

Airocean World Town Plan – 4D Tower

Richard Buckminster Fuller

Project: 6. **Author:** Richard Buckminster Fuller (1895–1983). **Date:** 1927–1932. **Themes:** Environmental Control | Immateriality | Remoteness. Telecommunications.



Figure 0. The Airocean World Town Plan. After Richard Buckminster Fuller. 1927.

1. K. Michael Hays, "Fuller's Geological Engagements with Architecture," in *Buckminster Fuller Starting with the Universe*, ed. K. Michael Hays and Dana A. Miller (New York: Whitney Museum of American Art, 2008), 2.

2. R. Buckminster Fuller, "We Call It Earth," in Fuller, *Nine Chains to the Moon* (Philadelphia: J. B. Lippincott Co., 1938), 60.

3. See *Shelter* 2, no. 5 (November 1932) n.p. The magazine also includes articles about "Pan-Continental Service Systems," and other type of "scientific" shelters based on the use of tensile structures.

4. Stanford Libraries, "R. Buckminster Fuller Timeline," <https://library.stanford.edu/spc/manuscripts-division/r-buckminster-fuller-timeline>. Accessed February 5, 2019.

Although Buckminster Fuller was a pluralistic inventor, who designed from rowing sculls to whole new structural systems and held patents for twenty-four of his creations, few concepts were enough for him to summarize his ideas. A reductionist by nature, Fuller always broke down complex systems to their fundamental constituents, seeking answers that represented pure syntheses—whether the single central mast solution for housing, the pure-compression/pure-tension of the elements in tensegrity structures, Earth as a spaceship, or the rules of nature and thought responding to the principle of synergy. Expanding progressively, what started as a few ideas under the name *Lightful* evolved into a handful of explorations under *4D* [fig. 0]. From *4D*, the few components turned into a plethora of mature, executable inventions like houses or vehicles under *Dymaxion*, and from there the whole universe would be encompassed into *Synergies*.¹

Initially named *Lightful Tower*, the *4D Tower* is Fuller's answer to the problem of mass housing and to the processes of "world integration" he perceived [fig. 1].² Following his characteristic method of reasoning, the Tower is far from being a finite object in itself; it is, rather, an open system designed to respond to the growing challenges of an interconnected world. Fuller disseminates the project through *Shelter*, the journal of architecture he starts editing in 1930 in order to investigate how architectural design can be informed by scientific inquiry and technical innovation.³ Coherently with the journal's agenda, even if the Tower's purpose is to shelter, it is hardly possible to conceptualize the project as a traditional house. The design can be better understood by analogy with contemporaneous machines and technologies. Instead of being fixed to the ground, the Tower is mobile, like a ship; instead of being heavy and rigid like masonry, it is light and flexible, like steel cables; instead of replicating traditional concepts of ownership and property, it is leased and replaced, like a telephone; instead of being uniquely crafted, it is industrially mass-produced; and instead of being assembled on site, it is delivered complete and fixed in place by a Zeppelin [figs. 2 and 3].

The *4D Tower* is one of Fuller's designs for the company *4D*, which he founds in 1927 to develop new, light systems of architectural and technical construction.⁴ The intellectual basis of the project derives from his design of the *4D Dymaxion House* (1927–1931) and from the 1927 article "Universal Requirements of a Dwelling Advantage," where Fuller establishes the "Checklist of

the / Universal Design Requirements / of a Scientific Dwelling Facility—as a component function / of a new world-encompassing, service industry.”⁵ The Tower keeps most of the inventions explored in the Dymaxion House, but it transports the idea of shelter from the individual to the collective and expresses the possibility of universal implementation. The design is a featherweight, multistory building supported by a central mast and composed of cutting-edge technologies and high-performance materials (steel, aluminum, plastic, wires, and glass), which can be used anywhere. Each floor is an environmentally controlled unit enclosed in glass. Even if designed with the lightest available materials and touching the ground at a single point, the building is supposed to be guaranteed against every possible natural hazard, doing justice to Fuller’s principle of “ephemerization,” or doing more with less.⁶

The mast is the project’s central piece. It is an organizational device, a load-bearing structure, a crane, and a radio antenna. It allows the Tower to be transported and placed on any terrain. Fuller envisions a system that does not depend on local infrastructure, especially road transportation and communication, but rather replaces these roles by organizing itself as a service station. From Siberia to the Amazon rainforest and from the North to the South Pole, the towers around the globe weave an invisible network of airplane routes and radio signals, acting as receiver and transmitter points for information and people.⁷

The drawing of Earth where Fuller depicts the resulting system—titled the Airocean World Town Plan—shows this terrestrial dimension. Not only does the project cover the earth’s surface, it also considers the sectional condition of the planet, thus advancing a preoccupation with the world’s vertical axis that Fuller will continue to explore throughout his career [project 14]. Connected through aerial and maritime infrastructures and means of transportation, the towers generate a four-dimensional network in which the superficial condition of land occupation expands along the atmospheric vertical axis and the temporal dimension of communications. The towers’ distribution, no longer tied to cities, depends only on the strategic need for resource extraction and planetary circulation.⁸ The quantification of the project is also global: the number of towers responds to the world’s need for two billion new homes. Even the perspective from which Earth is represented seeks to be as comprehensive as possible. Fuller chooses a view of the planet that captures where 99.5% of the population lives at the time.⁹

5. “Universal Requirements of a Dwelling Advantage,” *Shelter Magazine* 1 (1931). The text was first written in 1927 and then revised for its publication in *Shelter*, and later in *Nine Chains to the Moon*. See R. Buckminster Fuller, *The Buckminster Fuller Reader*, ed. James Meller (London: Jonathan Cape, 1970), 242. In the article, Fuller establishes the “Check list of the / Universal Design Requirements / of a Scientific Dwelling Facility—as a component function / of a new world encompassing, service industry.” Formally, it is possible that Fuller drew inspiration for the project from the housing model developed by the architects Heinz and Bodo Rasch in 1927. See Heinrich Klitz, *Vision der Moderne. Das Prinzip Konstruktion* (Munich: Prestel Verlag, 1986), 224–225.

6. R. Buckminster Fuller, “Ephemerization,” in *Nine Chains to the Moon*, 284–288.

7. Hays, “Fuller’s Geological Engagements with Architecture,” 2.

8. Fuller’s distribution of towers across the earth parallels his understanding of systems of production in global terms. “No teleologic designer, in view of the current world integration, can profess concern with building only within the ‘town plan’ of Podunk when the materials, structures, and tools he uses are so obviously derived from the entire surface of the earth. We cannot claim that we are doing the most with the least without carefully referring to our cosmic inventory and ascertaining what is now most suitable and available.” Fuller, *Nine Chains to the Moon*, 60.

9. Fuller, *Nine Chains to the Moon*, 59.

10. Mark Wigley, *Buckminster Fuller Inc.: Architecture in the Age of Radio* (Ennetbaden: Lars Müller Publishers, 2015), 29.

11. Wigley, *Buckminster Fuller Inc.*, 49.

12. Wigley, *Buckminster Fuller Inc.*, 21.

13. Wigley, *Buckminster Fuller Inc.*, 30, and Peter Anders, “Leonidov: Icon of the Future,” *Journal of Architectural Education* 37, no. 1 (1983): 20.

14. Suzanne Strum, *The Ideal of Total Environmental Control* (Knud Lönnberg-Holm, *Buckminster Fuller*, and the SSA (London: Routledge, 2018), 94–99. In particular, Strum analyzes the similarity between Fuller’s participation in the collective SSA together with Knud Lönnberg-Holm, and Soviet collectives such as OSA or ARU. Interestingly, *Shelter* did often publish news about Soviet architecture.

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Crucial to this World Town Plan is the integration between architecture, radio communication, and air transportation. In Fuller’s view, such relation has the power to rearrange human territories, reconceptualize or even eliminate national borders, and generate a new landscape of dispersed planetary cities.¹⁰ Because the connections between things are no longer material or restricted by geography, the shelter enables new global relations and amplifies each individual’s own mind. The shelter establishes a connection between man and the universe; it acts as a linking device that captures and sends waves of information in the same way as the brain communicates with the body.¹¹ Each individual room becomes a control center with the power to shape the world, connecting one human to every other and beyond, in a regime where sight is no longer a determining factor. The visible horizon ceases to be a threshold when the whole world finds its place in any ordinary room. Interconnected and with no physical limits, “the world [becomes] a world for the first time.”¹²

By blending the architecture of shelter with the emerging engineering structures of telecommunication, the 4D Tower denies the isolation of the discipline of architecture. Not only does the project incorporate recently discovered technologies, but it also claims the discipline’s own place in the promising path opened by those advancements. In this regard, Fuller continues an exploration of the transformative power of telecommunications that started in the USSR already a decade before, and which spans from Vladimir Tatlin’s 1919 Monument to the Third International—a steel tower with a radio communication mast from which Soviet news would be broadcast to the world—to the Vesnin Brothers’ 1923 Palace of Labor, to Ivan Leonidov’s 1928–1929 Club of a New Social Type and 1929 Columbus Memorial [project 9].¹³ Fuller also approaches the ethics of work of his Soviet counterparts, especially the insistence on anonymity and on the organization of individual work within broader intellectual collectives.¹⁴

For Fuller, dematerialization is the corollary of architecture’s transformation into a telecommunication device. The slender frames and the substitution of the more rigid structural elements by weightless wires build a path toward the complete disappearance of the object. Throughout his career, Fuller progressively explores buildings that shift in emphasis from the material to the immaterial. The process of synthesis initiated with the 4D Tower leads to the complete dilution of structure in the postwar Geodesic Domes [fig. 4]. The domes abolish solid volumes and replace them with a framework that generates

enclosed spaces solely by defining its edges.¹⁵ These simultaneously become a representation of an architectonic form and a diagram of their structural load path. Thus, the Vitruvian *firmitas* opens space for the destabilization of tectonics, allowing Fuller to work with connections, flows, and paths, and not with fixed objects; with relations instead of matter.

With the 4D Tower, Fuller thus initiates his path toward the progressive dematerialization of architecture. For the 1970 exhibition on antimaterialism at La Jolla Museum of Art, he states: “When successful, tomorrow’s architecture will be approximately invisible, not just figuratively speaking, but literally as well. What will count with world man is how well the architecture serves all humanity while sublimating itself spontaneously. Architecture may be accomplished tomorrow with electrical field and other utterly invisible environment controls.”¹⁶ The result of architecture’s dematerialization is, thus, increasing, potentially total, environmental control [projects 19 and 22].¹⁷ The ultimate stage of this vision is the consideration of Earth as a spaceship, a technically managed entity—a notion Fuller popularizes during the mid-1960s. The seeds of this idea are precisely laid in these early 4D projects. In the book *Nine Chains to the Moon*, where Fuller summarizes his early work, he asserts: “the goal is not ‘housing,’ but the universal extension of the phantom captain’s ship into new areas of environment control, possibly to continuity of survival without the necessity of intermittent ‘abandoning ship.’”¹⁸

In this light, the 4D Tower allows Fuller to test his intention to make architecture disappear at different scales. As a building, it is a multistory construction thinning down to be perceived as a single vertical line as one gains distance and its glass levels disappear against the sky. On a larger scale, the tower is independent of the urban fabric, dissipating the traditional city as it explores previously unoccupied territories and invisibly connects one location to all others. Lastly, the societal structure is the broader scale in which the World Plan of 4D Tower aims to bring the whole “human family” together.¹⁹ In *4D Time Lock*, a book compiling the 4D Tower principles, Fuller discusses how a modern environment achieved with the proper use of new technologies would efface humankind’s social and physical defects.²⁰ By addressing these multiple scales, the project of the tower becomes an open commentary on the way the world is structured, while pointing to the direction toward which life should head. Undoubtedly, Fuller’s discourse and methods radically favor a scientific and technocratic vision of world managing. Yet, for him, such an endeavor is

15. Alan Colquhoun, “The Modern Movement in Architecture,” *British Journal of Aesthetics* 2, no. 1 (1962): 63.

16. R. Buckminster Fuller, foreword to *Projections Anti-Materialism* (La Jolla, CA: La Jolla Museum of Art, 1970), n.p., quoted in Dana Miller, “Thought Patterns: Buckminster Fuller the Science Artist,” in Hays and Miller, *Buckminster Fuller: Starting with the Universe*, 21–44.

17. Strum, *The Ideal of Total Environmental Control*, 215–218.

18. Fuller, “What Is a House?” in Fuller, *Nine Chains to the Moon*, 43.

19. Text included in Buckminster Fuller’s “Airocean World Town Plan” drawing, 1927.

20. R. Buckminster Fuller, *4D Time Lock* (Albuquerque: Lama Foundation, 1972), 148, and Antoine Picon, “Fuller’s Avatars: A View from the Present,” in Hays and Miller, *Buckminster Fuller: Starting with the Universe*, 53.

21. Fuller, “We Call It Earth,” 67.

22. Fuller, “We Call It Earth,” 67.

also humanistic and poetic. His 4D Tower intends to link architecture and the broader cosmic system. “Scientific shelter design,” he believes, “is linked to the stars far more directly than to the earth.”²¹ It is a form of “star-gazing,” of relating humans and universe.²² The towers foster a total integration between the multiple layers that constitute the systems “people,” the “built environment,” “Earth,” “energy,” and the cosmos. With them, Fuller lays his universal principles of “integrity,” and enables disappearance to become totality.