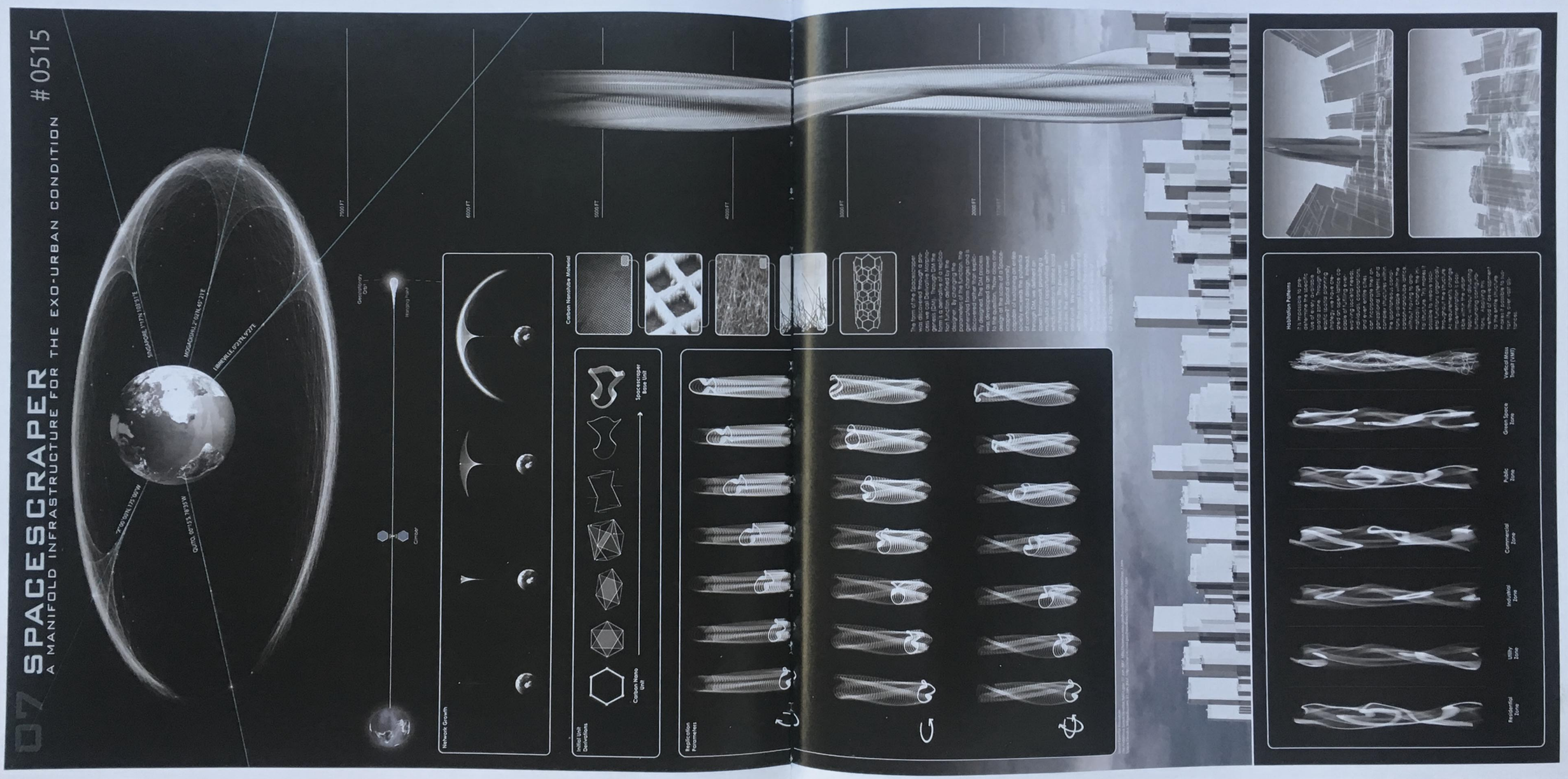
SPACE-SCRAPER

STEPHEN PHILLIPS
RICHARD PORTER
CHRIS ALLEN
CAM HELLAND
UNITED STATES

The skyscraper design is generated relying on NASA's technological research on space elevators. A non-rocket space launch structure is initially envisioned to transport materials from a celestial body's surface into space. Space elevators are conceived as purely tensile structures, with the weight of the system held up from above. In its tensile concepts, a space tether reaches from a large mass (the counterweight) beyond geostationary orbit to the ground. The design uses one of most recent researches on the subject, proposing a more plausible scheme for its construction. It suggests the erection of an initial seed tether that would then be used to carry up successive reinforcing tethers until a suitable strength is achieved. After the initial

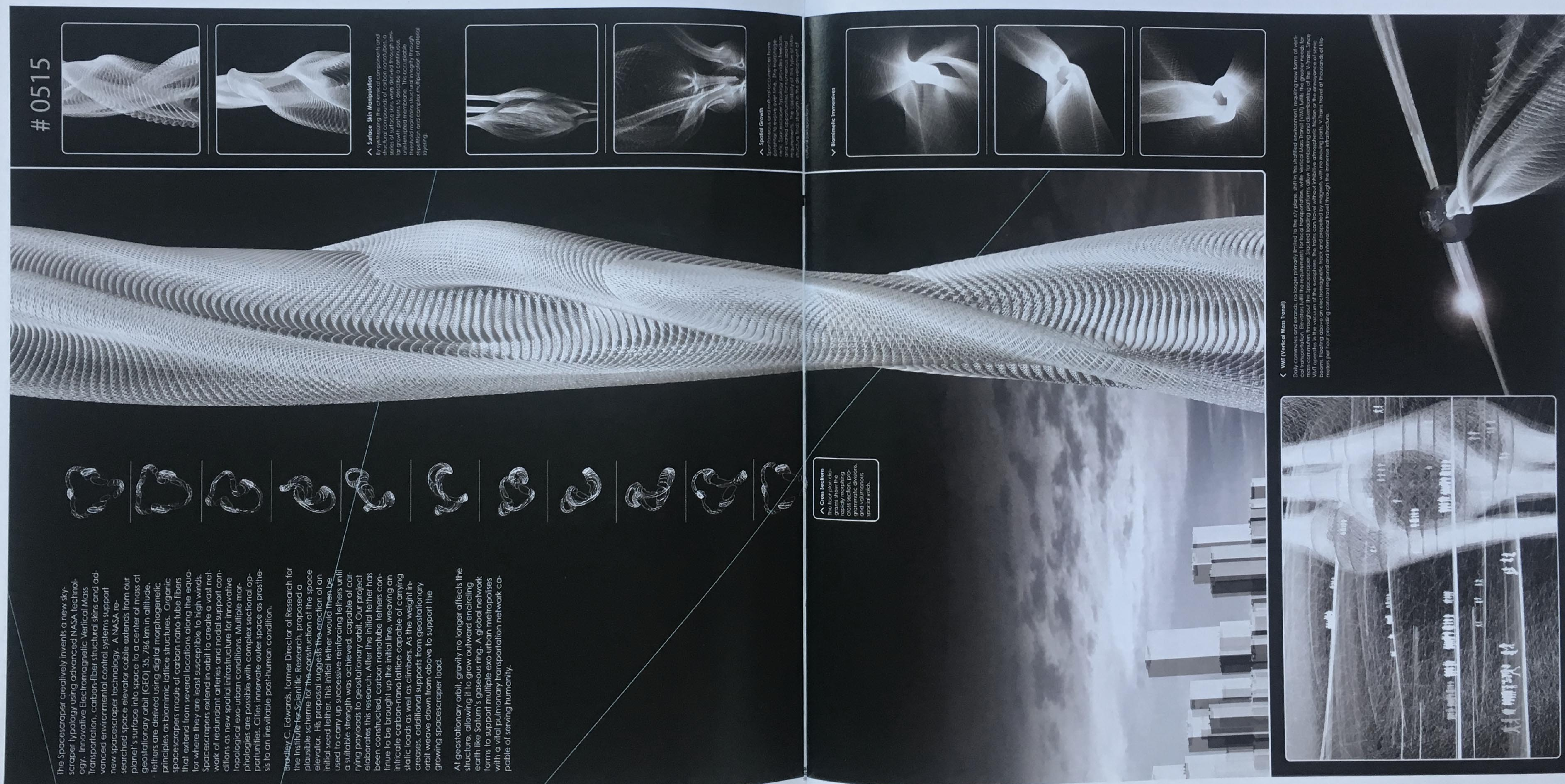


tether is constructed, carbon nanotubes tethers continue to be brought up the initial line, weaving a carbon nano-lattice of great strength. As the weight increases, additional supports from geostationary orbit weave down to support the growing Spacescraper load. A global network forms to support multiple exo-urban metropolises with a viral pulmonary transportation network, servicing the whole planet.

The transportation mechanisms rely on the use of V-trains, embarking and disembarking on stacked loading platforms distributed throughout the Spacescraper. Since the Vertical Mass Transit operates in the vacuum of the exosphere, the trains

can travel without inhibitive atmospheric friction or the annoyance of sonic booms. Moving at thousands of kilometers per hour, the V-trains provide constant regional and international travel through the infrastructure.

By combining chemical components and structural compounds of carbon nanotubes, series of surface skin layers are derived, creating a continuous and uninterrupted membrane. Through repetition and complex multiplication of material layering, the membrane maintains its structural integrity. Using an elastic spatial planning strategy the open lattice can incorporate all organizational systems, without having its initial structure dramatically altered.



0515

The Spacescraper creatively invents a new skyscraper typology using advanced NASA technology. Innovative Electromagnetic Vertical Mass Transportation, carbon-fiber structural skins and advanced environmental control systems support new spacescraper technology. A NASA researched space elevator cable extends from our planet's surface into space to a center of mass at geostationary orbit (GEO) 35, 786 km in altitude. Tethers are derived using digital morphogenetic principles as biomimic lattice structures. Organic spacescrapers made of carbon nano-tube fibers that extend from several locations along the equator where they are least susceptible to high winds. Spacescrapers extend in orbit to create a vast network of redundant arteries and nodal support conditions as new spatial infrastructure for innovative topological exo-urban conditions. Multiple morphologies are possible with complex sectional opportunities. Cities innervate outer space as prosthesis to an inevitable post-human condition.

Bradley C. Edwards, former Director of Research for the Institute for Scientific Research, proposed a plausible scheme for the construction of the space elevator. His proposal suggests the erection of an initial seed tether. This initial tether would then be used to carry up successive reinforcing tethers until a suitable strength was achieved, capable of carrying payloads to geostationary orbit. Our project elaborates this research. After the initial tether has been constructed, carbon nanotube tethers continue to be brought up the initial line, weaving an intricate carbon-nano lattice capable of carrying static loads as well as climbers. As the weight increases, additional supports from geostationary orbit weave down from above to support the growing spacescraper load.

At geostationary orbit, gravity no longer affects the structure, allowing it to grow outward encircling earth like Saturn's gaseous ring. A global network forms to support multiple exo-urban metropolises with a vital pulmonary transportation network capable of serving humanity.

Surface Skin Manipulation
By synthesizing the chemical components and structural compounds of carbon nanotubes, a series of surface skins were derived through similar growth patterns to describe a continuous, uninterrupted membrane. This occupiable threshold maintains structural integrity through repetition and complex multiplication of material layering.

Spatial Growth
Spontaneous and natural occurrences have potential to evolve over time. The morphogenetic Spacescraper typology provides freedom and varied opportunities for numerous spatial requirements. The capability of this type of infrastructure finds strength in the development of [illegible] cultural juxtapositions.

Biomimetic Immersives

Cross Sections
The floor plan diagrams show the rapidly morphing cross section, programmatic divisions, and voluminous spacial voids.

VMT (Vertical Mass Transit)
Daily commutes and errands, no longer primarily limited to the x/y plane, shift in this stratified environment, requiring new forms of vertical transportation. Elevators fulfil the requirements for local transportation, while Vertical Mass Transit (VMT) fulfills the greater needs for mass-commuters throughout the Spacescraper. Stacked loading platforms allow for embarking and disembarking of the V-Trains. Since VMT operates in the vacuum of the exosphere, the trains can travel without inhibitive atmospheric friction or the annoyance of sonic booms. Floating above an electromagnetic track and propelled by magnets with no moving parts, V-Trains travel at thousands of kilometers per hour providing constant regional and international travel through the immense infrastructure.