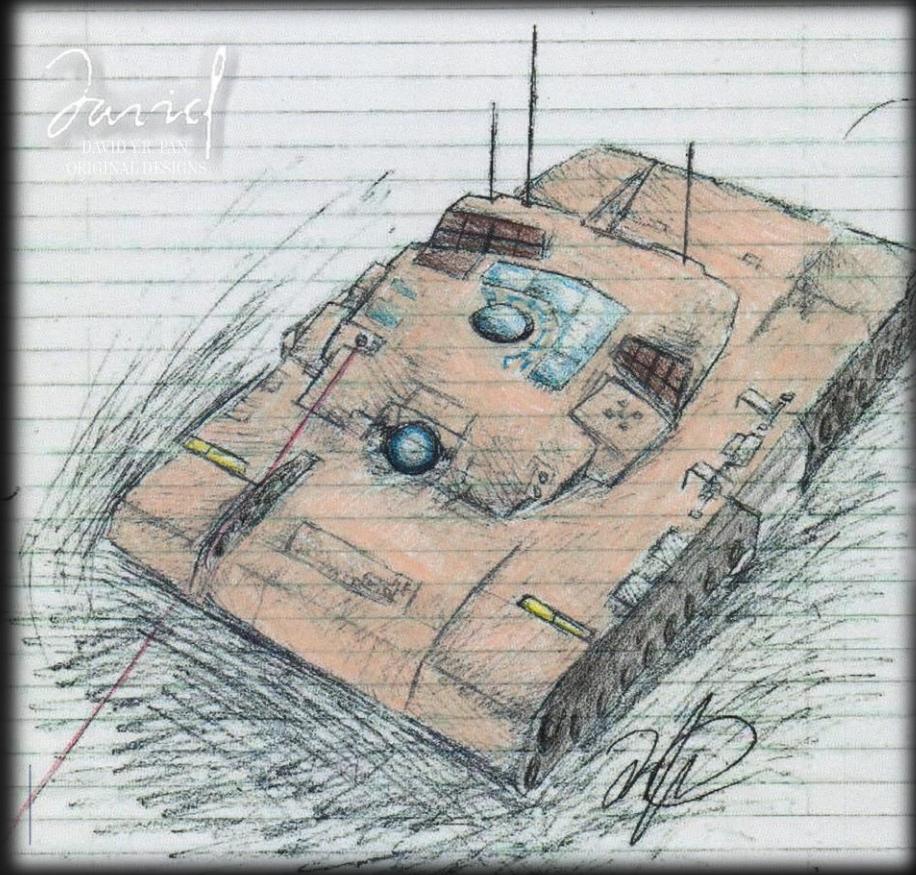


## Sketches and Paintings

Concept Future Photon Tank (~2011-2013, Grade 9-11)

(personal project) (original sketch and colored)

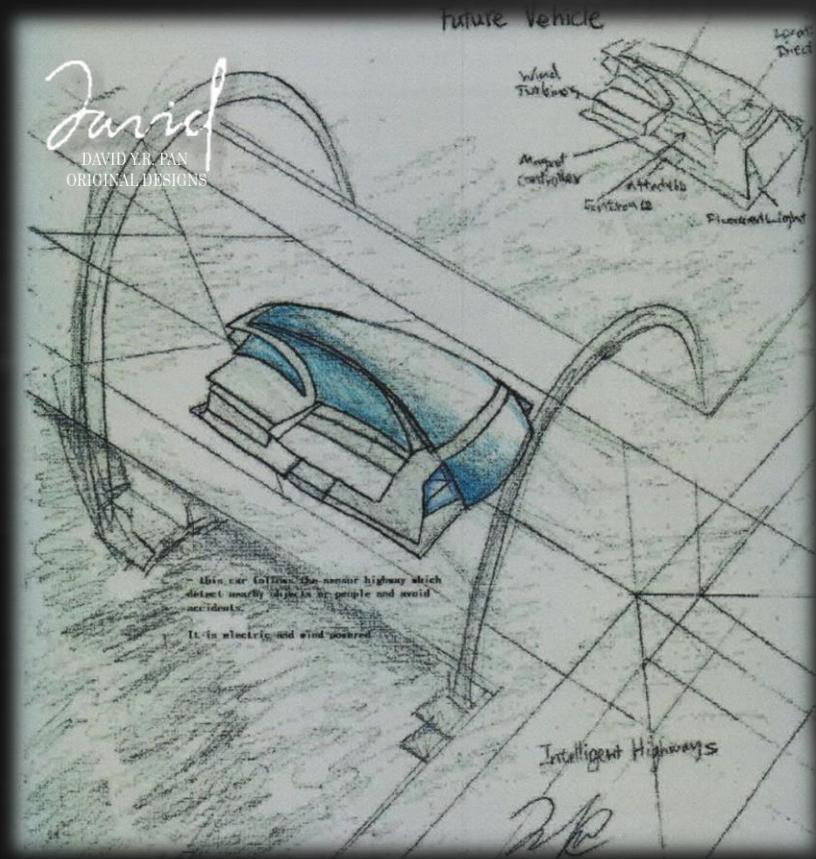
A future tank zeroing in at a target with target laser



**Concept Maglev Car (~2011-2013, Grade 9-11)**

(personal project) (sketch and rendered model)

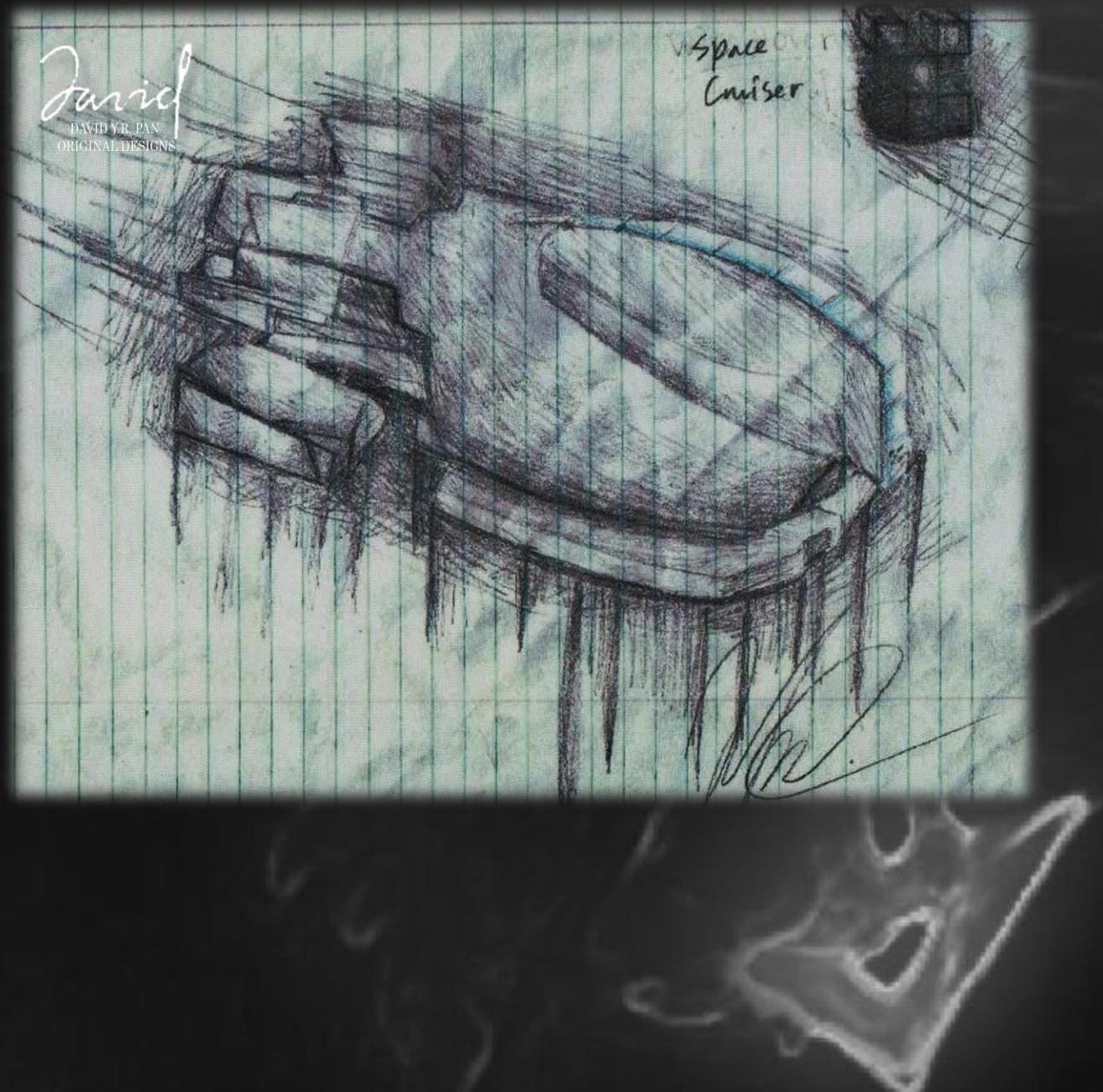
This car follows the sensor guideways which enable it to detect and avoid objects of collision in real time. The guideways are painted white to lower emissivity, reducing the urban heat island effect.



**Spacecraft (~2011-2013, Grade 9-11)**

(personal project) (colored sketch)

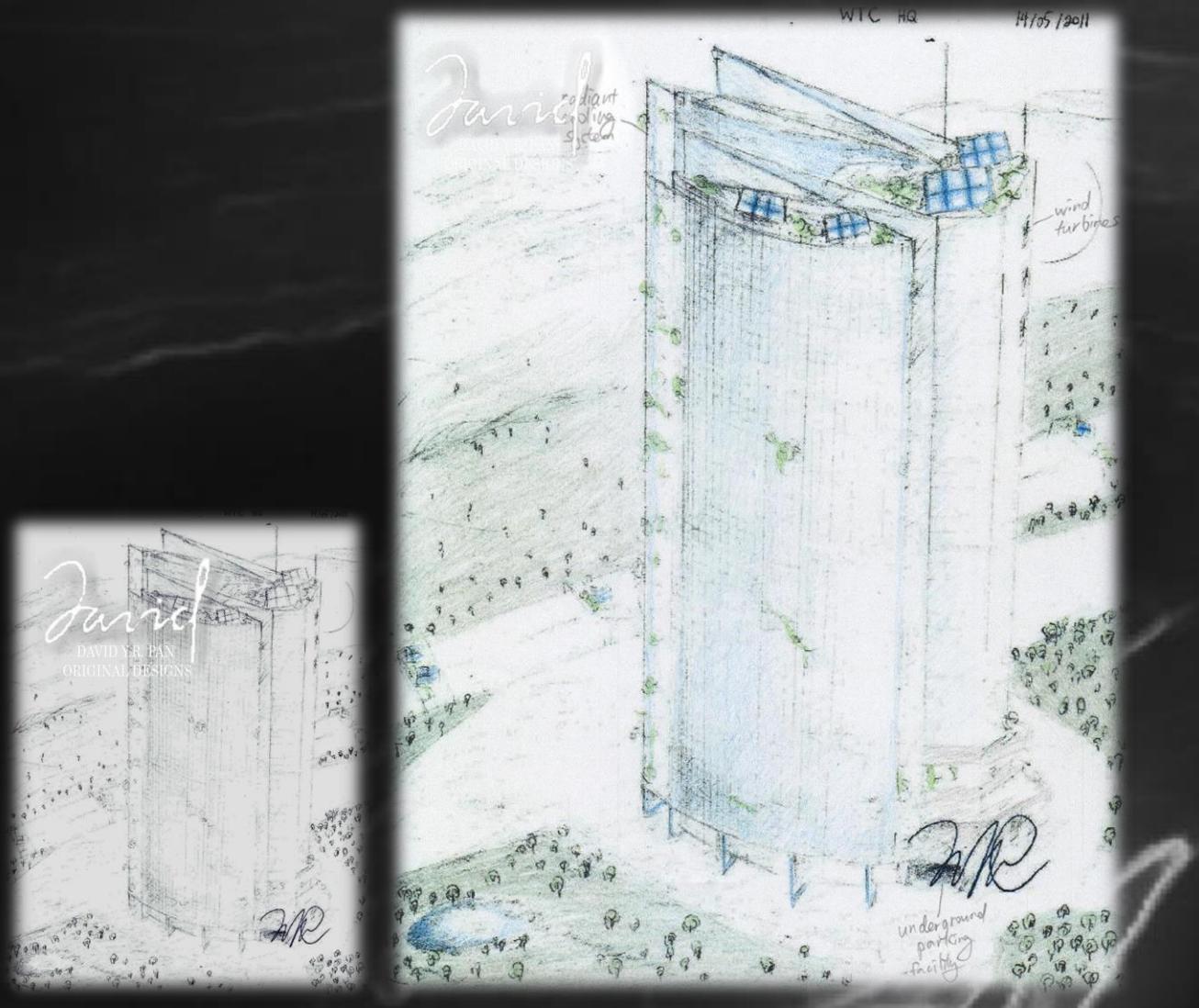
A space cruiser lifting off, ready to take itself into the orbit



**Office Tower (2011, Grade 9)**

(personal project) (original sketch and colored)

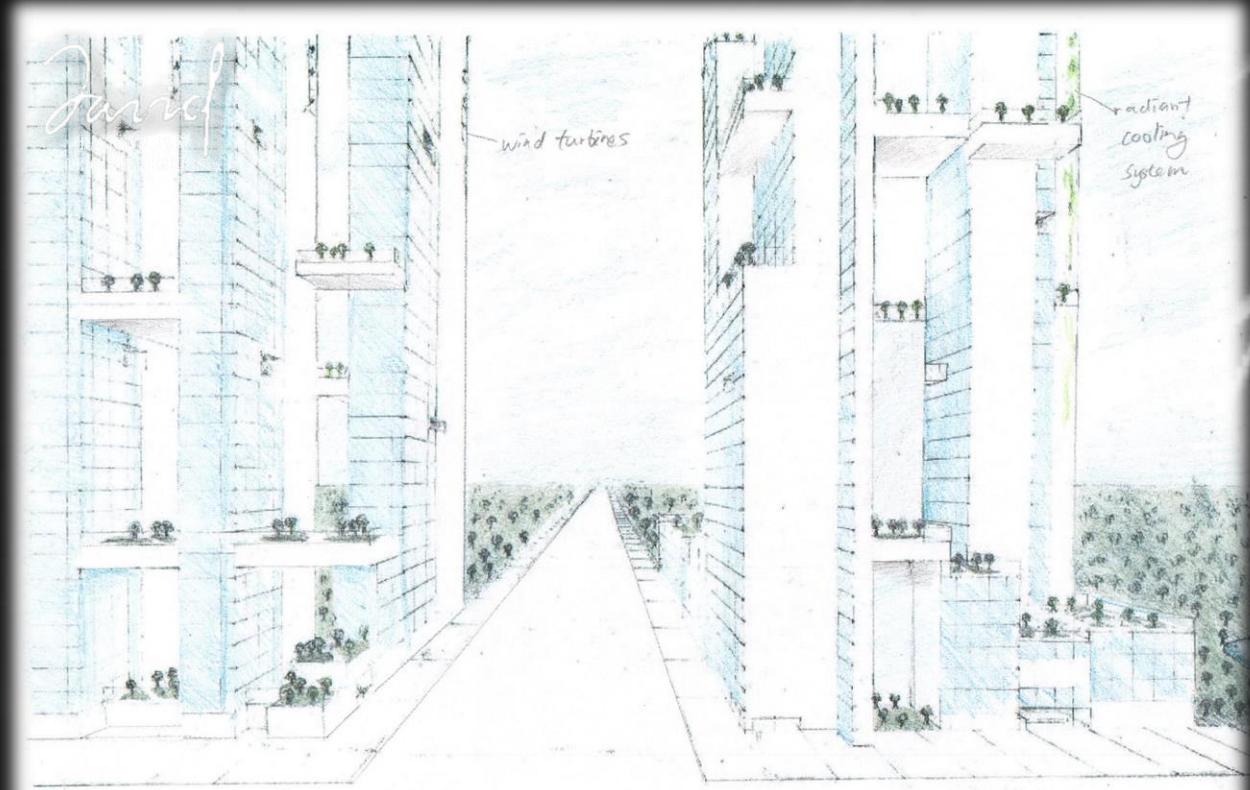
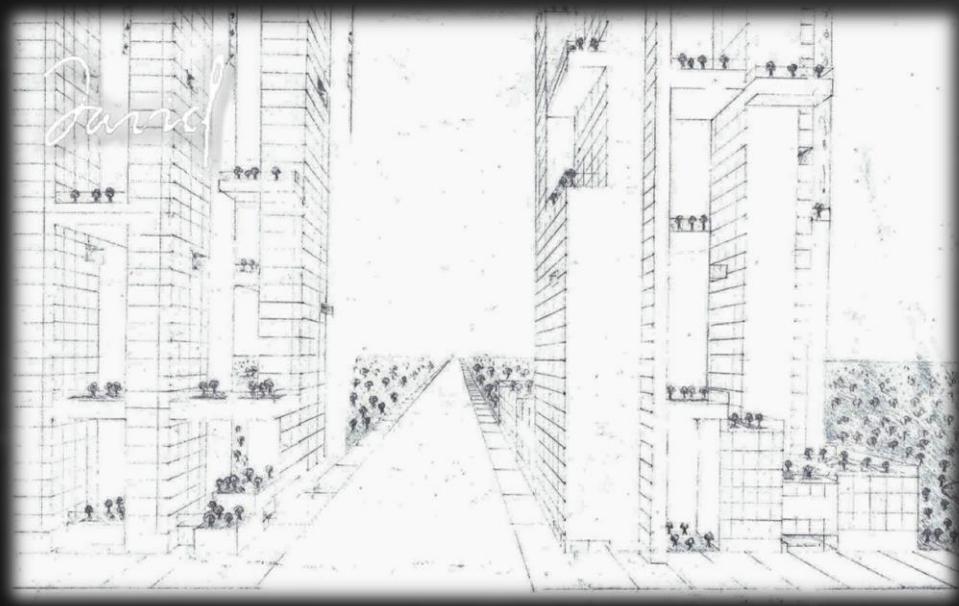
A headquarter for any multinational corporation, furnished with a radiant cooling system and triple wind turbines.



**One Point Perspective Condo Towers (2013, Grade 11)**

(academic project) (original sketch and colored)

Two condo complexes with radiant cooling systems and wind turbines



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**Acrylic painting of a golden eagle carrying a set square**

(personal project) (done in 1-2 hours)

The eagle is an imaginary non-imitative design, not derived from any particular photo of an eagle. The set square symbolizes “Creative Ingenuity.”



**Rendering of a future community of Forest Towers and Area51 complex\* (2018)**

Before the steep, rocky mountains looming above the glade, behind the sleek low-slung complexes of pared-down simplicity gleaming in white along the cerulean water, and beneath the cumulus clouds in the velvet sky billowing over the majestic landscape, is an arresting vista in which beetling towers of circular glass soar above the distant horizon and beyond the mountainous north, catching the morning light as the sun shines forth and increases to the perfect day, and the shadows of their profiles climb down the mountains towards the hillside.

