# Flying House. Archaeology of the Construction of Buckminster Fuller's Dymaxion House

Federico Neder

Today, anyone who wants to visit the Dymaxion House has to pay fourteen dollars for a ticket. In a souvenir-saturated landscape, visitors dodge around cars, planes, locomotives and vehicles of every sort before suddenly falling upon the glittering bodywork of the house of the future.

To welcome aboard the curious visitor, a tour guide stands at the doorway of this enigmatic artefact. Dressed like a 1940s real estate agent, he looks every inch the salesman. The tour begins and the commentary revolves around the virtues of this new house and the other gadgets devised by its inventor, one R. Buckminster Fuller. One circles around the mirror-like façade, entering by the main door, traversing the living room, the bedrooms, and the kitchen, catching a glimpse of the bathrooms. **(fig.1)** Everything is brand spanking new. The perfectly oiled internal machinery swings into action: revolving wardrobes, electric shelving, lighting that changes colour illuminating the ceiling in different shades. The inhabitants' furniture, curtains, crockery, clothing, all is neatly in its place. All that is missing is the family that lived here – and that mysteriously abandoned the place in 1946.

Figure 1. Dymaxion House at the Henry Ford Museum, Dearborn (F.Neder)

The visitor is able to peer into hidden recesses as the home of the future unveils its intimate charms - whilst at the same time protecting its privacy behind thin ropes. The house is real. The contents and the context of its display are not. This is not a new photographic study or old-fashioned advertising campaign. This time we are in a museum and the house has become an object of contemplation. **(fig.2)** Ironically, the most modern of dwellings responds to a series of ideas that its creator developed over eighty years ago and its bodywork is already more than half a century old. How has the house come this far?

Figure 2. Dymaxion House at the Henry Ford Museum, Dearborn (F.Neder)

It is challenging, perhaps impossible, to try and work out the genealogy of the Dymaxion House, a project Buckminster Fuller began working on at the end of the 1920s. The hundreds of drawings that show it are all incomplete and its author used repetitious and confused language to describe the building. On top of this, the spokesmen of the "militant" architectural avant-garde described it as a kind of counter-example that one would do well to avoid (Giedion 1969, pp. 709-710). Fuller, a self-taught architect and self-proclaimed inventor who was often portrayed as a philosopher-poet, traversed the twentieth century but always came back to his project for a small house, even as he imagined thousands of geodesic domes for the entire planet. There are clues in abundance: working drawings, sketches, photographs of models, recordings made for publicity, explanatory writings, newspaper articles, calculations and sketches for a small house that continually seems to be changing shape. In our scrapbook, each trail corresponds to a different history, countless versions of a single product. Which is the real Dymaxion?

**THE DYMAXION ADVENTURE**

Fuller's earliest dwellings date from 1928, from the time of his *Lightful Houses*. Flooded with light, these ten-storey dwelling towers supported by a central post were so light in weight that they could be transported by airships and tossed like darts at the chosen site. Several drawings reveal a series of metal-type constructions and the accompanying notes suggest mass produced prototypes, entirely factory assembled. The form of the object is of little importance. The most important things were efficiency in terms of energy consumption, assembly time and functionality within the housing unit. The traditional house, built of solid masonry, is a model of inefficiency; in complete contrast, the architecture of the future would borrow its materials and manufacturing principles from the transport, armaments and communications industries.

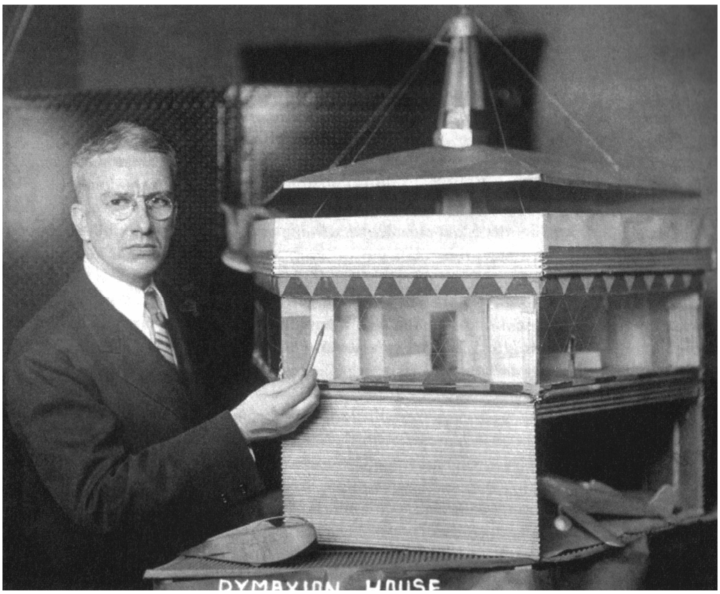

Figure 3. R.Buckminster Fuller an his Dymaxion House, 1929 (Krause 2001)

These almost naïve sketches were transformed, one year later, into a complete study entitled "4D House", later the "Dymaxion House" – the latter a more seductive name manifestly designed to appeal to a broad public and its thirst for novelty in an age of progress and travel. That year the customers at Marshall Field's department stores in Chicago came upon R. Buckminster Fuller standing alongside the first detailed model of his house, whilst in the summer of 1929 members of the Architectural League in New York listened to him – with a degree of suspicion – as he explained the special features of his design. **(fig.3)** The hexagonal plan was organised around a triangulated network of interlacing cables suspended from a central column. The envelope consisted of a sealed, transparent membrane wrapped around the living space, a sort of isolated microclimate detached from the ground and from any external source of “contamination”. A series of radially situated cupboards divided up the interior, delineating the different rooms. Like the words of the designer himself, the models produced at this stage in the development of the design left no room for uncertainty: the system of construction, facilities and furnishing as well as the vehicles and people that lived in the house were represented literally. The Fuller house, at the end of the 1920s, was a kind of miniature for a product that did not yet exist, even though its inventor knew every one of its components.

conventional dwelling.

Unlike conventional building materials metals and plastics used in the Fuller House are strongest when used in curved surfaces. If flat sheets are used to sustain lateral stresses, they must be ribbed at extra cost. But a curved sheet gains strength by distributing stresses over the entire area. (A sheet of paper curved into an arc will support many times its weight as compared to the performance of the same sheet if used flat.)

The round shape of the house enables Fuller to build heating, lighting, ventilating units into a central utility column in the center of the house. As a result the greatest possible area is served in the shortest possible distance. Heat losses are low because it is unnecessary to force heat through a series of staggered cubes as in an ordinary house.

**Withstands High Winds**

The Fuller House is designed to withstand wind velocities of 180 miles an hour (120 miles per hour true air speed) from any direction. This provides a wide margin over any wind velocity in the U. S. – including hurricanes which occasionally exceed a velocity of 100 miles an hour.

Protection against lightning is inherent in the design. Cable supports and central mast are continuous from the top of the house to ground anchoring, thoroughly grounding the house.

**Installation Simple**

Total shipping weight of the Fuller House is about four tons. Present plans are for shipment from the factory in a single, light weight, cylindrical steel container of 300 cubic foot capacity – 16 feet long and four feet in diameter. Parts will be packed in reverse order of assembly so that when removed they are in proper sequence for erection. Kitchen equipment will be crated and shipped separately by suppliers.

Studies indicate that only 200 man hours will be required to erect the house and prepare it for occupancy – two days

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*BEDROOMS are light and airy, contain 254 square feet of floor space — the equivalent of a room 17x15 feet. Each bedroom has its connecting bathroom and ovolving shelves and closets. Furniture and drapes in all photos courtesy George Innes & Co.*

Figure 4. “The Fuller House” in *Beech Log*, vol. VI, n° 12, p.7. (Dymaxion Chronofiles)

Thereafter, Dymaxion was a brand, a slogan, a way of tackling the question of housing by optimising the use of energy, time and resources. Towards the end of the war Fuller returned to his housing project, this time to develop it using materials and manufacturing principles taken from the aircraft industry. Beech Aircraft of Wichita made available a team of specialists who worked for almost two years on the most advanced version of his house. From this experiment, only two full-scale prototypes saw the light of day: the first, in 1945, assembled outdoors to test out the construction system and the second, a few months later, erected and fitted out in the workshop for a photography session to promote the habitability of this new machine to the general public. **(fig.4)**

Thanks to the publicity that the strange house enjoyed between October 1945 and February 1946, Fuller Houses – the name of Buckminster Fuller's enterprise – and Beech Aircraft received over 3 500 orders from across of the country (Sieden 2000, p. 282). At the time it was declared that 250 000 units per year would be manufactured by industry, at half the cost of a traditional house, and that final adjustments were the only thing needed to launch production on the assembly line. In reality, there were numerous outstanding problems, concerning constructional details as well as mechanisms of manufacture and sale. The economics of marketing the up-an-coming firm's securities were still unresolved and, because of a number of additional problems, the venture suddenly collapsed. Of the thousands of houses that should have been assembled in a matter of months, the only components to emerge from the factory were the ones made for these two specimens (Pawley 1990, p.114).

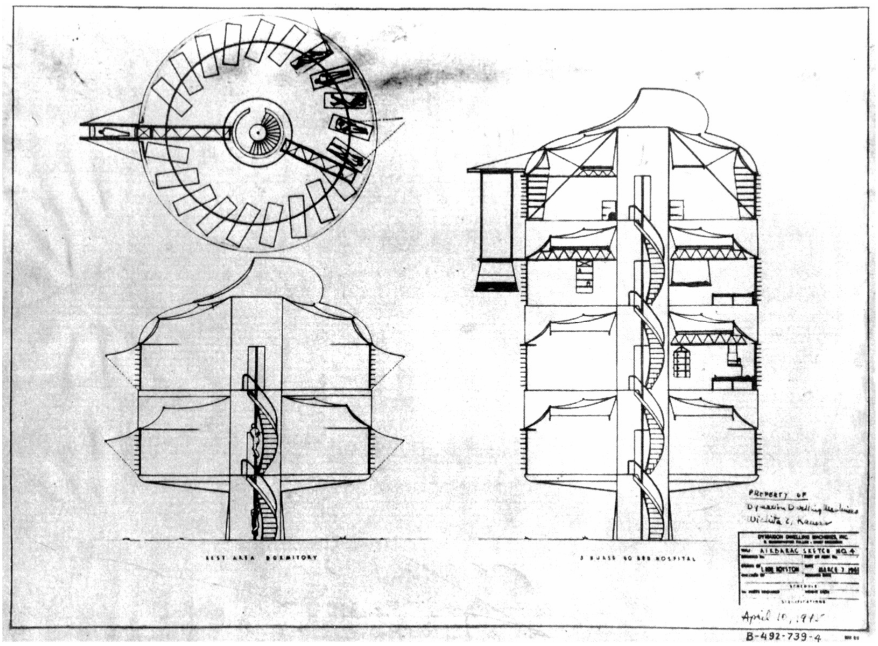


Figure 5. Airbarac version of the Dymaxion House. (Ward, 1985)

Through other efforts, Fuller tried to modify the original dwelling and adapt it for military use. **(fig.5)** There are several drawings illustrating these modifications: the house is shown raised up with space for a garage underneath, or transformed into a field hospital on several floors with an elevator-crane transferred onto the external façade (Ward 1985, vol.II. pp.272-276). These versions remained no more than sketches and the project came to a halt once and for all. It is as though the ideas had attained such a level of materialisation that the basic model could not be further modified without altering its substance: the Dymaxion House had found its perfect form and refused to accept alteration.

The house seen in the photographs was practically a mirage: the interior decorated with thick curtains, the prototype erected in record time by a just few workmen. The reality was a working design with two full-scale models. When the business collapsed an investor from Kansas bought the remains of the house of the future for 1 dollar (Baldwin 1996, p.56). In 1948, the fragments of the two models were combined to make one and the Dymaxion House was rebuilt by a river, becoming, in spite of itself, a real house.

The home's new owners – a real flesh and blood family for once – decided to make Fuller's opus into a holiday house, adapting it to suit their needs and tastes (Baldwin 1996). Apart from the addition of a little stone wall there were almost no alterations to entrance area. But from the river an additional floor could be seen propping up the house, opening onto terrace overlooking the water. **(fig.6)**

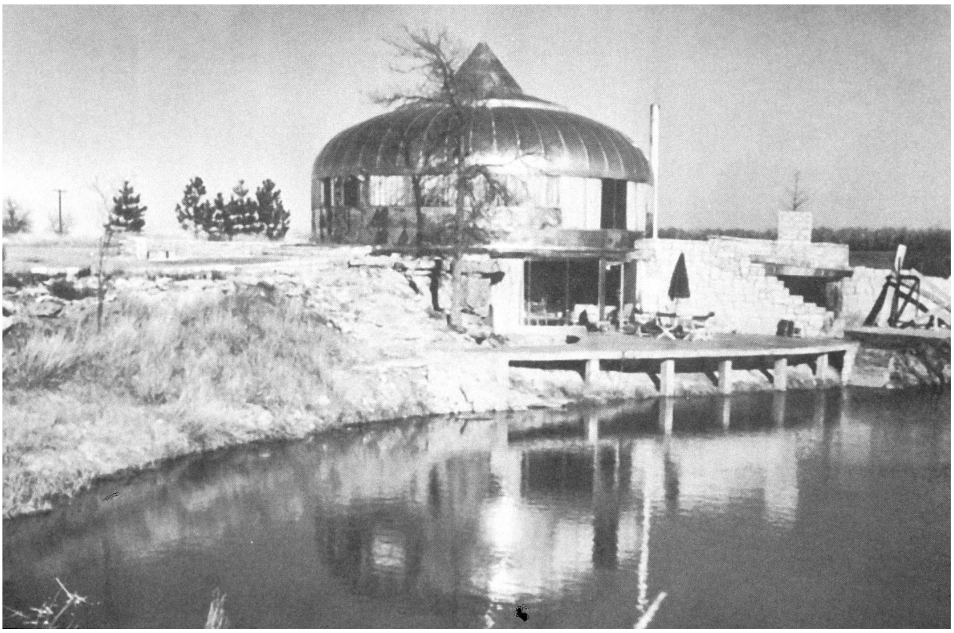

Figure 6. Wichita House converted into a summer cottage. (Pawley 1990, p.113)

Leaving aside the questionable nature of this intervention, it is interesting to analyse how the interior of Fuller's hermetically sealed house was torn out. The smooth façade remained untouched; no new windows or sealed up apertures; no new decorative details. The shape was not modified, yet the house was enlarged from below with a new, more open and permeable level anchoring the building within the landscape. As though searching for the foundations it never had, the rootless building clings to the earth at last. In a short time the Dymaxion House had become just what it's author did not want; stone walls appeared, and a basement floor interrupted by a large glass wall…

Paradoxically, these additions produced a play of contrasts that enhanced the features of the original model; but the house became a caricature of itself. By around 1950 this compact capsule, resistant to all new additions, had come down – and become irreparably attached – to earth. Dome, hat, turret of a tank or tip of an iceberg, the shell of the living machine had become the crowning glory of a ponderous subterranean construction.

**BUBBLES**

“As light as a bubble”: so read the caption accompanying a photograph that Buckminster Fuller cut out of a newspaper in 1928. **(fig.7)** The few lines of commentary referred to Desha, a Serb dancer who made fleeting appearances during the intermission in the cinemas of New York (Dymaxion Chronofiles, vol. XXXIII). The picture showed the young girl tossing a ball in the air with grace and agility. Her whole body seemed to be taut and balanced, only the tips of her toes touching the ground. Every gesture defying the force of gravity, the dancer appeared to be suspended in mid-air.

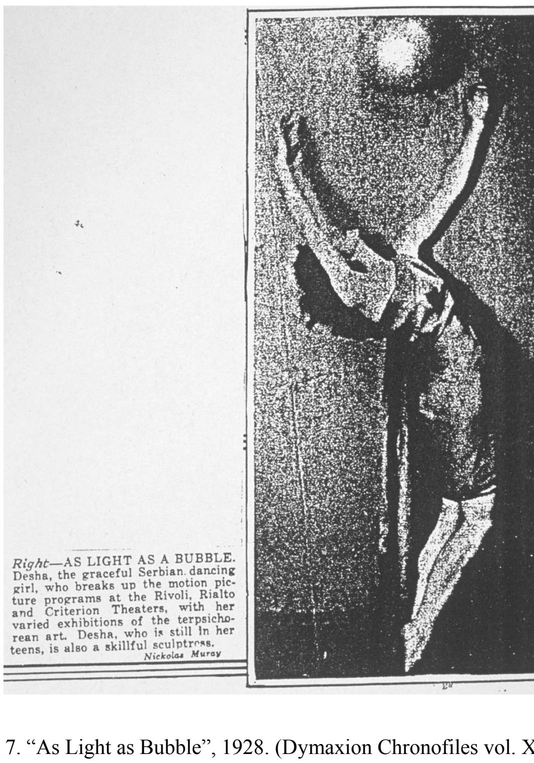


Figure 7. “As Light as Bubble”, 1928. (Dymaxion Chronofiles vol. XXXIII)

Although it bears no relation to the images of boats, bridges and hangars that preoccupied Fuller at the time, the cutting comes from his personal archive. The lightness evoked by the young dancer’s movements has something in common with the architect’s earlier researches and with those he will take up again in future projects. Beyond the metaphorical, an idea that cut across the problematics of material, construction and form was already beginning to take shape. The efficacy of any prototype vehicle or house is measured in terms of the object's ability to produce the greatest yield with the smallest of means: *doing more with less*. One of his fundamental objectives was to reduce the real weight of a building. It involved using materials that were both light and resistant. In Fuller's eyes, there had to be a radical change in the system of load distribution and the structure adopted; this would seem to have a dramatic impact on the ultimate form of a product, be it an individual house or a ten-storey tower.

For Fuller, aeroplanes were not a romantic allegory any more than suspension bridges were a theoretical reference. High tension pylons, airships, bicycles, umbrellas and tennis rackets were genuine models to be examined, taken to pieces, their parts combined and reassembled. An aerodynamic, circular suspension house in aluminium resting on the ground at a single point: this key object epitomised his research. Light in reality as well as in its formal expression, it was like the dancer in the photograph; like a bubble.

Presenting it as a mechanical invention, Buckminster Fuller patented his first house design in April 1928. The drawings he submitted showed a relatively simple exterior with no sign of innovative features; only a certain awkwardness was detectable in the design of the façades. Nonetheless, the value of the proposition lay in the unusual way in which structural loads were distributed. The full weight was directed towards the centre of the house, a limited area taking the total strain and transferring it to the ground.

These drawings show a square plan, organised on two levels around a central core with services grafted onto it. **(fig.8)** The thin walls that enclosed the habitation made reference to the principle of construction employed: they want to be read non-structurally, purely as a casing that would not be bearing the weight of the structure. The large openings in the façade and their random positioning embodied the same principle. The entire house tries to look light and balanced in its construction.

That year, Fuller had also unveiled his *4D Lightful Tower Mobile Housing* project. In a provocative tone, this time closer to the world of the strip cartoon than of patented invention, the author proposed towers containing fully equipped, self-sufficient dwellings. The buildings were to be fully assembled in a factory and airlifted to the site. A matter of minutes would be all that it took to plant these artificial trees – in reality extremely complex housing blocks.

This exaggerated exploit became almost a caricature of Fuller's key preoccupations at that time, ideas about which, in reality, he had thought long and hard, and that he would take up again in future projects. The inventor was imagining transportable, transparent structures carried on a single central column; self-contained autarkies with their own services. In these fantasies of design one reads of towers that included electrical generators, energy and waste treatment systems; they were air conditioned and fully furnished (Pawley 1990, p. 47). There was a gym, an infirmary and a swimming pool for the occupants' use. What more could one add to this soaring and compact structure?

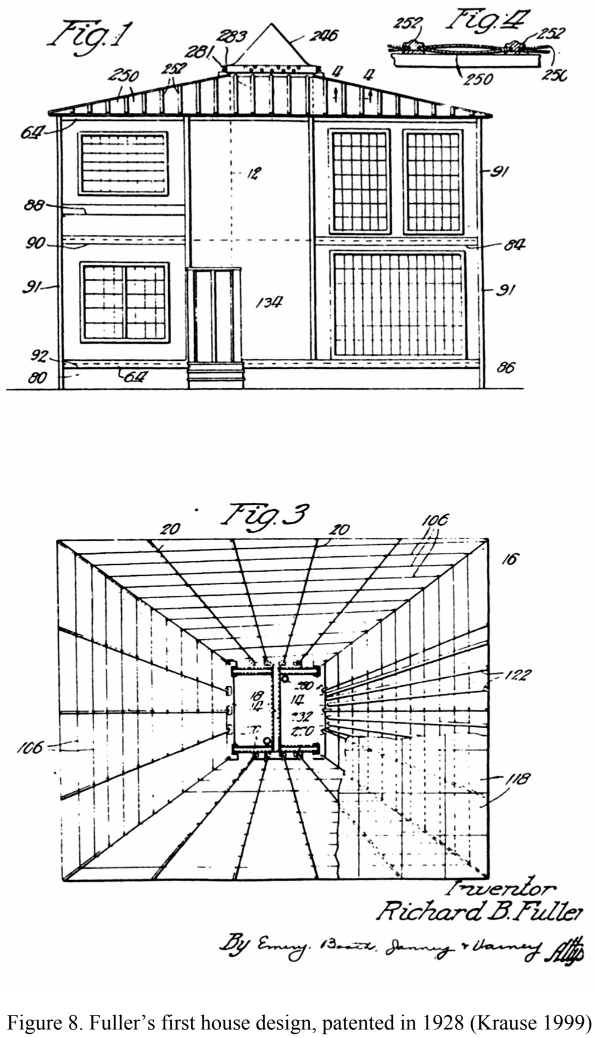


Figure 8. Fuller's first house design, patented in 1928 (Krause 1999)

One can understand why the balance that featured on the drawings was the clearest way to illustrate this idea. **(fig.9)** On one arm of the balance Fuller placed the traditional house: heavy, costly and dependent on the city's infrastructure. It was an archaic construction, slow to build and, according to the designer, vulnerable in conception, a five-thousand-year-old model. At the other extreme, the 4D Tower: a self-sufficient building, rapidly and easily assembled. Naturally enough, the less favoured option is the heavier. Minimum weight for maximum efficiency.

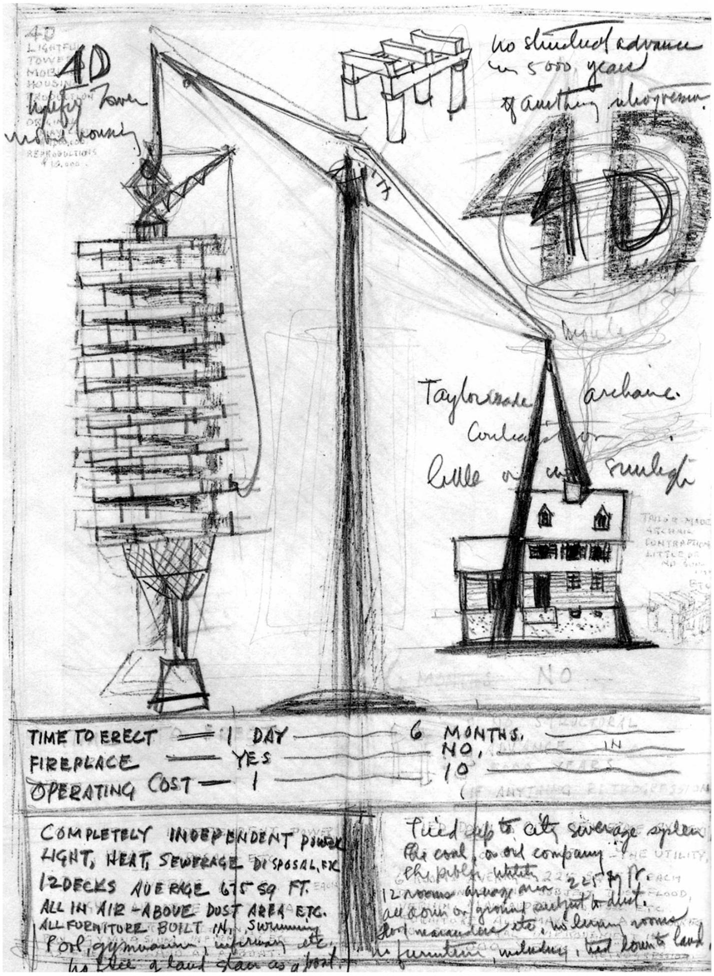


Figure 9. Fuller's sketch comparing the 4D House and conventional architecture. (Krause 1999)

**DO IT YOURSELF**

A 1945 photographic account clearly shows the different phases of assembly of the Dymaxion House. It shows one of the prototypes developed at Wichita, Kansas. The images, published in the specialist press, were a vindication of simplicity of assembly in what was portrayed as an innovative product. By a process of mnemotechnics, they reveal the intimate logic of the structure. Step by step, Buckminster Fuller's design takes shape as though it were a child's toy.

It all begins with the floor of the house, a platform raised up one metre from the ground, supported on aluminium radial beams riveted to a ring made of the same material. The wooden props visible in the first few sequences are temporary elements and will be taken away in the later phases. Then, the central mast – formed out of several tubes strapped together - is erected. From this are hung the metal cables forming the fine network that spreads the loads uniformly and ties in the three circular rings of increasing diameter that make up the roof framework.

In the following phase, the tapering panels of the covering, also made of aluminium sheets riveted to one another and to rigid joists, are fixed in place. These panels form the fuselage, a semi-spherical structure, a smooth, gleaming carapace. Inside this dome there is a paper-thin film of metal to serve as a vapour barrier. From the photographs, it seems six or seven workers can assemble the Dymaxion House. The fitting together of the parts is made to look easy. **(fig.10)** Note that the roof is assembled on the ground, at a convenient working height. It is later hoisted into its final position on the central mast.

Figure 10. Assembling the Dymaxion House, Wichita 1946 (Krause 1999)

Once the roof is in place, new metal cables are hooked on and these, crossed over, support the floor. To complete the ensemble there is a continuous Plexiglas window and spandrel panels below. The finishing touch is the central fan installed in the fin, also in aluminium and moved by the prevailing wind. **(fig.11)** Interior facilities including services, bathroom fittings and storage units serving as room dividers – with their electric shelving – are fitted later. The final picture in the series shows the Dymaxion House – or rather its exterior panel-work – alongside a metal cylinder. **(fig.12)** As Fuller noted, this latter mysterious object was in fact the container used for storage and transport of the components to the building site.

Figure 11. Assembling the Dymaxion House, Wichita 1946 (Krause 1999)

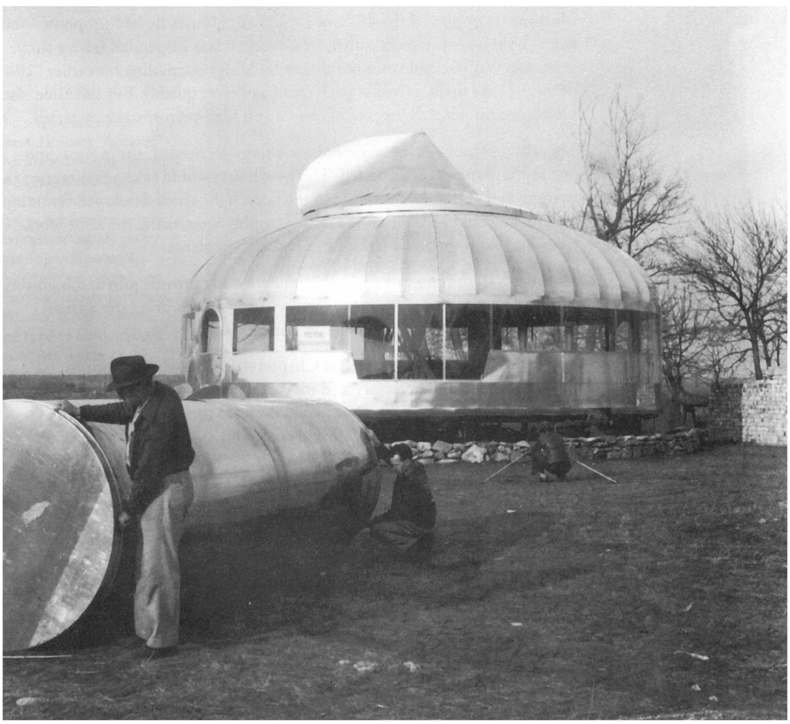

Figure 12. Dymaxion House, Wichita 1946 (Baldwin 1996, p.41)

These photographs, over and above their documentary value, tried to show how easily the house was assembled, a major concern and one of Fuller's most cherished arguments. If the publicity shots of the interior spaces claimed that the house was less "industrial" than it seemed, this sequence was equally aimed at a wide public, this time to show off the ease of assembly that brought the house within reach of the non specialist labourer. It was a notion already widespread in the post-war USA, where there was a shortage of cheap housing and where plans were being made for entire towns of identical houses, rapidly assembled by their own users (Hayden 1998, p. 209). As the *do-it-yourself* culture spawned, the role of the architect was in retreat. Tasks became simplified; inexpert but agile hands, equipped with the new portable electric tools, took the place of the slow-moving artisans of the traditional building sector.

**ULTRA-LIGHT ARCHITECTURE**

As published, the Dymaxion House signalled its lightness of weight ostentatiously: three tonnes of material was the final tally – one fiftieth the weight of an equivalent standard house. Thanks to the photographs showing its assembly, the interior structure was revealed; it was easy to decipher the logic in its structural loading. Without this documentation, one could not have understood the way the house was suspended.

According to Edward R. Ford, everything boiled down to two basic principles: the tension and compression forces that replaced the flexion that beams underwent in traditional construction, and the use of a triangulated component system to achieve rigidity. **(fig.13)** The latter concept became ever more frequent in the Fuller designs that were still to come. As he will repeatedly argue, the tetrahedron is the geometrical figure that is most stable and has the highest resistance, a shape that can be freely transformed, combined or multiplied ad infinitum. The five million geodesic domes that will be built thirty years later all over the world using the same inventor's precepts are proof of this.

But for maximum weight reduction in the house it was not enough just to adopt an economical structural system of neat components. For best results one had to find the most compact shape and the best way to minimise the use of materials while maximising the space available for habitation.

The circular, or rather semi-spherical, shape was the response to the first question. As with the relationship between circle and surface area in a two-dimensional plane, the sphere is the form that encloses the greatest volume within a given envelope in three dimensions. By the 1940s, with the new possibilities that the aeronautics industry had to offer, sheet metal could be shaped so that the hexagonal house Fuller had visualised twenty years before became a smooth, aerodynamic cylinder. Records tell us that the earliest models were tested in a wind tunnel.

> The average wind speed over the United States as computed by widely reported recordings is approximately 12 miles an hour. Houses may be considered aerodynamically as little

ships whose standard cruising speed in 12 miles an hour, but which suddenly are accelerated to 30 miles an hour […].

(Fuller 1946)

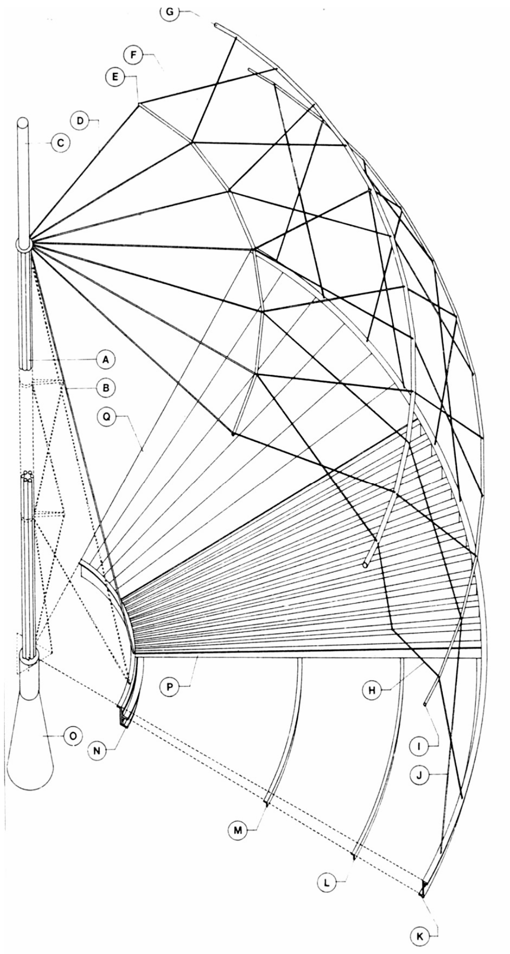


Figure 13. Structure detail of Wichita House (Ford 1996)

Reducing the quantity of material employed to a minimum introduces the problem of how to represent the object. In the plans and sections, the fine lines that delineate the shapes seem to refer to crumbling of materiality. The load bearing points shrink down and compartmentalisation follows a thin protective membrane. One observes how the spatial character of the Fuller house is achieved almost without walls: the panels that divide up the different rooms are in reality places for storage, each with its own specific role. **(fig.14)** The external envelope, meanwhile, appears as a network of steel cables encircled by a thin sheet of aluminium or Plexiglas.

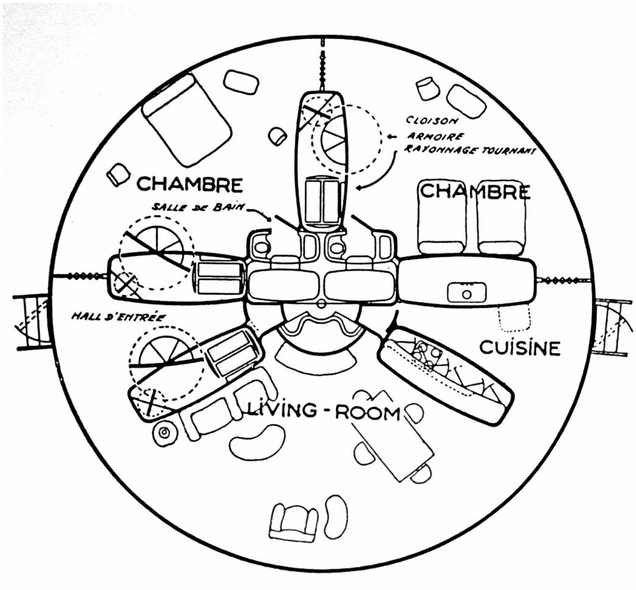


Figure 14. Floor plan of Wichita House (*L'Architecture d'aujourd'hui*, n° 6, 1946, p.78)

The North Americans were certainly used to lightweight construction by 1940, or at least to the use of thinner structural sections. The *balloon-frame* system, originally known as the *Chicago construction*, was becoming widespread from the middle of the nineteenth century. According to Siegfried Giedion, this system marked the beginning of a period in which industrialised components started to seriously inform the building of dwelling houses (Giedion 1965, pp. 345-353). Traditional timberwork, thick stone or masonry walls were starting to be replaced by assemblies comprising a series of small studs onto which panels were nailed. In Europe, despite the obvious advantages of this technique, there was still a reticence towards the system even several decades later (Giedion 1965, p.352). But aside from such cultural inertia, the growing availability of the *balloon frame* was a key antecedent in the move towards a lighter architecture. Compositionally, new work was beginning to derive its shape from the network of load bearing and secondary supports. Constructionally, it was a dry assembly system that provided a simple, cheap and light solution.

Buckminster Fuller's prototype could thus be read as a reinterpretation of the constructional principles that were becoming common during his time. Adopting the extreme position he always took, Fuller marked time with a circular house made entirely in metal. If what was needed was to break away completely from the inertia of house building, Fuller felt that motor vehicle technology was the key. Although certain details of the Dymaxion House recall other dry assembly systems, the network of cables under tension wrapped in the sheer membrane of the façade was indeed the ideal solution to this challenge. Spacious on the inside, compact without, Fuller's suspension house will hover between different forms of interpretation, resisting any attempt to pin it down.

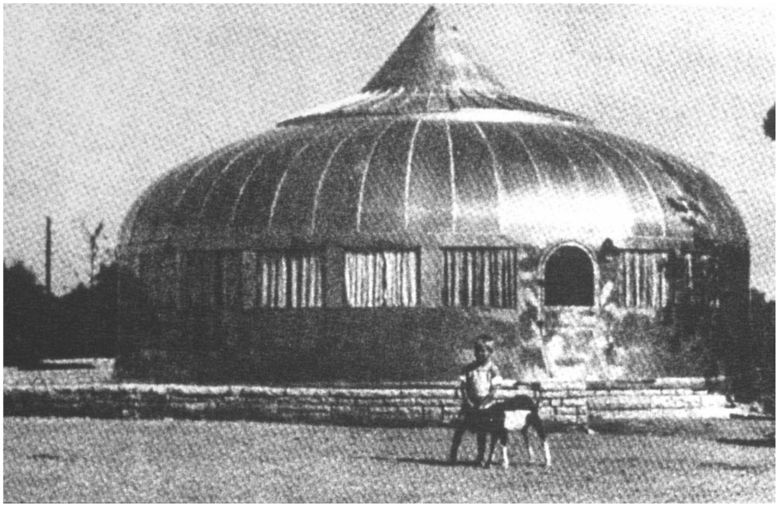

Figure 15. Wichita House in the 1950s (Dymaxion Chronofiles,)

Like a top about to spin or an aeroplane about to take off, the house rests on the tiniest of supports. It is interesting to observe the transformation that the Wichita prototypes underwent at the end of the 1940s, to which we referred earlier. In an effort to tie the house firmly to the ground, the new owner encircled it with a wall of coursed stone, thus eclipsing the void beneath the levitating house and bringing the artefact finally to earth. **(fig.15)** A few years later, after visiting his disfigured prototype, Buckminster Fuller muttered "the masonry addition forever grounded this airplane" (Ashby 2000, p. 38 and Baldwin 1996, p. 61).

**RECONSTRUCTION**

In the Dymaxion House, recast as a holiday home, a real family lived for over twenty years. Twenty more years went by during which the house was abandoned, until 1992 when the ruined artefact was carefully disassembled and taken to the Henry Ford Museum in Detroit (Ashby 2000). Restoration of the parts began in 1998 and construction, which according to Fuller should have taken two days, actually took three years. The problem was less one of how to assemble the components of the dwelling machine than one of setting up a research programme designed to rehabilitate the rusting old prototype.

Experts in metal alloys, automobiles and aircraft were again consulted as meticulous research was simultaneously carried out in the Fuller archives. The task was to rebuild the house in aluminium and Plexiglas from a hybrid made up of the parts of two different prototypes dating from different times; it was an exercise in anamnesis that became a real puzzle. There was another crucial ingredient: Fuller's Dymaxion House was a working project, open and unfinished (Ashby 2000).

Some of the details shown in photographs of the time were no more than sticking plaster concealing parts of the house that lacked definition. The project was only a publicity exercise and included snaphots and short film sequences aimed at future clients who, at the end of the day, knew the product only through the intervening medium, never actually touching the real thing. A half-century later and the challenge looked quite different: the Fuller house would finally be shown to the public as a palpable object. Because of this, the authors of the reconstruction decided to complete it, their sights trained on restoring the atmosphere that reigned when the original – or rather the 1945-1946 version – was built. Everything that had been new back then had to look new once more.

If in terms of conservation and restoration the way the original context for the work is handled is a fundamental factor, then in the case of the Dymaxion House its importance was all the greater. With the house having been conceived as a transportable device, the physical context and landscape around it were not decisive (Ashby 2000). It was instead a question of recreating the predominant feel of the post-war US, in which the Wichita House was regarded as a product of the aircraft industry. The old house of the future had to be placed in an environment compatible with its man-made nature.

In 2001 the house reopened its doors to the public. The play of light on the surface of this cumbersome machine, that once hovered before the gaze of the few onlookers present, now dazzles thousands of visitors every year. The two prototypes Fuller had built have become a single rejuvenated specimen.

**OVEREXPOSURE**

Having threaded his way between prototype motor cars and aeroplanes, locomotives and caravans, the visitor to the Henry Ford Museum comes upon the Dymaxion. Over fifty years after it was developed, the home of the future is displayed in its most complete form, a version its author never saw. A complex museography is there to erase any doubt over the life history of the Dymaxion. Interpretation panels, interactive screens and detailed explanations help us to examine up close the official history of the house. The age of abstractions, anecdotes and hazy recollections is over; the Fuller dwelling stands before us, ready to tell its own story clearly and directly.

The way the Dymaxion is exhibited reminds us of other attempts that have been made to raise public awareness over the new products of modern architecture. In 1945, when Fuller was secretly working on his last prototype, the Department of Architecture at the Museum of Modern Art in New York was changing its strategy. More than a decade after its triumphant arrival in the United States, Modern Architecture remained a minority affair and the public still seemed reluctant to embrace it. Fifteen years later, the publications that conicided with the new exhibitions tried to broaden the museum's appeal. Marking the post-war era were two cases in point : *Built in USA : Since 1932*, and *If You Want to Build a House* (Mock 1945, 1946). The time had come to explain the concepts launched in previous years, this time with the accent on the habitability of the modern home. Through her publications, and using a less academic style of language than her predecessors, Elizabeth Mock, director of these exhibitions, gave account to this open pedagogical approach.

There is an example of this quest to demystify in the way that reference is made to the stability of the architectural object. If old brick-built structures gradually gave way to suggestive steel or concrete buildings, the lightness these evoked might be seen as dangerous. Mock developed her arguments asserting that in the future, new generations accustomed to the aeroplane and its metaphors will find a "feeling of security" in the products of modern architecture that is still absent in examples of the period. Suspended houses would come later. This was still the age in which houses were strongly anchored to the ground.

> […] If your idea of stability is based on masonry, therefore on massiveness, the light, attenuated forms which are appropriate to steel and reinforced concrete will seem unsuitable, restless, dangerous. The more familiar one is with technologically advanced construction, however, the more pleasure one takes in its airiness. Perhaps today's airplane-conscious children will not depend for a feeling of security upon an exaggerated appearance of weight. The modern architect may hope that some day he will be invited to design a house gaily suspended in the mid-air, but meanwhile he will be very happy to give you substantial earth-bound brick walls; and perhaps it is in the nature of a house to be tied securely to the ground.
>
> (Mock 1946, pp.53-54)

In symmetrical fashion, Fuller was still dreaming of flying houses and the project he developed over a thousand kilometres from the museum took some unexpected turns. The aeroplane was, for him, more than a reference; at Wichita, it was the sole *raison d'être* of the Dymaxion House. Once revealed, his audacious proposition awakened considerable public curiosity, while the media sometimes described it in ironical terms. In mocking tones, a short newspaper article of May 1946 remarked:

> As you may know Fuller's house is constructed like an airplane, out of airplane materials, in an airplane factory, by airplane mechanics, and will do everything an airplane will do except fly, get lost in fog and furnish free meals served by a stewardess who ought to be in the front line of the Rockettes. […] It is the feeling of my somewhat eccentric friend that Fuller was entirely too conservative, too bound by traditional notions of the American home. […] What he suggests is that Fuller now carry the thing through to its logical conclusion by installing a big fan on top the roof, converging [*sic*] the home into a helicopter.
>
> (Wheeler 1946)

The most comical aspect of the story is that these rude comments, carefully catalogued by Fuller in his archive, ended up as grist to Fuller's mill. The idea having been his obsession since the venture began, he was himself convinced that it wouldn't take much for his house to take to the air. After MoMA, with designers being invited to temper any overly direct industrial allusions, the Dymaxion House refused to obey these rules of conduct. Everything about the house was evocative of the aeroplane, including the muffled atmosphere of the living quarters (Baldwin 1992).

**COMEBACK**

Now on show in the Ford Museum, the Dymaxion House is no longer an assemblage of spare parts stored in an aircraft factory, nor the décor for an advertising campaign. Neither is it part of a large-scale housing programme stretching across the planet, providing homes for thousands of families dreaming of a life lived under the sign of mobility, according to the wishes of its designer. Fuller's house today is a didactic tool; a container housing a series of ideas about the dwelling of the future that are as valid and pertinent as ever. Another full- sized model, a caricature of itself, another house inside a museum.

The displaying of the Buckminster Fuller house is supposed to help us understand the building's history and debunk the myth of its complex material reality. But the excess of chatter does not succeed in neutralising the object's hypnotic effect. We are still lured by it as a dwelling, just as Fuller envisaged. His prototype has hovered over uncertain territory, suspended between fiction and real life. The house is there to dazzle and seduce, reabsorbing any effort to analyse it.

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